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# THE GREEN PAGES

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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 8 equal pieces and taking 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. . .

(100mg./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, 3600 mg. comes to 12 tablets. 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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# LIST OF MEDICINES IN THE GREEN PAGES

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Listed in the order in which they appear

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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. 386) 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. 385).**

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 355 and 356 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 70.

#### **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. 360 for other antibiotics. Pneumonia is also sometimes resistant to penicillin—try cotrimoxazole (p. 358) or erythromycin (p. 355).

### PENICILLIN BY MOUTH

#### **Penicillin V**

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
- widespread impetigo
- 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:**

- 25 to 60 mg./kg./day, for 10 days
- adults and children over 12 years of age:
  - 125 to 250 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.

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

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

- meningitis
- septicemia (bacteria in the blood)
- tetanus
- severe pneumonia
- badly infected wounds
- gangrene
- infected bones and to prevent infection when a bone pokes through the skin
- syphilis
- pelvic inflammatory disease

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 6 hours (4 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 when a broken bone pokes through the skin, or meningitis.

**Intermediate-acting penicillin:** Procaine penicillin or procaine penicillin aluminum monostearate (PAM). 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 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 penicillin often comes combined with faster-acting penicillins.

**Crystalline penicillin** (a short-acting penicillin)

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

Often comes in: vials of 1 million U. (625 mg.) or 5 million U. (3125 mg.)

**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 meningitis and some other very severe infections, higher doses should be given.

**Procaine penicillin** (intermediate-acting)

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

Often comes in: vials of 300,000 U., 400,000 U., 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, 75,000 U.

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

**The dosage** for procaine penicillin combined with a short-acting penicillin is the same as for procaine penicillin alone.

For treatment of gonorrhea that is not resistant to penicillin, procaine penicillin is best. Very high doses are needed. For dosage, see page 360. For pelvic inflammatory disease, the dosages are the same as for gonorrhea.

**Benzathine benzylpenicillin** (long-acting)

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

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

**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: 1,200,000 U. to 2,400,000 U.
- children age 8 to 12: 900,000 U.
- children age 1 to 7: 300,000 U. to 600,000 U.

For strep throat, give one injection of the above dose.

To prevent return 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:  
WIDE-RANGE (BROAD-SPECTRUM)  
PENICILLINS**

**Ampicillin**

Often comes in: solutions,

- 125 or 250 mg./tsp. price: \_\_\_\_\_ for \_\_\_\_\_
- capsules, 250 mg. price: \_\_\_\_\_ for \_\_\_\_\_
- injections, 500 mg. price: \_\_\_\_\_ for \_\_\_\_\_

**Amoxicillin**

Often comes in:

capsules or tables:

- 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** (wide-range) 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). Also note that amoxicillin may be less effective against *Shigella* infections. Use ampicillin or another antibiotic (see p. 158).

Ampicillin and amoxicillin are more expensive than penicillin and they can cause diarrhea or 'thrush'. Therefore, they should not be used for infections that could be treated with penicillin just as effectively (see p. 58).

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 the medicine.

Ampicillin and amoxicillin are often useful in treating pneumonia or ear infections of children under 6 years, severe urinary tract infections, gonorrhea, and typhoid fever (if it is resistant to chloramphenicol). Ampicillin is also useful in treating septicemia and unexplained illness in the newborn, meningitis, peritonitis, and appendicitis.

Persons allergic to penicillin should not take ampicillin or amoxicillin. See *Risks and Precautions* for all types of penicillin, page 351.

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: 2 capsules or 4 teaspoons  
(500 mg.)  
children age 8 to 12: 1 capsule or  
2 teaspoons (250 mg.)  
children 3 to 7: ½ capsule or 1 teaspoon  
(125 mg.)  
children under 3: ¼ capsule or ½ teaspoon  
(62 mg.)  
newborn babies: same as for children  
under 3 years

For typhoid fever that is resistant to chloramphenicol, if you do not have injectable ampicillin, give 200 mg./kg./day of ampicillin by mouth or 100 mg./kg./day of amoxicillin.

For chlamydia, see doses on p. 360

Dosage for ampicillin:

**By injection**, for severe infections—(50 to 100 mg./kg./day—up to 300 mg./kg./day for meningitis):

vials of 500 mg.

Give 4 doses a day, once every 6 hours, for 10 to 14 days.

In each dose give:

adults: 500 to 1000 mg.  
(one to two 500 mg. vials)  
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

### PENICILLIN WITH STREPTOMYCIN

Products that combine penicillin with streptomycin are found in most countries and are often used more than they should be. If one of these products is widely used in your area, write down its name, contents, and price:

Name: \_\_\_\_\_ mg. of penicillin: \_\_\_\_

mg. of streptomycin: \_\_\_\_ price: \_\_\_\_\_ for \_\_\_\_

**Penicillin and streptomycin should be used together only in special cases when ampicillin cannot be obtained or is too expensive. They should not be used for minor infections or for the common cold or 'flu'.**

Frequent use of streptomycin for illnesses other than tuberculosis makes the tuberculosis bacteria in a community resistant to streptomycin, and therefore harder to treat. Also, streptomycin may cause deafness.

Streptomycin with penicillin can be used for most of the illnesses for which ampicillin is recommended (see p. 353), but ampicillin is safer, especially for babies.

Usually, it is cheaper, as well as easier to figure the correct dosage, if streptomycin and penicillin are injected separately, rather than in a combination.

**Dosage of penicillin with streptomycin—for severe infections:**

Give short-acting penicillin, at least 25,000 U./Kg. 4 times a day, and streptomycin, no more than 30 to 50 mg./kg./day.

In newborns, give short-acting penicillin, 50,000 U./kg. twice a day together with streptomycin, 20 mg./kg. once a day.

	Give this much short-acting penicillin	with this much streptomycin
	_____	_____
adults .....	1,000,000 U. 4 to 6 times a day	1. gm. (usually 2 ml.) once a day
children..... 8 to 12 years	500,000 U. 4 to 6 times a day	750 mg. (1 ½ ml.) once a day
children..... 3 to 7 years	250,000 U. 4 to 6 times a day	500 mg. (1 ml.) once a day
children..... under 3	125,000 U., 4 to 6 times a day	250 mg. (½ ml.) once a day
newborn babies	150,000 U. twice a day	60 mg. (¼ ml.) once a day

**For very severe infections**, such as peritonitis, appendicitis, meningitis, or an acute infection of the bone (osteomyelitis), even higher doses of penicillin may be given, but **the dosage of streptomycin must never be higher than what is suggested here.**

**For less severe infections** calling for penicillin with streptomycin, procaine penicillin can be used with streptomycin. For the dosage of procaine penicillin, see page 353. The dosage for streptomycin is the same as that given above.

Be sure to read the *Risks and Precautions* for both penicillin and streptomycin, pages 351 and 363.

**ERYTHROMYCIN:  
AN ALTERNATIVE TO PENICILLIN**

**Erythromycin**

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

Often comes in:  
tablets or capsules of 250 mg Price: \_\_\_\_\_ for \_\_\_\_  
syrups with 125 or 200 mg 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 skin 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 4 times a day.

In each dose give:

- adults: 500 mg. (2 tablets or 4 teaspoons)
- children 8 to 12 years: 250 mg. (1 tablet or 2 teaspoons)
- children 3 to 7 years: 150 mg. (½ tablet or 1 teaspoon)
- children under 3 years: 75 to 150 mg. (¼ to ½ tablet or ½ to 1 teaspoon)

**TETRACYCLINES:  
WIDE-RANGE ANTIBIOTICS**

**Tetracycline (tetracycline HCl, oxytetracycline, etc.)**  
(Familiar but expensive brand: *Terramycin*)

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

Often comes in:

Capsules of 250 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 (bronchitis, etc.)
- infections of the urinary tract
- typhus
- brucellosis
- cholera
- trachoma
- gallbladder infections
- chlamydia
- gonorrhea
- pelvic inflammatory disease
- malaria (chloroquine resistant)
- 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 1 hour 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.

In each dose give:

- adults: 250 mg. (1 capsule)
- children 8 to 12 years: 125 mg.  
( $\frac{1}{2}$  capsule or 1 teaspoon)
- children under 8 years: As a general rule, **do not use tetracycline**—instead use cotrimoxazole or erythromycin. If there is no other choice, give:
- children 4 to 7 years: 80 mg. ( $\frac{1}{3}$  capsule or  $\frac{2}{3}$  teaspoon)
- children 1 to 3 years: 60 mg. ( $\frac{1}{4}$  capsule or  $\frac{1}{2}$  teaspoon)
- babies under 1 year: 25 mg. ( $\frac{1}{10}$  capsule or  $\frac{1}{5}$  teaspoon)
- newborn babies (when other antibiotics are not available): 8 mg. ( $\frac{1}{30}$  capsule or 6 drops of the mixture)

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

For most infections, tetracycline should be continued for 1 or 2 days after the signs of infection are gone (usually 7 days altogether). For some illnesses, longer treatment is needed: typhus 6 to 10 days; brucellosis 2 to 3 weeks; gonorrhea and chlamydia 7 to 10 days; pelvic inflammatory disease 10 to 14 days. Cholera usually requires a shorter treatment: 3 to 5 days.

**Doxycycline** (familiar brand name: *Vibramycin*)

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

Often comes in:

capsules or tablets of 100 mg.	Price: ____ for ____
ampules with 100 mg. for injection	Price: ____ for ____

Doxycycline is an expensive form of tetracycline that is taken twice a day instead of 4 times a day. When available, it can be used for the same illnesses as tetracycline. Doxycycline can be taken with food or milk. Otherwise, **the risks and precautions are the same as for tetracycline (see p. 356).**

*Dosage* of doxycycline:  
—tablets of 100 mg.—

Give doxycycline by mouth twice a 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.**

## 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 ____

This broad-spectrum antibiotic fights a wide range of different bacteria. It is cheap, but there is some danger in using it. For this reason, its use must be very limited.

Chloramphenicol should be used only for typhoid and for very serious infections that are not cured by sulfas, penicillin, tetracycline, or ampicillin. 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.

Ampicillin usually works as well as or better than chloramphenicol, and is much safer. Unfortunately, ampicillin is expensive, so there are times when chloramphenicol must be used instead.

**WARNING:** Chloramphenicol harms the blood of some persons. It is even more dangerous for newborn babies, especially premature babies. **To newborn babies with serious infections, give ampicillin rather than chloramphenicol** if this is at all possible. As a rule, **do not give chloramphenicol to babies under 1 month of age.**

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 treating typhoid, change from chloramphenicol to ampicillin as soon as the illness is under control. (In regions where typhoid is known to be resistant to chloramphenicol, the entire treatment should be with ampicillin or cotrimoxazole.)

In some areas of Central and South America, typhoid has become resistant to both chloramphenicol and ampicillin and is no longer cured by them. Try using cotrimoxazole (see p. 358).

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. ( $\frac{1}{2}$  ml. of the mixture or  $\frac{1}{20}$  part of a capsule) for *each* kg. of body weight. (This way, a 5 kg. baby would get 60 mg., which is  $\frac{1}{2}$  teaspoon of mixture, or  $\frac{1}{4}$  capsule, at each dose. With 4 doses, this means the 5 kg. baby will get 1 capsule, or 2 teaspoons of mixture, a day.)

newborn babies: *As a general rule, do not use chloramphenicol.* If there is no other choice, give 5 mg. ( $\frac{1}{4}$  ml. or 5 drops of the mixture) for each kg. of body weight. Give a 3 kg. baby 15 mg. (15 drops of the mixture) 4 times a day, or about  $\frac{1}{4}$  capsule a day. Do not give more.

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

#### Sulfadiazine, sulfisoxazole, sulfadimidine, or 'triple sulfa'

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

Often comes in:

tablets of 500 mg. Price: \_\_\_\_\_ for \_\_\_\_\_  
suspension, 500 mg. in 5 ml. Price: \_\_\_\_\_ for \_\_\_\_\_

The sulfas or sulfonamides fight many kinds of bacteria, but they are weaker than many antibiotics and more likely to cause allergic reactions (itching) and other problems. Because they are cheap and can be taken by mouth, they are still useful.

The most important use of sulfas is for urinary infections. They may also be used for some ear infections and for impetigo and other skin infections with pus.

Not all the sulfas are used the same way or have the same dosage. If you have a sulfonamide other than one of those listed above, be sure of the correct use and dosage before you use it. Sulfathiazole is similar to the sulfas named above, and is very cheap, but is not recommended because it is more likely to cause side effects.

The sulfas do not work as well for diarrhea as they used to, because many of the microbes that cause diarrhea have become resistant to them. Also, giving sulfas to a person dehydrated from diarrhea can cause dangerous kidney damage.

**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.**

**Never give sulfa to a person who is dehydrated, or to babies under 1 year old.**

**Note:** To do any good, these sulfas must be taken in the right dose, which is large. Be sure to take enough—but not too much!

**Dosage** for sulfadiazine, sulfisoxazole, sulfadimidine, or triple sulfa (200 mg./kg./day):  
—tablets of 500 mg., or a mixture with 500 mg. in 5 ml.

Give 4 doses a day—**with lots of water!**

In each dose give:

adults and children over 10 years: 3 to 4 gm. (6 to 8 tablets) for the first dose; then 1 gm. (2 tablets) for the other doses  
children 6 to 10 years: 750 mg. (1  $\frac{1}{2}$  tablets or teaspoons) in each dose  
children 1 to 5 years: 500 mg. (1 tablet or 1 teaspoon) in each dose  
babies under 1 year: **Do not give sulfa.**

If you have no other medicines to use, see next page for safest doses for babies under 1 year.

#### Cotrimoxazole (sulfamethoxazole with trimethoprim)

(familiar brand names: *Bactrim, Septra*)

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 Septra 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: 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.**

Cotrimoxazole can be used to treat:

- brucellosis
- ear infections
- diarrhea with blood and fever (shigella)
- impetigo
- respiratory infections (pneumonia)

*Dosage* of cotrimoxazole:

**Important:** Take 2 doses a day for 5 to 7 days —with lots of water. For typhoid, take it for 14 days.

adults and children over 12 years, tablets:  
800 mg. of sulfamethoxazole with 160 mg.  
of trimethoprim 2 times a day

children 8 weeks to 12 years, using a  
suspension (in milliliters, see page 61 for  
measurements): ½ ml./kg 2 times a day

Using tablets of 400 mg. sulfamethoxazole with  
80 mg. trimethoprim:

children 9 to 12 years: 2 tablets 2 times a  
day

children 4 to 8 years: 1 tablet 2 times a day

children 9 months to 3 years: ½ tablet  
2 times a day

children 2 to 8 months old: ¼ tablet 2 times  
a day

People with HIV can take a dose of cotrimoxazole 2 times every day to prevent diarrhea, pneumonia, and other infections. Children with HIV should also use cotrimoxazole, using the children's doses above. Avoiding infections will help people with HIV live longer, healthier lives.

People with HIV who get pneumonia should take a double dose 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.

## Gentamicin

Gentamicin is an injectable antibiotic that is used for very serious infections. 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. We are not including dosage information here because this medicine is so dangerous. For your safety, we recommend that you use one of the other medicines listed on pages 351 to 360 to treat infections.

## CEPHALOSPORINS

These are powerful new antibiotics that work against many different kinds of bacteria. They are often expensive and not widely available. For that reason, we have not recommended them as first choice treatments in this book. 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*), cephalixin (*Keflex*), cephradine (*Velosef*), cefurazone (*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. Some, like ceftriaxone, can be useful for treating sexually transmitted infections such as chancroid, eye infections in newborns, or gonorrhea that is resistant to penicillin.

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.

## 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.

*For gonorrhea, use one of the following:*

**ciprofloxacin**, 500 mg. by mouth, one time only

**OR**

**ceftriaxone**, one injection of 125 mg. one time only

**OR**

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

**OR**

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

**Pregnant women, children, and adolescents should not take ciprofloxacin.**

**Pregnant women, or women who are breast feeding should not take spectinomycin.**

*For chlamydia, use one of the following:*

**doxycycline** (p. 356): 100 mg. by mouth, 2 times a day for 7 days

**OR**

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

**OR**

**amoxicillin**, 500 mg. by mouth, 3 times a day for 7 days

**OR**

**erythromycin** (p. 355): 500 mg. by mouth, 4 times a day for 7 days. Always take erythromycin with food.

**OR**

**ofloxacin** 400 mg. by mouth, 2 times a day for 7 days

**OR**

**tetracycline** (p. 356): 500 mg. by mouth, 4 times a day for 7 days

**Do not take doxycycline, tetracycline, or ofloxacin if you are pregnant or breastfeeding.**

Women who are pregnant or breastfeeding can use azithromycin, erythromycin or amoxicillin.

## MEDICINES FOR TUBERCULOSIS

In treating tuberculosis (TB), it is very important to **always use 4 or 5 anti-tuberculosis medicines at the same time**. If only 1 medicine is used, the TB bacteria become resistant to it and make the disease harder to treat.

Tuberculosis must be treated for a long time, usually 6 to 9 months or longer. The length of treatment depends on what combination of medicines is used. The **full, long-term treatment for TB is extremely important** 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 disease. MDR (Multi-Drug Resistant) TB is expensive to treat, and XDR (eXtremely Drug Resistant) TB is almost impossible to cure.

Medicines for tuberculosis are available through government programs that test for TB and give medicine free or at low cost.

Experienced local advice is important, because treatments change, bacteria become resistant, and new medicines may become available. Also, some programs give medicines only twice a week, in higher doses.

**Isoniazid (INH)** should always be used in the treatment of TB. **Rifampicin** is a very effective medicine that should be used whenever possible, especially until a 'sputum test' comes out negative. **Ethambutol** and **streptomycin** are also often used to treat TB. Taking **pyrazinamide** with INH and rifampicin can shorten the time of treatment. **Thiacetazone** is another TB medicine, but it causes side effects so often that many persons, including people with HIV, cannot use it.

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 INH.

### Recommended treatments

Use one of the following combinations of medicines, depending on which are available, affordable, and recommended in your area:

1. Give isoniazid, rifampicin, ethambutol, and pyrazinamide for 2 months. Then stop taking pyrazinamide, but continue using rifampicin, isoniazid, and ethambutol for another 4 months.

2. Give isoniazid, rifampicin, and ethambutol for 9 months.
3. Combine isoniazid, rifampicin, streptomycin, and pyrazinamide for 2 months. Then give isoniazid with ethambutol, streptomycin, or possibly thiacetazone for 6 months. This treatment has the advantage of being cheaper, because less rifampicin is needed.
4. If rifampicin is not available or is too expensive, give isoniazid, ethambutol, and streptomycin for 2 months, or until a test shows the sputum is negative. Then continue to give streptomycin for 2 more months, and to give INH and ethambutol for 1 year.
5. Pregnant women with TB should seek experienced medical advice. Otherwise, give isoniazid and either ethambutol, rifampicin, or thiacetazone for 18 months. Also give 50 mg. of vitamin B<sub>6</sub> (pyridoxine) a day. Do not give pyrazinamide or streptomycin during pregnancy.

### 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 at least 1 other anti-TB medicine whenever possible. For prevention it can be given alone.

### Risks and Precautions:

Rarely, isoniazid causes anemia, nerve pains in the hands and feet, muscle twitching, or even fits, 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. 394).

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 to 10 mg./kg./day):  
—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, it is often recommended to give the above dose of INH for 6 to 9 months.

### **Rifampicin**

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

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

This antibiotic is expensive, but 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. 364.)

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 (shit), 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 oral 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.

**Dosage** of rifampicin for TB—(10 mg./kg./day):  
—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 500 mg.

#### **Risks and Precautions:**

Pregnant women should not take pyrazinamide.

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

**Dosage** for pyrazinamide—(20 to 30 mg./kg./day):  
—using tablets of 500 mg.—

Give 1 dose daily for 2 months, together with other TB medicines. In each dose give:

adults: 1500 or 2000 mg. (3 or 4 tablets)  
children 8 to 12 years: 1000 mg. (2 tablets)  
children 3 to 7 years: 500 mg. (1 tablet)  
children under 3 years: 250 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—(25 mg./kg./day for the first 2 months, then 15 mg./kg./day):  
—100 mg. tablets or 400 mg tablets—

Give once a day.

For the first two months, in each dose give:

adults: 1200 mg. (three 400 mg. tablets or twelve 100 mg. tablets)  
children: Give 15 mg. for each kg. the child weighs. But for tubercular meningitis give 25 mg. for each kg. the child weighs.

After the first two months give:

adults: 800 mg. (two 400 mg. tablets or eight 100 mg. tablets)  
children: Give 15 mg. for each kg. the child weighs.

**Streptomycin**

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

Often comes in: vials for injection with 500 mg. in each ml.

Streptomycin is still a very useful medicine for treating tuberculosis. It is somewhat less effective but much cheaper than rifampicin.

**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):  
—vials of liquid; or powder for mixing with water to give 1 gm. of streptomycin in 2 ml.—

**For treatment of tuberculosis:**

- very severe cases**, give 1 injection daily for 3 to 8 weeks
- for mild cases**, give 1 injection 2 or 3 times a week for 2 months

With each injection give:

- adults: 1 gm. (or 2 ml.)
- adults over age 50: 500 mg. (1 ml.)
- children 8 to 12 years: 750 mg. (1 ½ ml.)
- children 3 to 7 years: 500 mg. (1 ml.)
- children under 3 years: 250 mg. (½ ml.)
- newborn babies: give 20 mg. for each kg. of body weight; thus a 3 kg. baby gets 60 mg. (½ ml.)

**Use of streptomycin for other than TB:**

In emergencies, streptomycin and penicillin together can be used to treat certain severe infections (see PENICILLIN WITH STREPTOMYCIN, p. 354). However, the use of streptomycin for infections other than tuberculosis should be very limited, because frequent use of streptomycin for other illnesses makes tuberculosis resistant to it, and therefore harder to treat.

**Thiacetazone**

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

Often comes in: tablets with 50 mg. of thiacetazone (often in combination with 100 or 133 mg. of isoniazid)

**Side effects:** May cause rashes, vomiting, dizziness, or loss of appetite. **People with HIV/AIDS must not use this drug. It can cause severe, even deadly allergic reactions, and can make the skin peel off.**

**Dosage** for thiacetazone—(2.5 mg./kg./day):  
—tablets with 50 mg. thiacetazone, with or without isoniazid—

Give once a day.

In each dose give:

- adults: 3 tablets (150 mg.)
- children 8 to 12 years: 2 tablets (100 mg.)
- children 3 to 7 years: 1 tablet (50 mg.)
- children under 3 years: ½ tablet (25 mg.)

**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 **tuberculoid** leprosy and only 2 medicines are required. If there are lumps, then the person probably has **lepromatous** leprosy and it is best to use 3 medicines. **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 *tuberculoid leprosy* take both of these for at least 6 months:

**Dapsone** daily  
**Rifampicin** each month

For lepromatous leprosy take all of these for 2 to 5 years:

**Dapsone** daily  
**Clofazimine** daily and a larger dose each month  
**Rifampicin** each month

**Note:** Although the cure of leprosy is quicker using dapsone together with other medicines, sometimes only dapsone is available. When taken alone, it often gives good results, but more slowly, so treatment must continue for at least 2 years and sometimes for life for lepromatous leprosy.

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 50 and 100 mg.

Dapsone sometimes causes anemia or skin rashes, which can be severe. 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):  
—using tablets of 100 mg.—

Take once a day.

adults: 100 mg. (one 100 mg. tablet)  
children 13 to 18 years: 50 mg. (half of a 100 mg. tablet)  
children 6 to 12 years: 25 mg. (a quarter of a 100 mg. tablet)  
children 2 to 5 years: 25 mg. (a quarter of a 100 mg. tablet) **3 times a week only.**

**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. 362 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 8 to 12 years: 450 mg. (one and a half 300 mg. tablets)  
children 3 to 7 years: 300 mg. (one 300 mg. tablet)  
children under 3 years: 150 mg. (half a 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 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 dose of clofazimine each day and a second, larger dose once a month.

In each daily dose give:

- adults: 50 mg. (one 50 mg. capsule)
- children 8 to 12 years: 37 mg. ( $\frac{3}{4}$  of a 50 mg. capsule)
- children 3 to 7 years: 25 mg. ( $\frac{1}{2}$  of a 50 mg. capsule)
- children under 3 years: 12 mg. ( $\frac{1}{4}$  of a 50 mg. capsule)

In each monthly dose give:

- adults: 300 mg. (six 50 mg. capsules)
- children 8 to 12 years: 225 mg. (four and a half 50 mg. capsules)
- children 3 to 7 years: 150 mg. (three 50 mg. capsules)
- children under 3 years: 75 mg. (one and a half 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.

## MEDICINES FOR MALARIA

There are many medicines that fight malaria. Unfortunately, in many parts of the world, malaria parasites have become resistant to the best malaria medicines. This is especially true for the most serious type of malaria (falciparum malaria). **It is important to learn from health workers, local health centers, or the Health Department what medicines work best in your area.**

**IMPORTANT:** Malaria can quickly kill persons who have not developed immunity. Children, and people who visit areas with malaria, must be treated immediately.

Medicines for malaria can be used in two ways:

1. **TREATMENT** of the person who is ill with malaria. Medicine is given daily for just a few days.

2. **PREVENTION:** To keep any malaria parasites that may be in the blood from doing harm. Prevention is used in areas where malaria is common, especially to protect children who are weak or sick for other reasons. It is also used by persons visiting a malaria area who have no defenses against the disease. Medicines are usually given weekly. To prevent malaria, also be sure to follow the advice on p. 187 to avoid mosquito bites.

Certain malaria medicines are used only to treat attacks of malaria, while some only work for prevention. Others can be used for both.

Medicines for treating the most serious type of malaria should be used in combinations since there is widespread resistance to many of the most often used medicines. Because **chloroquine** resistance is widespread throughout sub-Saharan Africa, most of Asia, and South America, acute malaria attacks are often treated with **quinine** (p. 366) and **fansidar** (p. 368), or quinine and **doxycycline** (p. 356).

**Mefloquine** and **proguanil** are two other medicines used to prevent and treat malaria that is resistant to chloroquine. **Primaquine** is sometimes taken after treatment with another malaria medicine to keep the disease from coming back.

**Doxycycline** is also used occasionally in malaria treatment and prevention (see p. 368). There is a newer drug called **artemisinin**, which comes from a plant common throughout Asia, being used in combination with other malaria medicines for the treatment of malaria resistant to more common malaria medicines. But it is still expensive and not available in many places.

### **Artemisinin** (*Artesunate, Artemether, Artemotil*)

The artemisinin family of medicines are usually used in combination with other medicines to treat falciparum malaria in areas where there is known resistance to other malaria medicines.

#### **Dosage**

—give 300 mg artesunate by mouth, once a day for 7 days

**and**

—give 600 mg clindamycin by mouth, 2 times a day for 7 days.

In some places, doses of artemisinin and artesunate are followed by a single dose of mefloquine (15 mg./kg.).

Artesunate should **not** be used during the first 3 months of pregnancy. It is safe after the third month.

**Chloroquine**

Chloroquine comes in two forms, chloroquine phosphate and chloroquine sulfate. The doses are different, so be sure you know which type of chloroquine you have and the amount of medicine (chloroquine base) in the tablet.

In most areas of the world malaria is resistant to chloroquine used alone. Chloroquine should be used in combination with other medicines. Talk to a health worker about which medications work best in your area.

Chloroquine is safe for women who are pregnant or breastfeeding for both prevention and treatment of malaria.

CHLOROQUINE PHOSPHATE (familiar brand names: *Aralen*, *Resochin*, *Avlochlor*)

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

Often comes in: 250 mg. tablets (which have 150 mg. of chloroquine) or 500 mg. (which have 300 mg. of chloroquine)

Dosage for chloroquine phosphate by mouth:  
—using 250 mg. tablets—

**For treatment of acute attacks of malaria:**

For the first dose give:

adults: 4 tablets (1000 mg.)  
children 10 to 15 years: 3 tablets (750 mg.)  
children 6 to 9 years: 2 tablets (500 mg.)  
children 3 to 5 years: 1 tablet (250 mg.)  
children 1 to 2 years: ½ tablet (125 mg.)  
babies under 1 year: ¼ tablet (63 mg.)

Then give the following dose 6 hours after the first dose, 1 day after the first dose, and 2 days after the first dose:

adults: 2 tablets (500 mg.)  
children 10 to 15 years: 1 ½ tablets (375 mg.)  
children 6 to 9 years: 1 tablet (250 mg.)  
children 3 to 5 years: ½ tablet (125 mg.)  
children 1 to 2 years: ¼ tablet (63 mg.)  
babies under 1 year: ⅛ tablet (32 mg.)

**For prevention of malaria** (where it is not resistant to chloroquine):

Give once a week beginning 1 week before and continuing for 4 weeks after leaving malaria area.

adults: 2 tablets (500 mg.)  
children 10 to 15 years: 1 ½ tablets (375 mg.)  
children 6 to 9 years: 1 tablet (250 mg.)  
children 3 to 5 years: ½ tablet (125 mg.)  
children 1 to 2 years: ¼ tablet (63 mg.)  
babies under 1 year: ⅛ tablet (32 mg.)

CHLOROQUINE SULFATE (familiar brand name: *Nivaquine*)

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

Often comes in: 200 mg. tablets (which have 150 mg. of chloroquine)

**Dosage** of chloroquine sulfate by mouth:  
—200 mg. tablets—

**For treatment of acute attacks of malaria:**

For the first dose give:

adults: 4 tablets (800 mg.)  
children 10 to 15 years: 3 tablets (600 mg.)  
children 6 to 9 years: 2 tablets (400 mg.)  
children 3 to 5 years: 1 tablet (200 mg.)  
children 1 to 2 years: ½ tablet (100 mg.)  
babies under 1 year: ¼ tablet (50 mg.)

Then give the following dose 6 hours after the first dose, 1 day after the first dose: and 2 days after the first dose:

adults: 2 tablets (400 mg.)  
children 10 to 15 years: 1 ½ tablets (300 mg.)  
children 6 to 9 years: 1 tablet (200 mg.)  
children 3 to 5 years: ½ tablet (100 mg.)  
children 1 to 2 years: ¼ tablet (50 mg.)  
babies under 1 year: ⅛ tablet (25 mg.)

**For prevention of malaria:**

Give once a week beginning 1 week before and continuing for 4 weeks after leaving a malaria area.

adults: 2 tablets (400 mg.)  
children 10 to 15 years: 1 ½ tablet (300 mg.)  
children 6 to 9 years: 1 tablet (200 mg.)  
children 3 to 5 years: ½ tablet (100 mg.)  
children 1 to 2 years: ¼ tablet (50 mg.)  
babies under 1 year: ⅛ tablet (25 mg.)

**Quinine (quinine sulfate or quinine bisulfate)**

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

Often comes in: tablets of 300 mg. or 650 mg.

Quinine is used to treat resistant malaria (malaria that does not get better with other medicines) and severe malaria, including malaria that affects the brain. It is best given by mouth and with an antibiotic such as tetracycline (p. 356), doxycycline (p. 356-357), or clindamycin (p. 365). Women who are pregnant or breastfeeding, and children under 8 years old, should use tetracycline or doxycycline only if nothing else is available.

If vomiting is a problem when giving quinine by mouth, a medicine such as promethazine may help.

**Side effects:** Quinine sometimes causes sweaty skin, ringing of the ears or impaired hearing, blurred vision, dizziness, nausea and vomiting, and diarrhea.

**Dosage** of quinine for treating acute attacks of malaria:

—using tablets of 300 mg.—

Give 3 times a day for 3 days:

adults: 2 tablets (600 mg.)  
 children 10 to 15 years: 1 ½ tablets (450 mg.)  
 children 6 to 9 years: 1 tablet (300 mg.)  
 children 3 to 5 years: ½ tablet (150 mg.)  
 children 1 to 2 years: ¼ tablet (75 mg.)  
 babies under 1 years: ⅙ tablet (38 mg.)

**Note:** In some parts of the world, such as Southeast Asia, it is necessary to take quinine for 7 days.

#### When to inject quinine or chloroquine:

Injections of quinine or chloroquine should be given only rarely, in cases of great emergency. If a person who shows signs of malaria, or lives in an area where there is a lot of malaria, is vomiting, having fits (convulsions), or showing other signs of meningitis (see p. 185), he may have cerebral malaria (malaria in the brain). **Inject quinine at once.** (Or, if you have no other medicine available, try injecting chloroquine.) Great care must be taken to **be sure the dose is right. Seek medical help.**

QUININE DIHYDROCHLORIDE INJECTIONS,  
 300 mg. in 2 ml.:

Quinine injections should be given very slowly, and never directly into the vein—this can be dangerous to the heart. Take great care with children. Inject half this dose slowly into each buttock. Before injecting, draw back on the plunger; if blood appears, inject in another site. Repeat same dose 12 hours later:

adults: 600 mg. (2 ampules of 2 ml.)  
 children: .07 ml. (⅙ ml., or 10 mg.) for each kg. the child weighs. (A one-year-old baby who weighs 10 kg. would get 0.70 ml.)

CHLOROQUINE INJECTIONS, 200 mg. in 5 ml.:

Give the dose once only (inject ½ into each buttock):

adults: 200 mg. (the entire ampule of 5 ml.)  
 children: inject 0.1 ml. (⅙ ml.) for each kg. the child weighs. (A one-year-old baby who weighs 10 kg. would get 1 ml.)

The dose may be repeated 1 day later if improvement has not taken place.

#### **Mefloquine** (familiar brand name: *Lariam*)

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

Often comes in: tablets of 250 mg.

Mefloquine can prevent and stop acute attacks of malaria that are resistant to chloroquine.

**Precautions and side effects:** Mefloquine should not be taken by persons with epilepsy or mental illness. Pregnant women should take mefloquine only if they are not able to get another medicine. Persons with heart problems should get experienced medical advice before taking this medicine. Take with a large meal. Mefloquine sometimes causes strange behavior, confusion, anxiety, fits or unconsciousness. **If any of these signs develop, stop taking mefloquine immediately.** Other side effects include dizziness, stomach upset, headache, and vision problems. Side effects are more frequent and severe with higher doses used for treatment.

**Dosage** of mefloquine:

#### *For treatment of acute attacks of malaria:*

Give one dose, then 6 hours later give the second, smaller dose:

adults: first 3 tablets, then 2 tablets (1250 mg. total)  
 children 12 to 15 years: first 2 ½ tablets, then 1 ½ tablets (1000 mg. total)  
 children 8 to 11 years: first 2 tablets, then 1 tablet (750 mg. total)  
 children 5 to 7 years: first 1 tablet, then 1 more tablet (500 mg. total)  
 children 1 to 4 years: ½ tablet, then another ½ tablet (250 mg. total)  
 babies under 1 year: ¼ tablet, then another ¼ tablet (125 mg. total)

#### *For prevention of malaria:*

Give once a week continuing until 4 weeks after leaving malaria area.

adults: 1 tablet (250 mg.)  
 children over 45 kg.: 1 tablet (250 mg.)  
 children 31 to 45 kg.: ¾ tablet (188 mg.)  
 children 20 to 30 kg.: ½ tablet (125 mg.)  
 children 15 to 19 kg.: ¼ tablet (63 mg.)  
 children under 15 kg.: not recommended

**Pyrimethamine with sulfadoxine (*Fansidar*)**

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

Comes in: combination tablet with 25 mg. pyrimethamine and 500 mg. sulfadoxine

*Fansidar* is used to treat resistant malaria.

*Fansidar* is **not** recommended for pregnant women.

**WARNING:** *Fansidar* should not be taken by anyone who has ever had a reaction to sulfa medicine. If the medicine causes a rash or itching, **drink lots of water and do not take it again.**

**Dosage** to treat acute attacks of malaria:

Give one time:

adults: 3 tablets  
 children 9 to 14 years: 2 tablets  
 children 4 to 8 years: 1 tablet  
 children 1 to 3 years: ½ tablet  
 babies under 1 year: ¼ tablet

**Proguanil (*Paludrine*)**

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

Often comes in: tablets of 100 mg.

Proguanil is taken with chloroquine for prevention of chloroquine resistant malaria. Proguanil is not used to treat acute attacks of malaria.

Proguanil is **not** safe for pregnant women.

**Dosage** of proguanil for prevention:

Give medicine each day, starting the day entering a malaria area until 28 days after leaving the area.

adults: 2 tablets (200 mg.)  
 children 9 to 14 years: 1 ½ tablets (150 mg.)  
 children 3 to 8 years: 1 tablet (100 mg.)  
 children 1 to 2 years: ½ tablet (50 mg.)  
 babies under 1 year: ¼ tablet (25 mg.)

**Primaquine**

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

Often comes in: tablets of 26.3 mg. of primaquine phosphate, which contains 15 mg. of primaquine base.

Primaquine is usually used after treatment with chloroquine or another malaria medicine to keep some kinds of malaria from coming back. Primaquine does not work by itself for acute attacks.

Primaquine is **not** safe for women who are pregnant or breastfeeding.

**Side effects:** In certain persons, especially some people with dark skin, this medicine causes anemia. Seek local advice.

**Dosage** of primaquine:

Give once a day for 14 days.

In each dose give:

adults: 1 tablet (15 mg. base)  
 children 8 to 12 years: ½ tablet (7 mg. base)  
 children 3 to 7 years: ¼ tablet (4 mg. base)

**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** together with **diloxanide furoate** or **tetracycline**. **Chloroquine** is sometimes used when metronidazole is not available, or in cases of amebic abscess. **Iodoquinol** is another medicine used to treat amebic dysentery, but it may have dangerous side effects.

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 \_\_\_\_

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 also useful for vaginal infections caused by *Trichomonas*, or by certain bacteria. It can also help to treat the symptoms of guinea worm.

**CAUTION:** Do not drink alcoholic drinks 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. Breast feeding 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 **guinea worm**:

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

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

The woman should take 8 tablets (2 gm.) by mouth in one single dose. Or, if the infection is not very severe, she can use a vaginal insert of 2 tablets (500 gm.) twice a day for 10 days. Both the woman and man should be treated for *Trichomonas* at the same time. (He should do this even if he has no symptoms or he will pass it back to the woman.)

Dosage for **stomach ulcers**:

Give metronidazole 3 times a day for 7 days. In each dose give 400 mg.

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

The woman should take 2 tablets (500 mg.) of metronidazole twice a day for 5 days. If the infection returns, both the woman and man should take the same treatment, at the same time.

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. (1 ½ tablets)  
children 2 to 3 years: 250 mg. (1 tablet)  
children under 2 years: 80 to 125 mg. (⅓ to ½ tablet)

For amebic dysentery, metronidazole should be taken together with diloxanide furoate or tetracycline.

**Diloxanide furoate** (*Furamide*)

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

Often comes in: 500 mg. tablets  
also, syrup with 125 mg. in 5 ml.

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

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

Give 3 times a day with meals. For complete treatment take 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: ⅙ tablet (62 mg.)  
or less, depending on weight

**Tetracycline** (see p. 356)

**Chloroquine** For treatment of liver abscess caused by amebas, using tablets of 250 mg. chloroquine phosphate or 200 mg. chloroquine sulfate:

adults: 3 or 4 tablets twice daily for 2 days, and then 1 ½ or 2 tablets daily for 3 weeks. Give children less, according to age or weight (see p. 366).

**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 **tapeworm**:

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

Give 1 large dose only:

adults: 1 gm. (10 tablets)  
children 8 to 12 years: 600 mg. (6 tablets)  
children 3 to 7 years: 400 mg. (4 tablets)

**DANGER! DO NOT USE!**



**Hydroxyquinolines (clioquinol, iodoquinol, di-iodohydroxyquinoline, halquinol, broxyquinoline)** (familiar brand names: *Diodoquin, Amicline, Floraquin, Enteroquinol, Chlorambin, Nivembin, Quogyl, Entero-Vioform*, and many other brands)

These medicines were commonly used in the past to treat diarrhea. They are now known to sometimes cause permanent paralysis, blindness, and even death. Do not use these dangerous medicines. (See p. 51.)

**FOR VAGINAL INFECTIONS**

Vaginal discharge, itching, and discomfort can be caused by different infections, the most common of which are **Trichomonas**, **yeast** (*Candida*, moniliasis), and **bacteria**. Cleanliness and vinegar-and-water douches (vaginal washes) help many vaginal infections. Specific medicines are also listed below.

**White vinegar for vaginal douches (washes):**

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

Mix 2 or 3 tablespoons of white vinegar in a liter of boiled water. As shown on page 241, give 1 to 3 douches a day for a week, then 1 every other day. This works especially well for bacterial infections of the vagina.

**Metronidazole**, tablets to be taken by mouth and vaginal inserts (see p. 369):

For *Trichomonas* and bacteria, infections of the vagina. (Only use metronidazole for bacterial infections if vinegar and water douches do not work.)

**Nystatin** or **Miconazole**, tablets, cream, and vaginal inserts (see p. 373):

For yeast infection (*Candida*, moniliasis) of the vagina.

**Gentian violet (crystal violet)** 1 percent solution (see p. 371):

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

For treatment of yeast infection (*Candida*, moniliasis) and other infections of the vulva and vagina.

Paint on gentian violet once daily for 3 weeks.

**Povidone iodine (Betadine)**

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

For treatment of bacterial infections of the vagina.

Mix 2 tablespoons of povidone iodine in a liter of warm water that has been boiled. As shown on page 241, give 1 douche a day for 10 to 14 days.

**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. 200).
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.

**Gentian violet (crystal violet)**

Often comes as dark blue crystals.

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*, moniliasis) in the mouth (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. Paint it on the skin or in the mouth or the vulva.

**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 373)  
ringworm (p. 372)  
itching from pinworm (p. 141)  
burns (p. 96 and 97)  
chest wounds (p. 91)

## 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 acid 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')**

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. 371)

### **Nystatin or Miconazole**

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

Comes in: solutions, dusting powders, vaginal tablets, ointments, and creams

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

**Dosage** for nystatin and miconazole—the same for children and adults:

**Thrush in the mouth:** put 1 ml. of solution in the mouth and hold it there for at least 1 minute before swallowing. Do this 3 or 4 times a day.

**Yeast infection on the skin:** keep as dry as possible and use nystatin or miconazole dusting powder or ointment 3 or 4 times a day.

**Yeast infection in the vulva or vagina:** put cream inside the vagina twice daily or a vaginal tablet inside the vagina nightly for 10 to 14 days.

## **FOR SCABIES AND LICE: INSECTICIDES**

**Gamma benzene hexachloride (lindane)**  
(familiar brand names: *Kwell*, *Gammezane*)

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

This comes in expensive preparations for people and cheap preparations for animals which work just as well for people. Lindane for a sheep or cattle dip is quite cheap, but it often comes concentrated in a 15 percent solution and must be diluted to 1 percent. Mix 1 part of 15 percent lindane concentrate with 15 parts of water or *Vaseline*, and use on the skin for scabies following the instructions on page 199. For head lice, see page 200.

**CAUTION:** Lindane is a poison and can cause dangerous side effects, including fits, especially in babies. Do not overuse. Make only one application; if necessary repeat once more a week later.

### **Benzyl benzoate, cream or lotion**

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

Use the same as gamma benzene hexachloride (lindane) cream or lotion.

### **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 and is safer than gamma benzene hexachloride (lindane). 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.

### **Crotamiton (*Eurax*)**

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

This often comes as a cream or lotion containing 10 percent crotamiton.

Crotamiton is used for treatment of scabies only, not lice. After bathing, apply over the whole body, from the chin to the toes—don't miss the folds and creases in the skin! A second application may be used the next day. Take a bath or shower 2 days after the last application to clean off all the cream or lotion. Clothing and bedding should be changed at this time.

## FOR GENITAL WARTS

### **Podophyllin**

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

Often comes as a 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. Apply solution to warts and let dry completely. (This is especially important in areas where normal skin may touch the wart, such as the foreskin of the penis.) 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 breast feeding should not use podophyllin.

### **Trichloroacetic acid**

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

Comes as a 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 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 (*Vermax*)**—for many different worm infections

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

Often comes in: tablets of 100 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 pregnant women or children under 2 years old.

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

Give the same amount to children and adults.

For pinworm: 1 tablet once a week for 3 weeks.

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

**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 pregnant women or children under 2 years.

**Dosage** of albendazole—using 200 mg. tablets—

Give the same amount to children and adults.

For pinworm, roundworm (*Ascaris*), whipworm (*Trichuris*), and hookworm: 400 mg. (2 tablets) one time.

For *Strongyloides*: 400 mg. (2 tablets) twice a day for 3 days, and then repeat one week later.

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

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

Comes 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.

**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.  
(1 ½ tablets or 1 ½ 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 as: 500 mg. tablets or mixture with 1 gm. 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 gm. in 5 ml.—

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

In each dose give:

adults: 1500 mg. (3 tablets or 1 ½ 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, Cobrantril, Helmex*)

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

Comes as pamoate or embonate

Often comes in:

250 mg. tablets                      Price: \_\_\_\_ for \_\_\_\_  
 Mixture, 250 mg. in 5 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 works best for most types and praziquantel is the next best treatment.

**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 may help get rid of the tapeworm.

adults and children over 8 years: 2 gm.  
 (4 tablets)  
 children 2 to 8 years: 1 gm. (2 tablets)  
 children under 2 years: 500 mg. (1 tablet)

**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 not take praziquantel. Women who are breast feeding 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. (2 ½ 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. 370.

## 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 mg. or 600 mg.

**WARNING:** Pregnant women should not take praziquantel. Women who are breast feeding 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). Do not give praziquantel to children under 4 years old.

**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 in a single dose:

adults: 2400 to 3000 mg. (4 or 5 tablets)  
children 8 to 12 years: 1200 to 1800 mg. (2 or 3 tablets)  
children 4 to 7 years: 600 mg. (1 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 in one day:

adults: 3600 to 4200 mg. (6 or 7 tablets)  
children 8 to 12 years: 1800 to 2400 mg. (3 or 4 tablets)  
children 4 to 7 years: 900 mg. (1 ½ tablets)

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

### **Metrifonate** (*Metriphonate, Bilarcil*)

Metrifonate is a much cheaper medicine that can be used to treat schistosomiasis that causes blood in the urine (*S. hematobium*). Pregnant women should not take this medicine.

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

Comes in: 100 mg. tablets

**Dosage** of metrifonate for schistosomiasis—(7.5 to 10 mg./kg. per dose):  
—100 mg. tablets—

Give 3 doses at 2 week intervals.

In each dose give:

adults: 400 to 600 mg. (4 to 6 tablets)  
children 6 to 12 years: 300 mg. (3 tablets)  
children 3 to 5 years: 100 mg. (1 tablet)

### **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, fits. 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 new 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** (*Mectizan*)

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

Often comes in: 6 mg. tablets

To determine the correct dose, if possible weigh the person first. Give one dose. Another dose is sometimes needed 6 months to 1 year later.

**CAUTION:** Do not give to children who weigh less than 15 kg. (or children who are under 5 years old), to pregnant or breast feeding women, or to persons with meningitis or other serious illness.

**Dosage** of ivermectin:

Give one time:

- heavy adults (over 64 kg.): 2 tablets (12 mg.)
- average adults (45 to 63 kg.): 1 ½ tablets (9 mg.)
- light adults and youths (26 to 44 kg.): 1 tablet (6 mg.)
- children (15 to 25 kg): ½ tablet (3 mg.)

### **Diethylcarbamazine** (*Hetrazan, Banocide*)

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

Often comes in: tablets of 50 mg.

Diethylcarbamazine kills the young worms, but not the adults. The medicine should be used only under the direction of an experienced health care worker.

To avoid severe damage to the eyes, it is important to start with a low dose. Take the medicine like this:

- First day: ½ mg./kg., 1 time only
- Second day: ½ mg./kg., 2 times
- Third day: 1 mg./kg., 3 times

Continue taking 1mg./kg/3 times a day for 13 more days. (Example: a person who weighs 60 kg. would take 1 single dose of 30 mg. the first day; 60 mg. in 2 doses (of 30 mg. each) the second day, and 3 doses of 60 mg. each, per day, for 14 days.) Take the medicine after meals.

Diethylcarbamazine may cause severe allergic reactions, which can partly be controlled with antihistamines—or cortico-steroids, given by a health worker.

**Side effects:** Diethylcarbamazine sometimes causes headache, tiredness, weakness, loss of appetite, stomach upset, cough, chest pains, muscle or joint pain, fever and rash.

### **Suramin** (*Naphuride, Bayer 205, Antrypol, Germanin*)

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

This is more effective than diethylcarbamazine in killing adult worms and should be used after treatment with diethylcarbamazine, when reactions have nearly stopped. Suramin sometimes poisons the kidneys. If swelling of the feet or other signs of urinary poisoning occur, stop using this medicine. Persons with kidney problems should not use it.

Suramin must be given intravenously and should only be used with the assistance of an experienced health worker. For adults inject 1 gm. of suramin in 10 ml. of distilled water **once a week** for 5 to 7 weeks. Start with a small test dose of 200 mg. Treat allergic reactions with antihistamines.

## FOR THE EYES

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

Useful examples: oxytetracycline or chlortetracycline eye ointments

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

These eye ointments can be used for 'pink eye' caused by bacteria and for trachoma. For complete cure of trachoma, tetracycline (p. 356) or erythromycin (p. 355) should be taken by mouth also.

For an eye ointment to do any good, it must be put **inside** the eyelid, not outside. Use it 3 or 4 times a day.

Use **1% tetracycline** or **erythromycin 0.5% to 1%** ointment to protect newborn babies' eyes from gonorrhea and chlamydia. (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 **dipyrone**). Use only those you are sure are relatively safe like **aspirin**, **acetaminophen (paracetamol)**, or **ibuprofen** (p. 380). For a stronger painkiller see **codeine** (p. 384).

### **Aspirin (acetylsalicylic acid)**

Often comes in:

300 mg. (5 grain) tablets      Price: \_\_\_\_ for \_\_\_\_

75 mg. (1 ¼ 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.

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).
5. Keep aspirin where children cannot reach it. Large amounts can poison them.
6. Do not give to pregnant women.

*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), but 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 doubled for severe menstrual pain, severe arthritis or rheumatic fever. Or give 100 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

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

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

Often comes in: 500 mg. tablets

Also comes in 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.

**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 gm. (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. (⅓ tablet)

### **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 all.

**WARNING:** Do not take this medicine often. Do not take when pregnant.

**Codeine**—for severe pain—see p. 384.

## **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 mls. 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)**

Comes as a white powder Price: \_\_\_\_\_ for \_\_\_\_\_

**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).**

**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.

**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 DEHYDRATION:  
REHYDRATION DRINKS AND 'ORS'**

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, as described on page 152, combats diarrhea as well or better. A home mix using sugar and a little salt also works well. 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.

**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.

## 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 breast feeding, to persons who cannot get out of bed, or to persons who have trouble swallowing.

**Glycerine suppositories (Dulcolax)**

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

These are bullet-shaped pills that are pushed into the anus. 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 up the anus and let it stay there for 15 to 30 minutes (it helps to lie down). The longer you let the suppository stay inside the anus, the better it will work.

## FOR MILD DIARRHEA: ANTI-DIARRHEA MEDICINE

### Kaolin with pectin (Kaopectate)

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

Often comes as a milky mixture

This can be used to make mild diarrhea thicker (less watery) and less troublesome. **It does not cure the cause of the diarrhea and does not help prevent or cure dehydration.** It is never necessary in the treatment of diarrhea, and its common use is a great waste of money. **It should not be given to persons who are very ill or to small children. WE INCLUDE IT HERE MAINLY TO WARN AGAINST ITS USE.** For people with HIV, see the information on cotrimoxazole (page 358).

**Dosage** of kaolin with pectin, for **mild diarrhea only:**

—using a standard mixture such as *Kaopectate*—

Give 1 dose after each stool, or 4 or 5 times a day.

In each dose give:

adults: 2 to 8 tablespoons  
children 6 to 12 years: 1 to 2 tablespoons  
children under 6 years: DO NOT GIVE

## 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.

For nose drops made from ephedrine tablets, see page 385.

## 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.

### **Ephedrine**

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

Often comes in: tablets of 15 mg. (also 25 mg.)

Ephedrine is useful to control mild attacks of asthma and between severe attacks to prevent them. It works by helping open the tubes that lead into the lungs, so that air can pass more easily. It can also be used when there is difficulty breathing due to pneumonia or bronchitis.

Ephedrine often comes in combination with **theophylline** or **aminophylline**, and sometimes **phenobarbital**. Avoid these combinations except when a single asthma medicine is not available.

**Dosage** of ephedrine for asthma—(1 mg./kg./3 times a day when symptoms occur):  
—using 15 mg. tablets—

Give by mouth 3 times a day.

In each dose give:

adults: 15 to 60 mg. (1 to 4 tablets)  
children 5 to 10 years: 15 to 30 mg. (1 or 2 tablets)  
children 1 to 4 years: 15 mg. (1 tablet)  
children under 1 year: DO NOT GIVE

For stuffy nose, nose drops with ephedrine can be used. They can be made by dissolving 1 tablet in a teaspoon of water.

### **Theophylline or Aminophylline**

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

Often comes in: tablets and syrups of different strengths

For controlling asthma and preventing attacks

**Dosage**—(3 to 5 mg./kg. every 6 hours):  
—using 100 mg. tablets—

Give every 6 hours:

adults: 2 tablets  
children 7 to 12 years: 1 tablet  
children under 7 years: ½ tablet  
babies: DO NOT GIVE

In severe cases or if asthma is not controlled with the above dosage, double this dosage may be given, but no more. If the patient cannot talk, seek medical help fast.

### **Salbutamol (Albuterol)**

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

Often comes in: tablets of 4 mg., and syrup with 2 mg. in 5 ml.

For controlling asthma and preventing attacks. Salbutamol can be used alone, or with theophylline.

**Dosage** for salbutamol—(0.1 mg./kg. every 6 to 8 hours):

—using 4 mg. tablets or syrup with 2 mg. in 1 teaspoon—

Give every 6 to 8 hours:

adults: 1 tablet or 2 teaspoons  
children 6 to 12 years: ½ tablet or 1 teaspoon  
children 2 to 5: ¼ to ½ tablet or ½ to 1 teaspoon  
babies: DO NOT GIVE

For severe asthma or if asthma is not controlled, these doses can be gradually increased until doubled.

### **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
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 (see p. 167):

adults:  $\frac{1}{3}$  ml.

children 7 to 12 years:  $\frac{1}{5}$  ml.

children 1 to 6 years:  $\frac{1}{10}$  ml.

children under 1 year: DO NOT GIVE

**Dosage of epinephrine for allergic shock:**

—using ampules of 1 mg. in 1 ml. of liquid—

Inject into the muscle:

adults:  $\frac{1}{2}$  ml.

children 7 to 12 years:  $\frac{1}{3}$  ml.

children 1 to 6 years:  $\frac{1}{4}$  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 tetanus, 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:** Pregnant 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. ( $\frac{1}{2}$  to 1 tablet)

babies 1 year old: 4 mg. ( $\frac{1}{3}$  tablet)

babies under 1 year: 3 mg. ( $\frac{1}{4}$  tablet)

—using intramuscular (IM) injections, 25 mg. in a 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. ( $\frac{1}{2}$  to 1 ml.)
- children under 7 years: 6 to 12 mg. ( $\frac{1}{4}$  to  $\frac{1}{2}$  ml.)
- babies under 1 year: 2.5 mg. (0.1 ml.)

—using rectal suppositories of 25 mg.—

Put high up the rectum (anus) 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. ( $\frac{1}{2}$  suppository)
- children 2 to 6 years: 6 mg. ( $\frac{1}{4}$  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 each ml. Price: \_\_\_\_\_ for \_\_\_\_\_

**CAUTION:** Do not give diphenhydramine to newborn babies or to women who are breast feeding. 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. ( $\frac{1}{2}$  capsule)
- babies: 6 mg. ( $\frac{1}{4}$  capsule)

—using intramuscular (IM) injections, 50 mg. in each 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. ( $\frac{1}{2}$  to 1 ml.)
- children: 10 to 25 mg., depending on size ( $\frac{1}{8}$  to  $\frac{1}{2}$  ml.)
- babies: 5 mg. ( $\frac{1}{10}$  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. ( $\frac{1}{2}$  tablet)
- babies: 1 mg. ( $\frac{1}{4}$  tablet)

**Dimenhydrinate (Dramamine)**

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

Often comes in: 50 mg. tablets; also syrups with 12.5 mg. in a teaspoon; also suppositories to put up the anus

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. ( $\frac{1}{2}$  to 1 tablet)
- children 2 to 6 years: 12 to 25 mg. ( $\frac{1}{4}$  to  $\frac{1}{2}$  tablet)
- children under 2 years: 6 to 12 mg. ( $\frac{1}{8}$  to  $\frac{1}{4}$  tablet)

## ANTITOXINS

**WARNING:** Many antitoxins are made from horse serum, such as some tetanus antitoxins and 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.

### 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(TM) (Crotalidae Polyvalent Immune Fab-Ovine) for rattlesnakes, copperheads, cottonmouths, and water moccasins. From Fougera, Inc., 1-800-645-9833, [www.fougera.com](http://www.fougera.com). Product information also from the manufacturer, Protherics, 1-800-231-0206, or 1-615-963-4528, e-mail: [information@protherics.com](mailto:information@protherics.com), [www.protherics.com/products/antibody.htm](http://www.protherics.com/products/antibody.htm)

**Mexico, Central America, and South America:** Antivipmyn® and Antivipmyn tri® (Faboterapia polivalente antiviperino) for rattlesnakes and other pit vipers, as well as nauyaca, terciopelo, mapana, toboba, jararaca, cuatro narices, cola de hueso, barba amarilla, palanca, and others. From Instituto Bioclon, Mexico, D.F., tel: (52) 5575-0070, (52) 5575-4016, or 1-800-021-6887, [www.bioclon.com.mx](http://www.bioclon.com.mx)

Antivenoms are also available from Instituto Clodomiro Picado, Facultad de Microbiología, Universidad de Costa Rica, San Jose, Costa Rica: [www.icp.ucr.ac.cr](http://www.icp.ucr.ac.cr), and Instituto Butantan, Sao Paulo, Brazil, tel: (011) 3726-7222, fax: (011) 3726-1505, email: [instituto@butantan.gov.br](mailto:instituto@butantan.gov.br), [www.butantan.gov.br](http://www.butantan.gov.br)

**Africa:** Polyvalent antivenoms for puff adder, Gaboen viper, green mamba, Jameson's mamba, black mamba, cape cobra, forest cobra, snouted cobra and Mozambique spitting cobra. From South Africa Vaccine Producers PTY Ltd., P.O. Box 28999, Sandringham 2131, South Africa, tel: 27-11-386-6000, fax: 27-11-386-6016, [www.savpo.co.za](http://www.savpo.co.za)

**India:** Antivenoms for Indian cobra, Indian krait, Russell's viper, Saw-scaled viper and others, from: Haffkine Biopharmaceutical Co., Bombay, India, tel: 91- 22-412-9320/22, fax: 91-22-416-8578, [www.vaccinehaffkine.com](http://www.vaccinehaffkine.com).

Central Research Institute of Kasuli, Kasuli, India, tel: 01-792-72114, fax: 0- 792-72016.  
Serum Institute of India, tel: 91-20-269-93900, fax: 91-20-269-93921, [www.seruminstitute.com](http://www.seruminstitute.com).

**Indonesia:** Biofarma, Bandung, Indonesia, tel: 022-233-755, fax: 022-204-1306, [www.biofarma.co.id](http://www.biofarma.co.id).

**Thailand:** Thai Red Cross Society, Bangkok, Thailand, tel: 66-2255-461, fax: 66-2252-7795, [www.redcross.or.th](http://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).

**Antitoxins for tetanus**

Tetanus Immune Globulin (human) often comes in: vials of 250 units

Tetanus antitoxin (horse) often comes in: vials of 1,500, 20,000, 40,000, and 50,000 units

In areas where there are people who have not been vaccinated against tetanus, the medical kit should have an antitoxin for tetanus. There are 2 forms, one made from human serum (tetanus immune globulin, *Hyper-tet*), and one made from horse serum (tetanus antitoxin). **If available, use tetanus immune globulin, as it is less likely to cause a severe allergic reaction.**

But if you use horse serum tetanus antitoxin, take precautions against allergic reaction: If the person suffers from asthma or other allergies, or has ever received any kind of antitoxin made from horse serum, give an injection of antihistamine such as promethazine 15 minutes before injecting the antitoxin.

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 units (1 vial) of tetanus immune globulin. If using tetanus antitoxin, inject 1,500 to 3,000 units. Inject babies with 750 units of tetanus antitoxin.

**If a person develops the signs of tetanus**, inject 5,000 units of tetanus immune globulin, or 50,000 units of tetanus antitoxin. Give it in many intramuscular injections in the large muscles of the body (buttocks and thighs). Or, half the amount can be given intravenously if someone knows how.

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./kilo. 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./kilo, 1 time, followed by ½ this dose every 2 to 4 hours. For example, if the baby weighs 6 kilos, give 6 g. of activated charcoal for the first dose, and 3 g. every 2 to 4 hours afterwards.

**FOR FITS (CONVULSIONS)**

Phenobarbital and phenytoin are common medicines used to prevent fits or convulsions of epilepsy. Other, more expensive medicines are sometimes available, and doctors often prescribe two or more medicines. However, usually a single medicine works as well or better, with fewer side effects. Medicines to prevent fits are best taken at bedtime, because they often cause sleepiness. Diazepam can be given to stop a long-lasting epileptic fit, but it is not usually taken daily to prevent fits.

**Phenobarbital (phenobarbitone, *Luminal*)**

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

Often comes in:

tablets of 15 mg., 30 mg., 60 mg. and 100 mg.

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

syrup of 15 mg. in 5 ml.

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

Phenobarbital can be taken by mouth to help prevent fits or convulsions (epilepsy). For epilepsy, it is often necessary to continue the medicine for life. The lowest dose that prevents fits should be used.

**WARNING:** Too much phenobarbital can slow down or stop breathing. Its action begins slowly and lasts a long time (up to 24 hours, or longer if the person is not urinating). **Be careful not to give too much!**

**Dosage** of Phenobarbital:

adults and children over 12 years:  
1 to 3 mg./kilo/day by mouth, divided into 2 or 3 equal doses, or 50 to 100 mg. 2 or 3 times a day.

For children 12 years old or younger, give 1 dose by mouth at night, either all at once or divided into 2 equal doses as follows:

children 5 to 12 years: 4 to 6 mg./kilo/day  
children 1 to 5 years: 6 to 8 mg./kilo/day  
children under 1 year: 5 to 8 mg./kilo/day

**We do not give the dosage for preparing an injectable solution of phenobarbital here because these injections are very dangerous.**

They should only be given by a person who has experience preparing the solution and giving injections into a vein (see p. 178).

**Phenytoin (diphenylhydantoin, Dilantin)**

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

Often comes in:

capsules of 25 mg., 50 mg., and 100 mg.  
Price: \_\_\_\_\_ for \_\_\_\_\_

syrup with 250 mg. in 5 ml.  
Price: \_\_\_\_\_ for \_\_\_\_\_

This helps prevent the fits of epilepsy. The medicine must often be taken for life. The lowest dosage that prevents fits should be used.

**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.

**Dosage** of phenytoin, by mouth;

Divide the daily dose into 2 or 3 equal parts. For example, if a 4 year old child weighs 20 kilos, give 150 mg. a day, divided into 2 doses of 75 mg. each, or 3 doses of 50 mg. each.

adults and children older than 16 years:

4 to 6 mg./kilo/day

children 10 to 16 years: 6 to 7 mg./kilo/day

children 7 to 9 years: 7 to 8 mg./kilo/day

children 4 to 6 years: 7.5 to 9 mg./kilo/day

children 6 months to 4 years:

8 to 10 mg./kilo/day

children less than 6 months old: 5 mg./kilo/day

If the dose does not completely prevent the attacks, slowly increase the dose every 15 days up to the maximum dosage per kilo of weight, divided into 3 equal doses per day.

If this dosage does prevent attacks, reduce the dosage little by little until you are giving the smallest dose possible to prevent fits.

We do not provide the dosage of phenytoin for injection. These should only be given by a person with experience giving injections into a vein (see p. 178).

**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 (see p. 178).

**To stop an epileptic fit** lasting more than 15 minutes, put the liquid solution for injection into a syringe without a needle and put the liquid directly up the anus, or grind up 1 tablet, mix the powder with water, and put the mixture up the anus.

**Dosage** of diazepam solution, in the anus:

adults and children that weigh more than 10 kilos:

0.5 mg./kilo, up to a maximum of 10 mg.

children that weigh less than 10 kilos:

0.2 to 0.3 mg./kilo, or 1 mg./each year of age

for very old people: 0.25 mg./kilo

If the fit is not controlled with 1 dose, you may repeat the dose every 12 hours.

**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.

**For Tetanus**, give enough to control most of the spasms. For adults and children over 5 years, start with 5 mg. by mouth or into the anus (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 anus 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 SEVERE BLEEDING AFTER BIRTH (POSTPARTUM HEMORRHAGE)**

For information on the right and wrong use of medicines to control bleeding after a woman gives birth, see page 266. As a general rule, **oxytocics (ergonovine, oxytocin, etc.) 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. These medicines should never be given until the baby is born, and better, not until the placenta or afterbirth has come out, too. If there is much bleeding before the afterbirth comes out (but after the child has been born), ½ ml. (5 units) of oxytocin can be given by intramuscular injection. **Do not use ergonovine before the afterbirth (placenta) 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 and ergonovine 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.

### **Ergonovine or ergometrine maleate (Ergorate, Methergine)**

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

Often comes in:

injections of 0.2 mg. in a 1 ml. ampule  
Price: \_\_\_\_\_ for \_\_\_\_\_  
tablets of 0.2 mg. Price: \_\_\_\_\_ for \_\_\_\_\_

To prevent or control severe bleeding **after** the placenta has come out.

**Dosage** of injectable ergonovine:

For severe bleeding (more than 2 cups) after the afterbirth (placenta) has come out, give 1 or 2 ampules (0.2 to 0.4 mg.) of ergonovine by intramuscular injection (or 1 ampule by intravenous injection in extreme emergencies). Dose may be repeated if necessary in half an hour to an hour. Change to ergonovine tablets as soon as bleeding is under control.

**Dosage** for ergonovine by mouth—using tablets of 0.2 mg.:

To prevent severe bleeding after giving birth or to lessen the amount of blood loss (especially in mothers who are anemic) give 1 tablet 4 times daily, beginning when the afterbirth comes out, until bleeding stops. If bleeding is heavy, 2 tablets can be given in each dose.

### **Oxytocin (Pitocin)**

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

Often comes in: ampules of 10 units in 1 ml.

To help stop severe bleeding of the mother **after** the baby is born and **before** the afterbirth comes out. (Also helps bring the afterbirth out, but should not be used for this unless there is severe bleeding or great delay.)

**Dosage** of oxytocin for the mother after the baby is born:

Inject ½ ml. (5 units). If severe bleeding continues, inject another ½ ml. in 15 minutes.

## FOR PILES (HEMORRHOIDS)

### **Suppositories for hemorrhoids**

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

These are special bullet-shaped tablets to be put up the anus. 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:*

Put a suppository up the anus 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 usually 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 too expensive for the good they do.

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

Often comes as: capsules of 200,000 units, 60 mg. of retinol (also in smaller doses)

injections of 100,000 units

**WARNING:** Too much vitamin A can cause fits. Do not give too much, 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 4 to 6 months—no more for prevention.

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 1 to 2 weeks later.

For children less than 1 year old, reduce all doses by one-half.

**Iron sulfate (ferrous sulfate)**—for anemia

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

Often comes in: tablets of 200, 300, 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 (shit) 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 mg.—

Give 3 times a day, with meals.

In each dose give:

adults: 200 to 400 mg. (1 or 2 tablets)  
children over 6 years old: 200 mg. (1 tablet)  
children 3 to 6 years: 100 mg. (½ tablet)  
children under 3 years: 25 to 50 mg. (¼ to ½ tablet) ground up fine and mixed with food.

**Folic acid**—for some kinds of anemia

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

Often comes in: tablets of 5 mg.

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 5 mg. tablets—

Give by mouth once a day.

adults and children over 3 years: 1 tablet  
(5 mg.)  
children under 3 years: ½ tablet  
(2 ½ 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, 50 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>—while taking isoniazid:

Take two 25 mg. tablets daily.

**FAMILY PLANNING METHODS****Oral contraceptives (Birth Control Pills)**

Information about the use, risks, and precautions for birth control pills can be found on pages 286 to 289. The following information is about choosing the right pill for individual women. (In January 2002, we changed the groups of birth control pills in this section. If someone you are working with has an older version of the book, be careful not to confuse the different kinds of pills!)

Most birth control pills contain 2 hormones similar to those produced in a woman's body to control her monthly bleeding. These hormones

are called estrogen and progesterone (progestin). The pills come under many different brand names with different strengths and combinations for the 2 hormones. A few of the brand names are listed in the groups below.

Usually, brands that contain a smaller amount of both hormones are the safest and work best for most women. These "low-dose" pills are found in Groups 1, 2, and 3.

**Group 1 - Triphasic pills**

These contain low amounts of both estrogen and progestin in a mix that changes throughout the month. Since the amounts change, it is important to take the pills in order.

Common brand names:

<i>Logynon</i>	<i>Tricyclen</i>	<i>Trinovum</i>
<i>Synphase</i>	<i>Trinordiol</i>	<i>Triquilar</i>
		<i>Triphasil</i>

**Group 2 - Low dose pills**

These contain low amounts of estrogen (35 micrograms of the estrogen "ethinyl estradiol" or 50 micrograms of the estrogen "mestranol") and progestin in a mix that stays the same throughout the month.

Common brand names:

<i>Brevicon 1+35</i>	<i>Ovysmen 1/35</i>
<i>Noriday 1+50</i>	<i>Neocin</i>
<i>Norinyl 1+35, 1+50</i>	<i>Norimin</i>
<i>Ortho-Novum 1/35, 1/50</i>	<i>Perle</i>

**Group 3 - Low dose pills**

These pills are high in progestin and low in estrogen (30 or 35 micrograms of the estrogen "ethinyl estradiol").

Common brand names:

*Lo-Femenal*  
*Lo-Ovral*  
*Microgynon 30*  
*Microvlar*  
*Nordette*

To assure effectiveness and minimize spotting (small amounts of bleeding at other times than your normal monthly bleeding), take the pill at the same time each day, especially with pills that have low amounts of hormones. If spotting continues after 3 or 4 months, try one of the brands in Group 3. If there is still spotting after 3 months, try a brand from Group 4.

As a rule, women who take birth control pills have less heavy monthly bleeding. This may be a good thing, especially for women who are anemic. But if a woman misses her monthly bleeding for months or is disturbed by the very light monthly bleeding, she can change to a brand with more estrogen from Group 4.

For a woman who has very heavy monthly bleeding or whose breasts become painful before her monthly bleeding begins, a brand low in estrogen but high in progestin may be better. These pills are found in Group 3.

Women who continue to have spotting or miss their monthly bleeding when using a brand from Group 3, or who became pregnant before while using another type of pill, can change to a pill that has a little more estrogen. These "high dose" pills are found in Group 4.

**Group 4 - High dose pills**

These pills are higher in estrogen (50 micrograms of the estrogen "ethinyl estradiol") and most are also higher in progestin.

Common brand names:

- |                 |                   |
|-----------------|-------------------|
| <i>Eugynon</i>  | <i>Norlestrin</i> |
| <i>Femena</i>   | <i>Ovcon 50</i>   |
| <i>Minovlar</i> | <i>Ovral</i>      |
| <i>Neogynon</i> | <i>Primovlar</i>  |
| <i>Nordiol</i>  |                   |

If spotting continues even when taking pills from Group 4, the brands Ovulen and Demulen will often stop it. But these are very strong in estrogen and so are rarely recommended. They are sometimes useful for women with severe acne.

Women who are disturbed by morning sickness or other side effects after 2 or 3 months of taking birth control pills, and women who have a higher risk for blood clots, should try a Triphasic birth control pill, low in both estrogen and progestin, from Group 1.

Women who are breast feeding, or who should not use regular pills because of headaches or mild high blood pressure, may want to use a pill with only progestin. These pills in Group 5 are also called "mini-pills."

**Group 5 - Progestin only pills**

These pills, also known as "mini-pills," contain only progestin.

These pills should be taken at the same time every day, even during the monthly bleeding. Menstrual bleeding is often irregular. There is also an increased chance of pregnancy if even a single pill is forgotten.

Common brand names:

- |                   |                  |
|-------------------|------------------|
| <i>Femulen</i>    | <i>Microlut</i>  |
| <i>Micronor</i>   | <i>Microval</i>  |
| <i>Micronovum</i> | <i>Neogest</i>   |
| <i>Nor-Q D</i>    | <i>Neogeston</i> |
|                   | <i>Ovrette</i>   |

— these brands can also be used for Emergency Family Planning — see the next section

**EMERGENCY FAMILY PLANNING (Emergency Pills)**

Emergency pills are special doses of certain birth control pills for a woman who has had unprotected sex and wants to avoid pregnancy. Using birth control pills this way is safe, even for many women who should not use pills all the time.

**Dosage:** Emergency pills must be taken within 5 days of unprotected sex. The sooner you take the pills after unprotected sex, the more likely you will not get pregnant. For emergency family planning, carefully follow these instructions:

Take 2 "high dose" birth control pills from GROUP 4 within 5 days of unprotected sex, followed by 2 more GROUP 4 pills 12 hours later.
<b>OR</b>
Take 4 "low dose" birth control pills from GROUP 2 or GROUP 3 within 5 days of unprotected sex, followed by 4 more GROUP 2 or GROUP 3 pills 12 hours later.
<b>OR</b>
Take 25 progestin-only pills or "mini-pills" from the brand names marked in GROUP 5, that have 0.03 mg. of the progestin called levonorgestrel, within 5 days of unprotected sex, followed by 25 more of the same pills 12 hours later.
<b>OR</b>
Take 20 Ovrette pills, or other mini-pills that have 0.0375 mg. of levonorgestrel, within 5 days of unprotected sex, followed by 20 more of the same pills 12 hours later.

New emergency pills have been developed just for emergency family planning and may be available where you live. Some brand names include: *Norlevo*, *Plan B*, *Postinor-2*, *Schering-PC-4* and *Tetragynon*. With *Postinor-2*, for example, which contains only progestin, you take 1 pill within 5 days of unprotected sex, followed by 1 more pill 12 hours later.

**Side effects:**

Less than half of all women who use emergency pills will have nausea or vomiting. If vomiting occurs within 3 hours after taking the pills, another dose must be taken. If vomiting is a problem for you, you can take 25 mg of promethazine by mouth 2 times a day. Or, instead of taking the emergency pills by mouth you can place them high in the vagina. This method works just as well to prevent pregnancy. It does not reduce the side effects of nausea or vomiting, but it does prevent you from vomiting the pills.

Progestin-only pills cause less nausea and vomiting than combined pills. Women who have heart problems, blood clots or strokes should use progestin-only pills.

**Condoms (Rubbers, Prophylactics, Sheaths)**

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

Often come in packages of 3.

There are many different brands of condoms. Some are lubricated, some come in different colors, and some have spermicide.

In addition to helping prevent pregnancy, condoms can also help prevent the spread of sexually transmitted (venereal) diseases, including HIV/AIDS. Many people use condoms along with another form of birth control.

Use and care of condoms is described on page 290.

**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. 290).

Name of jelly or cream: \_\_\_\_\_ price: \_\_\_\_\_

**Contraceptive Foam** (Well-known brands: *Emko, Lempko, Delfen*)

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

For discussion of the use of foam, see page 290.

**Contraceptive suppositories**(Common brand: *Neo Sampoo*)

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

This is a tablet containing spermicide that a woman puts deep in her vagina near her cervix. The suppository should be put in 15 minutes before having sex. (Follow instructions on the package.) It is a fairly effective method of birth control, especially if the couple also uses a condom.

**Intrauterine Device (IUD)**

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

fee for putting it in: \_\_\_\_\_

An IUD must be inserted and removed by a trained health worker. The most common side effect is heavier, longer and more painful monthly bleeding, but this usually stops after the first 3 months. Occasionally an IUD will slip out of place. If this happens, it will not be effective in preventing pregnancy, so it is important for a woman with an IUD to learn to check it to make sure it is still in place. Most IUDs have 2 thread-like strings attached which hang down into the vagina. The woman should check the strings after each monthly bleeding to make sure the IUD is in place. To check the strings, she should wash her hands well and then reach as far as she can into the vagina with two fingers and feel for the IUD strings. **Do not pull on the strings.** If she cannot feel the strings, or if she can feel the hard part of the IUD, she needs to use a condom or another method of family planning until she can have the IUD checked by a trained health worker. For information on IUDs, see page 290.

Pelvic inflammatory disease is the most serious problem that can result from having an IUD. Most infections happen in the first 3 months, usually because the woman already had an infection when the IUD was put in. Or it may happen because the health worker did not put in the IUD under clean conditions. If a woman with an IUD has any signs of infection she should see a trained health worker right away. See page 243.

**Injectable Contraceptives**(Common brands: *Depo-Provera (DMPA), Noristerat (NET-EN), Lunelle, Cyclofem*)

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 and Noristerat, contain only the hormone progestin. These are especially good for women who are breast feeding, but should not be used by women who have any of the health problems described on page 288. 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 awhile. She will probably stop having monthly bleeding by the end of the first year. These changes are normal.

Combined injections, such as Lunelle or Cyclofem, contain both estrogen and progestin. These injections are good for women who want

to have regular monthly bleeding. Women who are breast feeding or who have any of the health problems described on page 288 should not use combined injections. Combined injections are given every month, are more expensive than progestin-only injections, and are harder to find.

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. But after 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: *Norplant, Implanon, Jadelle*)

Implants work by preventing the woman's ovaries from releasing an egg. The hormone also makes the mucus at the opening of the womb very thick, which helps stop the sperm from getting inside the womb. Implants can be used by women who are breast feeding, but should not be used by women who have any of the health problems described on page 288. Norplant has 6 tubes and prevents pregnancy for 5 to 7 years. Jadelle has 2 tubes and prevents pregnancy for 5 years. Implanon has 1 tube and prevents pregnancy for 3 years. In many countries, Jadelle and Implanon are harder to get than Norplant.

During the first year, implants may cause irregular bleeding or more days of monthly bleeding. A woman may stop having monthly bleeding, but this does not mean that she is pregnant or that something is wrong. A woman may also gain weight or have headaches, but these changes usually go away as her body becomes accustomed to the hormone.

A woman can choose to have the implants removed at any time, but she must find a health worker who knows how to remove them safely. After removal, the woman can get pregnant right away, so she will need to use another family planning method if she does not want to become pregnant.

## **MEDICINES FOR HIV/AIDS — ANTIRETROVIRAL THERAPY (ART)**

Medicines to treat AIDS are called antiretroviral medicines (ARVs). These medicines can help a person with AIDS live a longer, healthier life. Taken as a combination of at least 3 medicines, this is called AntiRetroviral Therapy, or ART.

### **HIV Care and ART Programs**

HIV/AIDS is a complicated disease that affects every part of the body. As soon as you have a

positive HIV test, find an HIV care program where health workers can see you regularly. These programs provide medicines to prevent and treat HIV illnesses, counseling and other support. Getting drugs from an ART program is more reliable and less costly than buying them from a private source.

### **When is ART needed?**

People who have HIV but are still healthy do not need ART. Only people with HIV who show signs of AIDS or whose immune system is no longer working well need ART.

Before starting ART, discuss with your health worker:

*Have you ever taken any ARVs before? This may affect what medicines you should take now.*

*Do you have any illnesses or other conditions, like TB, serious infections, or fever? They may need to be treated first.*

*What are the benefits, risks, and side effects of ART? Talk to someone who is already using ART as well as your health worker.*

*Are you ready to take medicines every day, at the correct times? This is necessary for ART to work.*

*Will you have the support of a person you trust or an HIV/AIDS support group who you can turn to for information and help?*

### **ARV combinations (ART regimens)**

ARVs work only if they are taken in combinations (regimens) of at least 3 medicines. Four common combinations are listed below. As more is learned about HIV and how to slow or stop it, drug regimens will change. Ask your health worker what medicines are available and work best where you live. Some combinations (all 3 medicines, or sometimes just 2 of the 3) are available in one pill, called a 'fixed dose combination.'

Whatever combination you use, take all 3 medicines every day, at the same times of day. Having too little medicine in your body for some hours can cause drug resistance. If you forget to take a dose on time, try to take it within 5 hours. If it is more than 5 hours late, wait until it is time for the next dose. Do not stop taking any medicine that is part of an ART regimen without finding out if your medicines should be stopped separately or all at once.

*Do not start taking ARVs on your own. They may be the wrong ones for you and can have serious side effects.*

*Do not share ARVs with anyone, including a partner or child. Taking less than the recommended dose can cause the medicines to stop working, harming you and the person you share them with.*

*Do not buy ARVs from someone who is not part of an approved HIV care or ART program.*

## ARV regimens for adults and adolescents (not for children)

These medicines are taken 2 times each day (except as noted) every day, with 12 hours between the doses.

**d4T (stavudine)**, 30 mg.  
**+ 3TC (lamivudine)**, 150 mg.  
**+ NVP (nevirapine)**, 200 mg.

These 3 medicines come combined in one pill called *Triomune*.

or

**d4T (stavudine)**, 30 mg.  
**+ 3TC (lamivudine)**, 150 mg.  
**+ EVF (efavirenz)**,  
 600 mg, one time a day

or

**AZT (ZDV, zidovudine)**, 300 mg.  
**+ 3TC (lamivudine)**, 150 mg.  
**+ NVP (nevirapine)**, 200 mg.

AZT and 3TC come combined in one pill called *Combivir*.

or

**AZT (ZDV, zidovudine)**, 300 mg.  
**+ 3TC (lamivudine)**, 150 mg.  
**+ EVF (efavirenz)**,  
 600 mg, one time a day

AZT and 3TC come combined in one pill called *Combivir*.

### Side effects of ART

ART has helped many people live longer, healthier lives. But ARVs can have side effects. As the body gets used to the medicine, many people find the side effects lessen or go away completely. Common side effects are diarrhea, tiredness, headaches, and stomach problems such as nausea, vomiting, stomach pain, or not feeling like eating. Even if you feel bad, keep taking all your medicines until your health worker tells you to change or stop. Some side effects are signs that the medicine needs to be changed. Serious side effects include tingling or burning feelings in the hands and feet, fever, rashes, yellow eyes, tiredness with shortness of breath, anemia and other blood problems, and liver problems. If you have serious side effects, see a health worker right away.

**IMPORTANT.** Some ART medicines, such as stavudine (d4T), cause more serious side effects and the WHO recommends it should be slowly phased out. In some countries this is not possible because there are no other medicines available or because other drugs are more expensive.

### PREVENTING MOTHER TO CHILD TRANSMISSION OF HIV

Antiretroviral medicines can help prevent the transmission of HIV from a woman who has HIV to her baby during pregnancy and birth. If the mother needs treatment and is already on ART, her baby will still need to be treated at birth. For women who do not yet need ART treatment or where ART is not available, both the mother and baby need treatment.

The best prevention involves 3 medicines, just like ART. But sometimes only one or 2 are available. Different combinations of ARVs may be used in different areas

	<i>Nevirapine</i>
or	<i>Nevirapine + Zidovudine</i>
or	<i>Nevirapine + Zidovudine + Lamivudine</i>

Nevirapine	Zidovudine	Lamivudine
<b>For the mother:</b> 200 mg. one time only when labor begins  <b>For the baby:</b> 2mg/kg one time only within 72 hours of birth	<b>For the mother:</b> 300 mg. 2 times a day starting as soon as possible after 28 weeks of pregnancy, continuing through labor and for 7 days after birth  <b>For the baby:</b> 4mg/kg 2 times a day for 7 days	<b>For the mother:</b> 150 mg. 2 times a day through 7 days after birth  <b>For the baby:</b> None for the baby

Babies of mothers with HIV should also receive cotrimoxizole starting at 4 to 6 weeks of age (see page 359). After 18 months, the baby should be tested for HIV. If the test is negative, cotrimoxizole can be stopped.

Medicines are only one part of preventing mother-to-child transmission of HIV. Safe birth and careful feeding are also important. See *Where Women Have No Doctor* for more information.