

# The Green Pages

## THE USES, DOSAGE, AND PRECAUTIONS FOR THE MEDICINES REFERRED TO IN THIS BOOK



The medicines in this section are grouped according to their uses. For example, all the medicines used to treat infections caused by worms are listed under the heading FOR WORMS.

If you want information on a medicine, look for the name of that medicine in the LIST OF MEDICINES beginning on page 341. Or look for the medicine in the INDEX OF MEDICINES beginning on page 345. When you find the name you are looking for, turn to the page number shown.

Medicines are listed according to their *generic* (scientific) names rather than their *brand names* (names given by the companies that make them). This is because generic names are similar everywhere, but brand names differ from place to place. Also, **medicines are often much cheaper when you buy generic rather than brand-name products.**

In a few cases, well-known brand names are given after the generic name. In this book brand names are written in *italics* and begin with a capital letter. For example, *Phenergan* is a brand name for an antihistamine called **promethazine** (promethazine is the generic name).

With the information on each medicine, blank spaces \_\_\_\_\_ have been left for you to **write in** the name and price of the most common or least expensive product in your area. For example, if the cheapest or only available form of tetracycline in your area is *Terramycin*, you would write in the blank spaces as follows:

### Tetracycline (tetracycline HCl, oxytetracycline, etc.)

Name: Terramycin price: \$10.25  
for 6 capsules

If, however, you find you can buy generic **tetracycline** more cheaply than *Terramycin*, write instead:






Name: tetracycline price: \$10.00  
for 60 capsules

**Note:** Not all the medicines listed in the Green Pages are needed in your Home or Village Medicine kit. Because different medicines are available in different countries, information has sometimes been given for a number of medicines that do the same job. However, it is wise to

**KEEP AND USE ONLY A SMALL NUMBER OF MEDICINES.**

## Dosage Information:

### HOW FRACTIONS ARE SOMETIMES WRITTEN

- 1 tablet = one tablet = 
- $\frac{1}{2}$  tablet = half a tablet = 
- $1\frac{1}{2}$  tablets = one and a half tablets = 
- $\frac{1}{4}$  tablet = one quarter or one fourth of a tablet = 
- $\frac{1}{8}$  tablet = one eighth of a tablet (dividing it into 4 equal pieces and then taking  $\frac{1}{2}$  of 1 piece) = 

### DECIDING DOSAGE BY HOW MUCH A PERSON WEIGHS

In these pages most instructions for dosage are given according to the age of a person—so that children get smaller doses than adults. However, it is more exact to determine dosage according to a person's weight. Information for doing this is sometimes included briefly in parentheses ( ), for use of health workers who have scales. If you read. . .

(100 mg/kg/day),

this means 100 mg per kilogram of body weight per day. In other words, during a 24 hour period you give 100 mg of the medicine for each kilogram the person weighs.

For example, suppose you want to give aspirin to a boy with rheumatic fever who weighs 36 kilograms. The recommended dose of aspirin for rheumatic fever is 100 mg/kg/day. So multiply:

$$100 \text{ mg} \times 36 = 3600 \text{ mg}$$

The boy should get 3600 mg of aspirin a day. One aspirin tablet contains 300 mg of aspirin, so to get 3600 mg, he will need to take 12 tablets each day. So give the boy 2 tablets 6 times a day (or 2 tablets every 4 hours).

This is one way to figure the dosages for different medicines. For more information on measuring and deciding on dosages, see Chapter 8.

**Note** to educators and planners of health care programs and to local distributors of this book:

If this book is to be used in training programs for village health workers or is distributed by a local health care program, **information about local names and prices of medicines should accompany the book.**

Local distributors are encouraged to duplicate a sheet with this information, so that it can be copied into the book by the user. Wherever possible, include local sources for **generic or low-cost medicines and supplies.** (See "Buying Supplies for the Medicine Kit," page 333.)

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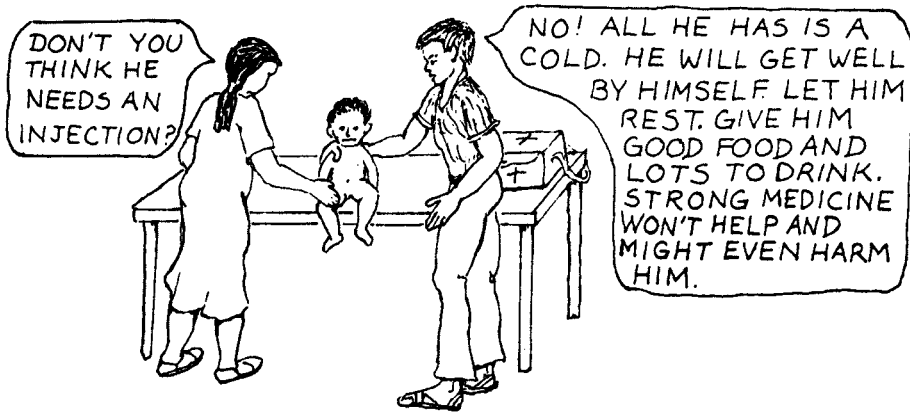
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**ONLY USE A MEDICINE WHEN YOU ARE SURE IT IS NEEDED  
AND WHEN YOU ARE SURE HOW TO USE IT**

**Note: Some medicines can cause bad reactions if taken together. Before taking two or more medicines at the same time, consult a health worker, if possible, Also, read the information on the package of any medicine before using it.**

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## Information on Medicines

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### ANTIBIOTICS

#### THE PENICILLINS: VERY IMPORTANT ANTIBIOTICS

Penicillin is one of the most useful antibiotics. It fights certain kinds of infections, including many that produce pus. It does no good for diarrhea, most urinary infections, backache, bruises, the common cold, chickenpox, or other virus infections (see p. 18 and 19).

Penicillin is measured in milligrams (mg.) or units (U). For penicillin G, 250 mg. =400,000 U

#### RISKS AND PRECAUTIONS

for all kinds of penicillin (including ampicillin and amoxicillin):

**For most people** penicillin is one of the safest medicines. Too much does no harm and only wastes money. Too little does not completely stop the infection and may make the bacteria resistant (more difficult to kill).

**In certain persons** penicillin causes **allergic reactions**. Mild allergic reactions include itchy raised spots or rashes. Often these come several hours or days after taking penicillin and may last for days. Antihistamines (p. 387) help calm the itching.

Rarely, penicillin causes a dangerous reaction called **allergic shock**. Soon after penicillin is injected (or swallowed), the person suddenly gets pale, has trouble breathing, and goes into the state of shock (see p. 70). **Epinephrine (Adrenalin) must be injected at once.**

**Always have epinephrine ready when you inject penicillin (see p. 386).**

A person who has once had **any** allergic reaction to penicillin should **never** be given any kind of penicillin, ampicillin or amoxicillin again, either by mouth or by injection. This is because the next time the reaction would likely be far worse and might kill him. (But stomach upset from taking penicillin is not an allergic reaction, and no cause to stop taking it.)

Persons who cannot take penicillin can sometimes be treated with tetracycline or erythromycin by mouth (see pages 354 and 355 for uses and precautions).

Most infections that can be treated with penicillin can be treated quite well with penicillin taken by mouth. Injected forms of penicillin are more dangerous than those taken by mouth.

**Use injectable penicillin only for severe or dangerous infections.**

Before injecting penicillin or any medicine that contains it, take the precautions given on page 71.

#### RESISTANCE TO PENICILLIN:

Sometimes penicillin does not work against an infection it would normally control. This may be because the bacteria have become resistant, so that penicillin no longer harms them (see p. 58).

Nowadays, infections that are at times resistant to penicillin include impetigo, sores on the skin with pus, respiratory infections, breast infections (mastitis) and infections of the bone (osteomyelitis). If one of these infections does not respond to ordinary penicillin, another antibiotic may be tried. Or special forms of penicillin, (methicillin, nafcillin, oxacillin, cloxacillin, dicloxacillin) may work. Consult a health worker for dosage and precautions.

In many parts of the world, gonorrhea and other sexually transmitted infections are now resistant to penicillin; see p. 359 for other antibiotics. Pneumonia is also sometimes resistant to penicillin—try cotrimoxazole (p. 357) or erythromycin (p. 354).

## PENICILLIN BY MOUTH

### Penicillin V (phenoxymethyl penicillin)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: 250 mg (400,000 U) tablets

also: suspensions or powders for suspension,  
125 or 250 mg per teaspoon

Penicillin by mouth (rather than injections)  
should be used for mild and moderately severe  
infections, including:

- abscessed or infected teeth
- erysipelas
- ear infections
- sinusitis
- sore throat with sudden, high fever  
(strep throat)
- some cases of bronchitis
- rheumatic fever
- pneumonia

If infection is severe, it may be best to start with  
injections of penicillin, but often penicillin by mouth  
can be given instead once improvement begins.

If improvement does not begin within 2 or  
3 days, consider using another antibiotic and try to  
get medical advice.

#### **Dosage** of penicillin for **mild infections:**

adults and children over 12 years:

250 to 500 mg

4 times a day for 10 days

children from 6 to 12 years: 125 to 250 mg

4 times a day for 10 days

children from 1 to 5 years old: 125 mg

4 times a day for 10 days

children less than 1 year old: 62.5 mg

4 times a day for 10 days

**For more serious infections:** double the above  
dosage.

#### **For strep throat (to prevent rheumatic fever):**

for each age group, take the maximum dosage  
above, 2 times a day for 10 days.

To help the body make better use of the  
medicine, **always take penicillin on an empty  
stomach**, at least 1 hour after or 2 hours before  
meals.

## INJECTABLE PENICILLIN

### Penicillin G, benzylpenicillin

Injectable penicillin should be used for certain  
severe infections, including:

- tetanus
- severe pneumonia
- badly infected wounds
- gangrene
- syphilis

Injectable penicillin comes in many different  
preparations. Before you inject any penicillin, be  
sure to check the **amount** and the **kind**.

#### **CHOOSING THE RIGHT KIND OF PENICILLIN FOR INJECTION:**

Some kinds of penicillin do their job quickly but  
do not last long. Others work more slowly but last  
longer. There are times when it is better to use one  
kind than another.

**Short-acting penicillin:** These are known  
by many names, including crystalline penicillin,  
benzylpenicillin, aqueous penicillin, soluble  
penicillin, sodium penicillin, potassium penicillin,  
and penicillin G injections. These penicillins act  
quickly but only stay in the body a short time, so  
that they must be injected every 4 to 6 hours (4 to  
6 times a day). A short-acting penicillin is the best  
choice for very severe infections when high doses  
of penicillin are needed. For example, for gas  
gangrene or severe pneumonia.

**Intermediate-acting penicillin:** Procaine  
benzylpenicillin or procaine penicillin. These work  
more slowly and last about a day in the body, so  
injections should be given once daily. Procaine  
penicillin, or a combination of procaine and a  
short-acting penicillin, is the best choice for most  
infections when injectable penicillin is needed.

**Long-acting penicillin:** Benzathine  
benzylpenicillin or benzathine penicillin. This  
penicillin goes into the blood slowly and lasts up  
to a month. Its main use is in the treatment of strep  
throat and syphilis, and for prevention of rheumatic  
fever. It is useful when a person lives far away from  
someone who injects or cannot be counted upon  
to take penicillin by mouth. For mild infections  
a single injection may be enough. Benzathine  
benzylpenicillin often comes combined with faster-  
acting penicillins.

**Crystalline penicillin (benzylpenicillin, penicillin G, etc.)**

(a short-acting penicillin)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: vials of 1 million U (600 mg) or 5 million U (3 g)

**Dosage** of crystalline penicillin or any short-acting penicillin—for severe infections:

Give an injection every 4 hours for 10 to 14 days.

In each injection give:

adults and children over age 8: 1 million U

children age 3 to 8: 500,000 U

children under 3: 250,000 U

For very severe infections, double the above dosage.

**Procaine penicillin (procaine benzylpenicillin, procaine penicillin G)**

(an intermediate-acting penicillin)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: vials of 1 million U (1 g) or 3 million U (3 g), and more

**Dosage** of procaine penicillin—for moderately severe infections:

Give 1 injection a day for 10 to 15 days.

With each injection give:

adults: 600,000 to 1,200,000 U

children age 8 to 12: 600,000 U

children age 3 to 7: 300,000 U

children under 3: 150,000 U

newborn babies: DO NOT USE unless no other penicillin or ampicillin is available.

In emergencies, 50,000 U

For very severe infections, give twice the above dose. However, it is better to use a short-acting penicillin.

Sometimes procaine penicillin comes premixed with a short-acting penicillin such as benzyl penicillin or penicillin G. The **dosage** for these procaine penicillin combinations are the same as for procaine penicillin alone.**Benzathine benzylpenicillin (benzathine penicillin G)**

(a long-acting penicillin)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: vials of 1,200,000 or 2,400,000 U

**GREEN PAGES****Dosage** of benzathine benzylpenicillin—for mild to moderately severe infections:

Give 1 injection every 4 days. For mild infections, 1 injection may be enough.

adults and children 30 kg or more:

1,200,000 U

children up to 30 kg:: 300,000 U to 600,000 U

For rheumatic fever, give one injection of the above dose.

To prevent repeat infection in persons who have had rheumatic fever, give the above dose every 4 weeks (see p. 310).

For treatment of syphilis, benzathine benzylpenicillin is best. For dosage, see page 238.

**AMPICILLIN AND AMOXICILLIN: BROAD-SPECTRUM PENICILLINS****Ampicillin**

Often comes in:

solutions, 125 or 250 mg/5 ml

price: \_\_\_\_\_ for \_\_\_\_\_

capsules, 250 mg

price: \_\_\_\_\_ for \_\_\_\_\_

injections, vials of 500 mg or 1 g

price: \_\_\_\_\_ for \_\_\_\_\_

**Amoxicillin**

Often comes in:

capsules or tablets: 250 or 500 mg

price: \_\_\_\_\_ for \_\_\_\_\_

mixture: 125 mg in 5 ml

price: \_\_\_\_\_ for \_\_\_\_\_

or 250 mg in 5 ml

price: \_\_\_\_\_ for \_\_\_\_\_

These **broad-spectrum** penicillins kill many more kinds of bacteria than other penicillins. They are safer than other broad-spectrum antibiotics and are especially useful for babies and small children.Ampicillin and amoxicillin are often interchangeable. When you see a recommendation for ampicillin in this book, you will often be able to use amoxicillin in its place, in the correct dose (see below). But **do not take amoxicillin by mouth when injected ampicillin is recommended** (amoxicillin does not come in injectable form).

Both these medicines, but especially ampicillin, tend to cause nausea and diarrhea. Avoid giving them to people who already have diarrhea if you can give another antibiotic instead.

Ampicillin works well when taken by mouth. Injections should only be used for severe illnesses such as meningitis, peritonitis, and appendicitis, or when the sick person vomits or cannot swallow.

Ampicillin and amoxicillin are often useful in treating pneumonia or ear infections of children under 6 years, tooth abscess, and typhoid fever (in some parts of the world). Ampicillin is also useful in treating septicemia and unexplained illness in the newborn, meningitis, peritonitis, and appendicitis. Amoxicillin is also used to treat ulcers and chronic bronchitis.

Persons allergic to penicillin should not take ampicillin or amoxicillin. See *Risks and Precautions* for all types of penicillin, page 350.

**Dosage** for ampicillin and amoxicillin:

**By mouth** (25 to 50 mg/kg/day)—capsules of 250 mg; syrup with 125 mg per teaspoon (5 ml)

Ampicillin: Give 4 doses a day for 7 days.

Amoxicillin: Give 3 doses a day for 7 days.

In each dose give:

adults and children over 10: 1 capsule or

2 teaspoons (250 mg)

children under 10: ½ capsule or

1 teaspoon (125 mg)

newborn babies: ¼ capsule or

½ teaspoon (62 mg)

**For more serious infections:** double the above dosage.

**For chlamydia:** see doses on p. 359.

**Dosage** for ampicillin:

**By injection**, for severe infections

Give 4 doses a day, for 5 to 7 days.

In each dose give:

adults: 500 mg (one 500 mg vial)

children age 8 to 12: 250 mg

(½ of a 500 mg vial)

children age 3 to 7: 125 mg

(¼ of a 500 mg vial)

children under 3: 62 mg

(⅙ of a 500 mg vial)

newborn babies: 125 mg

(¼ of a 500 mg vial) only **2 times** a day

**For meningitis:** double the above dosage AND also give ceftriaxone OR gentamicin.

## Amoxicillin with clavulanic acid (Amoxicillin-clavulanate potassium, Augmentin)

Often comes in:

4 to 1 strength tablets, 500 mg amoxicillin + 125 mg clavulanic acid

price: \_\_\_\_\_ for \_\_\_\_\_

7 to 1 strength tablets, 875 mg amoxicillin + 125 mg clavulanic acid

price: \_\_\_\_\_ for \_\_\_\_\_

4 to 1 liquid, 125 mg amoxicillin + 31.25 mg clavulanic acid, in 5 ml

price: \_\_\_\_\_ for \_\_\_\_\_

4 to 1 liquid, 250 mg amoxicillin + 62.5 mg clavulanic acid, in 5 ml

price: \_\_\_\_\_ for \_\_\_\_\_

When clavulanic acid is used together with amoxicillin, it strengthens the action of the amoxicillin. It comes in different strengths. For children, it is best to use the 4 to 1 ratio such as the 500/125 tablet or the liquid medicine. Often, the combined dose of amoxicillin with clavulanic acid mentions only the amount of amoxicillin (as we do here).

**How to use:** Give by mouth with food or milk.

**For animal bites** To prevent infection, use the 4 to 1 strength and give 20 mg per kg each day for 3 to 5 days, divided into 3 doses. If you cannot weigh the person, dose by age:

adults: 250 mg by mouth, 3 times a day OR

use the 875/125 tablet by mouth, 2 times a day for 3 to 5 days.

children age 6 to 12: give 250 mg by mouth, 3 times a day for 3 to 5 days.

children age 1 to 5: give 125 mg by mouth, 3 times a day for 3 to 5 days.

children 3 months to 1 year: give 50 mg by mouth, 3 times a day for 3 to 5 days.

If the bite is already infected, use the same dose for 14 days.

**For pneumonia:**

adults: Give the 7 to 1 tablet of 875 mg by

mouth, 2 times a day for 7 to 10 days OR

Give the 4 to 1 tablet of 500 mg by mouth, 3 times a day for 7 to 10 days.

children age 6 to 12: give 250 mg by mouth, 3 times a day for 7 to 10 days.

children age 1 to 5: give 125 mg by mouth, 3 times a day for 7 to 10 days.

children 3 months to 1 year: give 50 mg by mouth, 3 times a day for 7 to 10 days.

## ERYTHROMYCIN: AN ALTERNATIVE TO PENICILLIN

### Erythromycin

Name: \_\_\_\_\_

Often comes in:

tablets or capsules of 250 mg

Price: \_\_\_\_\_ for \_\_\_\_\_

syrups with 125 or 200 mg/5 ml

Price: \_\_\_\_\_ for \_\_\_\_\_

in 5 ml eye ointment at 0.5% to 1%

Price: \_\_\_\_\_ for \_\_\_\_\_

Erythromycin works against many of the same infections as penicillin and tetracycline, but is more expensive. In many parts of the world, erythromycin now works better than penicillin for some cases of pneumonia and certain other infections.

Erythromycin may be used instead of penicillin by persons allergic to penicillin. Also, it may often be used by persons allergic to tetracycline, and by pregnant women and children, who should not take tetracycline. In some cases, erythromycin is not a good substitute for tetracycline. See the sections of the book which discuss each illness.

Erythromycin is fairly safe, but care should be taken not to give more than the recommended dose. Do not use for more than 2 weeks, as it may cause jaundice.

#### *Dosage* of erythromycin:

Take erythromycin with meals to avoid stomach upset.

Give 1 dose 3 or 4 times a day for 7 to 10 days.

In each dose give:

adults: 500 mg (2 tablets or 4 teaspoons),  
4 times a day

children 3 to 12 years: 250 mg  
(1 tablet or 2 teaspoons), 3 times a day

children under 3 years: 125 mg  
(½ tablet or ½ to 1 teaspoon),  
3 times a day

**For more serious infections:** double the above dosage.

**For cholera:** (where erythromycin works for cholera): give the above dosages, but only for 3 days.

**For use in the eyes:** see page 379.

**For newborn eye infection:** Give 30 to 50 mg per kg each day, divided into 3 doses a day. Give for 7 to 10 days. For an average-sized newborn of about 3 kg, each dose should be: 0.75 ml (this is a bit more than ½ teaspoon) of 250 mg/5 ml erythromycin syrup, **OR** 62 mg (¼ of a 250 mg tablet) ground up in a little breast milk or water.

**For women with breast infection:** Give 500 mg 2 times a day for 7 to 10 days.

**For rheumatic fever:** in children, give 20 mg/kg/day by mouth 1 time each day for 3 days.

**For syphilis:** in adults who have had syphilis less than 2 years, give 2 g by mouth, 1 time only.

**For buboes:** in adults, give 1 g by mouth, 1 time a week for 3 weeks.

### Azithromycin

Name: \_\_\_\_\_

Often comes in:

capsules of 250 mg

Price: \_\_\_\_\_ for \_\_\_\_\_

Azithromycin works against sexually transmitted infections (STIs) that cause discharge or genital sores, and for infections to which other medicines no longer work because of drug resistance.

Azithromycin is safe for women who are pregnant or breastfeeding. Unfortunately, azithromycin can be expensive and is not found everywhere.

#### **For chlamydia:**

in adults, give 1 g by mouth, 1 time only.

In babies 7 to 28 days old, give 50 mg by mouth, 1 time a day for 3 days..

**For typhoid:** Give 1g by mouth, 1 time a day for 5 days.

**For yaws:** Give 30 mg/ kg up to 2g, 1 time only.

**For pneumonia:** Give 500 mg by mouth, 1 time a day for 3 days.

**For trachoma:** Give by mouth 1 time only:

8 years or older: 1000 mg (1 g)

children 3 to 7 years: 750 mg

children 1 to 3 years: 500 mg

children under 1 year: 250 mg

**For rheumatic fever:** in children, give 20 mg/kg/day by mouth 1 time each day for 3 days.

**For syphilis:** in adults who have had syphilis less than 2 years, give 2 g by mouth, 1 time only.

**For buboes:** in adults, give 1 g by mouth, 1 time a week for 3 weeks.



## TETRACYCLINES: BROAD-SPECTRUM ANTIBIOTICS

### Tetracycline (tetracycline HCl, oxytetracycline, etc.)

(Familiar but expensive brand: *Terramycin*)

Name: \_\_\_\_\_

Often comes in:

Capsules of 250 mg or 500 mg

Price: \_\_\_\_\_ for \_\_\_\_\_

mixture, 125 mg in 5 ml

Price: \_\_\_\_\_ for \_\_\_\_\_

eye ointment at 1%

Price: \_\_\_\_\_ for \_\_\_\_\_

Tetracyclines are *broad-spectrum* antibiotics; that is, they fight a wide range of different kinds of bacteria. Tetracycline should be taken by mouth, as this works as well and causes fewer problems than when it is injected.

Tetracycline can be used for:

- diarrhea or dysentery caused by bacteria or amebas
- sinusitis
- respiratory infections
- typhus
- brucellosis
- cholera
- trachoma
- chlamydia
- pelvic inflammatory disease
- stomach ulcers

Tetracycline does no good for the common cold. For many common infections it does not work as well as penicillin or sulfas. It is also more expensive. Its use should be limited.

#### RISKS AND PRECAUTIONS:

1. Pregnant women should not take tetracycline, as it can damage or stain the baby's teeth and bones. For the same reason, children under 8 years old should take tetracycline only when absolutely necessary, and for short periods only. Use erythromycin instead.
2. Tetracycline may cause diarrhea or upset stomach, especially if taken for a long time.
3. It is dangerous to use tetracycline that is 'old' or has passed the expiration date.
4. For the body to make the best use of tetracycline, milk or antacids should not be taken within 2 hours before or after taking the medicine.
5. Some people may develop a skin rash after spending time in the sun while taking tetracycline.

*Dosage* for tetracycline (20 to 40 mg/kg/day)—capsules of 250 mg and mixture of 125 mg in 5 ml

Give tetracycline by mouth 4 times a day for 7 to 10 days.

In each dose give:

adults: 250 mg (1 capsule)

children 8 to 12 years: 125 mg

(½ capsule or 1 teaspoon)

children under 8 years: As a general rule,

**do not use tetracycline**—instead use cotrimoxazole or erythromycin.

In severe cases, and for infections like chlamydia, pelvic inflammatory disease, typhus, stomach ulcers, and brucellosis, twice the above dose should be given (except to small children).

**For cholera:** (where tetracycline works for cholera): give the same doses listed above, but only for 3 days.

**For use in the eyes:** see p. 379.

### Doxycycline

(familiar brand name: *Vibramycin*)

Name: \_\_\_\_\_

Often comes in:

capsules or tablets of 100 mg

Price: \_\_\_\_\_ for \_\_\_\_\_

Doxycycline is an expensive form of tetracycline that is taken twice a day instead of 4 times a day. It can be used for the same illnesses as tetracycline.

**The risks and precautions are the same as for tetracycline.**

*Dosage* of doxycycline—tablets of 100 mg

Give doxycycline by mouth 2 times each day.

In each dose give:

adults: 100 mg (1 tablet)

children 8 to 12: 50 mg (½ tablet)

children under 8: **Do not use doxycycline.**

**For pneumonia:**

adults, give the above dose.

children 8 years and older, give 1 to 2 mg/kg

by mouth 2 times each day for 5 to 7 days.

**For PID:** for people over 40 kilos, give the above dose. Also use cefixime or ceftriaxone (p. 359) and metronidazole (p. 370).

**For buboes:** for adults, give the above dosage, for 21 days.

**For malaria:**

Use with quinine (p. 369) to treat uncomplicated chloroquine-resistant malaria:

**For uncomplicated falciparum malaria**, start the dose of doxycycline 1 or 2 days after starting the quinine or as soon as the person can take the medicine without vomiting. Give 2 times each day, for 7 days.

**For uncomplicated vivax malaria**, give the doxycycline and quinine as above, and when finished, also give primaquine (page 368) for 14 days.

**To prevent malaria** for travel to areas with malaria, adults and children take one dose of doxycycline each day beginning a day or two before travel. Continue one dose each day while you are there and for 28 days after leaving the malaria region.

**For cholera** (where doxycycline works against cholera):

Give 6 mg per kg, one time only. Or dose by age:

Over 12 years: give 300 mg, one time only.  
8 to 12 years: give 150 mg, one time only.

## CHLORAMPHENICOL: AN ANTIBIOTIC FOR CERTAIN SEVERE INFECTIONS

### Chloramphenicol (*Chloromycetin*)

Name: \_\_\_\_\_

Often comes in:

capsules of 250 mg

Price: \_\_\_\_\_ for \_\_\_\_\_

mixture, 150 mg in 5 ml

Price: \_\_\_\_\_ for \_\_\_\_\_

injections, 1000 mg per vial

Price: \_\_\_\_\_ for \_\_\_\_\_

Chloramphenicol should be used only for typhoid and for very serious infections that are not cured by sulfas, penicillin, tetracycline, or ampicillin. Ampicillin usually works as well as or better than chloramphenicol, and is much safer. For life-threatening illnesses such as meningitis, peritonitis, deep gut wounds, septicemia, or severe childbirth fever, chloramphenicol may be used when less dangerous medicines (like cephalosporins) are not available.

**WARNING:** Chloramphenicol harms the blood of some persons. It is especially dangerous for newborn babies. **For a baby less than 1 month old with a serious infection, give ampicillin instead.**

Take care not to give more than the recommended dose of chloramphenicol. **For babies, the dose is very small** (see below). Avoid long or repeated use.

In many places, typhoid has become resistant to chloramphenicol. Try ciprofloxacin or cotrimoxazole.

Chloramphenicol taken by mouth often does more good than when it is injected, and is less dangerous. Except in rare cases when the person cannot swallow, **do not inject chloramphenicol.**

**Dosage** for chloramphenicol (50 to 100 mg/kg/day)—capsules of 250 mg, or a mixture of 125 mg in 5 ml.

Give by mouth 4 times a day.

In each dose give:

adults: 500 to 750 mg (2 to 3 capsules)

For typhoid, peritonitis, and other dangerous infections the higher dose should be given (3 capsules 4 times a day is 12 capsules a day).

children 8 to 12 years: 250 mg (1 capsule or 2 teaspoons of mixture)

children 3 to 7 years: 125 mg  
(½ capsule or 1 teaspoon)

babies 1 month to 2 years:

give 12 mg (½ ml of the mixture or ½<sub>20</sub> part of a capsule) for each kg of body weight. (This way, a 5 kg baby would get 60 mg, which is ½ teaspoon of mixture, or ¼ capsule, at each dose.)

## THE SULFAS (OR SULFONAMIDES): INEXPENSIVE MEDICINE FOR COMMON INFECTIONS

### Sulfamethoxazole, sulfisoxazole, sulfadoxine

Name: \_\_\_\_\_ Price: \_\_\_\_\_ for \_\_\_\_\_

The sulfas or sulfonamides fight many different kinds of infections. They are cheap and widely available, but often cause allergic reactions. Stop using any medicine containing a sulfonamide if it causes itching or a skin rash.

Not all the sulfas are used the same way or have the same dosage. Before using any sulfonamide, be sure of the correct use and dosage.

**WARNING:** It is important to **drink lots of water**, at least 8 glasses a day, when taking sulfa, to prevent harm to the kidneys.

If the sulfa causes a rash, blisters, itching, joint pain, fever, lower back pain, or blood in the urine, **stop taking it and drink lots of water**.

### Cotrimoxazole (sulfamethoxazole with trimethoprim, TMP-SMX)

(familiar brand names: *Bactrim*, *Sepra*)

Name: \_\_\_\_\_

Often comes in:

tablets of 100 mg sulfamethoxazole with 20 mg trimethoprim

Price: \_\_\_\_\_ for \_\_\_\_\_

tablets of 400 mg sulfamethoxazole with 80 mg trimethoprim

Price: \_\_\_\_\_ for \_\_\_\_\_

mixture of 200 mg sulfamethoxazole with 40 mg trimethoprim in 5 ml

Price: \_\_\_\_\_ for \_\_\_\_\_

**Note:** This medicine also comes in double strength tablets (*Bactrim DS* and *Sepra DS*) with 800 mg sulfamethoxazole and 160 mg trimethoprim. Use half the number of tablets given below if the medicine you have is double strength.

This combination medicine fights a wide range of bacteria, and is less expensive than ampicillin.

**WARNING:** Unless they have HIV, women in the last 3 months of pregnancy and babies less than 8 weeks old should not use cotrimoxazole. Do not give cotrimoxazole to someone who is allergic to medicines in the sulfa family.

**Dosage** of cotrimoxazole—using tablets of 400 mg sulfamethoxazole with 80 mg trimethoprim:

*Important:* Take with lots of water.

**For brucellosis, ear infections, diarrhea with blood and fever (shigella), impetigo, chronic bronchitis with fever, infected wounds, and respiratory infections (pneumonia):** Take 2 times a day for 5 days.

In each dose give:

adults and children over 12 years: 2 tablets

children 6 to 12 years: 1 tablet

children 6 months to 5 years: ½ tablet

babies 6 weeks to 5 months old: ¼ tablet

babies under 6 weeks: **Do not give**

**cotrimoxazole.**

**For bladder infection or UTI:** Take two 480 mg tablets 2 times a day for 3 days.

**For kidney infection:** Take two 480 mg tablets 2 times a day for 10 days.

Adults with **HIV** can take a 480 mg dose of cotrimoxazole 2 times every day—with lots of water—to prevent diarrhea, pneumonia, and other infections. Avoiding infections will help people with HIV live longer, healthier lives.

Children with **HIV** should also take cotrimoxazole. Using 480 mg tablets:

- children 6 to 14 years old: 1 tablet once a day
- children 6 months to 6 years old: ½ tablet once a day
- children under 6 months old: ¼ tablet once a day

People with HIV who get pneumonia should take 1920 mg (four 480 mg tablets) of cotrimoxazole 3 times every day for 21 days. Other than pneumonia, the doses for people with HIV to treat bloody diarrhea and other problems are the same as listed above.

## CEPHALOSPORINS

These are powerful antibiotics that work against many different kinds of bacteria. They are often expensive and can only be given by injection. However, they generally have fewer risks and side effects than many other antibiotics and, when obtainable, can be useful in treating certain serious diseases.

There are many different types, including cefazolin (*Ancef*), cephalexin (*Keflex*), cephadrine (*Velosef*), cefuroxime (*Ceftin*), cefoxitin (*Mefoxin*), ceftriaxone (*Rocephin*), cefotaxime (*Claforan*), and ceftazidime (*Fortaz*, *Taxidime*, *Tazicef*). Various cephalosporins can be used for pneumonia, urinary infections, typhoid, gut or pelvic infections, bone infections, and meningitis.

Get advice on dosages and side effects before using these medicines. Also, do not use them for mild illnesses or diseases that can be treated equally well with less expensive antibiotics.

**Ceftriaxone**

Name: \_\_\_\_\_

Price: \_\_\_\_\_ for \_\_\_\_\_

Ceftriaxone is a strong antibiotic used against serious infections and for infections resistant to penicillin. Only use ceftriaxone to treat the specific infections for which it is recommended in your area.

Ceftriaxone cannot be taken by mouth. The injection can be painful. Mix with 1% lidocaine if you know how. When injecting, put the needle deep in the muscle.

**RISKS AND PRECAUTIONS:**

Do not give to a baby less than 1 week old. Avoid in babies who were born early or especially small (if there is a chance that they may have been early). Do not use if there is jaundice. Avoid while breastfeeding.

**Dosage:** Ceftriaxone is often used in combination with other medicines to treat specific infections, such as meningitis, gonorrhea, and womb infection.

**For severe shigella infections:** Inject 50 mg/ kg once a day for 5 days, but no more than 4 g per day for adults, or 1 g per day for children

adults: 1 to 2 grams, once a day

children 8 to 12 years: 1 g once a day

children 2 to 7 years: 500 mg once a day

children 2 months to 2 years: 250 mg once a day

**For meningitis:** Inject 100 mg/ kg per day, divided into 2 doses (give 1 dose every 12 hours). Give with ampicillin. See page 185.

**For typhoid:** Inject 50-75 mg/ kg 1 time a day for 10 to 14 days.

**For gonorrhea eye infection in the newborn**

**7 days or older:** Inject 50 mg/ kg, 1 time only. Do not give more than 125 mg.

**For malaria:** Give by mouth, 2 times a day for 7 days

Adults: 600 mg

children 8 to 12 years: 450 mg

children 3 to 7 years: 300 mg

children under 3: 150 mg

**OTHER ANTIBIOTICS****Ciprofloxacin**

Name: \_\_\_\_\_

Price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: tablets of 250, 500, or 750 mg

Ciprofloxacin is a powerful antibiotic of the quinolone family. It is used to treat infections that have become resistant to penicillin and other antibiotics. Some important uses of ciprofloxacin are to treat chancroid, shigella, typhoid, peritonitis, and appendicitis. However, for most infections it is still better to use a less expensive medicine such as penicillin or ampicillin.

**RISKS AND PRECAUTIONS:**

Pregnant or breastfeeding women should not use ciprofloxacin. It is best to avoid giving ciprofloxacin to children if possible.

**Dosage** of ciprofloxacin:

adults: Give 500 mg, 2 times a day

**For chancroid and shigella,** give the above dosage for 3 days. But give for 7 days if the person also has HIV.

**For typhoid,** give the above dosage for 10 days.

**Clindamycin**

Name: \_\_\_\_\_

Often comes in:

capsules of 25, 75, 150, and 300 mg

Price: \_\_\_\_\_ for \_\_\_\_\_

liquid, 15 mg/ml

Price: \_\_\_\_\_ for \_\_\_\_\_

Clindamycin is a strong antibiotic of the lincosamide family that is used to treat many kinds of infections. Clindamycin is especially useful for treating infections that have become resistant to penicillin, such as bone infections. It can also be used with quinine to treat malaria.

**RISKS AND PRECAUTIONS:**

If you are taking clindamycin and start to have diarrhea, stop taking it immediately. It can cause serious problems. Avoid while breastfeeding.

**Dosage** of clindamycin

Give clindamycin by mouth, 3 times a day.

In each dose give:

adults: 150-400 mg

children 8-12 years: 150-300 mg

children 3-7 years: 75-150 mg

children under 3 years: 37-75 mg

**For malaria:** (Also give quinine, see p. 369). Give by mouth, 2 times a day for 7 days

Adults: 600 mg

children 8 to 12 years: 450 mg

children 3 to 7 years: 300 mg

children under 3: 150 mg

## Gentamicin

Gentamicin is an injectable antibiotic that is used for very serious infections such as septicemia in a newborn and infection after giving birth (see pages 275 and 276 for dosages). Gentamicin should only be given by an experienced health worker, and only when other, safer medicines are not available. Incorrect use of this medicine can cause deafness and serious damage to the kidneys.

**For meningitis:** Inject 2 mg per kg for the first dose, then 1.7 mg per kg every 8 hours. Give with ampicillin (p. 353).

**For appendicitis or peritonitis:** Inject 1.5 mg per kg every 8 hours. Give with ampicillin.

## MEDICINES FOR GONORRHEA AND CHLAMYDIA

These diseases have the same early signs, and often occur together (see p. 236). Since it may be difficult or expensive to get a laboratory test for chlamydia, it is best to treat both infections at the same time. You may also want to treat for trichomonas (see p. 370).

*For gonorrhea, use one of the following:*

**ceftriaxone**, one injection of 250 mg,  
one time only

OR

**cefixime**, 400 mg by mouth, one time only

OR

**spectinomycin**, one injection of 2 g, one time  
only

**People who are pregnant or breastfeeding should not take spectinomycin.**

*For chlamydia, use one of the following:*

**doxycycline** (p. 355): 100 mg by mouth,  
2 times a day for 7 days

OR

**azithromycin**: 1 g by mouth, one time only

OR

**amoxicillin** (p. 353): 500 mg by mouth,  
3 times a day for 7 days

OR

**erythromycin** (p. 354): 500 mg by mouth,  
4 times a day for 7 days. Always take  
erythromycin with food.

OR

**tetracycline** (p. 355): 500 mg by mouth,  
4 times a day for 7 days

**Do not take doxycycline or tetracycline if you are pregnant or breastfeeding.** If pregnant or breastfeeding, you can use azithromycin, erythromycin, or amoxicillin.

## MEDICINES FOR TUBERCULOSIS

In treating tuberculosis (TB), it is very important to always use several anti-tuberculosis medicines at the same time to kill the TB germs. Treatment begins with 4 medicines. If fewer medicines are used, the TB bacteria can become resistant to the drugs and make the disease harder to treat.

Tuberculosis must be treated for a long time, usually 6 months or longer, and the anti-TB medicines are usually taken every day. The **full, long-term treatment for TB is extremely important** to kill the TB bacteria and to keep tuberculosis from coming back again, infecting other people, and developing drug resistance.

Drug resistance means that the best and least expensive TB drugs no longer work against the TB bacteria. MDR (Multi-Drug Resistant) TB is more costly to treat, the medicines must be taken for 8 to 20 months, and they have more side effects. XDR (eXtensively Drug Resistant) TB is very difficult to cure. Medicines for tuberculosis are available through government programs that test for TB and give medicines free or at low cost. If the laboratory you work with can culture sputum for repeat or suspicious cases of TB, more MDR and XDR cases of TB can be identified and treated earlier with the right anti-TB medicines.

Experienced advice from local or national anti-TB programs is important because treatments change, bacteria become resistant, and new medicines may become available. Also, some programs give medicines only 3 times a week, in higher doses.

The recommended treatments for TB are on the next page. **Isoniazid (INH)** and **rifampicin** should always be used together in the treatment of TB. **Ethambutol** and streptomycin are also often used to treat TB. Taking **pyrazinamide** with INH and rifampicin can improve the likelihood that the patient is cured.

If medicines cause itching, yellow skin and eyes (jaundice), or stomach pains, see a health worker about changing the dosage or medicines. If blisters occur, stop taking medicines until you see a health worker. Avoid alcohol when taking TB medicines, especially isoniazid.

**Isoniazid** can also be used to **prevent TB** from developing in family members of people sick with TB, or people with HIV. Because it is common for people to have both HIV and TB, it is a good idea for everyone with one disease to be tested for the other.

**Recommended treatments**

Always check with the health authorities in your region to find out what combinations of medicines are recommended in your area. If you cannot get information from them, use one of the following combinations:

1. For new cases of TB, give isoniazid, rifampicin, ethambutol, and pyrazinamide for 2 months. Doses should be taken every day. Then stop taking pyrazinamide and ethambutol, but continue using rifampicin and isoniazid for another 4 months.
2. For areas where drug resistance to isoniazid is developing, or if the person has HIV, give isoniazid, rifampicin, ethambutol, and pyrazinamide for 2 months. Then stop taking pyrazinamide, but continue using rifampicin, isoniazid, and ethambutol for another 4 months. All doses should be taken every day.
3. If the person has used TB medicines in the past but gets sick again, give isoniazid, rifampicin, ethambutol, pyrazinamide and streptomycin for 2 months. Then give isoniazid, rifampicin, ethambutol, and pyrazinamide for 1 month. Then continue using rifampicin, isoniazid, and ethambutol for another 5 months. All doses should be taken every day.
4. Pregnant women with TB should seek experienced medical advice. Otherwise use the combination of medicines in number 1 (without pyrazinamide) or in number 2. Never use streptomycin during pregnancy. Also give 50 mg. of vitamin B<sub>6</sub> (pyridoxine) every day.

**Isoniazid (INH)**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: tablets of 100 or 300 mg

This is the most basic anti-TB medicine. To treat TB, it must always be given with rifampicin and at least 1 other anti-TB medicine. For prevention it can be given alone. Resistance to isoniazid is beginning to develop in some areas.

**RISKS AND PRECAUTIONS:**

Rarely, isoniazid causes anemia, nerve pains in the hands and feet, muscle twitching, or even seizures, especially in malnourished persons. These side effects can usually be treated by giving 50 mg of pyridoxine (vitamin B<sub>6</sub>) daily, by mouth (p. 395).

Sometimes isoniazid can damage the liver. Persons who develop the signs of hepatitis (yellow color of skin and eyes, itching, loss of appetite,

pain in the belly, see p. 172) while taking isoniazid should stop taking the medicine.

**Dosage** for isoniazid (5 mg/kg/day for adults; 10 mg/kg/day for children): using tablets of 100 mg

Give isoniazid once a day.

In each dose give:

adults: 300 mg (3 tablets)

children: 50 mg (½ tablet) for each 5 kg the child weighs.

For children with severe TB, or persons with tubercular meningitis, double the above dose until improvement takes place.

For prevention of TB in family members of persons with TB, and for persons with HIV, it is recommended to give the above dose of INH for 6 months to 3 years.

**Rifampicin**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: tablets or capsules of 150 or 300 mg

This antibiotic is powerful in fighting TB. It is never taken alone or the TB will become resistant to it. When combined with isoniazid and at least one other TB medicine, it can shorten treatment by several months.

(Rifampicin is also used to treat leprosy—see p. 362.)

It is important to keep taking rifampicin regularly, without interruption. Be sure to get more before your supply runs out.

**RISKS AND PRECAUTIONS:**

Rifampicin can cause serious damage to the liver. A person who has liver problems or is pregnant should take this medicine under medical supervision.

**Side effects:** Urine, tears, feces, saliva, mucus from coughing (sputum), and sweat are colored red-orange by rifampicin. Rarely, rifampicin can cause fever, loss or increase of appetite, vomiting, nausea, confusion, skin rash, and menstrual problems.

Rifampicin reduces the effectiveness of hormonal contraceptives. So women taking birth control pills should get medical advice about increasing the dose. Or, use another method such as condoms, IUD, or a diaphragm while taking this medicine.



Rifampicin can affect the way ART works for a person with HIV. Talk to an experienced health worker.

**Dosage** of rifampicin for TB (10 mg/kg/day): using tablets or capsules of 150 mg or 300 mg

Give rifampicin once a day, either 1 hour before or 2 hours after eating.

In each dose give:

adults: 600 mg (two 300 mg tablets or four 150 mg tablets)

children 8 to 12 years: 450 mg

children 3 to 7 years: 300 mg

children under 3 years: 150 mg

## Pyrazinamide

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: tablets of 400 mg.

### RISKS AND PRECAUTIONS:

Because there is not enough information about how pyrazinamide affects pregnancy, pregnant women should use it only in areas where there is resistance to isoniazid. Talk to an experienced health worker.

**Side effects:** May cause swollen and painful joints, loss of appetite, nausea and vomiting, painful urination, fatigue, and fever.

**Dosage** for pyrazinamide (25 mg/kg/day): using tablets of 400 mg

Give 1 dose daily, together with other TB medicines. In each dose give:

adults: 1600 or 2000 mg (4 or 5 tablets)

children 8 to 12 years: 800 mg (2 tablets)

children 3 to 7 years: 400 mg (1 tablet)

children under 3 years: 200 mg (½ tablet)

## Ethambutol (familiar brand name: *Myambutol*)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: tablets of 100 or 400 mg

### RISKS AND PRECAUTIONS:

Ethambutol may cause eye pain or damage if taken in large doses for a long time. The medicine should be stopped if eye problems or vision changes develop. Eye damage caused by ethambutol usually slowly gets better after the medicine is stopped.

**Dosage** of ethambutol (15 mg/kg/day for adults; 15–25 mg/kg/day for children): using tablets of 100 mg or 400 mg

Give once a day.

In each dose give:

adults: 1200 mg (three 400 mg tablets or twelve 100 mg tablets)

children: Give 20 mg for each kg the child weighs. But for tubercular meningitis give 25 mg for each kg the child weighs.

## Streptomycin

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in:

vials for injection with 1 g in each vial.

Streptomycin is a very useful medicine for treating tuberculosis. It should not be used to treat any other illnesses, because this could increase resistance and make it ineffective against TB.

### RISKS AND PRECAUTIONS:

Great care must be taken not to give more than the correct dose. Too much streptomycin for too long may cause deafness. If ringing of the ears or deafness begins, stop taking the medicine and see a health worker.

Streptomycin should not be taken by pregnant women or persons with kidney problems.

**Dosage** for streptomycin (15 mg/kg/day): using vials of liquid or powder for mixing with water to give 1 g of streptomycin in 2 ml

### For treatment of tuberculosis:

Give 1 injection daily for 8 weeks.

With each injection give:

adults: 1 g (or 2 ml)

adults over age 50: 500 to 750 mg (1 to 1.5 ml)

children 8 to 12 years: 750 mg (1.5 ml)

children 3 to 7 years: 500 mg (1 ml)

children under 3 years: 250 mg (0.5 ml)

newborn babies: give 20 mg for each kg of body weight; thus a 3 kg baby gets 60 mg (0.12 ml)

## MEDICINES FOR LEPROSY

When treating leprosy, it is important to know which of the two main types of leprosy the person has. If there are light-colored skin patches with loss of sensation but no lumps or thickened skin, then the person probably has **paucibacillary–PB** (tuberculoid) leprosy and only 2 medicines are required. If there are lumps, then the person probably has **multibacillary–MB** (lepromatous) leprosy and 3 medicines must be used. **If possible, medicines for leprosy should be taken with the guidance of an experienced health worker or doctor, according to the national plan.**

Treatment of leprosy must usually continue for at least 6 months and sometimes for life. To prevent the bacteria (bacilli) that cause leprosy from becoming resistant, it is important to keep taking the medicines regularly, without interruption. Be sure to get more medicine before your supply runs out.

### Recommended treatment:

**For PB leprosy** take both of these for at least 6 months:

*Dapsone* daily

*Rifampicin* each month

**For MB leprosy** take all of these for 1 year (12 months):

*Dapsone* daily

*Clofazimine* daily and a larger dose each month

*Rifampicin* each month

Occasionally, a person may develop a serious problem called 'lepra reaction' while taking leprosy medicines. There may be lumpy and inflamed spots, fever, and swollen, tender nerves. It may also cause joint pains, tender lymph nodes and testicles, swelling of the hands and feet, or red and painful eyes which may lead to loss of vision.

In case of a severe 'lepra reaction' (pain along the nerves, numbness or weakness, eye irritation, or painful testicles), it is usually best to keep taking the leprosy treatment, but to also take an anti-inflammatory medicine (cortico-steroid). Seek experienced medical advice about this because the cortico-steroid can also cause serious problems.

## Dapsone (diaminodiphenylsulfone, DDS)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: tablets of 25, 50, and 100 mg

Dapsone sometimes causes anemia or skin rashes, which can be severe. Avoid the sun. If severe skin peeling occurs, stop taking the medicine.

**WARNING:** DDS is a dangerous drug. Keep it where children cannot reach it.

**Dosage** for DDS (2 mg/kg/day):

Take once a day.

adults: 100 mg

children 10 to 12 years: 50 mg

children under 10 years: 25 mg

## Rifampicin

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: tablets or capsules of 150 and 300 mg

Rifampicin is a very expensive medicine, but only a small amount is needed to treat leprosy, so the total cost is not great. See p. 360 for side effects and risks. Take rifampicin only with the advice of an experienced health worker or doctor:

**Dosage** of rifampicin for leprosy (10 to 20 mg/kg)—using tablets of 300 mg

For leprosy, give rifampicin once a month. It should be taken either 1 hour before or 2 hours after eating.

In each monthly dose give:

adults: 600 mg (two 300 mg tablets)

children 10 to 12 years: 450 mg

(one and a half 300 mg tablets)

children under 10 years: 300 mg

(one 300 mg tablet)



**Clofazimine** (*Lamprene*)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: capsules of 50 and 100 mg.

Clofazimine is also an expensive medicine. Although it is less effective in killing leprosy bacteria than rifampicin, it has the advantage that it also helps to control lepra reaction to some extent, particularly in persons with MB (lepromatous) leprosy.

**Side effects:** Causes the skin to become a red-purple color. This is only temporary and will disappear 1 to 2 years after stopping the medicine. May cause stomach or digestive problems. Not recommended for pregnant women.

**Dosage** for clofazimine (1 mg/kg/day) using capsules of 50 mg

Give one regular dose of clofazimine at least twice a week, depending on age, and a second, larger dose once a month.

In each regular dose give:

adults: 50 mg (one 50 mg capsule)  
every day

children 10 to 12 years: 50 mg (one 50 mg capsule) every other day

children under 10 years: 50 mg (one 50 mg capsule) twice a week

In each monthly dose give:

adults: 300 mg (six 50 mg capsules)

children 10 to 12 years: 150 mg (three 50 mg capsules)

children under 10 years: 100 mg (two 50 mg capsules)

**Note:** The larger dose of clofazimine, which can also be used daily to control lepra reaction, is best given with the advice of an experienced health worker or doctor.

**OTHER MEDICINES****MEDICINES FOR MALARIA**

There are many medicines to treat and prevent malaria. But malaria has developed resistance to medicines, meaning some no longer work. Health workers, local health centers, or the government health authority will know what medicines work best in your area.

**MEDICINES USED FOR PREVENTION**

Mefloquine, chloroquine, chloroquine and proguanil, atovaquone + proguanil, and doxycycline, are medicines used for prevention when people travel to regions with malaria from an area without malaria. Primaquine is used to prevent repeat attacks of some types of malaria after the malaria has been treated.

Monthly doses of amodiaquine with sulfadoxine + pyrimethamine are used in some Sahel region countries in Africa during the rainy season to prevent malaria in children under 5. In other African countries, infants are given 3 doses of sulfadoxine + pyrimethamine in the first year of life, at the same time as common vaccinations. In some places, monthly doses of sulfadoxine + pyrimethamine are used to prevent malaria during pregnancy.

**MEDICINES TO TREAT SEVERE MALARIA**

Severe malaria needs emergency treatment with injectable artesunate (IV or IM). Once the person has been treated and stopped vomiting, they will also need 3 days of artemisinin-based combination (ACT) medicines by mouth (see the list of ACT medicines below). If artesunate by injection is not available, a child with severe malaria who is vomiting can be given artesunate capsule suppositories (in the rectum). This can save the child's life. Then go to a health center for more treatment.

**MEDICINES TO TREAT UNCOMPLICATED MALARIA FROM P. FALCIPARUM**

Malaria from *P. falciparum* is more likely to become severe. Depending on the region, chloroquine or other malaria medicines no longer work to treat falciparum malaria. Instead, use an ACT (Artemisinin-based Combination Therapy) medicine that works in your area. Take ACT medicines for 3 days. See Using ACT Medicines (page 364). ACT combinations include:

- **Artemether + lumefantrine**
- **Artesunate + amodiaquine**
- **Artesunate + mefloquine**
- **Artesunate + pyronaridine**
- **Artesunate with sulfadoxine + pyrimethamine**
- **Dihydroartemisinin + piperazine**

## MEDICINES TO TREAT UNCOMPLICATED MALARIA NOT FROM *P. FALCIPARUM*

Several parasites cause uncomplicated malaria. Use ACT (Artemisinin-based Combination Therapy) if you don't know which type of malaria it is, or if the person could have 2 types of malaria at once. If your malaria is resistant to chloroquine, find out which ACT will work instead.

If chloroquine still works where you live, it may be more available than ACT. Primaquine is often used together with chloroquine to cure the malaria more completely.

## MEDICINES TO TREAT MALARIA DURING PREGNANCY

For severe malaria, pregnant women need emergency treatment in a hospital or clinic with the same medicines used for other adults.

For uncomplicated malaria in the first 3 months of pregnancy, use quinine and clindamycin. If a malaria test shows the uncomplicated malaria is caused by the vivax parasite, or if you do not have clindamycin, use only quinine.

To treat uncomplicated malaria when a pregnancy is more than 3 months, use the ACT or other medicines that work in your area.

Quinine, chloroquine, clindamycin, and proguanil are all safe during pregnancy. Primaquine is not safe to use during pregnancy.

Pregnant women can take sulfadoxine + pyrimethamine starting at week 13 of the pregnancy. Taking one dose per month for the rest of the pregnancy is called intermittent preventive treatment (page 366).

## FOR ALL MALARIA MEDICINES

Malaria may cause vomiting. For artemether + lumefantrine, repeat the dose of medicine if you vomit within 60 minutes of taking it. For most other malaria medicines, repeat the dose if you vomit within 30 minutes. If more than 30 but less than 60 minutes have gone by, take only half the dose.

Take all doses of the malaria medicines for the full number of days, even if you already feel better. This is needed to kill all the malaria parasites. If the treatment is causing vomiting or if it is hard to give a child the medicine, talk to a health worker.

Even after starting treatment with medicines, watch for danger signs of severe malaria, especially in children and in anyone pregnant or who just gave birth.

## ARTEMISININ-BASED COMBINATION THERAPY (ACT)

### USING ACT MEDICINES

Some ACT come as single tablets combining 2 medicines (called fixed-dose combination or coformulated tablets). Others come in a blister pack with 2 different tablets for each dose.

- Do not remove the tablets from the packaging until ready to use. Once a tablet is taken from the blister, use it right away.
- If the 3-day treatment of ACT does not stop the malaria attack, try a different combination ACT. However, if the fevers and other signs return after 4 weeks, it is probably a new case of malaria.
- In regions where falciparum malaria transmission is low, health authorities may recommend a single dose of primaquine together with the 3-day treatment of ACT (see page 368).

### Artemether + lumefantrine

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Tablets contain:

20 mg of artemether + 120 mg of lumefantrine  
40 mg of artemether + 240 mg of lumefantrine

Artemether and lumefantrine come as a fixed-dose combination tablet that treats uncomplicated falciparum malaria, other malaria types, and following emergency treatment of severe malaria.

**Important:** In the first 3 months of pregnancy, use quinine and clindamycin where available instead of ACT combinations. If you have heart problems, talk to an experienced health worker before taking this medicine.

**Side effects:** Can cause nausea, stomach upset, dizziness, headache.

### Dosage

Take with a full meal or with milk. Fat in the food helps the body use the medicine. If possible, on the first day, give the 2nd dose 8 hours after the 1st dose.

### For uncomplicated malaria

Using tablets of 20 mg of artemether and 120 mg of lumefantrine, dose by body weight.

5 kg to 14 kg: 1 tablet, 2 times a day, for 3 days

15 kg to 24 kg: 2 tablets, 2 times a day, for 3 days

25 kg to 34 kg: 3 tablets, 2 times a day, for 3 days

35 kg and over: 4 tablets, 2 times a day, for 3 days

**Artesunate + amodiaquine**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Tablets contain:

25 mg of artesunate + 67.5 mg amodiaquine

50 mg of artesunate + 135 mg amodiaquine

100 mg of artesunate + 270 mg amodiaquine

Artesunate and amodiaquine come as a fixed-dose combination tablet or as separate tablets to be taken together.

It is used to treat uncomplicated falciparum malaria, other malaria types, and following emergency treatment of severe malaria.

**Important:** In the first 3 months of pregnancy, give quinine and clindamycin instead of ACT combinations. Avoid giving artesunate + amodiaquine to a person taking cotrimoxazole or the HIV medicines zidovudine or efavirenz.

**Side effects:** Can cause itchy skin, upset stomach, headache, dizziness.

**For uncomplicated malaria,** dose by body weight.

Using tablets of 25 mg of artesunate and 67.5 mg of amodiaquine, give:

4.5 kg to 8 kg: 1 tablet each day, for 3 days

9 kg to 17 kg: 2 tablets each day, for 3 days

Using tablets of 100 mg of artesunate + 270 mg amodiaquine, give:

18 kg to 35 kg: 1 tablet each day, for 3 days

36 kg and over: 2 tablets each day, for 3 days

**Artesunate + mefloquine**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Tablets contain:

25 mg of artesunate + 55 mg of mefloquine (for children)

100 mg of artesunate + 220 mg of mefloquine (for adults)

Artesunate and mefloquine come as a fixed-dose combination tablet or as separate tablets to be taken together.

It is used to treat uncomplicated falciparum malaria and other malaria types. Mefloquine by itself can be used to prevent malaria for people traveling from an area without malaria.

**Important:** In the first 3 months of pregnancy, give quinine and clindamycin instead of ACT combinations. Do not use mefloquine for infants under 3 months or weighing less than 5 kg. Mefloquine should not be taken by persons with epilepsy or mental illness or severe kidney problems. If you have heart problems, talk to an experienced health worker before taking this medicine.

Mefloquine sometimes causes strange behavior, confusion, anxiety, seizures or unconsciousness. If any of these signs develop, stop taking mefloquine immediately. If mefloquine had this effect on a person once, they should not use mefloquine again.

**Side effects:** Can cause dizziness, stomach upset, headache, sleeping and vision problems. Pregnant women may have more nausea with artesunate + mefloquine, so try to use a different ACT.

**Dosage:** Take with food. Dose by body weight.

**For uncomplicated malaria**

Using tablets with 25 mg of artesunate + 55 mg of mefloquine, give:

5 kg to 8 kg: 1 tablet each day, for 3 days

9 kg to 17 kg: 2 tablets each day, for 3 days

Using tablets with 100 mg of artesunate + 220 mg of mefloquine, give:

18 kg to 29 kg: 1 tablet each day, for 3 days

30 kg and over: 2 tablets each day, for 3 days

**To prevent malaria:**

Using 250 mg mefloquine tablets:

Take the dose once a week beginning 2 to 3 weeks before travel. Continue one dose each week while you are there and for 4 weeks after leaving the malaria region. Mefloquine is not recommended for infants under 5 kg.

Using 250 mg tablets, give:

5 to 19 kg: ¼ tablet (63 mg) one time each week

20 to 29 kg: ½ tablet (125 mg) one time each week

30 to 44 kg: ¾ tablet (188 mg) one time each week

45 kg and over: 1 tablet (250 mg) one time each week

**Artesunate with sulfadoxine + pyrimethamine**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Sulfadoxine and pyrimethamine come as a fixed-dose combination tablet and is used with a separate tablet of artesunate to treat uncomplicated falciparum malaria and other malaria types. Sulfadoxine + pyrimethamine no longer works well in some regions — check with your government health authority.

**Important:** In the first 3 months of pregnancy, give quinine and clindamycin instead of ACT combinations. Do not use for infants. Do not use sulfadoxine + pyrimethamine if you are taking cotrimoxazole.

Sulfadoxine + pyrimethamine should not be taken by anyone who has ever had a reaction to a sulfa medicine, such as cotrimoxazole. If the medicine causes a rash or itching, drink lots of water and do not take it again.

**Side effects:** Can cause stomach upset, headache.

**Dosage:**

**For uncomplicated malaria,** dose by body weight.

This ACT is a 3-day treatment as follows: on days 1, 2, and 3, give the dose of artesunate. Also on day 1, give 1 dose of sulfadoxine + pyrimethamine.

Using tablets with 50 mg of artesunate, give:

5 kg to 9 kg: ½ tablet, 1 time each day, for 3 days

10 kg to 24 kg: 1 tablet, 1 time each day, for 3 days

25 kg to 50 kg: 2 tablets, 1 time each day, for 3 days

50 kg or over: 4 tablets, 1 time each day, for 3 days

Using tablets with 500 mg of sulfadoxine + 25 mg of pyrimethamine also give:

5 kg to 9 kg: ½ tablet the first day only

10 kg to 24 kg: 1 tablet the first day only

25 kg to 50 kg: 2 tablets the first day only

50 kg or over: 3 tablets the first day only

If you are taking folic acid during pregnancy or for another reason, continue a daily dose of 0.4 mg (400 mcg) of folic acid but not higher when treated with this ACT combination. Too much folic acid interferes with the malaria medicine.

### To prevent malaria in pregnancy

In some African countries, all pregnant women are given monthly doses of sulfadoxine + pyrimethamine because malaria is so common and so dangerous for the mother and developing child. Monthly doses begin when the woman is 3 months (13 weeks) pregnant. Bednets also help prevent malaria during pregnancy and after the baby is born.

Using tablets with 500 mg of sulfadoxine + 25 mg of pyrimethamine:

During week 13 to 16 of the pregnancy, give the first dose of 3 tablets. Repeat 1 month later and every month after that with a dose of 3 tablets until the 6th dose is reached or the child is born. Always wait one month between each dose.

**Side effects:** Some pregnant women may have nausea, vomiting, and dizziness when they take sulfadoxine + pyrimethamine, especially with the first dose.

Pregnant women also need iron and folic acid to keep the baby well and prevent anemia. If taking sulfadoxine + pyrimethamine each month for malaria prevention, take a daily dose of 0.4 mg (400 mcg) of folic acid but not higher. Too much folic acid interferes with the malaria medicine.

### Dihydroartemisinin + piperazine

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Tablets contain:

20 mg of dihydroartemisinin + 160 mg of piperazine (for children)

40 mg of dihydroartemisinin + 320 mg of piperazine (for adults)

Dihydroartemisinin and piperazine come as a fixed-dose combination tablet.

It is used to treat uncomplicated falciparum malaria, other malaria types, and following emergency treatment of severe malaria.

**Important:** In the first 3 months of pregnancy, give quinine and clindamycin instead of ACT combinations. Do not use when taking erythromycin. Use with caution with people over 60 years old, people taking HIV medicines, or people with heart, kidney or liver problems.

**Side effects:** May cause a fast heartbeat, upset stomach, itching.

**Dosage:** Take between meals with a full cup of water. Do not take with milk or food that has fat because this changes how well the medicine works. Dose by body weight.

**Note:** Children weighing less than 25 kg use a dose based on 2.5 mg/kg for dihydroartemisinin and 20 mg/kg for piperazine. This is a higher dose per kg than used with older children and adults.

### For uncomplicated malaria

Using tablets with 20 mg of dihydroartemisinin + 160 mg of piperazine, give:

5 kg to 7 kg: 1 tablet each day, for 3 days

8 kg to 10 kg: 1½ tablets each day, for 3 days

Using tablets with 40 mg of dihydroartemisinin + 320 mg of piperazine, give:

11 kg to 16 kg: 1 tablet each day, for 3 days

17 kg to 24 kg: 1½ tablets each day, for 3 days

25 kg to 35 kg: 2 tablets each day, for 3 days

36 kg to 59 kg: 3 tablets each day, for 3 days

60 kg to 79 kg: 4 tablets each day, for 3 days

80 kg and over: 5 tablets each day, for 3 days

## Artesunate

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Artesunate comes in 50 mg tablets. See above for the dose of artesunate and sulfadoxine + pyrimethamine when used as a part of ACT. For other ACT combinations, the artesunate is combined with the other medicine into a single tablet or comes in a blister package with the 2 tablets to be taken together.

Artesunate is a medicine of the artemisinin family. To treat uncomplicated falciparum malaria, artesunate in tablet form is used in combination with one of these: amodiaquine, mefloquine, or sulfadoxine + pyrimethamine. Combining these medicines is called Artemisinin Combination Therapy (ACT).

**For emergency treatment of severe malaria,** health workers use intravenous (IV) artesunate or artesunate injected in muscle (IM). After at least 24 hours of this treatment, when the person is no longer vomiting, she will also need 3 days of ACT treatment by mouth.

Trained health workers can inject adults and children with artesunate before transfer to a distant hospital. Or artesunate suppositories can be placed in the rectum of a child under 6 years old as emergency treatment.

**Side effects:** Artesunate can cause dizziness, headaches, upset stomach.

### For severe malaria in children:

When a child under 6 years has signs of severe malaria, is vomiting, and is far from a health center or artesunate injections, use artesunate gelatin capsules (called suppositories) in the rectum before leaving to get help. This can save her life. Put the capsule in the child's rectum and hold the buttocks together for about 10 minutes so the capsule does not fall out. If it comes out within 30 minutes, repeat the dose.

If you do not know the child's weight, dose by age

10 kg to 20 kg (more than 3 and less than 6 years old), use 2 of the 100 mg capsules.

5 kg to 10 kg (under 3 years old): one 100 mg capsule.

Under 5 kg: use one 50 mg capsule if available. If not, use one 100 mg capsule.

Emergency treatment does not cure malaria. The child will need more treatment by an experienced health worker.

## OTHER MALARIA MEDICINES

### Chloroquine

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Chloroquine phosphate tablets usually come in 250 mg tablets (with 150 mg chloroquine base).

Chloroquine sulfate tablets usually come in 200 mg tablets (with 155 mg chloroquine base).

In most of the world, malaria is now resistant to chloroquine. Find out which medications work best in your area. If you do not know which type of malaria a person has or if chloroquine will work, use an Artemisinin Combination Therapy (ACT), instead of chloroquine. Where chloroquine still works, it can be used to prevent malaria either by itself or combined with proguanil.

If using chloroquine as treatment for vivax or ovale types of malaria, you will also need to use primaquine to prevent the malaria from coming back. Chloroquine is safe for women who are pregnant or breastfeeding for both prevention and treatment.

**Important:** If too much is given, chloroquine can be very dangerous, especially to children. Do not use if the person has epilepsy. Use with caution if the person has diabetes.

**Side effects:** May cause mild dizziness, nausea, vomiting, abdominal pain, itching.

**Dosage:** Take with food. Because chloroquine comes in two forms -- chloroquine phosphate and chloroquine sulfate -- you must know which form you have so you can know how much chloroquine base (the active part of the chloroquine) it contains. Dose by body weight. Give 25 mg/kg of chloroquine base over 3 days, as follows:

Day 1: 10 mg chloroquine base per kg

Day 2: 10 mg chloroquine base per kg

Day 3: 5 mg chloroquine base per kg

### For uncomplicated malaria

Using chloroquine phosphate 250 mg tablets (150 mg chloroquine base)

OR using chloroquine sulfate 200 mg tablets (155 mg chloroquine base):

Give this dose on both day 1 and day 2:

Less than 8 kg: ½ tablet

8 kg to 15 kg: 1 tablet

16 kg to 30 kg: 2 tablets

31 kg to 45 kg: 3 tablets

46 kg and over: 4 tablets

On day 3, give half of the day 1 dose:

Less than 8 kg: ¼ tablet

- 8 kg to 15 kg: ½ tablet
- 16 kg to 30 kg: 1 tablet
- 31 kg to 45 kg: 1½ tablets
- 46 kg and over: 2 tablets

### To prevent vivax malaria

For prevention when traveling to a place where chloroquine still works, take chloroquine once a week beginning 1 or 2 weeks before travel. Continue one dose each week while you are there and for 4 weeks after leaving. Use the dose for day 3 of treatment shown above.

### To prevent falciparum malaria

For prevention when traveling to a place where chloroquine still works, take chloroquine once a week and also take proguanil once a day. Start both medicines 1 week before travel, continue taking while you are there and for 4 weeks after leaving. Take the chloroquine the same day each week and the proguanil the same time each day.

Using chloroquine tablets with either 155 mg or 150 mg chloroquine base and proguanil tablets with 100 mg of proguanil hydrochloride:

- 1 to 4 years old: ½ tablet proguanil each day and ½ tablet chloroquine each week
- 5 to 8 years old: 1 tablet proguanil each day and 1 tablet chloroquine each week
- 9 to 14 years old: 1 ½ tablet proguanil each day and 1 ½ tablet chloroquine each week
- 15 years and older: 2 tablets proguanil each day and 2 tablets chloroquine each week

### Primaquine

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Primaquine phosphate tablets come in two strengths, either 7.5 mg or 15 mg of primaquine base (the active part of the medicine).

Primaquine is used for 14 days along with chloroquine to prevent returning fever from vivax and ovale types of malaria. In some regions, a single dose of primaquine is given on the first day of the 3-day ACT treatment for falciparum malaria to help prevent it from spreading.

**Important:** Do not give to women who are pregnant, breastfeeding a baby under 7 months old, or to children under 1 year old.

People with a blood condition called G6PD deficiency (favism) will need a lower dose of primaquine, spread over many weeks instead of 14 days. But a single dose given with ACT will not harm them.

**Side effects:** Upset stomach and stomach pain.

**Dosage:** Take with food. Dose by weight or if you cannot weigh the child, dose by age.

## GREEN PAGES

### To stop vivax or ovale malaria from returning,

use with chloroquine

Using tablets with 7.5 mg primaquine base, give:

- 10 kg to 24 kg (3 to 7 years): ½ tablet each day for 14 days
- 25 kg to 49 kg (8 to 11 years): 1 tablet each day for 14 days
- 50 kg and over (12 years and older): 2 tablets of 7.5 mg OR 1 tablet of 15 mg primaquine base, each day for 14 days

### To prevent falciparum malaria from spreading

In regions where a single dose of primaquine is added to ACT treatment to keep malaria from spreading, give it on the first day of the 3-day treatment.

Using tablets with 7.5 mg primaquine base, give:

- 10 kg to 24 kg (3 to 7 years): ½ tablet one time
- 25 kg to 49 kg (8 to 11 years): 1 tablet one time
- 50 kg and over (12 years and older): 2 tablets of 7.5 mg OR 1 tablet of 15 mg primaquine base, one time

### Atovaquone + proguanil

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Proguanil prevents malaria for travelers. Proguanil is always used with another malaria medicine. Proguanil and chloroquine are used together to prevent malaria in areas where there is low resistance to chloroquine.

Tablets contain:

- 62.5 mg atovaquone + 25 mg proguanil (for children)
- 250 mg atovaquone + 100 mg proguanil (for adults)

Atovaquone and proguanil come as a fixed-dose combination tablet. It is mostly used to prevent malaria but in countries where ACT and other malaria medicines no longer work, it is sometimes used to treat malaria in combination with artesunate and primaquine.

**Important:** People with serious kidney problems should not use proguanil.

**Side effects:** Can cause headache, cough, diarrhea, mild upset stomach.

**Dosage:** Take with food.

### To prevent malaria

Both adults and children take one dose each day 1 or 2 days before travel and continue taking one dose each day until 7 days after your travel has ended.



Using tablets made for children with 62.5 mg atovaquone + 25 mg proguanil, give:

5 kg to 7 kg: ½ tablet each day

8 kg to 9 kg: ¾ tablet each day

10 to 19 kg: 1 tablet each day

20 kg to 29 kg: 2 tablets each day

30 kg to 39 kg: 3 tablets each day

40 kg and over: 4 children's tablets

OR 1 adult tablet each day.

### Quinine injections

Severe malaria is a medical emergency. A quinine injection into the muscle is sometimes used to treat a person before sending her to the hospital. Quinine injections should only be given by an experienced health worker who knows the correct dose and how to give it. For children with severe malaria, if injectable artesunate is not available, it is safer to use artesunate suppositories instead of quinine (see page 367).

### Quinine sulfate, tablets

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Quinine sulfate, quinine hydrochloride, and quinine dihydrochloride come in tablets of 300 mg and their dose is the same. Quinine bisulfate tablets, however, have a different dose.

Quinine tablets are used for uncomplicated malaria where chloroquine does not work. For women in the first 3 months of pregnancy, use both quinine and clindamycin to treat falciparum malaria. For vivax malaria resistant to chloroquine, use quinine alone. Quinine and either clindamycin or doxycycline are sometimes used if ACT is not available after emergency care for severe malaria.

**Important:** Taking too much quinine is dangerous. Quinine can cause blood sugar levels to drop too low. Get medical help for danger signs such as dizziness, confusion, loss of consciousness, or too fast or too slow heart beat. Do not use quinine if taking chloroquine or mefloquine.

**Side effects:** Quinine can cause sweaty skin, ringing of the ears or problems with hearing, blurred vision, dizziness, nausea and vomiting, diarrhea. If it causes vomiting, an anti-nausea medicine such as promethazine may help.

**Dosage:** Treat with quinine for 3 or 7 days, depending on the region. Clindamycin or doxycycline may also be needed. Dose by weight: 10 mg of quinine sulfate per kg, 3 times a day. For quinine bisulfate, the dose is: 14 mg per kg, 3 times a day. Depending on the region, treatment will be for 3 or 7 days.

### For uncomplicated chloroquine-resistant falciparum malaria

Using quinine sulfate, quinine hydrochloride, and quinine dihydrochloride tablets of 300 mg, give:

7 to 11 kg: ¼ tablet, 3 times a day

12 to 24 kg: ½ tablet, 3 times a day

25 to 34 kg: 1 tablet, 3 times a day

35 to 49 kg: 1½ tablets, 3 times a day

50 kg and over: 2 tablets, 3 times a day

Also take clindamycin (p.358) or doxycycline (p. 355) for 7 days starting on day 2 or day 3 after starting the quinine, when the person is less likely to vomit the medicines.

### For uncomplicated chloroquine-resistant vivax malaria

Use quinine sulfate and either clindamycin or doxycycline as for chloroquine-resistant falciparum malaria (see above). After that treatment, take primaquine for 14 days but not if you are pregnant.

## FOR AMEBAS AND GIARDIA

### In diarrhea or dysentery caused by amebas

there are usually frequent stools with much mucus and sometimes blood. Often there are gut cramps, but little or no fever. Amebic dysentery is best treated with **metronidazole**, if possible followed by **diloxanide furoate**. In cases of amebic abscess, it is important to take both metronidazole and diloxanide furoate.

In order to kill all the amebas in the gut, very long (2 to 3 weeks) and expensive treatment is necessary. It often makes more sense to stop giving medicines when the person has no more symptoms and then let the body defend itself against the few amebas that are left. This is especially true in areas where the chance of getting a new infection is high.

In diarrhea caused by giardia the stools are often yellow and frothy, but without blood or mucus. Metronidazole is often used, but quinacrine is cheaper.

**Metronidazole** (familiar brand name: *Flagyl*)

Name: \_\_\_\_\_

Often comes in:

tablets of 200, 250, or 500 mg

Price: \_\_\_\_\_ for \_\_\_\_\_

vaginal inserts, 500 mg

Price: \_\_\_\_\_ for \_\_\_\_\_

solution, 200 mg in 5 ml

Price: \_\_\_\_\_ for \_\_\_\_\_

Metronidazole is useful for gut infections caused by amebas, giardia, and certain bacteria, and sometimes for diarrhea that comes from taking 'wide-range' antibiotics (such as ampicillin). It is useful for vaginal infections caused by trichomonas, or by certain bacteria. It is useful in combination with other antibiotics to treat infected or high-risk wounds. It can also help to treat the symptoms of guinea worm.

**CAUTION:** Do not drink alcohol when taking metronidazole, as this causes severe nausea.

**WARNING:** Metronidazole may cause birth defects. Pregnant women should avoid using this medicine if possible, especially during the first 3 months of pregnancy. Breastfeeding women using large doses should not give their babies breast milk for 24 hours after taking metronidazole. Persons with liver problems should not use metronidazole.

**Dosage for giardia** infection:

Give metronidazole 3 times a day for 5 days.

In each dose give:

adults: 250 mg (1 tablet)

children 8 to 12 years: 250 mg (1 tablet)

children 3 to 7 years: 125 mg (½ tablet)

children under 3 years: 62 mg (¼ tablet)

**Dosage for giardia** infection that lasts 6 months or longer:

adults: Give 750 mg metronidazole 3 times a day for 10 days. Also give quinacrine (p. 369).

**Dosage for guinea worm:**

Give the same dose as for giardia, 3 times a day for 10 days.

**Dosage for trichomonas** infections of the vagina:

Take 500 mg twice a day for 7 days. The man should be treated for trichomonas at the same time (even if he has no symptoms) or he will pass it back to the woman.

**Dosage for PID:**

Give 500 mg 2 times a day for 14 days. Also use doxycycline and cefixime or ceftriaxone (p. 359).

**Dosage for stomach ulcers** (along with other medicines—see p. 129):

Give metronidazole 3 times a day for 10 to 14 days. In each dose give 500 mg.

**Dosage for bacterial** infections of the vagina:

Take 2 tablets (500 mg) of metronidazole twice a day for 7 days. If the infection returns, both the woman and man should take the same treatment, at the same time.

**Dosage for infected or high-risk wounds** (15 to 30 mg/kg/day):

adults: Give 500 mg metronidazole 3 times a day for 7 to 10 days. Also give another antibiotic, such as penicillin (p. 351), doxycycline (p. 355), or cotrimoxazole (p. 357).

**Dosage for amebic dysentery** (25 to 50 mg/kg/day):—using 250 mg tablets

Give metronidazole 3 times a day for 5 to 10 days.

In each dose give:

adults: 750 mg (3 tablets)

children 8 to 12 years: 500 mg (2 tablets)

children 4 to 7 years: 375 mg (1½ tablets)

children 2 to 3 years: 250 mg (1 tablet)

children under 2 years: 80 to 125 mg (⅓ to ½ tablet)

If possible, for amebic dysentery, diloxanide furoate should be taken after finishing metronidazole. For amebic abscess, it is important to take both metronidazole and diloxanide furoate.

**Diloxanide furoate** (*Furamide*)

Name: \_\_\_\_\_

Often comes in:

500 mg tablets

price: \_\_\_\_\_ for \_\_\_\_\_

syrup with 125 mg in 5 ml

price: \_\_\_\_\_ for \_\_\_\_\_

**Side effects:** Occasionally causes gas, stomach pain, or nausea.

**Dosage of diloxanide furoate** (20 mg/kg/day)—tablets of 500 mg

Give 3 times a day (with meals) for 10 days.

In each dose give:

adults: 1 tablet (500 mg)

children 8 to 12 years: ½ tablet (250 mg)

children 3 to 7 years: ¼ tablet (125 mg)

children under 3 years: ⅓ tablet (62 mg) or less, depending on weight



**Quinacrine (mepacrine)**(familiar brand name: *Atabrine*)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: 100 mg tablets

Quinacrine can be used in treating giardia, malaria, and tapeworm, but is not the best medicine for any of these. It is used because it is cheap. Quinacrine often causes headache, dizziness, and vomiting.

**Dosage of quinacrine for treating giardia:**

Give quinacrine 3 times a day for a week.

In each dose give:

adults: one 100 mg tablet

children under 10 years: 50 mg (½ tablet)

**Dosage of quinacrine for treating giardia that lasts 6 months or longer, give the above dose of quinacrine 3 times a day for 2 to 3 weeks.**

**Dosage of quinacrine for treating tapeworm:**

(Half an hour before giving quinacrine, give an antihistamine like **promethazine** to help prevent vomiting.)

Give 1 large dose only:

adults: 1 g (10 tablets)

children 8 to 12 years: 600 mg (6 tablets)

children 3 to 7 years: 400 mg (4 tablets)

**FOR VAGINAL INFECTIONS**

Vaginal discharge, itching, and discomfort can be caused by different infections, the most common of which are **trichomonas**, **yeast** (Candida), and **bacteria**.

**Metronidazole**, tablets to be taken by mouth and vaginal inserts (see p. 370):

For trichomonas and bacterial infections of the vagina.

**Nystatin** or **Clotrimazole**, lozenges, cream, and vaginal inserts (see p. 374):

For yeast infection of the vagina.

**Gentian violet (crystal violet)** (see p. 372):

Price: \_\_\_\_\_ for \_\_\_\_\_

For treatment of yeast and other infections of the vulva and vagina.

**FOR SKIN PROBLEMS**

Washing the hands and bathing frequently with soap and water help prevent many infections, both of the skin and of the gut. Wounds should be carefully washed with soap and boiled water before closing or bandaging.

Frequent scrubbing with soap and water is often the only treatment necessary for dandruff, seborrhea (cradle cap), pimples, mild impetigo, as well as for minor ringworm, tinea, and other fungus infections of the skin or scalp. This works better if the soap has in it an antiseptic such as povidone iodine (*Betadine*). But *Betadine* can be irritating to tissue and should not be used on open skin. Shampoos with selenium sulfide or ketoconazole are also useful for dandruff.

**Sulfur**

Often comes as a yellow powder.

Price: \_\_\_\_\_ for \_\_\_\_\_

Also comes in many skin lotions and ointments.

Sulfur is useful for many skin problems:

1. To avoid or discourage ticks, mites, chiggers, jiggers, and fleas. Before going into fields or forests where these are common, dust the skin—especially legs or ankles, wrists, waist, and neck—with sulfur.
2. To help treat scabies, burrowing fleas, mites, and tiny ticks in or on the skin. Make an ointment: Mix 1 part of sulfur with 10 parts of petrolatum (*Vaseline*) or lard, and smear this on the skin (see p. 199).
3. For ringworm, tinea, and other fungus infections, use the same ointment, 3 or 4 times a day, or a lotion of sulfur and vinegar (see p. 205).
4. For cradle cap (seborrhea) and severe dandruff, the same ointment can be used, or the scalp can be dusted with sulfur.

**Povidone iodine (polyvidone iodine, Betadine)**

Price: \_\_\_\_\_ for \_\_\_\_\_

For treatment or prevention of bacterial infections of the skin.

Mix 2 tablespoons of povidone iodine in a liter of warm water that has been boiled. Use on skin 1 time every day or two for 7 to 10 days. Do not use for infants or deep wounds.

Povidone iodine can be used to prevent goiter if there is no iodized salt. Mix 1 drop of povidone iodine in a liter of water. Drink a glass of this mixture every week, lifelong.

**Gentian violet (crystal violet)**

Often comes as dark blue crystals. Also comes in solution of 0.5%.

Price: \_\_\_\_\_ for \_\_\_\_\_

Gentian violet helps fight certain skin infections, including impetigo and sores with pus. It can also be used to treat yeast infections (*Candida*) in the mouth or the nipples (thrush) or in the vulva or skin folds.

Dissolve a teaspoon of gentian violet in half a liter of water. This makes a 2 percent solution. Or use a pre-mixed solution of 0.5% to 2%. Paint it on the skin or in the mouth or the vulva. For yeast, paint on once a night for 3 nights.

**Antibiotic ointments**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

These are expensive and often do no more good than gentian violet. However, they do not color the skin or clothes and are of use in treating minor skin infections like impetigo. A good ointment is one that contains a neomycin/ polymyxin combination (for example *Neosporin* or *Polysporin*). An ointment of tetracycline can also be used.

**Cortico-steroid ointments or lotions**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

These can be used for 'weeping' or severely itchy skin irritations caused by insect bites, by touching certain 'poisonous' plants, and other things. They are also useful in treating severe eczema (see p. 216) and psoriasis (p. 216). Use 3 or 4 times a day. Avoid using for long periods of time, or on large areas of skin.

**Petroleum jelly (petrolatum, Vaseline)**

Price: \_\_\_\_\_ for \_\_\_\_\_

Useful for preparing ointments or dressings in the treatment of: scabies (see p. 199 and 374), ringworm (p. 373), itching from pinworm (p. 141), burns (p. 96 and 97), chest wounds (p. 91).

**GREEN PAGES****FOR RINGWORM AND OTHER FUNGUS INFECTIONS**

Many fungus infections are very difficult to get rid of. For complete control, treatment must be continued for days or weeks after the signs disappear. Bathing and cleanliness are also important.

**Ointments with undecylenic, benzoic, or salicylic acid**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Ointments with these acids can be used to treat ringworm, tinea of the scalp, and other fungus infections of the skin. Often they are (or can be) combined with sulfur. Ointments with salicylic acid and sulfur can also be used for cradle cap (seborrhea).

*Whitfield's Ointment* is a combination of salicylic and benzoic acid. It is useful for many fungal infections, including tinea versicolor. Apply twice daily for 2 to 4 weeks.

Ointments and lotions are cheaper if you make them yourself. Mix 3 parts of salicylic acid and/or 6 parts of benzoic acid with 100 parts of *Vaseline*, petrolatum, mineral oil, lard, or 40 percent alcohol (or rum). Rub onto skin 3 or 4 times a day.

**Sulfur and vinegar**

A lotion of 5 parts of sulfur to 100 parts vinegar helps fight fungus infections of the skin. Let dry on skin. Also, an ointment can be made using 1 part sulfur to 10 parts of lard.

**Sodium thiosulfate ('hypo')**

Often comes as white crystals, sold in photographic supply stores as 'hypo'.

Price: \_\_\_\_\_ for \_\_\_\_\_

Used for **tinea versicolor** infections of the skin (see p. 206).

Dissolve a tablespoon of 'hypo' in ½ cup of water and spread it on the skin with a piece of cotton or cloth. Then rub the skin with a piece of cotton soaked in vinegar. Do this twice daily until the 'spots' go away and then once again every 2 weeks to keep them from coming back.

**Selenium sulfide** (*Selsun, Exsel*)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes as lotion containing 1 or 2.5 percent selenium sulfide.

Lotions with selenium sulfide are useful for treating tinea versicolor. Apply to the affected area, and wash off 30 minutes later. Use daily for one week.

**Tolnaftate** (*Tinactin*)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: cream, powder, and solution of 1 percent tolnaftate.

This may be used for fungus infections caused by tinea on the feet, groin, scalp, hands, and body. Apply twice daily until 2 weeks after symptoms are gone.

**Griseofulvin**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: tablets or capsules of 250 or 500 mg.

Preparations in 'microsized' particles are best.

This is very expensive and should be used only for severe fungus infections of the skin and deep tinea infections of the scalp. It is also used for fungal infections of the nails, but this may take months and does not always work. **Pregnant women should avoid taking griseofulvin.**

**Dosage** of griseofulvin (15 mg/kg/day)—for microsized particle form, 250 mg capsules

Give once a day for at least a month.

adults: 500 to 1000 mg (2 to 4 capsules)

children 8 to 12 years: 250 to 500 mg  
(1 to 2 capsules)

children 3 to 7 years: 125 to 250 mg  
(½ to 1 capsule)

children under 3 years: 125 mg (½ capsule)

**Gentian violet**—for yeast infections (see p. 372)

**Nystatin or Clotrimazole**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: solutions, dusting powders, vaginal tablets, ointments, and creams

Used for treating yeast infections (*Candida*) in the mouth (thrush), the vagina, or in the folds of the skin. Nystatin only works for infections caused by yeast, but clotrimazole works against other fungus infections as well.

**Dosage** for nystatin and clotrimazole is the same for children and adults:

**Thrush in the mouth:** For nystatin, put 1 ml of solution in the mouth and hold it there for at least 1 minute before swallowing. Do this 4 times a day. For clotrimazole, put one 10 mg lozenge in the mouth and let it dissolve (this takes about 30 minutes). Do this 5 times a day.

**Yeast infection on the skin:** keep as dry as possible and use nystatin or clotrimazole ointment or nystatin dusting powder 2 to 3 times a day..

**Yeast infection in the vulva or vagina:** put an insert or cream high in the vagina each night. For nystatin, use one 100,000 Units insert or cream each night for 14 nights. For clotrimazole, use one 100 mg insert each night for 5 nights, or one 500 mg insert for 1 night only.

## FOR SCABIES AND LICE: INSECTICIDES

**Benzyl benzoate, cream or lotion**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: cream or lotion.

Used for both scabies and head lice.

**For head lice**, wash and dry hair and scalp thoroughly before applying benzyl benzoate. Use enough to thoroughly wet the dry hair and skin. Leave the medicine on for 24 hours, then wash with warm water and soap or shampoo. After rinsing and drying, use a fine-tooth comb to remove any nits or shells from hair. For severe cases, repeat 2 to 3 times, waiting 24 hours after each use.

**For scabies**, wash and dry body thoroughly, then apply benzyl benzoate from the neck down, including the soles of the feet, and rub in well. Leave the medicine on for 24 hours, then wash with warm water and soap. Rinse thoroughly and dry with a clean towel. For severe cases, repeat once between 1 to 5 days after the first use.

**Dosage** of Benzyl benzoate for children with either head lice or scabies:

Infants: mix 1 part benzyl benzoate with 3 parts water, 1 time only.

Older children: mix 1 part benzyl benzoate with 1 part water, 1 time only.

**Permethrin** (*Acticin, Elimite, Nix*)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Comes in many forms. For scabies, use a cream containing 5 percent permethrin. For lice, use a shampoo containing 1 percent permethrin.

For scabies, this is the best choice (unless you have HIV, then use Ivermectin, see p. 379).

**For scabies**, wash and dry body thoroughly, then apply permethrin from the neck down, including the soles of the feet, and rub in well. Leave the medicine on for 10 to 14 hours, then wash with warm water and soap. Rinse thoroughly and dry with a clean towel. Repeat after 1 week. Treat all family members as prevention.

**For head lice**, permethrin is used in some medicated shampoos (*Nix*). Follow the directions on the container, which should be the same as listed below in Pyrethrins with piperonyl (*RID*).

**Crotamiton** (*Crotan, Eurax*)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: cream or lotion containing 10 percent crotamiton.

For scabies only, but avoid using on children under 3 years old. Use like permethrin, but do not wash it off. After 24 hours, apply a second time. Wash with soap and warm water 2 days after the last application. Change clothing and bedding at this time as well. Resistance is developing to Crotamiton, so it does not always work.

**Ivermectin** (see p. 379)**Sulfur in petroleum jelly** (*Vaseline*) or lard

Use this for scabies if you cannot get the above. Mix 1 part of sulfur in 20 parts of *Vaseline*, mineral oil, or lard to form a 5 percent sulfur ointment.

**Pyrethrins with piperonyl** (*RID*)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes as a liquid solution containing pyrethrins and piperonyl butoxide.

Works well for all kinds of lice. Without adding any water, apply the liquid to dry hair until it is completely wet. (Do not use on eyebrows or eyelashes.) Wait 10 minutes, no longer. Wash the hair with warm water and soap or shampoo. Repeat in 1 week. Change clothing and bedding after treatment. To get rid of nits (lice eggs), see p. 200.

## FOR GENITAL WARTS

### Podophyllin

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: solution containing 10 to 25 percent podophyllin mixed with benzoin.

This is used to shrink genital warts. Podophyllin is very irritating to healthy skin, so it should be used with care. Before applying, it helps to protect the area around the warts with petroleum jelly (*Vaseline*) or some other greasy ointment. (This is especially important in areas where normal skin may touch the wart, such as the foreskin of the penis.) Apply solution to warts and let dry completely. Wash off thoroughly in 4 to 6 hours. Treatment can be repeated in one week. Usually several weekly treatments are needed.

**CAUTION:** If severe skin irritation develops, do not use again. Podophyllin should not be used on bleeding warts. Women who are pregnant or breastfeeding should not use podophyllin.

### Trichloroacetic acid

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: clear liquid.

If podophyllin is not available, trichloroacetic acid can be used to shrink warts. It also dissolves healthy skin, so it must be used with care. Protect the skin around the wart with *Vaseline* or some other greasy ointment. Carefully trim off dead tissue from large or thick warts. With a toothpick, apply a small drop of acid to the wart. Gently work the acid into the wart with the point of the toothpick. Several treatments are usually needed and can be repeated weekly.

**CAUTION:** This acid can cause severe burns. Protect hands and other healthy skin from the acid, and wash immediately in case of contact.

## FOR HERPES AND SHINGLES

### Acyclovir (*Zovirax*)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: tablets of 200, 400, or 800 mg

Acyclovir kills viruses and is used to fight herpes and shingles. Acyclovir will not cure herpes, but controls it, making herpes less painful and keeping it from spreading. Take with lots of water. People with kidney damage should not take acyclovir.

**Side effects:** Acyclovir may cause headache, dizziness, nausea, and vomiting. Loss of memory and not being able to pass urine are signs of taking too much.

**Dosage** of acyclovir:

#### For genital herpes infection or cold sores:

For a first-time infection, take 400 mg acyclovir, by mouth, 3 times a day for 7 days.

If you have had a herpes infection before, start taking the same medicine as soon as you notice any signs of tingling, burning, or sores, but for only 5 days.

If you have had more than 6 herpes outbreaks in 1 year, take 400 mg acyclovir by mouth, 2 times a day every day for 1 year. Then stop to see if the medicine is still needed.

**For shingles:** take 600 to 800 mg by mouth, 5 times a day for 7 to 10 days.

## FOR WORMS

Medicines by themselves are not enough to get rid of worm infections for very long. Guidelines of personal and public cleanliness must also be followed. When 1 person in the family has worms, it is wise to treat the whole family.

### Mebendazole (*Vermox*)

for many different worm infections

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: tablets of 100 or 500 mg

This medicine works against hookworm, whipworm, roundworm, pinworm (threadworm), and another worm called *Strongyloides*. Works well for mixed infections. It may do some good in cases of trichinosis. When treating heavy worm infections there may be some gut pain or diarrhea, but side effects are not common.

**WARNING:** Do not give mebendazole to women in the first 3 months of pregnancy or children under 6 months old.

**Dosage** of mebendazole—using 100 mg tablets

Give the same amount to children over 1 year old and adults. For babies 6 months to 1 year old, give half the dosage below.

**For pinworm:** 1 tablet one time. Give again in 2 weeks if there are still pinworms.

For **roundworm (Ascaris), whipworm (Trichuris), hookworm, and Strongyloides:** 1 tablet twice a day (morning and evening) for 3 days (6 tablets in all), or one 500 mg tablet 1 time only.

For **trichinosis:** Give 200–400 mg 3 times a day for 3 days. Then give 400–500 mg 3 times a day for another 10 days. In severe cases, cortico-steroids also help, but should be given by a health worker or doctor.

**Albendazole (Zentel)**—for many different worm infections

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: tablets of 200 and 400 mg

This medicine is similar to mebendazole, but often more expensive. It works against hookworm, whipworm, Strongyloides, roundworm, and pinworm. Side effects are rare.

**WARNING:** Do not give albendazole to women in the first 3 months of pregnancy or children under 1 year.

**Dosage** of albendazole—using 400 mg tablets

Give the same amount to children more than 2 years old and adults. For children 1 to 2 years old, give half the dosage below.

For **pinworm, roundworm (Ascaris), whipworm (Trichuris), and hookworm:** 400 mg (1 tablet) one time.

**For Strongyloides:** 400 mg (1 tablet) twice a day for 3 days, and then repeat one week later.

**For trichinosis:** 400 mg 2 times a day for 8 to 14 days. In severe cases, cortico-steroids also help, but should be given by a health worker or doctor.

**Piperazine**—for roundworm (Ascaris) and pinworm (threadworm, Enterobius)

Name: \_\_\_\_\_

Prepared as piperazine citrate, tartrate, hydrate, adipate, or phosphate

Often comes in:

500 mg tablets

Price: \_\_\_\_\_ for \_\_\_\_\_

Mixture, 500 mg in 5 ml

Price: \_\_\_\_\_ for \_\_\_\_\_

A large dose is given for 2 days to treat roundworm. Smaller doses every day for a week are given for pinworm. There are few side effects.

## GREEN PAGES

**Dosage** of piperazine for **roundworm (Ascaris)** (75 mg/kg/day)—500 mg tablets or mixture with 500 mg in 5 ml

Give once daily for 2 days.

adults: 3500 mg (7 tablets or 7 teaspoons)  
children 8 to 12 years: 2500 mg (5 tablets or 5 teaspoons)

children 3 to 7 years: 1500 mg (3 tablets or 3 teaspoons)

children 1 to 3 years: 1000 mg (2 tablets or 2 teaspoons)

babies under 1 year: 500 mg (1 tablet or 1 teaspoon)

**Dosage** of piperazine for **pinworm (Enterobius)** (40 mg/kg/day):

Give 2 doses daily for a week.

adults: 1000 mg (2 tablets or 2 teaspoons)  
children 8 to 12 years: 750 mg

(1½ tablets or 1½ teaspoons)

children 3 to 7 years: 500 mg (1 tablet or 1 teaspoon)

children under 3 years: 250 mg (½ tablet or ½ teaspoon)

**Thiabendazole**—for many different worm infections

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: 500 mg tablets or mixture with 1 g in 5 ml

Because thiabendazole causes more side effects than mebendazole or albendazole, it should only be used for worms when these medicines are not available, or for worm infections that are not inside the gut.

It can be used to treat hookworm, whipworm (Trichuris), and another worm called Strongyloides. It also works for roundworm and pinworm, but piperazine has fewer side effects. It can be helpful in treating guinea worm, and may do some good in cases of trichinosis.

**CAUTION:** Thiabendazole may cause roundworm (Ascaris) to crawl up the throat. This can block breathing. Therefore, if you suspect a person has roundworm in addition to other worms, it is wise to treat first with piperazine before giving thiabendazole.

**Side effects:** Thiabendazole often causes tiredness, a sick feeling, and sometimes vomiting.

**Dosage** for thiabendazole (25 mg/kg/day)  
—500 mg tablets or mixture with 1 g in 5 ml.

Give twice a day for 3 days. Tablets should be chewed.

In each dose give:

- adults: 1500 mg (3 tablets or 1½ teaspoons)
- children 8 to 12 years: 1000 mg (2 tablets or 1 teaspoon)
- children 3 to 7 years: 500 mg (1 tablet or ½ teaspoon)
- children under 3 years: 250 mg (½ tablet or ¼ teaspoon)

**Pyrantel** (*Antiminth, Cobantril, Helmex, Pin-X*)

Name: \_\_\_\_\_

Often comes in:

250 mg tablets

Price: \_\_\_\_\_ for \_\_\_\_\_

Mixture, 50 mg in 1 ml

Price: \_\_\_\_\_ for \_\_\_\_\_

This medicine works for pinworm, hookworm, and roundworm (*Ascaris*), but it may be expensive. Pyrantel occasionally causes vomiting, dizziness, or headache.

**Dosage** for pyrantel (10 mg/kg)—using 250 mg tablets

For hookworm and roundworm, give one time. For pinworm, repeat dose after 2 weeks.

In each dose give:

- adults: 750 mg (3 tablets)
- children 10 to 14 years: 500 mg (2 tablets)
- children 6 to 9 years: 250 mg (1 tablet)
- children 2 to 5 years: 125 mg (½ tablet)
- children under 2 years: 62 mg (¼ tablet)

**FOR TAPEWORM**

There are several types of tapeworms. Niclosamide and pranziquantel are both effective for treating most types. Niclosamide is less expensive.

**Niclosamide** (*Yomesan*)—for tapeworm infection

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: chewable tablets of 500 mg

Niclosamide is probably the best medicine for tapeworm. It works against most kinds of tapeworm in the gut, but not against cysts outside the gut.

**Dosage** of niclosamide for tapeworm—500 mg tablets

Chew well and swallow 1 dose only. Do not eat before or until 2 hours after taking the medicine. Giving a purge 2 hours after taking niclosamide may help get rid of the tapeworm.

adults and children over 8 years: 2 g (4 tablets)

children 2 to 8 years: 1 g (2 tablets)

children under 2 years: 500 mg (1 tablet)

To treat dwarf tapeworm, repeat the above dosage for 7 days.

**Praziquantel** (*Biltricide, Droncit*)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: tablets of 150 mg and 600 mg

Praziquantel is effective in treating most types of tapeworms, but is more expensive than niclosamide.

**WARNING:** Pregnant women and children under 4 years old should avoid taking praziquantel if possible. Women who are breastfeeding should stop giving their babies breast milk while taking praziquantel and for 72 hours after taking it (squeeze out the milk and throw it away).

**Side effects:** Praziquantel may cause tiredness, dizziness, headache, and loss of appetite, but these side effects are rare at the low dosages used to treat tapeworm.

**Dosage** of praziquantel for **most kinds of tapeworm**, including beef and pork tapeworm (10 to 20 mg/kg)—using 600 mg tablets

Take once only.

adults: 600 mg (1 tablet)

children 8 to 12 years: 300 mg (½ tablet)

children 4 to 7 years: 150 mg (¼ tablet)

Treatment of dwarf tapeworm (*H. nana*) requires a larger dosage:

Take once only.

adults: 1500 mg (2½ tablets)

children 8 to 12 years: 600 to 1200 mg (1 to 2 tablets)

children 4 to 7 years: 300 to 600 mg (½ to 1 tablet)

**Quinacrine** (*mepacrine, Atabrine*)—for tapeworm, see p. 371.



## FOR SCHISTOSOMIASIS (BLOOD FLUKES, BILHARZIA)

In different parts of the world there are several types of schistosomiasis, which require different treatments. Praziquantel is a medicine that works against all forms of the disease. Metrifonate and oxamniquine are effective against some kinds of schistosomiasis. Medicines should be given under direction of an experienced health worker.

### Praziquantel (*Biltricide, Droncit*)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: tablets of 150 or 600 mg

**WARNING:** Pregnant women and children under 4 should avoid taking praziquantel if possible. Women who are breastfeeding should stop giving their babies breast milk while taking praziquantel and for 72 hours after taking it (squeeze out the milk and throw it away).

**Side effects:** Praziquantel frequently causes tiredness, headache, dizziness, and loss of appetite, but treatment need not be stopped if these side effects occur. To lessen side effects, praziquantel is best taken with a large meal.

**Dosage** of praziquantel for schistosomiasis (40 mg/kg)—using 600 mg tablets

To treat schistosomiasis that causes blood in the urine (*S. hematobium*), give 2 times a day for 1 day. In each dose give:

adults: 1200 to 1500 mg (2 to 2 ½ tablets)

children 8 to 12 years: 600 to 900 mg  
(1 to 1 ½ tablets)

children 4 to 7 years: 300 mg (½ tablet)

The above doses will also treat one kind of schistosomiasis found in East and Central Africa and South America that causes blood in the stool (*S. mansoni*). But in Eastern Asia, schistosomiasis causing blood in the stool (*S. japonicum*) requires a larger dose (60 mg/kg):

Give 3 times a day for one day. In each dose give:

adults: 1200 to 1500 mg (2 to 2½ tablets)

children 8 to 12 years: 600 to 900 mg  
(1 to 1½ tablets)

children 4 to 7 years: 300 mg (½ tablet)

(To reduce side effects, this larger amount can be divided into 3 smaller doses, given in one day.)

### Oxamniquine (*Vansil, Mansil*)

Name: \_\_\_\_\_

Often comes in:

capsules with 250 mg

Price: \_\_\_\_\_ for \_\_\_\_\_

syrup with 250 mg in 5 ml

Price: \_\_\_\_\_ for \_\_\_\_\_

Oxamniquine is used to treat schistosomiasis causing blood in the stools in South and Central America (*S. mansoni*). (To treat *S. mansoni* found in Africa, larger doses than those given here are needed. Seek local advice.) This medicine is best taken after a meal.

**WARNING:** Pregnant women should not take oxamniquine. This medicine may cause dizziness, drowsiness, and, rarely, seizures. Persons with epilepsy should use oxamniquine only when also taking epilepsy medicine.

**Dosage** of oxamniquine (adults: 15 mg/kg/day; children: 10 mg/kg/twice a day)—250 mg capsules

Give for one day only:

For adults, give 750 to 1000 mg  
(3 or 4 capsules) in one dose.

For children, give the following dose twice in one day:  
children 8 to 12 years: 250 mg  
(1 capsule)

children 4 to 7 years: 125 mg (½ capsule)

children 1 to 3 years: 63 mg (¼ capsule)



## FOR RIVER BLINDNESS (ONCHOCERCIASIS)

The best medicine for treating river blindness is ivermectin. This medicine kills the baby worms slowly and does not cause the dangerous reaction of other treatments. If ivermectin is not available, an experienced health worker can give diethylcarbamazine first and then also suramin.

Ivermectin is also very useful in treating scabies and strongyloides (a very tiny worm).

### Ivermectin (*Mectizan, Stromectol*)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: 3 or 6 mg tablets

To determine the correct dose, weigh the person or use the averages below.

**CAUTION:** Do not give to children who weigh less than 15 kg. (or children who are under 5 years old), to pregnant or breastfeeding women, or to persons with meningitis or other serious illness. Do not drink alcohol for a few days after taking ivermectin.

#### *Dosage* of ivermectin for **river blindness**

Give 1 time by mouth 150 mcg per kg of weight, or using 6 mg tablets:

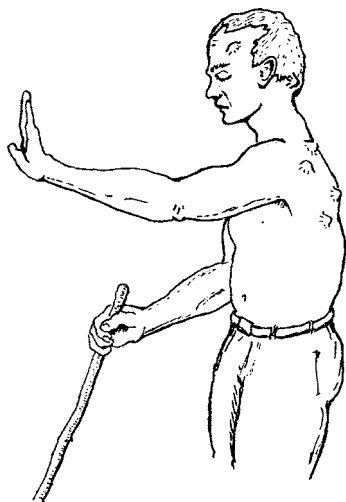
heavy adults (over 64 kg): 2 tablets (12 mg)

average adults (45 to 63 kg): 1 ½ tablets (9 mg)

light adults and youth (26 to 44 kg): 1 tablet (6 mg)

children (15 to 25 kg): ½ tablet (3 mg)

For river blindness, another dose is sometimes needed after 6 months to 1 year.



#### *Dosage* of ivermectin for **scabies** or **strongyloides**

Give 1 time by mouth 200 mcg per kg of weight, or using 6 mg tablets:

heavy adults (over 64 kg): 2½ tablets (15 mg)

average adults (45 to 63 kg): 2 tablets (12 mg)

light adults and youth (26 to 44 kg): 1 ½ tablets (9 mg)

children (15 to 25 kg): 1 tablet (6 mg)

For scabies, repeat this dosage after 10 to 14 days.

## FOR THE EYES

### Antibiotic eye ointment—for 'pink eye' (conjunctivitis)

Useful examples: oxytetracycline, chlortetracycline, or erythromycin eye ointments

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

These eye ointments can be used to treat 'pink eye' caused by bacteria, trachoma, and corneal ulcers (see p. 224), as well as to prevent sties, and gonorrhea and chlamydia eye infections in newborns. For an eye ointment to do any good, it must be put **inside** the eyelid, not outside.

Use **1% tetracycline** or **erythromycin 0.5% to 1%** ointment:

**For trachoma**, use eye ointment 2 times a day for 6 weeks.

**For pink-eye (conjunctivitis)**: 4 times a day for 7 days.

**For preventing gonorrhea and chlamydia in newborns**: once at birth. (See p. 221 for information about how to treat these diseases in the newborn.)

If antibiotic eye ointments are not available, you can use 1 drop of **2.5% solution of povidone-iodine** or 1 drop of **1% solution of silver nitrate** in each eye. Silver nitrate (or other "silver" eye medicines) stops gonorrhea blindness, but does not stop the blindness that comes from chlamydia.

**WARNING:** Do not use silver nitrate drops that may have become too concentrated because of evaporation—they can burn babies' eyes.

## FOR PAIN: ANALGESICS

**Note:** There are many different kinds of pain medicine, many of which are dangerous (especially those containing **dipyrrone**). Use only those you are sure are relatively safe like **aspirin**, **acetaminophen (paracetamol)**, or **ibuprofen**. For a stronger painkiller see **codeine** (p. 385).

**Aspirin (acetylsalicylic acid)**

Often comes in:

300 mg (5 grain) tablets

Price: \_\_\_\_\_ for \_\_\_\_\_

75 mg (1¼ grain) tablets for children  
(or 'child's aspirin')

Price: \_\_\_\_\_ for \_\_\_\_\_

Aspirin is a very useful, low-cost 'painkiller' or analgesic. It helps to calm pain, lower fever, and reduce inflammation. It also helps a little to calm cough and reduce itching. For children under 12, acetaminophen is safer.

Many different medicines sold for pain, arthritis, or colds contain aspirin, but they are more expensive and often do not do any more good than aspirin alone.

**RISKS AND PRECAUTIONS:**

1. Do not use aspirin for stomach pain or indigestion. Aspirin is acid and may make the problem worse. For the same reason, **persons with stomach ulcers should never use aspirin**.
2. Aspirin causes stomach pain or 'heartburn' in some persons. To avoid this, take aspirin with milk, a little bicarbonate of soda, or a lot of water—or together with meals.
3. Do not give more than 1 dose of aspirin to a dehydrated person until he begins to urinate well.
4. It is better not to give aspirin to children under 12 years and especially not to babies (acetaminophen is safer) or to persons with asthma (this may bring on an attack).

**Dosage** of aspirin—for pain or fever—tablets of 300 mg (5 grains)

Take once every 4 to 6 hours (or 4 to 6 times a day). Do not take more than 2400 mg (8 tablets) a day. Do not give to children more than 4 times a day.

adults: 1 or 2 tablets (300 to 600 mg)

children 8 to 12 years: 1 tablet (300 mg)

children 3 to 7 years: ½ tablet (150 mg)

children 1 to 2 years old: ¼ tablet (75 mg)

(Dose may be increased for severe menstrual pain, severe arthritis or rheumatic fever. Do not give more than 130 mg/kg/day. If ringing of the ears develops, lower the dose.)

—75 mg 'child's aspirin' tablets

Give children aspirin 4 times a day:

children 8 to 12 years: 4 tablets (300 mg)

children 3 to 7 years: 2 to 3 tablets (150 to 225 mg)

children 1 to 2 years: 1 tablet (75 mg)

do not give aspirin to children under 1 year old

**For prevention of pre-eclampsia:**

Take 1 low-dose or child's aspirin (75 to 82 mg) 1 time each day during pregnancy.

**Acetaminophen (paracetamol)**—for pain and fever

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: 300 to 500 mg tablets, syrups

Acetaminophen (paracetamol) is safer for children than aspirin. It does not cause stomach irritation and so can be used instead of aspirin by persons with stomach ulcers. It can also be used by pregnant women. But be careful not to take too much acetaminophen—too much poisons the liver.

**Dosage** of acetaminophen—for pain and fever—500 mg. tablets

Give acetaminophen by mouth 4 times a day.

In each dose give:

adults: 500 mg to 1 g (1 or 2 tablets)

children 8 to 12 years: 500 mg (1 tablet)

children 3 to 7 years: 250 mg (½ tablet)

children 1 year to 2 years: 125 mg (¼ tablet)

babies under 1 year: 62 mg (⅙ tablet)

Do not give more than 4000 mg (8 tablets) in a day.

**Ibuprofen**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: 200 mg or 400 mg tablets

Ibuprofen works for muscle swelling and pain, joint pain from arthritis, menstrual pain, headache, and to lower fever. It is more expensive than aspirin.

**WARNING:** Ibuprofen should not be taken by persons who are allergic to aspirin. Pregnant women should not use ibuprofen.

**Dosage** of ibuprofen—for pain and fever—200 mg tablets

Give ibuprofen by mouth every 4 to 6 hours.

**Always take this medicine with food or a large glass of water.**

In each dose give:

adults and children 12 years and older:

200 mg (1 tablet)

children under 12 years: Do not give.

If one tablet does not relieve pain or fever, two tablets may be used. Do not take more than six tablets in 24 hours.

**Ergotamine with caffeine** (*Cafergot*)—for migraine headache

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: tablets with 1 mg of ergotamine

**Dosage** of ergotamine with caffeine for migraine:

adults: Take 2 tablets at the first sign of a migraine, then 1 tablet every half hour until the pain goes. But do not take more than 6 tablets in 24 hours or 10 tablets per week.

**WARNING:** Do not take this medicine often. Do not take when pregnant.

**Codeine**—for severe pain—see p. 385.

## FOR STOPPING PAIN WHEN CLOSING WOUNDS: ANESTHETICS

**Lidocaine** (*Lignocaine, Xylocaine*)

2 percent (with or without epinephrine)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: ampules or bottles for injection

Lidocaine can be injected around the edges of a wound before sewing it, to make the area *anesthetic* or numb so it will not hurt.

Inject both into and under the skin at points about 1 cm. apart. Be sure to pull back on the plunger before injecting (see p. 73). Inject slowly. Use about 1 ml of anesthetic for each 2 cm of skin. (Do not use more than 20 ml altogether.) If the wound is clean, you can inject into the sides of the wound itself. If the wound is dirty, inject through the skin (after cleaning it) around the wound and then **clean the wound with great care** before closing it.

**Use lidocaine with epinephrine for sewing most wounds.** The epinephrine makes the numbness last longer and helps control bleeding. But do not use it on people with heart problems.

**Use lidocaine without epinephrine for sewing tears after childbirth, and for wounds on fingers, toes, penis, ears, and nose.** This is important because the epinephrine can stop the flow of blood to these areas and cause great damage.

Another use of lidocaine with epinephrine: **For severe nosebleed**, soak a little into some cotton and pack it into the nose. The epinephrine will cause the veins to squeeze shut and help control bleeding.

## FOR GUT CRAMPS: ANTISPASMODICS

**Belladonna (with or without phenobarbital)**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: tablets with 8 mg belladonna

There are many different antispasmodic preparations. Most contain belladonna or something like it (atropine, hyoscyamine) and often phenobarbital (phenobarbitone). These medicines should not be used on a regular basis, but can be used occasionally for treatment of pain or cramps (colic) in the stomach or gut. They may help calm the pain of a bladder infection or inflamed gallbladder. They are sometimes useful in the treatment of ulcers.

**Dosage** for belladonna—for gut cramps—tablets with 8 mg belladonna

adults: 1 tablet, 3 to 6 times a day

children 8 to 12 years: 1 tablet, 2 or 3 times a day

children 5 to 7 years: ½ tablet, 2 or 3 times a day

do not give to children under 5 years

**WARNING:** These medicines are poisonous if too much is taken. Keep out of reach of children.

Persons with glaucoma should not take medicines that contain belladonna or atropine.

## FOR ACID INDIGESTION, HEARTBURN, AND STOMACH ULCERS

### Aluminum hydroxide or magnesium hydroxide (*Milk of Magnesia*)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: tablets of 500 to 750 mg, or in mixtures with 300 to 500 mg in 5 ml.

Sometimes these are mixed together or with magnesium trisilicate. If simethicone is added, it helps control gas.

These antacids can be used occasionally for acid indigestion or heartburn or as a regular part of treatment of a stomach (peptic) ulcer. The most important time to take antacids is 1 hour after meals and at bedtime. Chew 2 or 3 tablets. For severe stomach ulcers, it may be necessary to take 3 to 6 tablets (or teaspoons) every hour.

**CAUTION:** Do not use these medicines if you are also taking tetracycline. Antacids with magnesium sometimes cause diarrhea, and those with aluminum may cause constipation.

### Sodium bicarbonate (bicarbonate of soda, baking soda)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Comes as a white powder

**As an antacid**, this should be used in a very limited way, when someone has an occasional stomach upset, with 'heartburn' or acid indigestion.

**It should not be used in treating chronic indigestion or stomach (peptic) ulcers.** Although it seems to help at first, it causes the stomach to produce more acid, which soon makes things worse. 'Soda' is also useful for the 'hangover' of a person who has drunk too much alcohol the night before. For this purpose (but not for acid indigestion) it can be taken with acetaminophen or aspirin. *Alka-Seltzer* is a combination of sodium bicarbonate and aspirin. As an **occasional** antacid, mix ½ teaspoon of sodium bicarbonate with water and drink it. Do not use often.

**For cleaning teeth**, baking soda or a mixture of 'soda' and salt can be used instead of toothpaste (see p. 230).

**WARNING: Persons with certain heart problems (failure) or with swelling of the feet or face should not take sodium bicarbonate or other products high in sodium (like salt).**

## GREEN PAGES

### Calcium carbonate

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: tablets of 350 to 850 mg

This works more slowly than sodium bicarbonate. It is very effective for occasional acid indigestion or heartburn, but should not be used long term or for treatment of ulcers. Chew one 850 mg tablet or two 350 mg tablets when symptoms occur. Take another dose in 2 hours if necessary.

### Omeprazole (*Prilosec*)

Name: \_\_\_\_\_

Often comes in:

Powder for oral liquid: 20 and 40 mg sachets

price: \_\_\_\_\_ for \_\_\_\_\_

Capsules: 10 mg, 20 mg, and 40 mg

price: \_\_\_\_\_ for \_\_\_\_\_

Omeprazole can calm pain and help an ulcer heal. But to kill the bacteria that cause the ulcer, use omeprazole with 2 antibiotics: either amoxicillin or tetracycline; and metronidazole. Be sure to follow the advice on p. 128 and 129 to treat and prevent ulcers.

**Dosage** of omeprazole for treatment of ulcers:

40 mg once a day for 10 to 14 days

### Ranitidine (*Zantac*)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: tablets of 150 mg or 300 mg.

Ranitidine can calm pain and help an ulcer to heal. But to kill the bacteria that cause the ulcer, use ranitidine with 2 antibiotics: either amoxicillin or tetracycline; and metronidazole. But be sure to also follow the advice on p. 128 and 129 to treat and prevent ulcers.

**Dosage** of ranitidine for treatment of ulcers:

150 mg twice a day, or 300 mg at dinnertime, for 1 week.

## FOR SEVERE DIARRHEA AND DEHYDRATION: REHYDRATION DRINKS, 'ORS', AND ZINC

Instructions for making Rehydration Drink with cereal or ordinary sugar are on page 152.

In some countries packets of a simple sugar (glucose) and salts for making a rehydration drink are sold in stores or are available at health posts. While these packets are sometimes convenient, a homemade mix using cereal or sugar and a little salt, as described on page 152, combats diarrhea as well or better. It is better to make a home mix and spend the money you save on more and better food.

Be sure to **continue giving breast milk** to a baby with diarrhea. And **start giving food as soon as the sick child will accept it**. Giving food together with rehydration drink combats dehydration more effectively and protects the child from becoming weaker. Giving zinc in addition to rehydration drink can also help children with severe diarrhea get better more quickly (see below).

**WARNING:** In some countries, packets of 'ORS' (oral rehydration salts) are sold in a variety of preparations, which require different amounts of water for correct preparation. **If you use ORS packets, be sure you know how much water to mix with it.** Too little water can be dangerous.

**CAUTION:** If you plan to take a child with diarrhea to the health post or hospital, always give her lots of liquids, and if possible a homemade rehydration drink, before you leave home. And if you can, take some of the drink (or if nothing else, plain water) with you, to give to the child on the way to the health post and while you wait your turn. Give the child the drink often as much as she will take. If the child is vomiting, give small quantities every minute. Some of the drink will stay inside, and it will also help reduce vomiting.

### Zinc

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: tablets of 5 mg, 10 mg, and 20 mg.  
injections of 1 mg in 1 ml, 5 mg in 1 ml, and 10 mg in 2 ml  
liquid solution of 10 mg per unit

Giving zinc along with rehydration drink and food helps children with diarrhea get better, faster. Zinc tablets can be ground up and mixed with breast milk or a little water.

**Dosage:** Give zinc once a day for 10 to 14 days. In each dose give:

- children over 6 months: 20 mg
- babies under 6 months: 10 mg

## FOR HARD STOOLS (CONSTIPATION): LAXATIVES

A discussion of the use and misuse of different laxatives and purges is found on page 15. Laxatives are used far too much. They should be used only **occasionally** to help soften hard, painful stools (constipation). **Never give laxatives to anyone who has diarrhea or gut pain or who is dehydrated.** Do not give laxatives to small children under 2 years old.

Generally the best stool softeners are foods high in roughage or fiber, like bran or cassava. Drinking a lot of liquid (at least 8 glasses of water a day) and eating lots of fruit also help.

### Milk of magnesia (magnesium hydroxide)—laxative and antacid

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes as a milky solution

Shake well before using. Drink some water each time you take it.

**Dosage** for milk of magnesia:

#### As an antacid:

- adults and children over 12 years:  
1 to 3 teaspoons 3 or 4 times a day
- children 1 to 12 years: ½ to 1 teaspoon  
3 or 4 times a day

#### As a mild laxative give 1 dose at bedtime:

- adults and children over 12 years: 2 to 4 tablespoons
- children 6 to 11 years: 1 to 2 tablespoons
- children 2 to 5 years: ⅓ to 1 tablespoon
- do not give to children under 2 years old

**Epsom salts (magnesium sulfate)**—as a laxative and for itching

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in white powder or crystals

*Dosage* for Epsom salts:

**As a mild laxative**—mix the following amount of Epsom salts in a glass of water and drink (best taken on an empty stomach):

adults: 2 teaspoons

children 6 to 12 years: ½ to 1 teaspoon

children 2 to 6 years: ¼ to ½ teaspoon

do not give to children under 2 years old

**To help stop itching**—mix 8 teaspoons of Epsom salts in a liter of water and put on itching skin as cool soaks or compresses.

**Mineral oil**—as a laxative

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

This is sometimes taken by persons with piles (hemorrhoids) who have hard, painful stools. However, it does not really soften the stools, but merely greases them. Foods high in fiber, like bran or cassava, are far better.

*Dosage* of mineral oil as a laxative:

adults and children 12 years and over:

1 to 3 tablespoons by mouth at least

1 hour after the evening meal. Do not take with meals because the oil will rob some of the vitamins from the food.

**CAUTION:** Do not give to children under 12 years old, women who are pregnant or breastfeeding, to persons who cannot get out of bed, or to persons who have trouble swallowing.

**Glycerine suppositories**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

These are bullet-shaped pills that are pushed into the rectum. They stimulate the bowel and cause it to push out the stool (shit).

*Dosage* for glycerin suppositories:

adults and children over 12 years:

push 1 suppository well inside the rectum and let it stay there for 15 to 30 minutes (it helps to lie down). The longer you let the suppository stay inside the rectum, the better it will work.

## GREEN PAGES

**FOR MILD DIARRHEA:  
ANTI-DIARRHEA MEDICINE**

**Bismuth Subsalicylate** (*Pepto-Bismol, Pink Bismuth, Kaopectate*)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes as pink tablets or liquid

This can be used to help relieve mild diarrhea by reducing irritation of the intestine and making stool less watery. **It does not cure the cause of the diarrhea and does not help prevent or cure dehydration.** It is never necessary, and its common use is a great waste of money. **It should not be given to anyone who is very ill, has a fever, or has blood or mucus in the stool. People who are allergic to aspirin should not take this medicine or any other medicine that contains salicylate or subsalicylate. Do not use if you are breastfeeding.**

*Dosage* of bismuth subsalicylate, for **mild diarrhea only**

Give 1 dose every ½ to 1 hour as needed until diarrhea stops, but do not give more than 8 doses in 24 hours, and do not give for more than 2 days. Drink plenty of water or rehydration drink to prevent dehydration (p. 152).

Shake liquid well before using.

In each dose give:

adults and children over 12: 2 tablespoons (30 ml) liquid or 2 tablets (262 mg in each tablet). Swallow the tablets whole with water (do not chew them).

Do not give to children under 12.

**FOR STUFFY NOSE**

To help open a stuffy nose, often all that is needed is to sniff water with a little salt in it, as described on page 164. Occasionally, decongestant drops may be used, as follows:

**Nose drops with ephedrine or phenylephrine** (*Neo-Synephrine*)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

These may be used for stuffy or 'runny' nose, especially if a person has (or often gets) infection of the inner ear.

*Dosage* for decongestant nose drops:

Put 1 or 2 drops in each nostril as shown on page 164. Do this 4 times a day. **Do not use for more than 3 days** or make a habit of using these drops.

To make nose drops from ephedrine tablets, dissolve 1 tablet in 1 teaspoon of water.

## FOR COUGH

Cough is the body's method for cleaning the air tubes that go to the lungs and preventing germs and mucus in these tubes from getting into the lungs. Because cough is part of the body's defense, medicines that stop or calm cough sometimes do more harm than good. These **cough-calmers** (or cough *suppressants*) should be used only for irritating, dry coughs that do not let a person sleep. There are other medicines, called **cough-helpers** (or *expectorants*), that are supposed to make it easier to cough up the mucus.

In truth, both kinds of cough syrups (cough-calmers and cough-helpers) are used far more than they need to be. Most popular cough syrups do little or no good and are a waste of money.

**The best and most important cough medicine is water.** Drinking a lot of water and breathing hot water vapors loosen mucus and help calm cough far better than most cough syrups. For instructions, see page 168. Also, instructions for a homemade cough syrup are given on page 169.

### Cough-calmers (cough suppressants): codeine

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: cough syrups or liquid. Also in tablets of 30 mg or 60 mg, with or without aspirin or acetaminophen.

**Codeine** is a strong painkiller and also one of the most powerful cough-calmers, but because it is habit-forming (narcotic), it may be hard to get. It often comes in cough syrup combinations or in tablet form. For dosage, follow the instructions that come with the preparation. Less is needed to calm cough than to control pain. **To calm cough** in adults, 7 to 15 mg of codeine is usually enough. Children should be given less, according to age or weight (see p. 62). **For severe pain**, adults can take 30 to 60 mg of codeine every 4 hours.

**WARNING:** Codeine is habit-forming (narcotic). Use only for a few days.

## FOR ASTHMA

To help prevent and manage asthma correctly, see page 167. Persons who suffer from asthma should keep asthma medicines at home. Start using them at the first sign of wheeze or chest tightness.

### Salbutamol (Albuterol)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: "Rescue" inhaler for breathing (100 mcg in each puff); syrup with 2 mg in 5 ml

#### FOR RELIEVING AND PREVENTING ASTHMA ATTACKS

*Dosage* for **salbutamol inhaler**:

For mild wheezing, use 1 to 2 inhalations, every 4 to 6 hours until the wheezing stops. Use more if the wheezing is worse.  
For exercise for people with asthma, starting ½ hour before, use 2 puffs every 15 to 30 minutes.  
For an emergency, use 2 to 4 puffs every 20 minutes.

*Dosage* for **liquid oral salbutamol**: 2 mg in 5 ml  
adults: 10 ml 3 times a day  
children: 1 to 12 years: 5 ml 3 times a day  
babies: 2 ½ ml 3 times a day

If you use salbutamol very often, your body will get used to it, you will need to use more and it will not work as well. For people with chronic asthma, it is important to use a controller inhaler (beclomethasone) regularly and use salbutamol less.

If you are pregnant, it is better to control and treat your asthma than to have asthma attacks. Salbutamol can be used while breastfeeding, but use the minimum amount you can.

Salbutamol can cause trembling, nervousness, dizziness, fast heartbeat and headaches. The liquid form can cause stomach aches and vomiting.

If you have asthma and heart problems, do not take "Beta Blocker" drugs like Atenolol, Metoprolol, Propranolol or other "lol" ending heart medicines without consulting a doctor.



**Beclomethasone**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: "Controller" inhaler for breathing (50 or 250 mcg in each puff)

A steroid medicine for asthma that lessens swelling in the breathing passages in the lungs and prevents attacks.

**Dosage** for beclomethasone inhaler  
children and adults:

- 2 to 4 puffs 2 times each day of the 50 mcg. inhaler. If you use the 50 mcg. inhaler more than 4 puffs twice a day, it costs less and works better to instead use 1 to 2 puffs of the 250 mcg inhaler.

It is best to take your beclomethasone after your dose of salbutamol because the salbutamol will open up the breathing tubes so they will better absorb the beclomethasone.

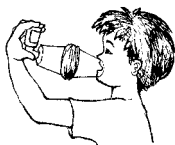
Beclomethasone does not cure asthma, but it will help prevent asthma attacks if it is used every day. You will begin to see an improvement after 3 to 7 days of use.

If you are pregnant, it is better to control and treat your asthma than to have asthma attacks. Beclomethasone can be used while breastfeeding, but use the minimum amount you can.

If you get thrush in the mouth (see p. 232), treat it with nystatin or miconazole (see p. 373). Remember to rinse your mouth after each treatment.

Use a spacer with your inhaler. If you do not use a spacer with your inhaler, most of the medicine blows onto your tongue and throat, and does not go to your lungs where you need it most. Taking a deep breath through a spacer allows more of the medicine to reach your lungs. If you did not get a spacer with your inhaler, here are 2 ways to make one:

- 1) Tape 2 thin plastic cups together at their wide ends. Cut a small hole for the inhaler on one end, and a larger hole for your mouth on the other.
- 2) Cut a hole large enough for your mouth in the bottom of a plastic soda bottle. Put the inhaler in the other end of the bottle.

**GREEN PAGES****Prednisolone or prednisone**

Name: \_\_\_\_\_

Often comes in:

- tablets of 5 mg, 25 mg, and other sizes  
price: \_\_\_\_\_ for \_\_\_\_\_
- liquid of 5 mg/ml  
price: \_\_\_\_\_ for \_\_\_\_\_

Prednisolone and prednisone are cortico-steroids, strong anti-inflammatory medicines, that can treat severe asthma.

**CAUTION:** Prednisolone and prednisone should only be used for severe asthma attacks. Cortico-steroids can have very dangerous side effects, especially if used for more than a couple of weeks. They also lower a person's defenses against infection, can make you feel anxious, and make it hard to sleep.

**Dosage** of prednisolone and prednisone for severe asthma.

- Give the first dose right away, then take every morning for 3 to 7 days. In each dose give:
  - adults and children over 8: 30 to 60 mg
  - children 3 to 7 years: 20 to 40 mg
  - children under 3: 10 to 20 mg
- Do not give more than 60 mg a day.

**Epinephrine (adrenaline, Adrenalin)**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

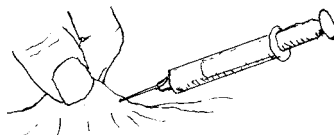
Often comes in: ampules of 1 mg in 1 ml

Epinephrine should be used for:

1. **severe attacks of asthma** when there is trouble breathing and other medicines are not available.
2. **severe allergic reactions** or allergic shock due to penicillin injections, tetanus antitoxin, or other antitoxins made from horse serum (see p. 70).

**Dosage** of epinephrine for **asthma**—using ampules of 1 mg in 1 ml of liquid—

First count the pulse. Then inject just under the skin:  
adults: 1/3 ml.



- children 7 to 12 years: 0.2 ml
- children 1 to 6 years: 0.1 ml
- children under 1 year: DO NOT GIVE

You can repeat the dose every 1/2 hour if needed, up to 3 times.

**Dosage** of epinephrine for **allergic shock**—using ampules of 1 mg in 1 ml of liquid—

Inject into the muscle:

adults: 0.5 ml

children 7 to 12 years: 0.3 ml

children 1 to 6 years: 0.25 ml

children under 1 year: DO NOT GIVE

If needed, a second dose can be given after half an hour, and a third dose in another half hour. Do not give more than 3 doses. If the pulse goes up by more than 30 beats per minute after the first injection, do not give another dose.

**In using epinephrine, be careful never to give more than the recommended amount.**

## FOR ALLERGIC REACTIONS AND VOMITING: THE ANTIHISTAMINES

Antihistamines are medicines that affect the body in several ways:

1. They help calm or prevent allergic reactions, such as itchy rashes or lumps on the skin, hives, 'hay fever', and allergic shock.
2. They help prevent or control motion sickness or vomiting.
3. They often cause sleepiness (sedation). Avoid doing dangerous work, operating machines, or drinking alcohol when taking antihistamines.

**Promethazine (Phenergan)** and **diphenhydramine (Benadryl)** are strong antihistamines that cause a lot of sleepiness. **Dimenhydrinate (Dramamine)** is similar to diphenhydramine and is most used for motion sickness. However, for vomiting due to other causes, promethazine often works better.

**Chlorpheniramine** is a less expensive antihistamine and causes less sleepiness. For this reason, it is sometimes best to use chlorpheniramine to calm itching in the daytime. Promethazine is useful at night because it encourages sleep at the same time that it calms the itching.

There is no proof that the antihistamines do any good for the common cold. They are often used more than they need to be. They should not be used much.

Antihistamines should **not** be used for asthma, because they make the mucus thicker and can make breathing more difficult.

One antihistamine is all that is usually needed in a medical kit. Promethazine is a good choice. Because it is not always available, doses for other antihistamines are also given.

As a general rule, **antihistamines are best given by mouth**. Injections should be used only to help control severe vomiting or before giving antitoxins (for snakebite, etc.) when there is special danger of allergic shock. For children, it is often best to give a rectal suppository.

### Promethazine (Phenergan)

Name: \_\_\_\_\_

Often comes in:

tablets of 12.5 mg

Price: \_\_\_\_\_ for \_\_\_\_\_

injections—ampules of 25 mg in 1 ml

Price: \_\_\_\_\_ for \_\_\_\_\_

suppositories of 12.5 mg, 25 mg, and 50 mg

Price: \_\_\_\_\_ for \_\_\_\_\_

**CAUTION:** Do not give to children under 2 years old. Pregnant or breastfeeding women should only use promethazine if it is absolutely necessary.

**Dosage** of promethazine (1 mg/kg/day)

—using tablets of 12.5 mg.—

Give by mouth 2 times a day.

In each dose give:

adults: 25 to 50 mg (2 to 4 tablets)

children 7 to 12 years: 12.5 to 25 mg (1 or 2 tablets)

children 2 to 6 years: 6 to 12 mg (½ to 1 tablet)

babies 1 year old: 4 mg (⅓ tablet)

babies under 1 year: 3 mg (¼ tablet)

—using intramuscular (IM) injections, 25 mg in 1 ml—

Inject once, and again in 2 to 4 hours, if necessary.

In 1 dose inject:

adults: 25 to 50 mg (1 to 2 ml)

children 7 to 12 years: 12.5 to 25 mg (0.5 to 1 ml)

children under 7 years: 6 to 12 mg (0.25 to 0.5 ml)

babies under 1 year: 2.5 mg (0.1 ml)

—using rectal suppositories of 25 mg—

Put well inside the rectum and repeat in 4 to 6 hours if necessary.

In each dose insert:

adults and children over 12 years: 25 mg (1 suppository)

children 7 to 12 years: 12.5 mg (½ suppository)

children 2 to 6 years: 6 mg (¼ suppository)

**Diphenhydramine** (*Benadryl*)

Name: \_\_\_\_\_

Often comes in:

capsules of 25 mg and 50 mg

Price: \_\_\_\_\_ for \_\_\_\_\_

injections: ampules with 10 mg or 50 mg in 1 ml.

Price: \_\_\_\_\_ for \_\_\_\_\_

**CAUTION:** Do not give diphenhydramine to newborn babies or to women who are breastfeeding. It is best not to use diphenhydramine in pregnancy unless absolutely necessary.

**Dosage** of diphenhydramine (5 mg/kg/day)—using capsules of 25 mg—

Give 3 or 4 times a day:

adults: 25 to 50 mg (1 or 2 capsules)

children 8 to 12 years: 25 mg (1 capsule)

children 2 to 7 years: 12.5 mg (½ capsule)

babies: 6 mg (¼ capsule)

—using intramuscular (IM) injections, 50 mg in 1 ml—

Diphenhydramine should be injected only in the case of allergic shock. Inject once, and again in 2 to 4 hours if necessary:

adults: 25 to 50 mg (½ to 1 ml)

children: 10 to 25 mg, depending on size (⅓ to ½ ml)

babies: 5 mg. ( ⅓ ml)

**Chlorpheniramine**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: 4 mg tablets (also tablets of other sizes, syrups, etc.)

**Dosage** for chlorpheniramine:

Take 1 dose 3 or 4 times a day.

In each dose give:

adults: 4 mg (1 tablet)

children under 12: 2 mg (½ tablet)

babies: 1 mg (¼ tablet)

**Dimenhydrinate** (*Dramamine*)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: 50 mg tablets; also syrups with 12.5 mg. in a teaspoon; also suppositories to insert in the rectum

This is sold mostly for motion sickness, but can be used like other antihistamines to calm allergic reactions and to encourage sleep.

**Dosage** of dimenhydrinate:

Take up to 4 times a day.

In each dose give:

adults: 50 to 100 mg (1 or 2 tablets)

children 7 to 12 years of age: 25 to 50 mg (½ to 1 tablet)

children 2 to 6 years: 12 to 25 mg (¼ to ½ tablet)

children under 2 years: 6 to 12 mg ( ⅓ to ¼ tablet)

**ANTITOXINS**

**WARNING:** Many antitoxins are made from horse serum, such as the antivenoms for snakebite and scorpion sting. With these there is a risk of causing a dangerous allergic reaction (allergic shock, see p. 70). Before you inject a horse serum antitoxin, **always have epinephrine ready in case of an emergency.** In persons who are allergic, or who have been given any kind of antitoxin made of horse serum before, it is a good idea to inject an antihistamine like promethazine (*Phenergan*) or diphenhydramine (*Benadryl*) 15 minutes before giving the antitoxin. When treating for snake, insect, or other bites, also give antitetanus immunoglobulin if possible.

**Scorpion antitoxin or antivenom**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes *lyophilized* (in powdered form) for injection

Different antivenoms are produced for scorpion sting in different parts of the world. In Mexico, Laboratories BIOCLON produces *Alacramyn*.

Antivenoms for scorpion sting should be used only in those areas where there are dangerous or deadly kinds of scorpions. Antivenoms are usually needed only when a small child is stung, especially if stung on the main upper part of the body or head. To do most good, the antivenom should be injected as soon as possible after the child has been stung.

Antivenoms usually come with full instructions. Follow them carefully. Small children often need more antivenom than larger children. Two or 3 vials may be necessary.

Most scorpions are not dangerous to adults. Because the antivenom itself has some danger in its use, it is usually better not to give it to adults.

**Snakebite antivenom or antitoxin**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: bottles or kits for injection

Antivenoms, or medicines that protect the body against poisons, have been developed for the bites of poisonous snakes in many parts of the world. If you live where people are sometimes bitten or killed by poisonous snakes, find out what antivenoms are available, **get them ahead of time**, and keep them on hand. Some antivenoms—those in dried or 'lyophilized' form—can be kept without refrigeration. Others need to be kept cold.

The following are distributors of antivenom products in different parts of the world. In many countries, antivenoms are available through the government:

**North America:** *Crofab* (Crotalidae Polyvalent Immune Fab-Ovine) for rattlesnakes, copperheads, cottonmouths, and water moccasins. Order from BTG Customer Service, tel: 1-877-852-8542  
e-mail: CustomerService@btgplc.com

**Mexico, Central America, and South America:** *Antivipmyn* and *Antivipmyn TRI* (Faboterapia polivalente antiviperino) for rattlesnakes and other pit vipers, as well as water moccasins, terciopelo, massasauga, bush master, and others.

From Instituto Bioclon, Mexico, D.F.,  
tel: (52) 5665-4111, www.bioclon.com.mx

Antivenoms are also available from Instituto Clodomiro Picado, Facultad de Microbiología, Universidad de Costa Rica, San Jose, Costa Rica, tel: (506) 2229-0344, www.icp.ucr.ac.cr, and Instituto Butantan, Sao Paulo, Brazil, tel: (55) 11-3726-7222, fax: (55) 11-3726-1505, email: instituto@butantan.gov.br, www.butantan.gov.br

**South Africa:** Boomslang antivenom, Echis antivenom, polyvalent antivenoms for puff adder, Gaboon adder, rinkhals, green mamba, Jameson's mamba, black mamba, cape cobra, forest cobra, snouted cobra and Mozambique spitting cobra. Also scorpion and spider antivenoms. From South African Vaccine Producers (SAVP), P.O. Box 28999, Sandringham 2131, Johannesburg, South Africa, tel: (27) 11-386-6000, fax: (27) 11-386-6016, www.savp.co.za

**Egypt:** Antivenoms for horned viper, Egyptian cobra, black-necked spitting cobra, East African carpet viper, and others. From

Vacsera, 51 Wezaret El Zeraha, Agouza, Giza, Egypt, tel: (202) 376-111-11, www.vacsera.com

**India:** Antivenoms for Indian cobra, Indian krait, Russell's viper, Saw-scaled viper and others, from: Haffkine Biopharmaceutical Co., Mumbai, India, tel: (91) 22-412-9320, fax: (91) 22-416-8578, www.vaccinehaffkine.com.

Serum Institute of India, tel: (91) 20-269-93900, fax: (91) 20-269-93921, www.seruminstitute.com

**Indonesia:** Antivenoms for branded krait, Malayan pit viper, and Southern Indonesian spitting cobra. Biofarma, Bandung, Indonesia, tel: (62) 22-203-3755, fax: (62) 22-204-1306, www.biofarma.co.id

**Thailand:** Antivenoms for king cobra, banded krait, Russell's viper, Malayan pit vipers, and others.

Thai Red Cross Society, Bangkok, Thailand, tel: (66) 2252-0161, fax: (66) 2252-0212  
www.redcross.or.th

Instructions for the use of snakebite antivenoms usually come with the kit. Study them **before** you need to use them. The bigger the snake, or the smaller the person, the larger the amount of antivenom needed. Often 2 or more vials are necessary. To be most helpful, antivenom should be injected as soon as possible after the bite.

Be sure to take the necessary precautions to avoid allergic shock (see p. 70).

**Antitetanus immunoglobulin**

Antitetanus Immunoglobulin (Human Tetanus Immune Globulin) often comes in: vials of 250 U

In areas where there are people who have not been vaccinated against tetanus, make sure your medical kit includes antitetanus immunoglobulin, also known as *Hyper-tet*. Do not give tetanus antitoxin made from horse serum, which should only be used in livestock, not people.

If a person who is not fully vaccinated against tetanus has a severe wound likely to cause tetanus (see p. 89), **before he develops the signs of tetanus**, inject 250 U (1 vial) of antitetanus immunoglobulin.

**If a person develops the signs of tetanus**, inject 500 U of antitetanus immunoglobulin.

The signs of tetanus usually continue to get worse in spite of treatment with antitoxin. **The other measures of treatment described on pages 183 and 184 are equally or more important.** Begin treatment at once and get medical help fast.

## FOR SWALLOWED POISONS

**Activated Charcoal**

This comes as a powder. Follow the directions on the bottle, or mix the indicated dosage in 1 glass of water or juice and drink the whole glass.

Activated charcoal absorbs poisons that have been swallowed and reduces the harm they cause. It is most effective if used immediately after swallowing the poison. **Do not use this medicine if the person has swallowed strong acid, lye, gasoline, or kerosene.**

**Dosage** of activated charcoal, **within 1 hour after swallowing poison:**

- adults and children 12 years and older:  
50 to 100 g, 1 time only
- children from 1 to 12 years:  
25 g, 1 time only, or 50 g in case of  
serious poisoning
- children under 1 year old:  
1g/kg 1 time only

To eliminate poison from the body **after effects of the poison have begun:**

- adults and children older than 1 year:  
25 to 50 g every 4 to 6 hours
- children under 1 year old:  
1g/kg, 1 time, followed by ½ this dose  
every 2 to 4 hours.

## FOR SEIZURES (CONVULSIONS)

Carbamazepine, phenobarbital, valproate and phenytoin are the most common medicines used to prevent seizures of epilepsy. Other, more expensive medicines are available, and doctors often prescribe two or more medicines. When a single medicine works as well or better, with fewer side effects. Generally, start with a lower dose of your epilepsy medicine and increase it gradually until seizures stop. Find and continue using the smallest dose that stops the seizures. Medicines often must be taken for life. If the person must stop taking the medicine, do so gradually. Immediate stopping can cause more and severe seizures. Diazepam can be given to stop a long-lasting epileptic seizure or a seizure during pregnancy or child birth (eclampsia), but it is not usually taken daily to prevent them. Magnesium sulfate can also be given to stop eclampsia.

**Carbamazepine (Tegretol)**

Name: \_\_\_\_\_

Often comes in:

tablets of 100 mg and 200 mg

Price: \_\_\_\_\_ for \_\_\_\_\_

First choice for many seizures from epilepsy.  
Take with meals.

**Dosage** of carbamazepine:

- adults and children over 12 years: 200 mg by  
mouth, 2 times a day.
- children 6 to 12 years: 100 mg by mouth,  
2 times a day.
- children under 6 years: 5 mg/kg/day,  
or 50 mg by mouth 2 times a day.

If seizures do not stop, after a week increase the dose by the same starting dose amount. Continue increasing weekly until seizures stop.

A too high dose can cause dizziness, unsteady walking, or vomiting. If a skin rash develops 2 to 8 weeks after starting, change to a different medicine.

**Phenobarbital (phenobarbitone, Luminal)**

Name: \_\_\_\_\_

Often comes in:

tablets of 15 mg, 30 mg, 50 mg, 60 mg and 100 mg

Price: \_\_\_\_\_ for \_\_\_\_\_

syrup of 15 mg in 5 ml

Price: \_\_\_\_\_ for \_\_\_\_\_

Phenobarbital is taken by mouth to prevent seizures from epilepsy.

**WARNING:** Too much phenobarbital can slow down or stop breathing. **Be careful not to give too much!**

**Dosage** of Phenobarbital:

- adults and children over 12 years:  
50 to 100 mg, 2 or 3 times a day.
- children 6 to 12 years old: 25 to 50 mg by  
mouth, 2 times a day.
- children under 6 years: give 3 to 5 mg/kg/  
day, or 10 to 25 mg.

If seizures do not stop after 1 week, slowly begin increasing the dose.

Some people do better with 1 dose a day instead of 2 doses. Try giving twice the amount listed here at bedtime. But if seizures return or the person has difficulty going to sleep or waking up, go back to 2 doses of the regular amount.

**Phenytoin (diphenylhydantoin, Dilantin)**

Name: \_\_\_\_\_

Often comes in:

capsules of 25 mg, 50 mg, and 100 mg

Price: \_\_\_\_\_ for \_\_\_\_\_

syrup with 25 mg in 5 ml

Price: \_\_\_\_\_ for \_\_\_\_\_

This prevents seizures from epilepsy. The medicine must often be taken for life.

**Side effects:** Swelling and abnormal growth of the gums often occur with long-time use of phenytoin. If this is severe, another medicine should be used instead. Gum problems can be partly prevented by keeping the mouth clean and brushing or cleaning the teeth and gums well after eating.

**Warning:** Not safe for people who could get pregnant.

**Dosage** of phenytoin, by mouth;

adults and children older than 12 years:

100 mg by mouth, 2 times a day

children 6 to 12 years: 75 mg by mouth,  
2 times a day

children less than 6 years old: 3 to 5 mg/kg/  
day, or 25 mg by mouth 2 times a day.

Some people do better taking this medicine 3 times a day. Divide the daily amount into 3 parts to try that.

If the dose does not completely prevent the seizures, slowly increase the dose every 2 weeks, but do not give more than 300 mg in a day.

The difference between not enough and too much can be very small. If there are no seizures during several weeks, try lowering the dose little by little until you find the lowest dose that prevents seizures.

**Valproate (Depakene)**

Often comes in:

tablets of 100mg, 200 mg, 500 mg

This prevents seizures from epilepsy. Do not use with carbamazepine.

**Side effects:** Some people gain weight, have liver problems. People who could get pregnant should not use this medicine.

**Dosage** of Valproate:

adults and children over 12 years old: 300 mg by mouth, 2 times a day.

children 6 to 12 years old: 200 mg by mouth, 2 times a day.

children under 6 years old: 10mg/kg/day, or 100 mg by mouth, 2 times a day.

If seizures do not stop after a week, slowly increase the dose by half the initial amount divided into 2 doses. Do not give more than 60 mg/kg/day.

**Diazepam (Valium)**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in:

injections of 5 mg in 1 ml of liquid

injections of 10 mg in 2 ml of liquid

tablets of 5 mg and 10 mg

We do not give the dosages for diazepam injections. These should only be given by a person with experience giving injections into a vein.

**To stop an epileptic seizure** lasting more than 5 minutes, put the liquid solution for injection into a syringe without a needle, insert the syringe in the rectum and release the solution. Or grind up 1 tablet, mix the powder with water, and put the mixture into the rectum in the same way.

**Dosage** of diazepam solution, in the rectum:

adults and children over 12 years:

5 to 10 mg.

children 6 to 12 years: 3 to 5 mg.

children under 6 years: 1 to 3 mg.

If the seizure is not controlled 15 minutes after giving the medicine, repeat the dose. **Do not repeat more than once.**

**WARNING:**

1. Too much diazepam can slow down or stop breathing. Be careful not to give too much!
2. Diazepam is a habit-forming (addictive) drug. Avoid long-term or frequent use. Keep this medicine under lock and key.
3. Diazepam can be dangerous for pregnant or breastfeeding women. Only use to stop seizures (eclampsia).

**For tetanus**, give enough to control most of the spasms. For adults and children over 5 years, start with 5 mg by mouth or in the rectum (less in children) and give more later if necessary, but not more than 10 mg at 1 time, or more than 50 mg in 1 day. Wait for 30 minutes before repeating a dose. For children younger than 5 years old, give 1 to 2 mg in the rectum every 3 to 4 hours.

**To relax muscles and calm pain**, 30 minutes before setting broken bones in an adult, give 10 mg by mouth.

**For eclampsia** (sudden seizures during pregnancy or childbirth.) Magnesium sulfate works better, and is safer for pregnant women. Only use diazepam if you don't have magnesium sulfate or if it isn't working. Give 20 mg diazepam solution in the rectum. If convulsions continue, give another 10 mg after waiting 30 minutes.

### Magnesium Sulfate—for eclampsia

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: 10%, 12.5%, 25%, or 50% solution for injection

**Dosage** to stop a seizure in a woman with eclampsia: Inject 5 g of 50% solution into each buttock muscle once. Repeat after 4 hours if needed.

**WARNING:** Too much magnesium sulfate can slow down or stop breathing. Be careful not to give too much! Do not give to women with kidney problems.

### FOR SEVERE BLEEDING AFTER BIRTH (POSTPARTUM HEMORRHAGE)

For information on the right and wrong use of medicines to control bleeding after birth, see page 266. **Oxytocin, misoprostol, and ergometrine should only be used to control bleeding after the baby is born.** Their use to speed up labor or to give strength to the mother in labor can be dangerous both to the mother and child. If there is much bleeding before the afterbirth (placenta) comes out, but after the child is born, oxytocin or misoprostol can be given. **But do not use ergonovine or ergometrine before the afterbirth comes out**, as this may prevent it from coming out.

**Pituitrin** is similar to oxytocin, but more dangerous, and should never be used except in a case of emergency bleeding when oxytocin, misoprostol, and ergometrine are not available.

For bleeding in the newborn child, use **vitamin K** (see p. 394). Vitamin K is of no use for bleeding of the woman from childbirth, miscarriage, or abortion.

## GREEN PAGES

### Ergometrine maleate, ergonovine (Ergotrate, Methergine)

Name: \_\_\_\_\_

Often comes in:

injections of 0.2 mg in a 1 ml ampule

Price: \_\_\_\_\_ for \_\_\_\_\_

tablets of 0.2 mg

Price: \_\_\_\_\_ for \_\_\_\_\_

Ergonovine can be used to prevent or control heavy bleeding **after** the placenta has come out. It also controls heavy bleeding after miscarriage or abortion. Do not give to a woman with hypertension.

#### **Dosage:**

To **treat** heavy bleeding after the afterbirth (placenta) has come out, or after miscarriage or abortion, give 1 ampule (0.2 mg) of ergonovine by intramuscular injection. In extreme emergencies, you can give 1 ampule by intravenous injection if you have been trained to do so. Repeat dose every 6 to 12 hours until heavy bleeding has stopped. Do not give more than 5 doses.

To **prevent** heavy bleeding after giving birth, give 0.2 mg of ergometrine after the afterbirth comes out.

### Oxytocin (Pitocin)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: ampules of 10 units in 1 ml

Oxytocin can be used to prevent or control severe bleeding of the mother **after** the baby is born and **before or after** the afterbirth comes out. (It also helps bring the afterbirth out, but should not be used for this unless there is heavy bleeding or delay.) It can also be used to control heavy bleeding after miscarriage or abortion.

#### **Dosage:**

To **treat** heavy bleeding, give 1 ml (10 units) by intramuscular injection.

To **prevent** heavy bleeding after birth, give 1 ml after the baby is born.



**Misoprostol** (*Cytotec*)

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: tablets of 100 or 200 mcg

Misoprostol can be used to prevent or control heavy bleeding after childbirth, and control heavy bleeding from miscarriage or abortion. It can also be used to end a pregnancy, but it is safer when taken with another medicine, **mifepristone** (see *Where Women Have No Doctor* for more information).

**Dosage** to control heavy bleeding:

Dissolve 600 mcg inside the cheek or under the tongue for 30 minutes and then swallow what is left. If the woman is feeling nauseous, you can also put the tablets in her rectum to dissolve there.

**FOR PILES (HEMORRHOIDS)****Suppositories for hemorrhoids**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

These are special bullet-shaped tablets to be put in the rectum. They help make hemorrhoids smaller and less painful. There are many different preparations. Those that are often most helpful, but are more expensive, contain **cortisone** or a **cortico-steroid**. Special ointments are also available. Diets to soften stools are important (see p. 126).

**Dosage:**

Insert a suppository in the rectum after the daily bowel movement, and another on going to bed

**FOR MALNUTRITION AND ANEMIA****Powdered milk (dried milk)**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

For babies, **mother's milk is best**. It is rich in body-building vitamins and minerals. When breast milk is not available, other milk products—including powdered milk—can be used. To allow a baby to make full use of its food value, mix the powdered milk with some sugar and cooking oil (see p. 120).

In 1 cup of boiled water, put:

- 12 level teaspoons of powdered milk,
- 2 level teaspoons of sugar,
- and 3 teaspoons of oil

**Mixed (or multi) vitamins**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

These come in many forms, but tablets are cheapest and work well. Injections of vitamins are rarely necessary, are a waste of money, cause unnecessary pain and sometimes abscesses. Tonics and elixirs often do not have the most important vitamins and are usually more expensive.

**Nutritious food is the best source of vitamins.**

If additional vitamins are needed, use vitamin tablets.

In some cases of poor nutrition added vitamins may help, and multivitamins can be helpful for people with HIV. Be sure the tablets used contain all the important vitamins (see p. 118).

Using standard tablets of mixed vitamins, 1 tablet daily is usually enough.

**Vitamin A (retinol)**—for night blindness and xerophthalmia

Name: \_\_\_\_\_

Often comes as:

capsules of 200,000 units, 60 mg of retinol  
(also in smaller doses)

price: \_\_\_\_\_ for \_\_\_\_\_

injections of 100,000 units

price: \_\_\_\_\_ for \_\_\_\_\_

**WARNING:** Do not give too much Vitamin A, and keep out of the reach of children.

**For prevention:** In areas where night blindness and xerophthalmia are common problems in children, they should eat more yellow fruits and vegetables and dark green leafy foods as well as animal foods, such as eggs and liver. Fish liver oil is high in vitamin A. Or vitamin A capsules can be given. Give 1 capsule once every 6 months.

Mothers can help prevent these eye problems in their babies by taking 1 vitamin A capsule (200,000 units) by mouth when their baby is born or within 1 month after giving birth.

Children with measles are at especially high risk of xerophthalmia, and should be given vitamin A when the illness begins.

In areas where children do not get enough vitamin A, added foods or capsules with vitamin A often help children survive measles and other serious illnesses.

**For treatment:** Give 1 vitamin A capsule (200,000 units) by mouth, or an injection of 100,000 units. The next day give 1 vitamin A capsule (200,000 units) by mouth, and another capsule 2 weeks later.

For children less than 6 months, give 50,000 units 3 times as above. For children 6 to 12 months, give 100,000 units 3 times as above.

**Iron sulfate (ferrous sulfate)**—for anemia

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: tablets of 200, 325, or 500 mg (also in drops, mixtures, and elixirs for children)

Ferrous sulfate is useful in the treatment or prevention of most anemias. Treatment with ferrous sulfate by mouth usually takes at least 3 months. If improvement does not take place, the anemia is probably caused by something other than lack of iron. Get medical help. If this is difficult, try treating with folic acid.

Ferrous sulfate is especially important for pregnant women who may be anemic or malnourished.

Iron may work best if it is taken with some vitamin C (either fruits and vegetables, or a vitamin C tablet).

Ferrous sulfate sometimes upsets the stomach and is best taken with meals. Also, it can cause constipation, and it may make the stools (feces) look black. For children under 3 years, a piece of a tablet can be ground up very fine and mixed with the food.

**WARNING:** Be sure the dose is right. Too much ferrous sulfate is poisonous. Keep tablets out of the reach of children. Do not give ferrous sulfate to severely malnourished persons.

**Dosage** of ferrous sulfate for anemia:

—using tablets of 200 or 325 mg (both sizes contain 65 mg of iron)—

Give 3 times a day, with meals.

In each dose give:

adults and children over 12: 1 tablet

children 2 to 12 years: ½ tablet

children under 2 years: ⅛ to ¼ tablet ground up fine and mixed with food.

**Folic acid**—for some kinds of anemia

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: tablets of 400 mcg

Folic acid can be important in the treatment of kinds of anemia in which blood cells have been destroyed in the veins, as is the case with malaria. An anemic person who has a large spleen or looks yellow may need folic acid, especially if his anemia does not get much better with ferrous sulfate. Babies who are fed goat's milk and pregnant women who are anemic or malnourished often need folic acid as well as iron.

Folic acid can be obtained by eating dark green leafy foods, meat, and liver, or by taking folic acid tablets. Usually 2 weeks treatment is enough for children, although in some areas children with *sickle cell disease*, or a kind of anemia called *thalassemia* may need it for years. Pregnant women who are anemic and malnourished would be helped by taking folic acid and iron tablets daily throughout pregnancy.

**Dosage** of folic acid for anemia—using 400 mcg tablets:

Give by mouth once a day.

adults and children over 4 years:

1 tablet (0.4 mg)

children under 4 years: ½ tablet  
(0.2 mg)

**Vitamin B<sub>12</sub> (cyanocobalamin)**—for pernicious anemia only

This is mentioned only to discourage its use. Vitamin B<sub>12</sub> is useful only for a rare type of anemia that is almost never found except in some persons over 35 years whose ancestors are from northern Europe. Many doctors prescribe it when it is not needed, just to be giving their patients something.

**Do not waste your money on vitamin B<sub>12</sub>** or let a doctor or health worker give it to you unless a blood analysis has been done, and it has been shown that you have *pernicious anemia*.

**Vitamin K (phytomenadione, phytonadione)**

Name: \_\_\_\_\_ Price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: ampules of 1 mg in 2.5 ml of milky solution.

If a newborn child begins to bleed from any part of his body (mouth, cord, anus), this may be caused by a lack of vitamin K. Inject 1 mg (1 ampule) of vitamin K into the outer part of the thigh. Do not inject more, even if the bleeding continues. In babies who are born very small (under 2 kg) an injection of vitamin K may be given to reduce the risk of bleeding.

Vitamin K is of no use to control bleeding of the mother after childbirth.

**Vitamin B<sub>6</sub> (pyridoxine)**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

Often comes in: 25 mg tablets

Persons with tuberculosis being treated with **isoniazid** sometimes develop a lack of vitamin B<sub>6</sub>. To prevent this, 25 mg of vitamin B<sub>6</sub> (pyridoxine) may be taken daily while taking isoniazid. Or the vitamin can be given only to persons who develop problems because of its lack. Signs include pain or tingling in the hands or feet, muscle twitching, nervousness, and being unable to sleep.

**Dosage** of vitamin B<sub>6</sub>—if problems develop while taking isoniazid:

adults: take 50 mg (2 tablets), 3 times a day.

children over 2 months old: give 10 to 25 mg, 3 times a day.

newborns to 2 months old: give 10 mg once a day.

**FAMILY PLANNING METHODS****ORAL CONTRACEPTIVES (BIRTH CONTROL PILLS)**

Information about the use, risks, and precautions for birth control pills can be found on page 289.

Most birth control pills contain 1 or 2 hormones similar to hormones that a woman's body normally makes during her menstrual cycle (see pages 245 and 291). These hormones are called estrogen and progesterin (see p. 288). Each type of pill comes in different strengths of each hormone and is sold under many different brand names.

Women who take birth control pills usually have lighter monthly bleeding than they would without the pills. This may be a good thing, especially for women who are anemic. But if a woman has no monthly bleeding or very light monthly bleeding for months and does not like this side effect, she can try changing to a pill with more estrogen.

**Other medicines interact with birth control pills**

Rifampicin (for tuberculosis), ritonavir (for HIV) and some epilepsy medicines make birth control pills less effective. If you take these medicines, use a different family planning method.

**COMBINATION BIRTH CONTROL PILLS****Multiphasic combination pills**

These pills contain a mix of estrogen and progesterin that changes throughout the month. Since the amounts change, it is important to take the pills in order on a 28-day cycle.

Some multiphasic brand names:

<i>Gracial</i>	<i>Logynon</i>	<i>Qlaira</i>	<i>Synphase</i>
<i>Trinordiol</i>	<i>Trinovum</i>	<i>Triquilar</i>	<i>Triphasil</i>

**Fixed-dose combination pills**

These contain estrogen (usually 35 mcg) and progesterin (usually 0.1 mg). A 28-pill pack has 21 pills with hormones and 7 reminder (placebo) pills. A 21-pill pack has only hormone pills. The amounts of each hormone are the same in all 21 hormone pills in each pack.

Some brand names:

<i>Alesse</i>	<i>Cilest</i>	<i>Diane</i>	<i>Femoden</i>
<i>Gynera</i>	<i>Harmonet</i>	<i>Norinyl</i>	
<i>Ortho-Novum</i>		<i>Ovysmen</i>	

**Fixed-dose combination pills with less estrogen**

These pills are higher in progesterin (0.15 mg) and lower in estrogen (30 mcg). A 28-pill pack has 21 pills with hormones and 7 reminder (placebo) pills. A 21-pill pack has only hormone pills. The amounts of each hormone are the same in all 21 hormone pills in each pack. These pills may work better for a woman with very heavy monthly bleeding or painful breasts before her period begins.

Some brand names:

<i>Lo-Femal</i>	<i>Lo/Ovral</i>	<i>Microgynon</i>
<i>Microvlar</i>	<i>Nordette</i>	

**How to take the combination pill**

If you are sure you are not pregnant and you are not breastfeeding a baby under 6 months old, you can start taking the pill any time. Pills will not prevent pregnancy until you have been taking them for about a week. So during the first 7 days after starting birth control pills, use condoms or avoid sex.

**Combination pills can be used 3 ways**

**28-day use:** Take the pills for 21 days. If you have a 28-day packet, take 1 pill every day. The last 7 pills of a different color do not contain hormones—they are there to help you remember to take a pill each day. If you have a 21-day packet, take 1 pill every day, stop for 7 days, and then start a new packet. During the 7 days when you do not take any hormone pills, you will have bleeding like a normal period.

**Extended use** (not with multiphasic pills): Take 1 pill every day for 84 days in a row and then stop for 7 days. Sometimes pills come in packets with 91 pills (84 with hormones and 7 different color pills without hormones). During those 7 days, you will have normal bleeding like a period but only once every 3 months. Spotting (very light bleeding) may occur but should go away after a few months.

**With all combination pills:**

**If you forget to take 1 pill**, take 1 pill as soon as you remember. Then take the next pill at the regular time. This may mean that you take 2 pills in one day.

**If you forget to take 2 or more pills in a row**, take the most recent pill as soon as you remember and discard any other missed pills. Take the remaining pills in the pack at the regular time, even if this means taking 2 pills in one day. If you miss pills in the last week of hormonal pills (days 15-21 in a pack), finish the hormonal pills in the current pack, skip the sugar pills (or skip the 7 day break for a 21-day pack), and start a new pack.

If your period does not come on time and you have missed some pills, keep taking your pills, but have a pregnancy test. If you find out you are pregnant, stop taking the pill.

**Possible side effects of the combination pill**

Some women get headaches, nausea, tender and swollen breasts, and changes in monthly bleeding when they start taking combination pills. These side effects are not dangerous and usually stop after about 3 months. A different kind of pill may give you fewer side effects.

**Ending the combination pill**

You can stop taking the pill at any time. You could then get pregnant right away, so if you want to avoid pregnancy, use condoms or another method.

**THE MINIPILL****Progestin-only pills**

These pills contain only progestin and come in 28-pill packs. All of the pills have the same amount of progestin.

Some brand names:

*Femulen    Microlut    Micronor    Micronovum*  
*Neogest    Microval    Ovrette    Exluton*

**How to take the minipill**

Take your first pill on the first day of your period. Then take 1 pill at the same time every day. When you finish a packet, start your new packet the next day, even if you have not had any bleeding. Do not skip a day.

If you take the minipill even a few hours late, or if you forget 1 day's pill, you can become pregnant. If you miss a pill, take it as soon as you remember. Then take the next pill at the regular time, even if it means taking 2 pills in one day. Use condoms or do not have sex for 7 days. You may bleed a little if you miss your minipill or take it late.

**Possible side effects of the minipill**

The most common side effect of progestin-only minipills is changes in monthly bleeding. You may have bleeding when you do not expect it. Your period may go away altogether. This is not dangerous. Other possible effects include weight gain, headaches, and acne (pimples).

**Ending the minipill**

If you want to get pregnant or change methods, you can stop taking the minipill at any time. You could get pregnant as soon as you stop, so if you do not want to, start another method immediately.

**EMERGENCY CONTRACEPTION (EC)**

You can use emergency contraceptive pills or some brands of regular birth control pills to prevent pregnancy within 5 days after unprotected sex. The number of pills you need to take depends on the amount of estrogen or progestin each pill contains. There are many brands of pills, and some brand names are used for more than one type of pill. The chart on the next page lists only a few common brands for each type of pill. Make sure you know the type and amount of hormone in the pills before you use them. The chart shows the total dose of hormones needed and how many pills you would need to take to reach that dose depending on which hormones and how much of each are in each pill.

Common side effects of EC are headaches, nausea or pain in the belly, but these should go away in a day or two. It is also normal to have slight bleeding or a change in timing of your next monthly bleeding.

Progestin-only pills and special emergency pills have fewer side effects (headaches and nausea) than combined pills when used for EC.

**How to take pills for emergency contraception**

With a pack of 28 pills, use any of the first 21 pills for emergency contraception. Do not use the last 7 pills in a 28-day pack, because these pills do not contain any hormones. Never mix different kinds of emergency contraceptive or other birth control pills together because that could make them not work at all.

Emergency pills containing 1.5 mg (1500 mcg) levonorgestrel ( <i>Norlevo 1.5, Plan B One-Step, Postinor-1</i> )	Take 1 pill, one time only	
Emergency pills containing 30 mg ulipristal acetate ( <i>Ella, Ella One</i> )	Take 1 pill, one time only	
Emergency pills containing 0.75 mg (750 mcg) levonorgestrel ( <i>Norlevo 0.75, Optinor, Postinor, Postinor-2, Plan B</i> )	Take 2 pills, one time only	
Emergency pills containing 50 mcg ethinyl estradiol and 250 mcg levonorgestrel ( <i>Tetragynon</i> )	Take 2 pills	Take 2 more pills 12 hours later
Combined pills containing 50 mcg ethinyl estradiol and 250 mcg levonorgestrel ( <i>Neogynon, Nordiol</i> ) or 500 mcg norgestrel ( <i>Ogestrel, Ovral</i> )	Take 2 pills	Take 2 more pills 12 hours later
Combined pills containing 30 mcg ethinyl estradiol and 150 mcg levonorgestrel ( <i>Microgynon, Nordette</i> ) or 300 mcg norgestrel ( <i>Lo-Femenal, Lo/Ovral</i> )	Take 4 pills	Take 4 more pills 12 hours later
Combined pills containing 20 mcg ethinyl estradiol and 100 mcg levonorgestrel ( <i>Alesse, Lutera</i> )	Take 5 pills	Take 5 more pills 12 hours later
Progestin-only pills (minipills) containing 75 mcg norgestrel ( <i>Neogest, Ovrette</i> )	Take 40 pills one time only	
Progestin-only pills (minipills) containing 30 mcg levonorgestrel ( <i>Microlut, Microval, Norgeston</i> )	Take 50 pills one time only	

**Condoms (rubbers, prophylactics, sheaths)**

Name: \_\_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_\_

There are many different brands of condoms. Some are lubricated, some come in different colors, and some have spermicide. There are also condoms for women (Female Condom).

In addition to helping prevent pregnancy, condoms can help prevent the spread of sexually transmitted (venereal) infections, including HIV. Many people use condoms along with another form of birth control.

See p. 287 for use and care of condoms.

**Diaphragm**

Name: \_\_\_\_\_ price: \_\_\_\_\_

The diaphragm is most effective when used with a spermicide cream or jelly. Put some inside the diaphragm, and also spread some on the rim before putting it in the vagina (see p. 291).

Name of jelly or cream: \_\_\_\_\_  
price: \_\_\_\_\_

**Spermicides** (Well-known brands: *Emko, Koromex, Delfen, Gynol II, VCF*)

Name: \_\_\_\_\_ price: \_\_\_\_\_

Spermicides come in different forms to put in the vagina just before having sex, or to use with a condom or diaphragm (see page 290). Do not douche or wash the spermicide out of the vagina for at least 6 hours after sex.

**Intrauterine devices (IUDs)**

Name: \_\_\_\_\_ price: \_\_\_\_\_

Fee for putting it in: \_\_\_\_\_

An IUD must be inserted and removed by a trained health worker. Common side effects of copper IUDs are heavier, more painful monthly bleeding, which often decreases over time. Common side effects of hormonal IUDs are lighter, less painful monthly bleeding, and for some, no bleeding at all. For information on IUDs, see page 290.

If an IUD slips out of place, it may not prevent pregnancy. Learn how to check that the IUD is still in place: IUDs have strings attached which usually hang down into the vagina. After each monthly bleeding, wash your hands well and then reach with two fingers as far into the vagina as you can. Feel for the IUD strings but do not pull them. If you cannot feel the strings, or if you feel part of the IUD that isn't the strings, use condoms or another barrier method of family planning until getting the IUD checked by a health worker.

Rarely do problems result from having an IUD. If there is unusual belly pain, unusually heavy bleeding from the vagina, pain or bleeding from sex, or unexplained fever or chills, see a trained health worker right away, as these may be signs of infection.

### Injectable contraceptives

(Common brands: *Depo-Provera* (DMPA), *Sayana Press*, *Noristerat* (NET-EN), *Mesigyna*, *Cycloferm*)

Name: \_\_\_\_\_ price: \_\_\_\_\_

Injectable contraceptives work by preventing the woman's ovaries from releasing an egg. The hormones also make the mucus at the opening of the womb very thick, which helps stop the sperm from getting inside the womb.

Progestin-only injections, such as *Depo-Provera*, *Sayana Press*, and *Noristerat*, contain only the hormone progestin. These are especially good for women who should not use estrogen, but should not be used by women who should not take any type of oral contraceptive (see p. 289). Progestin-only injections almost always cause changes in the monthly bleeding. A woman using these injections may have light bleeding every day or every once in a while. She will probably stop having monthly bleeding by the end of the first year. These changes are normal.

Combined injections, such as *Mesigyna* or *Cycloferm*, contain both estrogen and progestin. These injections are good for women who want to have regular monthly bleeding. Women who are breastfeeding or who should not use combination pills should not use combined injections (see p. 289). Combined injections are given every month and are more expensive than progestin-only injections.

Women using either progestin-only or combined injections sometimes gain weight and get headaches, but these effects usually go away after the first few injections. A woman can stop having family planning injections any time she wants. After

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she stops, it can take a year or more to become pregnant and for her monthly bleeding to return to normal. If she stops having injections and does not want to become pregnant right away, she must use another method of family planning.

### Contraceptive implants

(Common brands: *Implanon*, *Jadelle*, *Levoplant*, *Nexplanon*, *Sino-implant*)

Implants are placed under the skin and release the hormone progestin. This prevents the ovaries from releasing an egg and thickens the mucus at the opening of the womb, which stops sperm from getting inside the womb. Implants can be used by people who are breastfeeding and by those who should not use estrogen, but not by people who should not use any type of oral contraceptive (see p. 289). Some implants have 1 tube (*Implanon*, *Nexplanon*), others have 2 tubes (*Jadelle*, *Levoplant*, *Sino-implant*). Implants prevent pregnancy for 3 to 5 years, depending on the type.

Implants may cause irregular bleeding or more days of monthly bleeding. If monthly bleeding stops, this does not mean pregnancy or that something is wrong. Other common side effects from implants are weight gain and headaches, which often go away as the body gets used to the hormone.

Implants can be removed at any time by a health worker trained to remove them safely. Pregnancy is possible immediately after implants are removed, so use another family planning method if you do not want to become pregnant.

## MEDICINES FOR HIV — ANTIRETROVIRAL THERAPY (ART)

No medicine can cure HIV yet, but medicines called antiretrovirals can help people with HIV live longer and healthier lives, and taking them helps prevent HIV from spreading. Taken daily as a combination of at least 3 medicines, this is called Antiretroviral Therapy, or ART. The antibiotic cotrimoxazole (see p. 357) also improves health by preventing many bacterial infections in people with HIV.



## HIV CARE AND ART PROGRAMS

As soon as you have a positive HIV test, try to find an HIV care program where health workers can see you regularly, treat your health problems quickly, and help you start ART.

### When is ART needed?

- The best time to start ART is as soon as you test positive for HIV. Sometimes a blood test called a CD4 cell count, which measures how well the body is able to fight illness, is required. When your CD4 count is below 500, it is important that you start ART.
- Anyone with HIV and either TB or Hepatitis B should start ART.
- Pregnant women with HIV should start ART as soon as possible to protect their own health and the health of the developing baby (p. 398).
- All babies and children with HIV need ART to protect their growth, health, and development.
- ART can also help prevent HIV being passed between sexual partners when one person has HIV and the other does not.

Get support from a person you trust or an HIV support group to help you take your ART every day, which is necessary for it to work.

**Do not** start taking ART on your own. They may be the wrong medicines for you and can have serious side effects or cause drug resistance.

**Do not** share ART with anyone. The medicines will not work if you take less than the recommended doses.

**Do not** buy ART from someone who is not part of an approved HIV care or ART program. Getting drugs from an ART program is more reliable and less costly than buying them from a private source.

### How to take ART

ART works as a combination of at least 3 medicines. Four common combinations are listed in the box on the right. Ask your health worker what medicines are used in your area. Some ART comes in 1 or 2 tablets so there are fewer pills to take.

ART for children is often available as a liquid that can be easily mixed into food.

Whatever combination you use, take every medicine every day, at the same time of day. Twice-a-day medicines should be taken every 12 hours. Having too little medicine in your body for some hours can cause drug resistance and the drugs will no longer work for you or for others in your community as drug-resistant HIV spreads.

### ART combinations for people 11 years old and older

#### COMBINATION 1

**TDF (tenofovir)**, 300 mg, once a day  
**+ 3TC (lamivudine)**, 300 mg, once a day.  
*OR*

**FTC (emtricitabine)**, 200 mg, once a day  
**+ DTG (dolutegravir)**, 50 mg, once a day

#### COMBINATION 2

**TDF (tenofovir)**, 300 mg, once a day  
**+ 3TC (lamivudine)**, 150 mg, 2 times a day  
*OR*

**FTC (emtricitabine)**, 200 mg, once a day  
**+ LPV/r (lopinavir/ritonavir)**, 1 tablet of 400 mg lopinavir/100 mg ritonavir, 2 times a day

#### COMBINATION 3

**AZT (zidovudine)**, 250 to 300 mg, 2 times a day  
**+ 3TC (lamivudine)**, 150 mg, 2 times a day  
**+ NVP (nevirapine)**, 200 mg. Take NVP once a day for 14 days, then 2 times a day

#### COMBINATION 4

**AZT (zidovudine)**, 250 to 300 mg, 2 times a day  
**+ 3TC (lamivudine)**, 150 mg, 2 times a day  
**+ EVF (efavirenz)**, 400 mg, once a day

### Side effects of specific ART medicines:

**AZT:** anemia, low white blood count

**EVF:** dizziness, confusion, mood changes, should not be taken in first 3 months of pregnancy

**NVP:** skin rash, liver problems

**TDF:** kidney problems, decreased bone density

**Important:** ART can have side effects, but they often decrease or go away over time. Side effects include diarrhea, tiredness, headaches, and stomach problems. Talk to your health worker about how to handle these problems. But keep taking your ART until your health worker tells you to change or stop.

### Side effects of ART

ART can have side effects, but they often decrease or go away over time. Side effects include diarrhea, tiredness, headaches, and stomach problems. Talk to your health worker about how to handle these problems. But keep taking your ART until your health worker tells you to change or stop.



Other side effects can be life-threatening, such as severe liver problems, severe tiredness with shortness of breath, skin allergies and rashes, tingling or burning in the hands and feet, and anemia (p. 124). If you have serious side effects, see a health worker right away.

### Preventing HIV before a person is exposed to it

A person who does not have HIV and is regularly exposed to it from a partner or their work can protect against infection by using pre-exposure prophylaxis (PrEP). PrEP is 2 ART medicines taken every day.

#### PrEP Combination 1

TDF (tenofovir), 300 mg, once a day  
+ FTC (emtricitabine), 200 mg, once a day

#### PrEP Combination 2

TDF (tenofovir), 300 mg, once a day  
+ 3TC (lamivudine), 300 mg, once a day

### Preventing HIV right after a person has been exposed to it

When a health worker is exposed to HIV during her work, for example because she is stuck with a needle, or when a person is raped or has unprotected sex with someone who is likely to have HIV, taking ART for about a month can prevent HIV. This is called Post-Exposure Prophylaxis, or PEP.

If you may have been exposed to HIV (see p. 399 for how HIV is spread), start PEP as soon as possible, and no later than 3 days after exposure. Start an ART combination in the box “ART Combinations for people 11 years old and older” on page 399, preferably Combination 1 or 2. Other combinations may be used in your area. All medicines for PEP must be taken for 28 days.

## ART FOR PREGNANT WOMEN WITH HIV

Women who are pregnant should be tested for HIV and if positive, should start ART to improve their health. The mother’s ART will also help prevent HIV from spreading to her baby. ART Combinations 1 and 2 in the box “ART Combinations for people 11 years old and older” on page 399 are safe during pregnancy and breastfeeding. Once a pregnant woman starts ART, she should continue for the rest of her life.

A woman who is already on ART when she becomes pregnant should continue taking it throughout her pregnancy, during the birth, while breastfeeding, and after. The baby will also need to be treated at birth.

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Medicines are only one part of preventing HIV in a baby. Safer sex during pregnancy, safe birth practices, careful feeding of the baby, and treatment of illnesses in both mother and child, are also important. See *Where Women Have No Doctor* for more information.

### ART medicines to prevent HIV in babies (mother-to-child transmission)

**If the mother IS already taking ART**, she should continue taking her medicines and also give the medicines listed here “FOR THE BABY”.

**If the mother IS NOT taking ART**, she should start taking ART to maintain her health, and give medicines “FOR THE BABY” to prevent HIV infection in her baby.

#### FOR THE BABY

Give the baby only NVP (nevirapine) for 6 weeks following birth if the mother was already on ART when she became pregnant, or started taking ART early in the pregnancy.

Give the baby both NVP (nevirapine) and AZT (zidovudine) for 6 weeks following birth if the mother started ART less than 1 month before birth, thinks she was infected with HIV during pregnancy or breastfeeding, has a lot of HIV in her blood, or feels very ill.

If breastfeeding, continue giving the baby either NVP or AZP for an additional 6 weeks (a total of 12 weeks following birth).

#### Use these amounts:

##### NVP (nevirapine)

For babies, this medicine comes as a liquid to give by mouth.

- 0 to 6 weeks, weighing less than 2 kg (4.4 pounds): 2 mg per kg, once a day
- 0 to 6 weeks, weighing 2 to 2.5 kg (4.4 to 5.5 pounds): 10 mg once a day
- 0 to 6 weeks, weighing more than 2.5 kg (5.5 pounds): 15 mg once a day
- 6 weeks to 12 weeks: 20 mg once a day

##### AZT (zidovudine)

For babies, this medicine comes as a liquid to give by mouth.

- 0 to 6 weeks, weighing less than 2 kg (4.4 pounds): 4 mg per kg, 2 times a day
- 0 to 6 weeks, weighing 2 to 2.5 kg (4.4 to 5.5 pounds): 10 mg, 2 times a day
- 0 to 6 weeks, weighing more than 2.5 kg (5.5 pounds): 15 mg, 2 times a day
- 6 to 12 weeks, 60 mg, 2 times a day