

The Green Pages

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



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

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

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

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

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

Tetracycline (tetracycline HCl, oxytetracycline, etc.)

Name: Terramycin price: \$10.25
for 6 capsules

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

Name: tetracycline price: \$10.00
for 60 capsules

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

KEEP AND USE ONLY A SMALL NUMBER OF MEDICINES.

Dosage Information:

HOW FRACTIONS ARE SOMETIMES WRITTEN

- 1 tablet = one tablet = 
- $\frac{1}{2}$ tablet = half a tablet = 
- $1\frac{1}{2}$ tablets = one and a half tablets = 
- $\frac{1}{4}$ tablet = one quarter or one fourth of a tablet = 
- $\frac{1}{8}$ tablet = one eighth of a tablet (dividing it into 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. . .

(100 mg/kg/day),

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

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

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

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

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

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

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

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

List of Medicines in the Green Pages

Listed in the order in which they appear

	See page		
ANTIBIOTICS		Cephalosporins	357
The Penicillins:		Ceftriaxone.....	358
Very Important Antibiotics	350	Other Antibiotics	358
<i>PENICILLIN BY MOUTH</i>		Ciprofloxacin	358
Penicilin V (phenoxymethyl penicillin)	351	Clindamycin.....	358
<i>INJECTABLE PENICILLIN</i>	351	Gentamicin	358
Crystalline penicillin, benzylpenicillin, penicillin G, aqueous penicillin, soluble penicillin, sodium penicillin, potassium penicillin.....	352	Medicines for Gonorrhea and Chlamydia	359
Procaine penicillin, procaine benzylpenicillin, procaine penicillin G	352	Medicines for Tuberculosis	359
Benzathine penicillin	352	Isoniazid (INH).....	360
<i>AMPICILLIN AND AMOXICILLIN:</i>		Rifampicin.....	360
<i>Broad-Spectrum Penicillins</i>	352	Pyrazinamide.....	361
Erthromycin:		Ethambutol	361
An Alternative to Penicillin	354	Streptomycin	361
Tetracyclines:		Medicines for Leprosy	362
Broad-Spectrum Antibiotics	355	Dapsone (diaminodiphenylsulfone, DDS)	362
Tetracycline, tetracycline HCl, oxytetracycline, etc	355	Rifampicin.....	362
Doxycycline	355	Clofazimine (<i>Lamprene</i>)	363
Chloramphenicol: An Antibiotic for Certain Severe Infections	356	OTHER MEDICINES	
The Sulfas or Sulfonamides: Inexpensive Medicine for Common Infections	356	For Malaria	363
Sulfisoxazole, sulfamethoxazole, sulfadoxine	356	Artesunate	364
Cotrimoxazole (sulfamethoxazole with trimethoprim)	357	Artemether with lumefantrine (<i>Coartem</i>)	364
		Pyrimethamine with sulfadoxine (<i>Fansidar</i>).....	364
		Mefloquine.....	365
		Amodiaquine	365
		Quinine	365
		Chloroquine.....	366
		Primaquine	367
		Proguanil	367
		For Amebas and Giardia	367
		Metronidazole.....	368
		Diloxanide furoate	368
		Quinacrine	369

For Vaginal Infections	369
White vinegar.....	369
Metronidazole.....	369
Nystatin or miconazole.....	369
Gentian violet (crystal violet).....	369
Povidone iodine.....	370
For Skin Problems	370
Soap.....	370
Sulfur.....	370
Gentian violet (crystal violet).....	370
Antibiotic ointments.....	370
Cortico-steroid ointment or lotion.....	370
Petroleum jelly (Petrolatum, <i>Vaseline</i>).....	370
For Ringworm and Other Fungus Infections	371
Ointments with undecylenic, benzoic, or salicylic acid.....	371
Sulfur and vinegar.....	371
Sodium thiosulfate (hypo).....	371
Selenium sulfide (<i>Selsun, Exsel</i>).....	371
Tolnaftate (<i>Tinactin</i>).....	371
Griseofulvin.....	371
Gentian violet—for yeast infections (thrush).....	371
Nystatin or miconazole.....	372
For Scabies and Lice	372
Benzyl benzoate, cream or lotion.....	372
Permethrin (<i>Acticin, Elimite, Nix</i>).....	372
Crotamiton (<i>Eurax</i>).....	372
Ivermectin.....	377
Sulfur in <i>Vaseline</i> or lard.....	372
Pyrethrins with piperonyl (<i>RID</i>).....	372
For Genital Warts	373
Podophyllin.....	373
Trichloroacetic acid.....	373
For Herpes and Shingles	373
Acyclovir (<i>Zovirax</i>).....	373
For Worms	373
Mebendazole (<i>Vermax</i>)—for many kinds of worms and trichinosis.....	373-374
Albendazole (<i>Zentel</i>)—for many kinds of worms.....	374
Piperazine—for roundworm and pinworm (threadworm).....	374
Thiabendazole—for many kinds of worms..	374-375

Pyrantel—for pinworm, hookworm, roundworm, and trichinosis.....	375
Niclosamide (<i>Yomesan</i>)—for tapeworm.....	375
Praziquantel (<i>Biltricide, Droncit</i>)—for tapeworm.....	375
Quinacrine.....	369
For Schistosomiasis	376
Praziquantel (<i>Biltricide, Droncit</i>).....	376
Oxamniquine (<i>Vansil, Mansil</i>).....	376
For River Blindness (Onchocerciasis)	377
Ivermectin (<i>Mectizan</i>).....	377
Diethylcarbamazine.....	377
Suramin.....	377
For The Eyes	378
Antibiotic eye ointment—for conjunctivitis and newborn babies' eyes.....	378
Tetracycline or Erythromycin—for newborn babies' eyes.....	378
For Pain: Analgesics	378
Aspirin.....	378
Child's aspirin.....	379
Acetaminophen (paracetamol).....	379
Ibuprofen.....	379
Ergotamine with caffeine—for migraine headache.....	379
Codeine.....	383
For Stopping Pain When Closing Wounds: Anesthetics	379
Lidocaine (lignocaine, xylocaine).....	379
For Gut Cramps: Antispasmodics	380
Belladonna (with or without phenobarbital).....	380
For Acid Indigestion, Heartburn, and Stomach Ulcers	380
Aluminum hydroxide or magnesium hydroxide.....	380
Sodium bicarbonate (bicarbonate of soda, baking soda).....	380
Calcium carbonate.....	381
Omeprazole (<i>Prilosec</i>).....	381
Ranitidine (<i>Zantac</i>).....	381

- For Severe Diarrhea and Dehydration** 381
 Rehydration Mix..... 381
 Zinc..... 381
- For Hard Stools (Constipation): Laxatives**..... 382
 Milk of magnesia (magnesium hydroxide) 382
 Epsom salts (magnesium sulfate) 382
 Mineral oil 382
 Glycerin suppositories (*Dulcolax*) 382
- For Mild Diarrhea**..... 383
 Bismuth subsalicylate (*Pepto-Bismol*) 383
- For Stuffy Nose** 383
 Nose drops with ephedrine or phenylephrine 383
- For Cough**..... 383
 Codeine..... 383
- For Asthma** 384
 Salbutamol (Albuterol)..... 384
 Beclomethasone..... 384
 Prednisolone or Prednisone 385
 Epinephrine (Adrenaline, *Adrenalin*) 385
- For Allergic Reactions and Vomiting: the Antihistamines**..... 385
 Promethazine (*Phenergan*)..... 386
 Diphenhydramine (*Benadryl*) 386
 Chlorpheniramine 386
 Dimenhydrinate (*Dramamine*) 386
- Antitoxins**..... 387
 Scorpion antitoxin or antivenom..... 387
 Snakebite antitoxin or antivenom 387
 Antitetanus immunoglobulin 388
- For Swallowed Poisons**..... 388
 Powdered or activated charcoal 388
- For Seizures (Fits, Convulsions)**..... 388
 Phenobarbital (phenobarbitone) 389
 Phenytoin (diphenylhydantoin, *Dilantin*) 389
 Diazepam (*Valium*)..... 389
 Magnesium Sulfate..... 390
- For Severe Bleeding After Birth (Postpartum Hemorrhage)** 390
 Ergometrine maleate, ergonovine (*Ergostrate, Methergine*) 390
 Oxytocin (*Pitocin*) 390
 Misoprostol (*Cytotec*) 391
- For Piles (Hemorrhoids)**..... 391
 Suppositories for hemorrhoids 391
- For Malnutrition and Anemia**..... 391
 Powdered milk (dried milk)..... 391
 Mixed (or multi) vitamins 391
 Vitamin A—for night blindness and xerophthalmia..... 391
 Iron sulfate (ferrous sulfate)—for anemia 392
 Folic acid—for anemia 392
 Vitamin B₁₂ (cyanocobalamin)—for pernicious anemia **only** 392
 Vitamin K (phytonadione)—for bleeding in the newborn..... 392
 Vitamin B₆ (pyridoxine)—for persons taking INH 393
- Family Planning Methods**..... 393
 Oral contraceptives (birth control pills)..... 393
 Emergency contraception 394
 Condoms 395
 Diaphragm..... 395
 Spermicides 395
 Intrauterine device (IUD)..... 395-396
 Injectable contraceptives 396
 Contraceptive implants 396
- For HIV—Antiretroviral Therapy (ART)**..... 396
 HIV care and ART programs 397
 When is ART needed? 397
 How to take ART 397
 Side effects of ART 397
 Preventing HIV right after a person has been exposed to it..... 398
 ART for pregnant women..... 398
 Preventing HIV in babies..... 398

Index of Medicines in the Green Pages

Listed in this order: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Note: Medicines not listed in the GREEN PAGES, but mentioned in the book, are listed in the main Index (yellow pages).

3TC (lamivudine)397

A

Acetaminophen (paracetamol).....379
 Acetylsalicylic acid (aspirin).....378
 Activated charcoal388
 Acyclovir.....373
Adrenalin (epinephrine).....385
 Adrenaline385
Alacramyn (antivenom).....387
 Albendazole374
 Albuterol384
Alesse (birth control pills).....393
Alka Seltzer (sodium bicarbonate).....380
 Allergic reactions, medicines for385
 Aluminum hydroxide.....380
 Amebas, medicines for367
Amicline.....369
 Amodiaquine365
 Amoxicillin352
 Ampicillin.....352
 Analgesics.....378
 Anemia, medicines for.....392
 Anesthetics.....379
 Antacids380
 Antibiotics.....350
 Antihistamines385
Antiminth (pyrantel)375
 Antispasmodics.....380
 Antitetanus immunoglobulin388
 Antitoxins.....387
 Antivenoms.....387
Antivipmyn (antivenom).....387
Antrypol (suramin).....377
Aralen (chloroquine).....366
 Artemether with lumefantrine.....364
 Artemisinin.....363
 Artesunate.....364
 Aspirin378
 Asthma, medicines for.....384
Atabrine.....369
 Atropine.....380
 Azithromycin.....359
AZT (zidovudine).....397

B

Bactrim (cotrimoxazole).....357
Banocide (diethylcarbamazine).....377
Beclomethasone.....384
 Belladonna380
Benadryl (diphenhydramine).....386
 Benzoic acid.....371
 Benzyl benzoate.....372
Betadine (povidone iodine)370
 Bicarbonate of soda380
Biltricide (praziquantel).....375, 376
 Birth control393
 Bismuth subsalicylate.....383
 Bleeding, medicines for390
 Broxyquinoline.....369

C

Cafergot (ergotamine with caffeine)379
 Calcium carbonate381
 Ceftriaxone358
 Cephalosporins357
 Charcoal, powdered or activated.....388
 Chlamydia, medicines for.....359
Chlorambin.....369
 Chloramphenicol356
Chloromycetin (chloramphenicol)356
 Chloroquine366
 Chlorpheniramine386
 Chlortetracycline378
Cilest (birth control pills)393
Cipro (ciprofloxacin)358
 Ciprofloxacin358
 Clindamycin.....358
 Cloquinal.....369
 Clofazimine.....363
 Cloxacillin350
Coartem (artemether with lumefantrine).....364
Cobantril (pyrantel).....375
 Codeine383

Condoms395
 Contraceptive foam395
 Contraceptive implants396
 Contraceptive tablets395
 Contraceptives, oral393
 Convulsions (fits), medicines for388
 Copper T (IUD).....395
 Cortico-steroid.....370
 Cortisone391
 Cotrimoxazole.....357
 Cough medicines383
 Cramps of the gut, medicines for.....380
 Crotamiton372
 Crystal violet.....370
 Cyanocobalamin (vitamin B12)392
Cyclofem (contraceptive injection).....396
Cytotec (misoprostol)391

D

d4T (stavudine)397
 Dapsone (diaminodiphenylsulfone, DDS)362
 Dehydration, medicines for381
Delfen (contraceptive foam).....395
Depo-Provera (birth control injection)396
Diane (birth control pills)393
 Diaphragm.....395
 Diarrhea, medicines for381, 383
 Diazepam389
 Dicloxacillin350
 Diethylcarbamazine.....377
 Diiodohydroxyquin369
Dilantin (phenytoin)389
 Diloxanide furoate368
 Dimenhydrinate386
Diodoquin (diiodohydroxyquin)369
 Diphenhydramine386
 Diphenylhydantoin (phenytoin)389
 Doxycycline355
Dramamine (dimenhydrinate).....386
Droncit (praziquantel).....376

E

Efavirenz397
EFV (efavirenz).....397
Emko (contraceptive foam)395
 Entero Quinol.....369
Entero Vioform.....369
 Ephedrine383
 Epinephrine385
 Epsom salts382

Ergometrine390
 Ergonovine390
 Ergotamine with caffeine379
Ergotrate (ergotamine tartrate).....390
 Erythromycin.....354
 Ethambutol361
Eurax (crotamiton).....372
 Expectorants383
Exluton (birth control pills).....393
Exsel (selenium sulfide)371
 Eyes, medicines for378

F

Family planning methods393
Fansidar (pyrimethamine with sulfadoxine).....364
Femoden (birth control pills)393
Femulen (birth control pills).....394
 Ferrous sulfate.....392
 Fits (convulsions), medicines for388
Flagyl (metronidazole).....368
Floraquin.....369
 Folic acid.....392
 Fungus infections, medicines for371
Furamide (diloxanide furoate)368

G

Garamycin (gentamicin)358
 Gentamicin358
 Gentian violet.....370
Germanin (suramin)377
 Giardia, medicines for367
 Glycerin suppositories.....382
 Gonorrhoea, medicines for.....359
Gracial (birth control pills)393
 Griseofulvin.....371
Gynera (birth control pills).....393
Gynol II (contraceptive gel).....395

H

Halquinol369
Harmonet (birth control pills).....393
 Headache, medicines for378
Helmex (pyrantel)375
 Hemorrhage, medicines for390
 Hemorrhoids, medicines for391
 Herpes, medicines for373
Hetrazan (diethylcarbamazine)377
 Human tetanus immune globulin.....388

Hydroxyquinolines.....	369
Hyoscyamine (atropine).....	380
<i>Hyper-tet</i> (tetanus immune globulin).....	388

I

Ibuprofen.....	379
<i>Implanon</i> (contraceptive implant).....	396
Infections, medicines for.....	350
Injectable contraceptives.....	396
Insecticides for scabies and lice.....	372
Intrauterine device (IUD).....	395
Iodochlorhydroxyquin.....	369
Iodoquinol.....	369
Iron sulfate.....	392
Isoniazid (INH).....	360
Ivermectin.....	377

J

<i>Jadelle</i> (contraceptive implant).....	396
---	-----

K

<i>Kaopectate</i>	383
<i>Koromex</i> (contraceptive gel).....	395

L

Lamivudine.....	397
<i>Lamprene</i> (clofazimine).....	363
<i>Lariam</i> (mefloquine).....	365
Laxatives.....	382
<i>Lempko</i> (contraceptive foam).....	395
Leprosy, medicines for.....	362
Lice, medicines for.....	372
Lidocaine.....	379
<i>Lo-Femenal</i> (birth control pills).....	393
<i>Logynon</i> (birth control pills).....	393
<i>Lo/Ovral</i> (birth control pills).....	393
<i>Luminal</i> (phenobarbital).....	389
<i>Lunelle</i> (contraceptive injection).....	396

M

Magnesium hydroxide.....	382
Magnesium sulfate.....	382, 390
Malaria, medicines for.....	363
<i>Mansil</i> (oxamniquine).....	376
Mebendazole.....	373
<i>Mectizan</i> (ivermectin).....	377
Mefloquine.....	365

Mepacrine.....	369
<i>Methergine</i> (methyletergonovine maleate).....	390
Methicillin.....	350
Metronidazole.....	368
Miconazole.....	369
<i>Microgynon</i> (birth control pills).....	393
<i>Microlut</i> (birth control pills).....	394
<i>Microvlar</i> (birth control pills).....	393
<i>Micronor</i> (birth control pills).....	394
<i>Micronovum</i> (birth control pills).....	394
<i>Microval</i> (birth control pills).....	393
Mifepristone.....	391
Milk of magnesia.....	380, 382
Milk, powdered.....	391
Mineral oil.....	382
Minipill.....	394
Misoprostol.....	391
<i>Myambutol</i> (ethambutol).....	361

N

Nafcillin.....	350
<i>Naphuride</i> (suramin).....	377
<i>Neogest</i> (birth control pills).....	394
Neomycin.....	370
<i>Neosporin</i> (antibiotic ointment).....	370
<i>Neo-Synephrine</i> (phenylephrine).....	383
<i>Net-En</i> (injectable contraceptive).....	396
Niclosamide.....	375
<i>Nivembin</i>	369
<i>Nordette</i> (birth control pills).....	393
<i>Norinyl</i> (birth control pills).....	393
<i>Noristerat</i> (injectable contraceptive).....	396
<i>Norplant</i> (contraceptive implant).....	396
Nose, medicines for.....	383
Nystatin.....	372

O

Omeprazole.....	381
Onchocerciasis, medicines for.....	377
Oral contraceptives.....	393
Oral rehydration salts.....	381
<i>Ortho-Novum</i> (birth control pills).....	393
<i>Ovrette</i> (birth control pills).....	394
<i>Ovysmen</i> (birth control pills).....	393
Oxacillin.....	350
Oxamniquine.....	376
Oxytetracycline.....	355
Oxytocin.....	390

T

<i>TDF</i> (tenofovir)	397
Tenofovir	397
<i>Terramycin</i> (tetracycline)	355
Tetanus immune globulin.....	388
Tetracycline	355
Doxycycline	355
Oxytetracycline.....	355
Tetracycline HCl	355
Thiabendazole	374
<i>Tinactin</i> (tolnaftate).....	371
Tolnaftate	371
Trichloroacetic acid	373
<i>Trinordiol</i> (birth control pills)	393
<i>Trinovum</i> (birth control pills)	393
<i>Triphasil</i> (birth control pills)	393
<i>Triquilar</i> (birth control pills)	393
Tuberculosis, medicines for	359
Typhoid, medicines for	356

U

Ulcers, medicines for	380
Undecylenic acid	371

V

Vaginal infections, medicines for.....	369
<i>Valium</i> (diazepam)	389
<i>Vansil</i> (oxamniquine).....	376
<i>Vaseline</i> (petroleum jelly)	370
<i>Vermox</i> (mebendazole).....	373
<i>Vibramycin</i> (doxycycline)	355
Vinegar	371
Vitamins	391, 392
Vomiting, medicines for	385

W

Warts on the genitals, medicines for	373
Water as a medicine.....	383
White vinegar.....	369
<i>Whitfield's Ointment</i>	371
Worms, medicines for.....	373

X

Xylocaine (lidocaine).....	379
Xerophthalmia, vitamins for	391

Y

<i>Yomesan</i> (niclosamide)	375
------------------------------------	-----

Z

<i>Zentel</i> (albendazole)	374
<i>Zantac</i> (ranitidine)	381
<i>ZDV</i> (zidovudine).....	397
Zidovudine.....	397
Zinc.....	381
<i>Zovirax</i> (acyclovir)	373



**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.**

Information on Medicines

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. 385) 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 354 and 355 for uses and precautions).

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

Use injectable penicillin only for severe or dangerous infections.

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

RESISTANCE TO PENICILLIN:

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

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

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

PENICILLIN BY MOUTH

Penicillin V (phenoxymethyl penicillin)

Name: _____ price: _____ for _____

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

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

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

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

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

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

Dosage of penicillin for **mild infections:**

adults and children over 12 years:

250 to 500 mg

4 times a day for 10 days

children from 6 to 12 years: 125 to 250 mg

4 times a day for 10 days

children from 1 to 5 years old: 125 mg

4 times a day for 10 days

children less than 1 year old: 62.5 mg

4 times a day for 10 days

For more serious infections: double the above
dosage.

For strep throat (to prevent rheumatic fever):
take the above dosage 2 times a day for 10 days.

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

INJECTABLE PENICILLIN

Penicillin G, benzylpenicillin

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

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

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

CHOOSING THE RIGHT KIND OF PENICILLIN FOR INJECTION:

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

Short-acting penicillin: These are known
by many names, including crystalline penicillin,
benzylpenicillin, aqueous penicillin, soluble
penicillin, sodium penicillin, potassium penicillin,
and penicillin G injections. These penicillins act
quickly but only stay in the body a short time, so
that they must be injected every 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
severe pneumonia.

Intermediate-acting penicillin: Procaine
penicillin or procaine benzylpenicillin. 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 or
benzathine benzylpenicillin. 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 (benzylpenicillin, penicillin G, etc.)

(a short-acting penicillin)

Name: _____ price: _____ for _____

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

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

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

In each injection give:

adults and children over age 8: 1 million U

children age 3 to 8: 500,000 U

children under 3: 250,000 U

For very severe infections, higher doses should be given.

Procaine penicillin (procaine benzylpenicillin, procaine penicillin G)

(an intermediate-acting penicillin)

Name: _____ price: _____ for _____

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

Dosage of procaine penicillin—for moderately severe infections:

Give 1 injection a day for 10 to 15 days.

With each injection give:

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

children age 8 to 12: 600,000 U

children age 3 to 7: 300,000 U

children under 3: 150,000 U

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

In emergencies, 50,000 U

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

The dosage for procaine penicillin combined with a short-acting penicillin is the same as for procaine penicillin alone.**GREEN PAGES****Benzathine benzylpenicillin (benzathine penicillin G)**

(a long-acting penicillin)

Name: _____ price: _____ for _____

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

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

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

adults and children over 8: 1,200,000 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: BROAD-SPECTRUM PENICILLINS**Ampicillin**

Often comes in:

solutions, 125 or 250 mg/5 ml

price: _____ for _____

capsules, 250 mg

price: _____ for _____

injections, vials of 500 mg or 1 g

price: _____ for _____

Amoxicillin

Often comes in:

capsules or tablets: 250 or 500 mg

price: _____ for _____

mixture: 125 mg in 5 ml

price: _____ for _____

or 250 mg in 5 ml

price: _____ for _____

These **broad-spectrum** penicillins kill many more kinds of bacteria than other penicillins. They are safer than other broad-spectrum antibiotics and are especially useful for babies and small children.

Ampicillin and amoxicillin are often interchangeable. When you see a recommendation for ampicillin in this book, you will often be able to use amoxicillin in its place, in the correct dose (see below). But **do not take amoxicillin by mouth when injected ampicillin is recommended** (amoxicillin does not come in injectable form).

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

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

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

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

Dosage for ampicillin and amoxicillin:

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

Ampicillin: Give 4 doses a day for 7 days.

Amoxicillin: Give 3 doses a day for 7 days.

In each dose give:

adults and children over 10: 1 capsule or
2 teaspoons (250 mg)

children under 10: ½ capsule or
1 teaspoon (125 mg)

newborn babies: ¼ capsule or
½ teaspoon (62 mg)

For more serious infections: double the above dosage.

For chlamydia: see doses on p. 359.

Dosage for ampicillin:

By injection, for severe infections

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

In each dose give:

adults: 500 mg (one 500 mg vial)

children age 8 to 12: 250 mg

(½ of a 500 mg vial)

children age 3 to 7: 125 mg

(¼ of a 500 mg vial)

children under 3: 62 mg

(⅙ of a 500 mg vial)

newborn babies: 125 mg

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

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

ERYTHROMYCIN: AN ALTERNATIVE TO PENICILLIN

Erythromycin

Name: _____

Often comes in:

tablets or capsules of 250 mg

Price: _____ for _____

syrups with 125 or 200 mg/5 ml

Price: _____ for _____

in 5 ml eye ointment at 0.5% to 1%

Price: _____ for _____

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

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

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

Dosage of erythromycin:

Take erythromycin with meals to avoid stomach upset.

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

In each dose give:

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

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

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

For more serious infections: double the above dosage.

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

For use in the eyes: see page 378.

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

TETRACYCLINES: BROAD-SPECTRUM ANTIBIOTICS

Tetracycline (tetracycline HCl, oxytetracycline, etc.)

(Familiar but expensive brand: *Terramycin*)

Name: _____

Often comes in:

Capsules of 250 mg or 500 mg

Price: _____ for _____

mixture, 125 mg in 5 ml

Price: _____ for _____

eye ointment at 1%

Price: _____ for _____

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

Tetracycline can be used for:

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

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

RISKS AND PRECAUTIONS:

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

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

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

In each dose give:

adults: 250 mg (1 capsule)

children 8 to 12 years: 125 mg

(½ capsule or 1 teaspoon)

children under 8 years: As a general rule,

do not use tetracycline—instead use cotrimoxazole or erythromycin.

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

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

For use in the eyes: see p. 378.

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. Otherwise, **the risks and precautions are the same as for tetracycline.**

Dosage of doxycycline—tablets of 100 mg

Give doxycycline by mouth twice a day for 7 to 10 days.

In each dose give:

adults: 100 mg (1 tablet)

children 8 to 12: 50 mg (½ tablet)

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

For cholera (where doxycycline works against cholera):

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

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

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

CHLORAMPHENICOL: AN ANTIBIOTIC FOR CERTAIN SEVERE INFECTIONS

Chloramphenicol (*Chloromycetin*)

Name: _____

Often comes in:

capsules of 250 mg

Price: _____ for _____

mixture, 150 mg in 5 ml

Price: _____ for _____

injections, 1000 mg per vial

Price: _____ for _____

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

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

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

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

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

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

Give by mouth 4 times a day.

In each dose give:

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

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

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

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

babies 1 month to 2 years:

give 12 mg (½ ml of the mixture or 1/20 part of a capsule) for each kg of body weight. (This way, a 5 kg baby would get 60 mg, which is ½ teaspoon of mixture, or ¼ capsule, at each dose.)

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

Sulfamethoxazole, sulfisoxazole, sulfadoxine

Name: _____ Price: _____ for _____

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

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

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

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

Cotrimoxazole (sulfamethoxazole with trimethoprim, TMP-SMX)(familiar brand names: *Bactrim*, *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: Unless they have HIV, women in the last 3 months of pregnancy and babies less than 8 weeks old should not use cotrimoxazole. Do not give cotrimoxazole to someone who is allergic to medicines in the sulfa family.

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

Important: Take with lots of water.

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

In each dose give:

adults and children over 12 years: 2 tablets

children 6 to 12 years: 1 tablet

children 6 months to 5 years: ½ table

babies 6 weeks to 5 months old: ¼ tablet

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

cotrimoxazole.

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

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

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

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

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

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

CEPHALOSPORINS

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

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

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

Ceftriaxone

Name: _____

Price: _____ for _____

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

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

RISKS AND PRECAUTIONS:

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

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

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

adults: 1 to 2 grams, once a day
 children 8 to 12 years: 1 g once a day
 children 2 to 7 years: 500 mg once a day
 children 2 months to 2 years: 250 mg once a day

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

For gonorrhea eye infection in the newborn 7 days or older: Inject 50 mg per kg, 1 time only. Do not give more than 125 mg.

OTHER ANTIBIOTICS**Ciprofloxacin**

Name: _____

Price: _____ for _____

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

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

RISKS AND PRECAUTIONS:

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

Dosage of ciprofloxacin:

adults: Give 500 mg, 2 times a day

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

For typhoid, give the above dosage for 10 days.

Clindamycin

Name: _____

Often comes in:

capsules of 25, 75, 150, and 300 mg

Price: _____ for _____

liquid, 15 mg/ml

Price: _____ for _____

Clindamycin is a strong antibiotic of the lincosamide family that is used to treat many kinds of infections. Clindamycin is especially useful for treating infections that have become resistant to penicillin, such as bone infections. It can also be used with quinine to treat malaria in pregnant women (see p. 366 for dosage).

RISKS AND PRECAUTIONS:

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

Dosage of clindamycin

Give clindamycin by mouth, 3 times a day.

In each dose give:

adults: 150-400 mg
 children 8-12 years: 150-300 mg
 children 3-7 years: 75-150 mg
 children under 3 years: 37-75 mg

Gentamicin

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

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

MEDICINES FOR GONORRHEA AND CHLAMYDIA

These diseases have the same early signs, and often occur together (see p. 236). Since it may be difficult or expensive to get a laboratory test for chlamydia, it is best to treat both infections at the same time. You may also want to treat for trichomonas (see p. 367).

For gonorrhea, use one of the following:

ceftriaxone, one injection of 250 mg,
one time only

OR

spectinomycin, one injection of 2 g, one time
only

Pregnant women, or women who are breastfeeding should not take spectinomycin.

For chlamydia, use one of the following:

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

OR

azithromycin: 1 g by mouth, one time only

OR

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

OR

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

OR

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

Do not take doxycycline or tetracycline if you are pregnant or breastfeeding. 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 several anti-tuberculosis medicines at the same time to kill the TB germs. Treatment begins with 4 medicines. If fewer medicines are used, the TB bacteria can become resistant to the drugs and make the disease harder to treat.

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

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

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

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

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

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

Recommended treatments

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

1. For new cases of TB, give isoniazid, rifampicin, ethambutol, and pyrazinamide for 2 months. Doses should be taken every day. Then stop taking pyrazinamide and ethambutol, but continue using rifampicin and isoniazid for another 4 months.
2. For areas where drug resistance to isoniazid is developing, or if the person has HIV, give isoniazid, rifampicin, ethambutol, and pyrazinamide for 2 months. Then stop taking pyrazinamide, but continue using rifampicin, isoniazid, and ethambutol for another 4 months. All doses should be taken every day.
3. If the person has used TB medicines in the past but gets sick again, give isoniazid, rifampicin, ethambutol, pyrazinamide and streptomycin for 2 months. Then give isoniazid, rifampicin, ethambutol, and pyrazinamide for 1 month. Then continue using rifampicin, isoniazid, and ethambutol for another 5 months. All doses should be taken every day.
4. Pregnant women with TB should seek experienced medical advice. Otherwise use the combination of medicines in number 1 (without pyrazinamide) or in number 2. Never use streptomycin during pregnancy. Also give 50 mg. of vitamin B₆ (pyridoxine) every day.

Isoniazid (INH)

Name: _____ price: _____ for _____

Often comes in: tablets of 100 or 300 mg

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

RISKS AND PRECAUTIONS:

Rarely, isoniazid causes anemia, nerve pains in the hands and feet, muscle twitching, or even seizures, especially in malnourished persons. These side effects can usually be treated by giving 50 mg of pyridoxine (vitamin B₆) daily, by mouth (p. 393).

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

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

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

Give isoniazid once a day.

In each dose give:

adults: 300 mg (3 tablets)

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

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

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

Rifampicin

Name: _____ price: _____ for _____

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

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

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

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

RISKS AND PRECAUTIONS:

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

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

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

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

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

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

In each dose give:

- adults: 600 mg (two 300 mg tablets or four 150 mg tablets)
- children 8 to 12 years: 450 mg
- children 3 to 7 years: 300 mg
- children under 3 years: 150 mg

Pyrazinamide

Name: _____ price: _____ for _____

Often comes in: tablets of 400 mg.

RISKS AND PRECAUTIONS:

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

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

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

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

- adults: 1600 or 2000 mg (4 or 5 tablets)
- children 8 to 12 years: 800 mg (2 tablets)
- children 3 to 7 years: 400 mg (1 tablet)
- children under 3 years: 200 mg (½ tablet)

Ethambutol (familiar brand name: *Myambutol*)

Name: _____ price: _____ for _____

Often comes in: tablets of 100 or 400 mg

RISKS AND PRECAUTIONS:

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

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

Give once a day.

In each dose give:

- adults: 1200 mg (three 400 mg tablets or twelve 100 mg tablets)
- children: Give 20 mg for each kg the child weighs. But for tubercular meningitis give 25 mg for each kg the child weighs.

Streptomycin

Name: _____ price: _____ for _____

Often comes in:

vials for injection with 1 g in each vial.

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

RISKS AND PRECAUTIONS:

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

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

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

For treatment of tuberculosis:

Give 1 injection daily for 8 weeks.

With each injection give:

- adults: 1 g (or 2 ml)
- adults over age 50: 500 to 750 mg (1 to 1.5 ml)
- children 8 to 12 years: 750 mg (1.5 ml)
- children 3 to 7 years: 500 mg (1 ml)
- children under 3 years: 250 mg (0.5 ml)
- newborn babies: give 20 mg for each kg of body weight; thus a 3 kg baby gets 60 mg (0.12 ml)

MEDICINES FOR LEPROSY

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

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

Recommended treatment:

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

Dapsone daily

Rifampicin each month

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

Dapsone daily

Clofazimine daily and a larger dose each month

Rifampicin each month

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

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

Dapsone (diaminodiphenylsulfone, DDS)

Name: _____ price: _____ for _____

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

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

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

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

Take once a day.

adults: 100 mg

children 10 to 12 years: 50 mg

children under 10 years: 25 mg

Rifampicin

Name: _____ price: _____ for _____

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

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

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

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

In each monthly dose give:

adults: 600 mg (two 300 mg tablets)

children 10 to 12 years: 450 mg

(one and a half 300 mg tablets)

children under 10 years: 300 mg

(one 300 mg tablet)

Clofazimine (*Lamprene*)

Name: _____ price: _____ for _____

Often comes in: capsules of 50 and 100 mg.

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

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

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

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

In each regular dose give:

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

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

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

In each monthly dose give:

adults: 300 mg (six 50 mg capsules)

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

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

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

OTHER MEDICINES**MEDICINES FOR MALARIA**

There are many medicines 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.

For treating falciparum malaria (the most serious type of malaria), a medicine in the artemisinin family must be taken in combination with a second medicine. This is called Artemisinin-based Combination Therapy, or ACT. Talk to a health worker or the Ministry of Health to find out the recommendations for your area. Some common combinations are:

Artemether with lumefantrine (comes as a combined pill)

Artesunate and pyrimethamine with sulfadoxine

Artesunate and mefloquine

Artesunate and amodiaquine

Women in the first 3 months of pregnancy should try to avoid using artemether and artesunate, and should instead take a combination of **quinine** and **clindamycin** if possible.

For falciparum malaria that has become resistant to many medicines, **doxycycline** (p. 355) or quinine should be taken along with the ACT.

Other, less serious types of malaria can be treated with **chloroquine**, sometimes followed by **primaquine**. In some places, even falciparum malaria can still be treated with chloroquine followed by primaquine.

To prevent malaria, use **doxycycline**, **mefloquine**, **proguanil**, or **chloroquine**.

Artesunate

Name: _____ price: _____ for _____

Often comes in: 50 mg tablets

Artesunate is a medicine of the artemisinin family. Artesunate must be used in combination with either amodiaquine, mefloquine, or pyrimethamine with sulfadoxine to treat falciparum malaria.

CAUTION: Women in the first 3 months of pregnancy should avoid using artesunate. Instead of the Artemisinin Combination Therapy (ACT), if possible give quinine and clindamycin.

For children less than 5 years of age, 1 dose of artesunate in the rectum on the way to get medical help can prevent death and permanent disability. Give 10 mg/kg

Side effects: Artesunate can cause dizziness and problems balancing.

Dosage of artesunate (4 mg/kg/day) by mouth—using tablets of 50 mg

Give artesunate once a day for 3 days. In each dose give:

- adults and children over 13 years: 4 tablets (200 mg)
- children 7 to 13 years: 2 tablets (100 mg)
- children 1 to 6 years: 1 tablet (50 mg)
- children 1 month to 1 year: ½ tablet (25 mg)

Also take a second anti-malaria medicine as part of ACT.

To prepare artesunate injection in cases of emergency, see a health worker or doctor.

GREEN PAGES

Artemether with lumefantrine (*Coartem*)

Name: _____ price: _____ for _____

Often comes in: tablets of 20 mg of artemether with 120 mg of lumefantrine

Artemether is a medicine of the artemisinin family, available in a combined tablet with lumefantrine to treat falciparum malaria.

Dosage of artemether with lumefantrine by mouth—using tablets of 20 mg artemether with 120 mg lumefantrine

Give 2 times a day for 3 days. In each dose, give:

- adults and children over 13 years: 4 tablets
- children 8 to 13 years: 3 tablets
- children 4 to 7 years: 2 tablets
- children 6 months to 3 years: 1 tablet
- children under 6 months: it is best not to give artemether with lumefantrine.

CAUTION: Women in the first 3 months of pregnancy should avoid using artemether. Instead of artemether with lumefantrine, if possible give quinine and clindamycin.

Pyrimethamine with sulfadoxine (*Fansidar*)

Name: _____ price: _____ for _____

Often comes in: combination tablet with 25 mg pyrimethamine and 500 mg sulfadoxine

Fansidar is used with artesunate to treat falciparum malaria, but resistance to this medicine has grown so it is no longer recommended in some areas. Check with your local health authority.

Women should not take fansidar during the first 3 months of pregnancy. After 12 weeks, pregnant women can take 1 dose each month to prevent malaria until the baby is born.

If you are already taking cotrimoxazole to prevent HIV-related infections, do not use fansidar.

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 falciparum malaria:

Give one time, on the first day of taking artesunate:

- adults: 3 tablets
- children 7 to 13 years: 2 tablets
- children 1 to 6 years: 1 tablet
- babies 5 months to 1 year: ½ tablet

Also give artesunate.

Mefloquine (familiar brand name: *Lariam*)

Name: _____ price: _____ for _____

Often comes in: tablets of 250 mg

Mefloquine is used with artesunate to treat falciparum malaria. Mefloquine can also be used alone for malaria prevention.

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, seizures 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 falciparum malaria:**

Give one dose on the second day of taking artesunate, then on the third day give the second, smaller dose:

- adults: first 4 tablets, then 2 tablets (1500 mg total)
- children 7 to 13 years: first 2 tablets, then 1 tablet (750 mg total)
- children 1 to 6 years: ½ tablet, then another ½ tablet (250 mg total)
- babies 5 months to 1 year: ¼ tablet, then another ¼ tablet (125 mg total)

Also give artesunate.

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

Amodiaquine

Name: _____ price: _____ for _____

Often comes in: 153 or 200 mg tablets

Amodiaquine is used with artesunate to treat falciparum malaria. Amodiaquine and artesunate sometimes come together in a combined tablet. This combination may be less safe for people with HIV.

Dosage of amodiaquine—using tablets of 153 mg

For treatment of falciparum malaria, give once a day for 3 days. In each dose give:

- adults and children over 13 years: 4 tablets
- children 7 to 13 years: 2 tablets
- children 1 to 6 years: 1 tablet
- children 5 months to 1 year: ½ tablet

Also give artesunate.

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 falciparum malaria (malaria that does not get better with other medicines) and severe malaria, including malaria that affects the brain. For resistant falciparum malaria, it should be taken along with Artemisinin Combination Therapy (ACT). For women in the first 3 months of pregnancy, quinine with clindamycin can be used to treat falciparum malaria instead of ACT.

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—using tablets of 300 mg for treating resistant falciparum malaria.

- Give 3 times a day for 3 days:
 - adults: 2 tablets (600 mg)
 - children 10 to 15 years: 1½ 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 year: ⅛ tablet (38 mg)

Also give ACT.

For treatment of falciparum malaria for women in the first 3 months of pregnancy, give 2 tablets (600 mg), 3 times a day for 7 days. Also give clindamycin, 300 mg, 4 times a day for 7 days.

WHEN TO INJECT QUININE:

Injections of quinine 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 seizures (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, 2.5 mg per kg of body weight, 7 times spread over 2 days. Or, artesunate can be injected in the muscle or vein to treat severe malaria. Artesunate is very effective but it must be prepared as a solution of artesunate powder, sodium bicarbonate, and dextrose, just before injection. 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.

Inject one dose, then 8 hours later inject the second, smaller dose:

adults: 1200 mg (4 ampules), then 600 mg (2 ampules)

children: 20 mg/kg, then 10 mg per kg the child weighs

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 now resistant to chloroquine. Chloroquine should only be used to treat or prevent types of malaria that are not resistant to it. Talk to a health worker about which medications work best in your area. If you do not know which type of malaria a person has, it is better to treat with Artemisinin Combination Therapy (ACT).

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 non-resistant 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: 1½ 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: ⅙ 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: 1½ 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: ⅙ tablet (32 mg)

Chloroquine Sulfate (familiar brand name:
Nivaquine)

Name: _____ price: _____ for _____

Often comes in: 200 mg tablets (which have 155 mg of chloroquine)

Dosage of chloroquine sulfate by mouth—200 mg tablets

For treatment of non-resistant 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 (where it is not resistant to chloroquine):

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)

Primaquine

Name: _____ price: _____ for _____

Often comes in: tablets of 26 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: Primaquine causes anemia in people with a blood condition called G6PD deficiency, or favism. 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)

Proguanil (*Paludrine*)

Name: _____ price: _____ for _____

Often comes in: tablets of 100 mg

Proguanil is taken with chloroquine for prevention of malaria in areas with low chloroquine resistance. 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 and children over 12 years: 2 tablets (200 mg)
- children 9 to 12 years: 1 ½ tablets (150 mg)
- children 5 to 8 years: 1 tablet (100 mg)
- children 1 to 4 years: ½ tablet (50 mg)
- babies under 1 year: ¼ tablet (25 mg)

FOR AMEBAS AND GIARDIA

In diarrhea or dysentery caused by amebas

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

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

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

Metronidazole (familiar brand name: *Flagyl*)

Name: _____

Often comes in:

tablets of 200, 250, or 500 mg

Price: _____ for _____

vaginal inserts, 500 mg

Price: _____ for _____

solution, 200 mg in 5 ml

Price: _____ for _____

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

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

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

Dosage for giardia infection:

Give metronidazole 3 times a day for 5 days.

In each dose give:

adults: 250 mg (1 tablet)

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

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

children under 3 years: 62 mg (¼ tablet)

Dosage for giardia infection that lasts 6 months or longer:

adults: Give 750 mg metronidazole

3 times a day for 10 days. Also give

quinacrine (p. 369).

Dosage for guinea worm:

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

Dosage for trichomonas infections of the vagina:

Take 8 tablets (2 g) by mouth in one single dose. Or, if the infection is not very severe, use a vaginal insert of 2 tablets (500 g) twice a day for 7 days. The man should be treated for trichomonas at the same time (even if he has no symptoms) or he will pass it back to the woman.

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

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

Dosage for bacterial infections of the vagina:

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

Dosage for infected or high-risk wounds

(15 to 30 mg/kg/day):

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

Dosage for amebic dysentery (25 to 50 mg/kg/day):

—using 250 mg tablets

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

In each dose give:

adults: 750 mg (3 tablets)

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

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

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

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

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

Diloxanide furoate (*Furamide*)

Name: _____

Often comes in:

500 mg tablets

price: _____ for _____

syrup with 125 mg in 5 ml

price: _____ for _____

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

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

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

In each dose give:

adults: 1 tablet (500 mg)

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

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

children under 3 years: ⅙ tablet (62 mg)
or less, depending on weight

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

Name: _____ price: _____ for _____

Often comes in: 100 mg tablets

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

Dosage of quinacrine for treating **giardia**:

Give quinacrine 3 times a day for a week.

In each dose give:

adults: one 100 mg tablet

children under 10 years: 50 mg (½ tablet)

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

Dosage of quinacrine for treating **tapeworm**:

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

Give 1 large dose only:

adults: 1 g (10 tablets)

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

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

DANGER! DO NOT USE!

Hydroxyquinolines (clioquinol, iodoquinol, di-iodohydroxyquinoline, halquinol, broxyquinoline) (familiar brand names: *Diodoquin, Amicline, Floraquin, Entero Quinol, 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), 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. 368):

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. 372):

For yeast infection of the vagina.

Gentian violet (crystal violet) (see p. 370):

Price: _____ for _____

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

Povidone iodine (polyvidone 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 242, give 1 douche a day for 10 to 14 days.

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

FOR SKIN PROBLEMS

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

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

Sulfur

Often comes as a yellow powder.

Price: _____ for _____

Also comes in many skin lotions and ointments.

Sulfur is useful for many skin problems:

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

GREEN PAGES**Gentian violet (crystal violet)**

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

Price: _____ for _____

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

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

Antibiotic ointments

Name: _____ price: _____ for _____

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

Cortico-steroid ointments or lotions

Name: _____ price: _____ for _____

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

Petroleum jelly (petrolatum, *Vaseline*)

Price: _____ for _____

Useful for preparing ointments or dressings in the treatment of: scabies (see p. 199 and 372), ringworm (p. 371), 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 and benzoic acid. It is useful for many fungal infections, including tinea versicolor. Apply twice daily for 2 to 4 weeks.

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

Sulfur and vinegar

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

Sodium thiosulfate ('hypo')

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

Price: _____ for _____

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

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

Selenium sulfide (*Selsun, Exsel*)

Name: _____ price: _____ for _____

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

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

Tolnaftate (*Tinactin*)

Name: _____ price: _____ for _____

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

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

Griseofulvin

Name: _____ price: _____ for _____

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

Preparations in 'microsized' particles are best.

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

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

Give once a day for at least a month.

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

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

children 3 to 7 years: 125 to 250 mg

(½ to 1 capsule)

children under 3 years: 125 mg (½ capsule)

Gentian violet—for yeast infections (see p. 370)

Nystatin or Miconazole

Name: _____ price: _____ for _____

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

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

Dosage for nystatin and miconazole is 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 4 or 5 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 miconazole, using a 200 mg insert, use for 3 days. For nystatin, using a 100,000 Unit insert, use for 14 days.

FOR SCABIES AND LICE: INSECTICIDES**Benzyl benzoate, cream or lotion**

Name: _____ price: _____ for _____

Often comes in: cream or lotion.

Used for both scabies and head lice.

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

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

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

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

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

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

Name: _____ price: _____ for _____

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

For scabies, this is the best choice (unless you have HIV, then use Ivermectin, see p. 377).

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

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

Crotamiton (*Crotan, Eurax*)

Name: _____ price: _____ for _____

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

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

Ivermectin (see p. 377)**Sulfur in petroleum jelly** (*Vaseline*) or lard

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

Pyrethrins with piperonyl (*RID*)

Name: _____ price: _____ for _____

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

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

FOR GENITAL WARTS

Podophyllin

Name: _____ price: _____ for _____

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

This is used to shrink genital warts. Podophyllin is very irritating to healthy skin, so it should be used with care. Before applying, it helps to protect the area around the warts with petroleum jelly (*Vaseline*) or some other greasy ointment. 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 breastfeeding should not use podophyllin.

Trichloroacetic acid

Name: _____ price: _____ for _____

Often comes in: clear liquid.

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

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

FOR HERPES AND SHINGLES

Acyclovir (*Zovirax*)

Name: _____ price: _____ for _____

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

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

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

Dosage of acyclovir:

For genital herpes infection or cold sores:

For a first-time infection, take 200 mg acyclovir, by mouth, 5 times a day for 7 days, or 400 mg, 3 times a day for 7 days.

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

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

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

FOR WORMS

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

Mebendazole (*Vermox*)

for many different worm infections

Name: _____ price: _____ for _____

Often comes in: tablets of 100 or 500 mg

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

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

Dosage of mebendazole—using 100 mg tablets

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

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

For **roundworm (Ascaris), whipworm (Trichuris), hookworm, and Strongyloides:**

1 tablet twice a day (morning and evening) for 3 days (6 tablets in all), or one 500 mg tablet 1 time only.

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

Albendazole (Zentel)—for many different worm infections

Name: _____ price: _____ for _____

Often comes in: tablets of 200 and 400 mg

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

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

Dosage of albendazole—using 400 mg tablets

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

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

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

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

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

Name: _____

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

Often comes in:

500 mg tablets

Price: _____ for _____

Mixture, 500 mg in 5 ml

Price: _____ for _____

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

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

Give once daily for 2 days.

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

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

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

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

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

Give 2 doses daily for a week.

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

(1½ tablets or 1½ teaspoons)

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

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

Thiabendazole—for many different worm infections

Name: _____ price: _____ for _____

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

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

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

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

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

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

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

In each dose give:

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

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

Name: _____

Comes as pamoate or embonate

Often comes in:

250 mg tablets

Price: _____ for _____

Mixture, 50 mg in 1 ml

Price: _____ for _____

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

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

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

In each dose give:

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

FOR TAPEWORM

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

Niclosamide (*Yomesan*)—for tapeworm infection

Name: _____ price: _____ for _____

Often comes in: chewable tablets of 500 mg

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

Dosage of niclosamide for tapeworm—500 mg tablets

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

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

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

Praziquantel (*Biltricide, Droncit*)

Name: _____ price: _____ for _____

Often comes in: tablets of 150 mg and 600 mg

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

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

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

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

Take once only.

- adults: 600 mg (1 tablet)
- children 8 to 12 years: 300 mg (½ tablet)
- children 4 to 7 years: 150 mg (¼ tablet)

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

Take once only.

- adults: 1500 mg (2½ tablets)
- children 8 to 12 years: 600 to 1200 mg
(1 to 2 tablets)
- children 4 to 7 years: 300 to 600 mg
(½ to 1 tablet)

Quinacrine (*mepacrine, Atabrine*)—for tapeworm, see p. 369.

FOR SCHISTOSOMIASIS (BLOOD FLUKES, BILHARZIA)

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

Praziquantel (*Biltricide, Droncit*)

Name: _____ price: _____ for _____

Often comes in: tablets of 150 or 600 mg

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

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

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

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

- adults: 1200 to 1500 mg (2 to 2 ½ tablets)
- children 8 to 12 years: 600 to 900 mg
(1 to 1 ½ tablets)
- children 4 to 7 years: 300 mg (½ tablet)

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

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

- adults: 1200 to 1500 mg (2 to 2½ tablets)
- children 8 to 12 years: 600 to 900 mg
(1 to 1½ tablets)
- children 4 to 7 years: 300 mg (½ tablet)

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

Oxamniquine (*Vansil, Mansil*)

Name: _____

Often comes in:

capsules with 250 mg

Price: _____ for _____

syrup with 250 mg in 5 ml

Price: _____ for _____

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

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

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

Give for one day only:

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

For children, give the following dose twice in one day:

- children 8 to 12 years: 250 mg
(1 capsule)

- children 4 to 7 years: 125 mg (½ capsule)
- children 1 to 3 years: 63 mg (¼ capsule)

FOR RIVER BLINDNESS (ONCHOCERCIASIS)

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

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

Ivermectin (*Mectizan, Stromectol*)

Name: _____ price: _____ for _____

Often comes in: 3 or 6 mg tablets

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

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

Dosage of ivermectin for **river blindness**

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

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

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

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

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

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

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

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

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

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

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

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

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

Diethylcarbamazine (*Hetrazan, Banocide*)

Name: _____ price: _____ for _____

Often comes in: tablets of 50 or 100 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. Pregnant women should avoid taking diethylcarbamazine.

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 1 mg/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 _____

Often comes in: powder for injection, 1 g in a vial

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 g 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, chlortetracycline, or erythromycin 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. 355) or erythromycin (p. 354) should be taken by mouth also. Eye ointment can also be used to prevent sties and treat corneal ulcers (see p. 224).

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.

GREEN PAGES

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. 379). For a stronger painkiller see **codeine** (p. 383).

Aspirin (acetylsalicylic acid)

Often comes in:

300 mg (5 grain) tablets

Price: _____ for _____

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

Price: _____ for _____

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

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

RISKS AND PRECAUTIONS:

1. Do not use aspirin for stomach pain or indigestion. Aspirin is acid and may make the problem worse. For the same reason, **persons with stomach ulcers should never use aspirin.**
2. Aspirin causes stomach pain or ‘heartburn’ in some persons. To avoid this, take aspirin with milk, a little bicarbonate of soda, or a lot of water—or together with meals.
3. Do not give more than 1 dose of aspirin to a dehydrated person until he begins to urinate well.
4. It is better not to give aspirin to children under 12 years and especially not to babies (acetaminophen is safer) or to persons with asthma (this may bring on an attack).
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). Do not take more than 2400 mg (8 tablets) a day. Do not give to children more than 4 times a day.

adults: 1 or 2 tablets (300 to 600 mg)
 children 8 to 12 years: 1 tablet (300 mg)
 children 3 to 7 years: ½ tablet (150 mg)
 children 1 to 2 years old: ¼ tablet (75 mg)

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

—75 mg 'child's aspirin' tablets

- Give children aspirin 4 times a day:
 - children 8 to 12 years: 4 tablets (300 mg)
 - children 3 to 7 years: 2 to 3 tablets (150 to 225 mg)
 - children 1 to 2 years: 1 tablet (75 mg)
- do not give aspirin to children under 1 year old

Acetaminophen (paracetamol)—for pain and fever

Name: _____ price: _____ for _____

Often comes in: 300 to 500 mg tablets, syrups

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

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

Give acetaminophen by mouth 4 times a day.

In each dose give:

- adults: 500 mg to 1 g (1 or 2 tablets)
- children 8 to 12 years: 500 mg (1 tablet)
- children 3 to 7 years: 250 mg (½ tablet)
- children 1 year to 2 years: 125 mg (¼ tablet)
- babies under 1 year: 62 mg (⅙ tablet)

Do not give more than 4000 mg (8 tablets) in a day.

Ibuprofen

Name: _____ price: _____ for _____

Often comes in: 200 mg or 400 mg tablets

Ibuprofen works for muscle swelling and pain, joint pain from arthritis, menstrual pain, headache, and to lower fever. It is more expensive than aspirin.

WARNING: Ibuprofen should not be taken by persons who are allergic to aspirin. Pregnant women should not use ibuprofen.

Dosage of ibuprofen—for pain and fever—200 mg tablets

Give ibuprofen by mouth every 4 to 6 hours.

Always take this medicine with food or a large glass of water.

In each dose give:

- adults and children 12 years and older: 200 mg (1 tablet)
- children under 12 years: Do not give.

If one tablet does not relieve pain or fever, two tablets may be used. Do not take more than six tablets in 24 hours.

Ergotamine with caffeine (Cafergot)—for migraine headache

Name: _____ price: _____ for _____

Often comes in: tablets with 1 mg of ergotamine

Dosage of ergotamine with caffeine for migraine:

- adults: Take 2 tablets at the first sign of a migraine, then 1 tablet every half hour until the pain goes. But do not take more than 6 tablets in 24 hours or 10 tablets per week.

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

Codeine—for severe pain—see p. 383.

FOR STOPPING PAIN WHEN CLOSING WOUNDS: ANESTHETICS

Lidocaine (Lignocaine, Xylocaine)

2 percent (with or without epinephrine)

Name: _____ price: _____ for _____

Often comes in: ampules or bottles for injection

Lidocaine can be injected around the edges of a wound before sewing it, to make the area *anesthetic* or numb so it will not hurt.

Inject both into and under the skin at points about 1 cm. apart. Be sure to pull back on the plunger before injecting (see p. 73). Inject slowly. Use about 1 ml of anesthetic for each 2 cm of skin. (Do not use more than 20 ml altogether.) If the wound is clean, you can inject into the sides of the wound itself. If the wound is dirty, inject through the skin (after cleaning it) around the wound and then **clean the wound with great care** before closing it.

Use lidocaine with epinephrine for sewing most wounds. The epinephrine makes the numbness last longer and helps control bleeding. But do not use it on people with heart problems.

Use lidocaine without epinephrine for sewing tears after childbirth, and for wounds on fingers, toes, penis, ears, and nose. This is important because the epinephrine can stop the flow of blood to these areas and cause great damage.

Another use of lidocaine with epinephrine: **For severe nosebleed**, soak a little into some cotton and pack it into the nose. The epinephrine will cause the veins to squeeze shut and help control bleeding.

FOR GUT CRAMPS: ANTISPASMODICS

Belladonna (with or without phenobarbital)

Name: _____ price: _____ for _____

Often comes in: tablets with 8 mg belladonna

There are many different antispasmodic preparations. Most contain belladonna or something like it (atropine, hyoscyamine) and often phenobarbital (phenobarbitone). These medicines should not be used on a regular basis, but can be used occasionally for treatment of pain or cramps (colic) in the stomach or gut. They may help calm the pain of a bladder infection or inflamed gallbladder. They are sometimes useful in the treatment of ulcers.

Dosage for belladonna—for gut cramps—tablets with 8 mg belladonna

adults: 1 tablet, 3 to 6 times a day

children 8 to 12 years: 1 tablet, 2 or 3 times a day

children 5 to 7 years: ½ tablet, 2 or 3 times a day

do not give to children under 5 years

WARNING: These medicines are poisonous if too much is taken. Keep out of reach of children.

Persons with glaucoma should not take medicines that contain belladonna or atropine.

GREEN PAGES

FOR ACID INDIGESTION, HEARTBURN, AND STOMACH ULCERS

Aluminum hydroxide or magnesium hydroxide (*Milk of Magnesia*)

Name: _____ price: _____ for _____

Often comes in: tablets of 500 to 750 mg, or in mixtures with 300 to 500 mg in 5 ml.

Sometimes these are mixed together or with magnesium trisilicate. If simethicone is added, it helps control gas.

These antacids can be used occasionally for acid indigestion or heartburn or as a regular part of treatment of a stomach (peptic) ulcer. The most important time to take antacids is 1 hour after meals and at bedtime. Chew 2 or 3 tablets. For severe stomach ulcers, it may be necessary to take 3 to 6 tablets (or teaspoons) every hour.

CAUTION: Do not use these medicines if you are also taking tetracycline. Antacids with magnesium sometimes cause diarrhea, and those with aluminum may cause constipation.

Sodium bicarbonate (bicarbonate of soda, baking soda)

Name: _____ price: _____ for _____

Comes as a white powder

As an antacid, this should be used in a very limited way, when someone has an occasional stomach upset, with 'heartburn' or acid indigestion. **It should not be used in treating chronic indigestion or stomach (peptic) ulcers.** Although it seems to help at first, it causes the stomach to produce more acid, which soon makes things worse. 'Soda' is also useful for the 'hangover' of a person who has drunk too much alcohol the night before. For this purpose (but not for acid indigestion) it can be taken with acetaminophen or aspirin. *Alka-Seltzer* is a combination of sodium bicarbonate and aspirin. As an **occasional** antacid, mix ½ teaspoon of sodium bicarbonate with water and drink it. Do not use often.

For cleaning teeth, baking soda or a mixture of 'soda' and salt can be used instead of toothpaste (see p. 230).

WARNING: Persons with certain heart problems (failure) or with swelling of the feet or face should not take sodium bicarbonate or other products high in sodium (like salt).

Calcium carbonate

Name: _____ price: _____ for _____

Often comes in: tablets of 350 to 850 mg

This works more slowly than sodium bicarbonate. It is very effective for occasional acid indigestion or heartburn, but should not be used long term or for treatment of ulcers. Chew one 850 mg tablet or two 350 mg tablets when symptoms occur. Take another dose in 2 hours if necessary.

Omeprazole (Prilosec)

Name: _____

Often comes in:

Powder for oral liquid: 20 and 40 mg sachets

price: _____ for _____

Capsules: 10 mg, 20 mg, and 40 mg

price: _____ for _____

Omeprazole can calm pain and help an ulcer heal. But to kill the bacteria that cause the ulcer, use omeprazole with 2 antibiotics: either amoxicillin or tetracycline; and metronidazole. Be sure to follow the advice on p. 128 and 129 to treat and prevent ulcers.

Dosage of omeprazole for treatment of ulcers:

40 mg once a day for 10 to 14 days

Ranitidine (Zantac)

Name: _____ price: _____ for _____

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

Ranitidine can calm pain and help an ulcer to heal. But to kill the bacteria that cause the ulcer, use ranitidine with 2 antibiotics: either amoxicillin or tetracycline; and metronidazole. But be sure to also follow the advice on p. 128 and 129 to treat and prevent ulcers.

Dosage of ranitidine for treatment of ulcers:150 mg twice a day, or 300 mg at dinnertime,
for 1 week.**FOR SEVERE DIARRHEA AND DEHYDRATION: REHYDRATION DRINKS, 'ORS', AND ZINC**

Instructions for making Rehydration Drink with cereal or ordinary sugar are on page 152.

In some countries packets of a simple sugar (glucose) and salts for making a rehydration drink are sold in stores or are available at health posts. While these packets are sometimes convenient, a homemade mix using cereal or sugar and a little salt, as described on page 152, combats diarrhea as well or better. It is better to make a home mix and spend the money you save on more and better food.

Be sure to **continue giving breast milk** to a baby with diarrhea. And **start giving food as soon as the sick child will accept it**. Giving food together with rehydration drink combats dehydration more effectively and protects the child from becoming weaker. Giving zinc in addition to rehydration drink can also help children with severe diarrhea get better more quickly (see below).

WARNING: In some countries, packets of 'ORS' (oral rehydration salts) are sold in a variety of preparations, which require different amounts of water for correct preparation. **If you use ORS packets, be sure you know how much water to mix with it.** Too little water can be dangerous.

CAUTION: If you plan to take a child with diarrhea to the health post or hospital, always give her lots of liquids, and if possible a homemade rehydration drink, before you leave home. And if you can, take some of the drink (or if nothing else, plain water) with you, to give to the child on the way to the health post and while you wait your turn. Give the child the drink often as much as she will take. If the child is vomiting, give small quantities every minute. Some of the drink will stay inside, and it will also help reduce vomiting.

Zinc

Name: _____ price: _____ for _____

Often comes in: tablets of 5 mg, 10 mg, and 20 mg.
injections of 1 mg in 1 ml, 5 mg in 1 ml, and
10 mg in 2 ml
liquid solution of 10 mg per unit

Giving zinc along with rehydration drink and food helps children with diarrhea get better, faster. Zinc tablets can be ground up and mixed with breast milk or a little water.

Dosage: Give zinc once a day for 10 to 14 days. In each dose give:

children over 6 months: 20 mg
babies under 6 months: 10 mg

FOR HARD STOOLS (CONSTIPATION): LAXATIVES

A discussion of the use and misuse of different laxatives and purges is found on page 15. Laxatives are used far too much. They should be used only **occasionally** to help soften hard, painful stools (constipation). **Never give laxatives to anyone who has diarrhea or gut pain or who is dehydrated.** Do not give laxatives to small children under 2 years old.

Generally the best stool softeners are foods high in roughage or fiber, like bran or cassava. Drinking a lot of liquid (at least 8 glasses of water a day) and eating lots of fruit also help.

Milk of magnesia (magnesium hydroxide)— laxative and antacid

Name: _____ price: _____ for _____

Often comes as a milky solution

Shake well before using. Drink some water each time you take it.

Dosage for milk of magnesia:

As an antacid:

adults and children over 12 years:
1 to 3 teaspoons 3 or 4 times a day
children 1 to 12 years: ½ to 1 teaspoon
3 or 4 times a day

As a mild laxative

give 1 dose at bedtime:
adults and children over 12 years: 2 to
4 tablespoons
children 6 to 11 years: 1 to 2 tablespoons
children 2 to 5 years: ½ to 1 tablespoon
do not give to children under 2 years old

GREEN PAGES

Epsom salts (magnesium sulfate)—as a
laxative and for itching

Name: _____ price: _____ for _____

Often comes in white powder or crystals

Dosage for Epsom salts:

As a mild laxative—mix the following amount of Epsom salts in a glass of water and drink (best taken on an empty stomach):

adults: 2 teaspoons
children 6 to 12 years: ½ to 1 teaspoon
children 2 to 6 years: ¼ to ½ teaspoon
do not give to children under 2 years old

To help stop itching—mix 8 teaspoons of Epsom salts in a liter of water and put on itching skin as cool soaks or compresses.

Mineral oil— as a laxative

Name: _____ price: _____ for _____

This is sometimes taken by persons with piles (hemorrhoids) who have hard, painful stools. However, it does not really soften the stools, but merely greases them. Foods high in fiber, like bran or cassava, are far better.

Dosage of mineral oil as a laxative:

adults and children 12 years and over:
1 to 3 tablespoons by mouth at least
1 hour after the evening meal. Do not take
with meals because the oil will rob some of
the vitamins from the food.

CAUTION: Do not give to children under 12 years old, women who are pregnant or breastfeeding, to persons who cannot get out of bed, or to persons who have trouble swallowing.

Glycerine suppositories

Name: _____ price: _____ for _____

These are bullet-shaped pills that are pushed into the rectum. They stimulate the bowel and cause it to push out the stool (shit).

Dosage for glycerin suppositories:

adults and children over 12 years:
push 1 suppository well inside the rectum
and let it stay there for 15 to 30 minutes (it
helps to lie down). The longer you let the
suppository stay inside the rectum, the
better it will work.

FOR MILD DIARRHEA: ANTI-DIARRHEA MEDICINE

Bismuth Subsalicylate (*Pepto-Bismol, Pink Bismuth, Kaopectate*)

Name: _____ price: _____ for _____

Often comes as pink tablets or liquid

This can be used to help relieve mild diarrhea by reducing irritation of the intestine and making stool less watery. **It does not cure the cause of the diarrhea and does not help prevent or cure dehydration.** It is never necessary, and its common use is a great waste of money. **It should not be given to anyone who is very ill, has a fever, or has blood or mucus in the stool. People who are allergic to aspirin should not take this medicine or any other medicine that contains salicylate or subsalicylate.**

Dosage of bismuth subsalicylate, for **mild diarrhea only**

Give 1 dose every ½ to 1 hour as needed until diarrhea stops, but do not give more than 8 doses in 24 hours, and do not give for more than 2 days. Drink plenty of water or rehydration drink to prevent dehydration (p. 152).

Shake liquid well before using.

In each dose give:

adults and children over 12: 2 tablespoons (30 ml) liquid or 2 tablets (262 mg in each tablet). Swallow the tablets whole with water (do not chew them).

Do not give to children under 12.

FOR STUFFY NOSE

To help open a stuffy nose, often all that is needed is to sniff water with a little salt in it, as described on page 164. Occasionally, decongestant drops may be used, as follows:

Nose drops with ephedrine or phenylephrine (*Neo-Synephrine*)

Name: _____ price: _____ for _____

These may be used for stuffy or 'runny' nose, especially if a person has (or often gets) infection of the inner ear.

Dosage for decongestant nose drops:

Put 1 or 2 drops in each nostril as shown on page 164. Do this 4 times a day. **Do not use for more than 3 days** or make a habit of using these drops.

To make nose drops from ephedrine tablets, dissolve 1 tablet in 1 teaspoon of water.

FOR COUGH

Cough is the body's method for cleaning the air tubes that go to the lungs and preventing germs and mucus in these tubes from getting into the lungs. Because cough is part of the body's defense, medicines that stop or calm cough sometimes do more harm than good. These **cough-calmers** (or cough *suppressants*) should be used only for irritating, dry coughs that do not let a person sleep. There are other medicines, called **cough-helpers** (or *expectorants*), that are supposed to make it easier to cough up the mucus.

In truth, both kinds of cough syrups (cough-calmers and cough-helpers) are used far more than they need to be. Most popular cough syrups do little or no good and are a waste of money.

The best and most important cough medicine is water. Drinking a lot of water and breathing hot water vapors loosen mucus and help calm cough far better than most cough syrups. For instructions, see page 168. Also, instructions for a homemade cough syrup are given on page 169.

Cough-calmers (cough suppressants): codeine

Name: _____ price: _____ for _____

Often comes in: cough syrups or liquid. Also in tablets of 30 mg or 60 mg, with or without aspirin or acetaminophen.

Codeine is a strong painkiller and also one of the most powerful cough-calmers, but because it is habit-forming (narcotic), it may be hard to get. It often comes in cough syrup combinations or in tablet form. For dosage, follow the instructions that come with the preparation. Less is needed to calm cough than to control pain. **To calm cough** in adults, 7 to 15 mg of codeine is usually enough. Children should be given less, according to age or weight (see p. 62). **For severe pain**, adults can take 30 to 60 mg of codeine every 4 hours.

WARNING: Codeine is habit-forming (narcotic). Use only for a few days.

FOR ASTHMA

To help prevent and manage asthma correctly, see page 167. Persons who suffer from asthma should keep asthma medicines at home. Start using them at the first sign of wheeze or chest tightness.

Salbutamol (Albuterol)

Name: _____ price: _____ for _____

Often comes in: "Rescue" inhaler for breathing (100 mcg in each puff); syrup with 2 mg in 5 ml

FOR RELIEVING AND PREVENTING ASTHMA ATTACKS

Dosage for **salbutamol inhaler**:

For mild wheezing, use 1 to 2 inhalations, every 4 to 6 hours until the wheezing stops. Use more if the wheezing is worse.

For exercise for people with asthma, starting ½ hour before, use 2 puffs every 15 to 30 minutes.

For an emergency, use 2 to 4 puffs every 20 minutes.

Dosage for **liquid oral salbutamol**: 2 mg in 5 ml
adults: 10 ml 3 times a day
children: 1 to 12 years: 5 ml 3 times a day
babies: 2 ½ ml 3 times a day

If you use salbutamol very often, your body will get used to it, you will need to use more and it will not work as well. For people with chronic asthma, it is important to use a controller inhaler (beclomethasone) regularly and use salbutamol less.

If you are pregnant, it is better to control and treat your asthma than to have asthma attacks. Salbutamol can be used while breastfeeding, but use the minimum amount you can.

Salbutamol can cause trembling, nervousness, dizziness, fast heartbeat and headaches. The liquid form can cause stomach aches and vomiting.

If you have asthma and heart problems, do not take "Beta Blocker" drugs like Atenolol, Metoprolol, Propranolol or other "lol" ending heart medicines without consulting a doctor.

Beclomethasone

Name: _____ price: _____ for _____

Often comes in: "Controller" inhaler for breathing (50 or 250 mcg in each puff)

A steroid medicine for asthma that lessens swelling in the breathing passages in the lungs and prevents attacks.

Dosage for beclomethasone inhaler

children and adults:

2 to 4 puffs 2 times each day of the 50 mcg. inhaler. If you use the 50 mcg. inhaler more than 4 puffs twice a day, it costs less and works better to instead use 1 to 2 puffs of the 250 mcg inhaler.

It is best to take your beclomethasone after your dose of salbutamol because the salbutamol will open up the breathing tubes so they will better absorb the beclomethasone.

Beclomethasone does not cure asthma, but it will help prevent asthma attacks if it is used every day. You will begin to see an improvement after 3 to 7 days of use.

If you are pregnant, it is better to control and treat your asthma than to have asthma attacks. Beclomethasone can be used while breastfeeding, but use the minimum amount you can.

If you get thrush in the mouth (see p. 232), treat it with nystatin or miconazole (see p. 372). Remember to rinse your mouth after each treatment.

Use a spacer with your inhaler. If you do not use a spacer with your inhaler, most of the medicine blows onto your tongue and throat, and does not go to your lungs where you need it most. Taking a deep breath through a spacer allows more of the medicine to reach your lungs. If you did not get a spacer with your inhaler, here are 2 ways to make one:

- 1) Tape 2 thin plastic cups together at their wide ends. Cut a small hole for the inhaler on one end, and a larger hole for your mouth on the other.
- 2) Cut a hole large enough for your mouth in the bottom of a plastic soda bottle. Put the inhaler in the other end of the bottle.



Prednisolone or prednisone

Name: _____

Often comes in:

tablets of 5 mg, 25 mg, and other sizes

price: _____ for _____

liquid of 5 mg/ml

price: _____ for _____

Prednisolone and prednisone are cortico-steroids, strong anti-inflammatory medicines, that can treat severe asthma.

CAUTION: Prednisolone and prednisone should only be used for severe asthma attacks. Cortico-steroids can have very dangerous side effects, especially if used for more than a couple of weeks. They also lower a person's defenses against infection, can make you feel anxious, and make it hard to sleep.

Dosage of prednisolone and prednisone for severe asthma.

Give the first dose right away, then take every morning for 3 to 7 days. In each dose give:
 adults and children over 8: 30 to 60 mg
 children 3 to 7 years: 20 to 40 mg
 children under 3: 10 to 20 mg
 Do not give more than 60 mg a day.

Epinephrine (adrenaline, Adrenalin)

Name: _____ price: _____ for _____

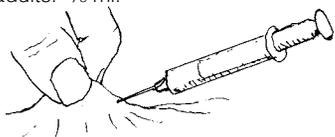
Often comes in: ampules of 1 mg in 1 ml

Epinephrine should be used for:

1. **severe attacks of asthma** when there is trouble breathing and other medicines are not available.
2. **severe allergic reactions** or allergic shock due to penicillin injections, tetanus antitoxin, or other antitoxins made from horse serum (see p. 70).

Dosage of epinephrine for **asthma**—using ampules of 1 mg in 1 ml of liquid—

First count the pulse. Then inject just under the skin:
 adults: 1/3 ml.



children 7 to 12 years: 0.2 ml
 children 1 to 6 years: 0.1 ml
 children under 1 year: DO NOT GIVE

You can repeat the dose every 1/2 hour if needed, up to 3 times.

Dosage of epinephrine for **allergic shock**—using ampules of 1 mg in 1 ml of liquid—

Inject into the muscle:

adults: 0.5 ml

children 7 to 12 years: 0.3 ml

children 1 to 6 years: 0.25 ml

children under 1 year: DO NOT GIVE

If needed, a second dose can be given after half an hour, and a third dose in another half hour. Do not give more than 3 doses. If the pulse goes up by more than 30 beats per minute after the first injection, do not give another dose.

In using epinephrine, be careful never to give more than the recommended amount.

FOR ALLERGIC REACTIONS AND VOMITING: THE ANTIHISTAMINES

Antihistamines are medicines that affect the body in several ways:

1. They help calm or prevent allergic reactions, such as itchy rashes or lumps on the skin, hives, 'hay fever', and allergic shock.
2. They help prevent or control motion sickness or vomiting.
3. They often cause sleepiness (sedation). Avoid doing dangerous work, operating machines, or drinking alcohol when taking antihistamines.

Promethazine (Phenergan) and **diphenhydramine (Benadryl)** are strong antihistamines that cause a lot of sleepiness. **Dimenhydrinate (Dramamine)** is similar to diphenhydramine and is most used for motion sickness. However, for vomiting due to other causes, promethazine often works better.

Chlorpheniramine is a less expensive antihistamine and causes less sleepiness. For this reason, it is sometimes best to use chlorpheniramine to calm itching in the daytime. Promethazine is useful at night because it encourages sleep at the same time that it calms the itching.

There is no proof that the antihistamines do any good for the common cold. They are often used more than they need to be. They should not be used much.

Antihistamines should **not** be used for asthma, because they make the mucus thicker and can make breathing more difficult.

One antihistamine is all that is usually needed in a medical kit. Promethazine is a good choice. Because it is not always available, doses for other antihistamines are also given.

As a general rule, **antihistamines are best given by mouth**. Injections should be used only to help control severe vomiting or before giving antitoxins (for snakebite, etc.) when there is special danger of allergic shock. For children, it is often best to give a rectal suppository.

Promethazine (Phenergan)

Name: _____

Often comes in:

tablets of 12.5 mg

Price: _____ for _____

injections—ampules of 25 mg in 1 ml

Price: _____ for _____

suppositories of 12.5 mg, 25 mg, and 50 mg

Price: _____ for _____

CAUTION: Do not give to children under 2 years old. Pregnant or breastfeeding women should only use promethazine if it is absolutely necessary.

Dosage of promethazine (1 mg/kg/day)

—using tablets of 12.5 mg.—

Give by mouth 2 times a day.

In each dose give:

adults: 25 to 50 mg (2 to 4 tablets)

children 7 to 12 years: 12.5 to 25 mg (1 or 2 tablets)

children 2 to 6 years: 6 to 12 mg (½ to 1 tablet)

babies 1 year old: 4 mg (⅓ tablet)

babies under 1 year: 3 mg (¼ tablet)

—using intramuscular (IM) injections, 25 mg in 1 ml—

Inject once, and again in 2 to 4 hours, if necessary.

In 1 dose inject:

adults: 25 to 50 mg (1 to 2 ml)

children 7 to 12 years: 12.5 to 25 mg (0.5 to 1 ml)

children under 7 years: 6 to 12 mg (0.25 to 0.5 ml)

babies under 1 year: 2.5 mg (0.1 ml)

—using rectal suppositories of 25 mg—

Put well inside the rectum and repeat in 4 to 6 hours if necessary.

In each dose insert:

adults and children over 12 years: 25 mg (1 suppository)

children 7 to 12 years: 12.5 mg (½ suppository)

children 2 to 6 years: 6 mg (¼ suppository)

Diphenhydramine (Benadryl)

Name: _____

Often comes in:

capsules of 25 mg and 50 mg

Price: _____ for _____

injections: ampules with 10 mg or 50 mg in 1 ml.

Price: _____ for _____

CAUTION: Do not give diphenhydramine to newborn babies or to women who are breastfeeding. It is best not to use diphenhydramine in pregnancy unless absolutely necessary.

Dosage of diphenhydramine (5 mg/kg/day)—using capsules of 25 mg—

Give 3 or 4 times a day:

adults: 25 to 50 mg (1 or 2 capsules)

children 8 to 12 years: 25 mg (1 capsule)

children 2 to 7 years: 12.5 mg (½ capsule)

babies: 6 mg (¼ capsule)

—using intramuscular (IM) injections, 50 mg in 1 ml—

Diphenhydramine should be injected only in the case of allergic shock. Inject once, and again in 2 to 4 hours if necessary:

adults: 25 to 50 mg (½ to 1 ml)

children: 10 to 25 mg, depending on size (⅓ to ½ ml)

babies: 5 mg (⅓ ml)

Chlorpheniramine

Name: _____ price: _____ for _____

Often comes in: 4 mg tablets (also tablets of other sizes, syrups, etc.)

Dosage for chlorpheniramine:

Take 1 dose 3 or 4 times a day.

In each dose give:

adults: 4 mg (1 tablet)

children under 12: 2 mg (½ tablet)

babies: 1 mg (¼ tablet)

Dimenhydrinate (Dramamine)

Name: _____ price: _____ for _____

Often comes in: 50 mg tablets; also syrups with 12.5 mg. in a teaspoon; also suppositories to insert in the rectum

This is sold mostly for motion sickness, but can be used like other antihistamines to calm allergic reactions and to encourage sleep.

Dosage of dimenhydrinate:

Take up to 4 times a day.

In each dose give:

adults: 50 to 100 mg (1 or 2 tablets)

children 7 to 12 years of age: 25 to 50 mg (½ to 1 tablet)

children 2 to 6 years: 12 to 25 mg (¼ to ½ tablet)

children under 2 years: 6 to 12 mg (⅓ to ¼ tablet)

ANTITOXINS

WARNING: Many antitoxins are made from horse serum, such as the antivenoms for snakebite and scorpion sting. With these there is a risk of causing a dangerous allergic reaction (allergic shock, see p. 70). Before you inject a horse serum antitoxin, **always have epinephrine ready in case of an emergency.** In persons who are allergic, or who have been given any kind of antitoxin made of horse serum before, it is a good idea to inject an antihistamine like promethazine (*Phenergan*) or diphenhydramine (*Benadryl*) 15 minutes before giving the antitoxin. When treating for snake, insect, or other bites, also give antitetanus immunoglobulin if possible.

Scorpion antitoxin or antivenom

Name: _____ price: _____ for _____

Often comes *lyophilized* (in powdered form) for injection

Different antivenoms are produced for scorpion sting in different parts of the world. In Mexico, Laboratories BIOCLON produces *Alacramyn*.

Antivenoms for scorpion sting should be used only in those areas where there are dangerous or deadly kinds of scorpions. Antivenoms are usually needed only when a small child is stung, especially if stung on the main upper part of the body or head. To do most good, the antivenom should be injected as soon as possible after the child has been stung.

Antivenoms usually come with full instructions. Follow them carefully. Small children often need more antivenom than larger children. Two or 3 vials may be necessary.

Most scorpions are not dangerous to adults. Because the antivenom itself has some danger in its use, it is usually better not to give it to adults.

Snakebite antivenom or antitoxin

Name: _____ price: _____ for _____

Often comes in: bottles or kits for injection

Antivenoms, or medicines that protect the body against poisons, have been developed for the bites of poisonous snakes in many parts of the world. If you live where people are sometimes bitten or killed by poisonous snakes, find out what antivenoms are available, **get them ahead of time**, and keep them on hand. Some antivenoms—those in dried or 'lyophilized' form—can be kept without refrigeration. Others need to be kept cold.

The following are distributors of antivenom products in different parts of the world. In many countries, antivenoms are available through the government:

North America: Crofab (Crotalidae Polyvalent Immune Fab-Ovine) for rattlesnakes, copperheads, cottonmouths, and water moccasins. Order from BTG Customer Service, tel: 1-877-852-8542
e-mail: CustomerService@btgplc.com

Mexico, Central America, and South America: Antivipmyn and *Antivipmyn TRI* (Faboterapia polivalente antiviperino) for rattlesnakes and other pit vipers, as well as water moccasins, terciopelo, massasauga, bush master, and others.
From Instituto Bioclon, Mexico, D.F.,
tel: (52) 5665-4111, www.bioclon.com.mx

Antivenoms are also available from Instituto Clodomiro Picado, Facultad de Microbiología, Universidad de Costa Rica, San Jose, Costa Rica, tel: (506) 2229-0344, www.icp.ucr.ac.cr, and Instituto Butantan, Sao Paulo, Brazil, tel: (55) 11-3726-7222, fax: (55) 11-3726-1505, email: instituto@butantan.gov.br, www.butantan.gov.br

South Africa: Boomslang antivenom, Echis antivenom, polyvalent antivenoms for puff adder, Gaboon adder, rinkhals, green mamba, Jameson's mamba, black mamba, cape cobra, forest cobra, snouted cobra and Mozambique spitting cobra. Also scorpion and spider antivenoms. From South African Vaccine Producers (SAVP), P.O. Box 28999, Sandringham 2131, Johannesburg, South Africa, tel: (27) 11-386-6000, fax: (27) 11-386-6016, www.savp.co.za

Egypt: Antivenoms for horned viper, Egyptian cobra, black-necked spitting cobra, East African carpet viper, and others. From Vacsera, 51 Wezaret El Zeraha, Agouza, Giza, Egypt, tel: (202) 376-111-11, www.vacsera.com

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

Serum Institute of India, tel: (91) 20-269-93900, fax: (91) 20-269-93921, www.seruminstitute.com

Indonesia: Antivenoms for branded krait, Malayan pit viper, and Southern Indonesian spitting cobra. Biofarma, Bandung, Indonesia, tel: (62) 22-203-3755, fax: (62) 22-204-1306, www.biofarma.co.id

Thailand: Antivenoms for king cobra, banded krait, Russell's viper, Malayan pit vipers, and others.

Thai Red Cross Society, Bangkok, Thailand,
tel: (66) 2252-0161, fax: (66) 2252-0212
www.redcross.or.th

Instructions for the use of snakebite antivenoms usually come with the kit. Study them **before** you need to use them. The bigger the snake, or the smaller the person, the larger the amount of antivenom needed. Often 2 or more vials are necessary. To be most helpful, antivenom should be injected as soon as possible after the bite.

Be sure to take the necessary precautions to avoid allergic shock (see p. 70).

Antitetanus immunoglobulin

Antitetanus Immunoglobulin (Human Tetanus Immune Globulin) often comes in: vials of 250 U

In areas where there are people who have not been vaccinated against tetanus, make sure your medical kit includes antitetanus immunoglobulin, also known as *Hyper-tet*. Do not give tetanus antitoxin made from horse serum, which should only be used in livestock, not people.

If a person who is not fully vaccinated against tetanus has a severe wound likely to cause tetanus (see p. 89), **before he develops the signs of tetanus**, inject 250 U (1 vial) of antitetanus immunoglobulin.

If a person develops the signs of tetanus, inject 5,000 U of antitetanus immunoglobulin.

The signs of tetanus usually continue to get worse in spite of treatment with antitoxin. **The other measures of treatment described on pages 183 and 184 are equally or more important.** Begin treatment at once and get medical help fast.

FOR SWALLOWED POISONS

Activated Charcoal

This comes as a powder. Follow the directions on the bottle, or mix the indicated dosage in 1 glass of water or juice and drink the whole glass.

Activated charcoal absorbs poisons that have been swallowed and reduces the harm they cause. It is most effective if used immediately after swallowing the poison. **Do not use this medicine if the person has swallowed strong acid, lye, gasoline, or kerosene.**

Dosage of activated charcoal, **within 1 hour after swallowing poison:**

- adults and children 12 years and older:
50 to 100 g, 1 time only
- children from 1 to 12 years:
25 g, 1 time only, or 50 g in case of serious poisoning
- children under 1 year old:
1g/kg 1 time only

To eliminate poison from the body **after effects of the poison have begun:**

- adults and children older than 1 year:
25 to 50 g every 4 to 6 hours
- children under 1 year old:
1g/kg, 1 time, followed by ½ this dose every 2 to 4 hours. For example, if the baby weighs 6 kg, give 6 g of activated charcoal for the first dose, and 3 g every 2 to 4 hours afterwards.

FOR SEIZURES (FITS, CONVULSIONS)

Phenobarbital and phenytoin are common medicines used to prevent seizures 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 seizures are best taken at bedtime, because they often cause sleepiness. Diazepam can be given to stop a long-lasting epileptic seizure or a seizure during pregnancy or child birth (eclampsia), but it is not usually taken daily to prevent them. Magnesium sulfate can also be given to stop eclampsia.

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 seizures (epilepsy). For epilepsy, it is often necessary to continue the medicine for life. The lowest dose that prevents seizures 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/kg/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/kg/day

children 1 to 5 years: 6 to 8 mg/kg/day

children under 1 year: 5 to 8 mg/kg/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 seizures of epilepsy. The medicine must often be taken for life. The lowest dosage that prevents seizures 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 kg, 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/kg/day

children 10 to 16 years: 6 to 7 mg/kg/day

children 7 to 9 years: 7 to 8 mg/kg/day

children 4 to 6 years: 7.5 to 9 mg/kg/day

children 6 months to 4 years:

8 to 10 mg/kg/day

children less than 6 months old: 5 mg/kg/day

If the dose does not completely prevent the attacks, slowly increase the dose every 15 days up to the maximum dosage per kg. 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 seizures.

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.

Diazepam (Valium)

Name: _____ price: _____ for _____

Often comes in:

injections of 5 mg in 1 ml of liquid

injections of 10 mg in 2 ml of liquid

tablets of 5 mg and 10 mg

We do not give the dosages for diazepam injections. These should only be given by a person with experience giving injections into a vein.

To stop an epileptic seizure lasting more than 15 minutes, put the liquid solution for injection into a syringe without a needle, insert the syringe in the rectum and release the solution. Or grind up 1 tablet, mix the powder with water, and put the mixture into the rectum in the same way.

Dosage of diazepam solution, in the rectum:

adults and children over 12 years:

5 to 10 mg.

children 7 to 12 years: 3 to 5 mg.

children under 7 years: 0.2 mg/kg

for very old people: 0.25 mg/kg

If the seizure is not controlled 15 minutes after giving the medicine, repeat the dose. **Do not repeat more than once.**

WARNING:

1. Too much diazepam can slow down or stop breathing. Be careful not to give too much!
2. Diazepam is a habit-forming (addictive) drug. Avoid long-term or frequent use. Keep this medicine under lock and key.
3. Diazepam can be dangerous for pregnant or breastfeeding women. Only use to stop seizures (eclampsia).

For tetanus, give enough to control most of the spasms. For adults and children over 5 years, start with 5 mg by mouth or in the rectum (less in children) and give more later if necessary, but not more than 10 mg at 1 time, or more than 50 mg in 1 day. Wait for 30 minutes before repeating a dose. For children younger than 5 years old, give 1 to 2 mg in the rectum every 3 to 4 hours.

To relax muscles and calm pain, 30 minutes before setting broken bones in an adult, give 10 mg by mouth.

For eclampsia (sudden seizures during pregnancy or childbirth), give 20 mg diazepam solution in the rectum. 30 minutes after the first dose, you can give another 10 mg, but do not give more than that amount. Magnesium sulfate works better, and is safer for pregnant women.

Magnesium Sulfate—for eclampsia

Name: _____ price: _____ for _____

Often comes in: 10%, 12.5%, 25%, or 50% solution for injection

Dosage to stop a seizure in a woman with eclampsia: Inject 5 g of 50% solution into each buttock muscle once. Repeat after 4 hours if needed.

WARNING: Too much magnesium sulfate can slow down or stop breathing. Be careful not to give too much! Do not give to women with kidney problems.

FOR SEVERE BLEEDING AFTER BIRTH (POSTPARTUM HEMORRHAGE)

For information on the right and wrong use of medicines to control bleeding after birth, see page 266. **Oxytocin, misoprostol, and ergometrine should only be used to control bleeding after the bay is born.** Their use to speed up labor or to give strength to the mother in labor can be dangerous both to the mother and child. If there is much bleeding before the afterbirth (placenta) comes out, but after the child is born, oxytocin or misoprostol can be given. **But do not use ergonovine or ergometrine before the afterbirth comes out**, as this may prevent it from coming out.

Pituitrin is similar to oxytocin, but more dangerous, and should never be used except in a case of emergency bleeding when oxytocin, misoprostol, and ergometrine are not available.

For bleeding in the newborn child, use **vitamin K** (see p. 392). Vitamin K is of no use for bleeding of the woman from childbirth, miscarriage, or abortion.

Ergometrine maleate, ergonovine
(*Ergotrate, Methergine*)

Name: _____

Often comes in:

injections of 0.2 mg in a 1 ml ampule

Price: _____ for _____

tablets of 0.2 mg

Price: _____ for _____

Ergonovine can be used to prevent or control heavy bleeding **after** the placenta has come out. It also controls heavy bleeding after miscarriage or abortion. Do not give to a woman with hypertension.

Dosage:

To **treat** heavy bleeding after the afterbirth (placenta) has come out, or after miscarriage or abortion, give 1 ampule (0.2 mg) of ergonovine by intramuscular injection or 1 tablet (0.2 mg) by mouth. In extreme emergencies, you can give 1 ampule by intravenous injection if you have been trained to do so. Repeat dose every 2 to 4 hours for severe bleeding (more than 2 cups) or every 6 to 12 hours for less severe bleeding. Continue to give the medicine until the bleeding has stopped.

To **prevent** heavy bleeding after giving birth, give 0.2 mg of ergometrine after the afterbirth comes out.

Oxytocin (*Pitocin*)

Name: _____ price: _____ for _____

Often comes in: ampules of 10 units in 1 ml

Oxytocin can be used to prevent or control severe bleeding of the mother **after** the baby is born and **before or after** the afterbirth comes out. (It also helps bring the afterbirth out, but should not be used for this unless there is heavy bleeding or delay.) It can also be used to control heavy bleeding after miscarriage or abortion.

Dosage:

To **treat** heavy bleeding, give 1 ml (10 units) by intramuscular injection. If severe bleeding continues, inject another 1 ml in 20 minutes.

To **prevent** heavy bleeding after birth, give 1 ml after the baby is born.

Misoprostol (*Cytotec*)

Name: _____ price: _____ for _____

Often comes in: tablets of 100 or 200 mcg

Misoprostol can be used to prevent or control heavy bleeding after childbirth, and control heavy bleeding from miscarriage or abortion. It can also be used to end a pregnancy, but it is safer when taken with another medicine, **mifepristone** (see *Where Women Have No Doctor* for more information).

Dosage to control heavy bleeding:

Dissolve 800 mcg against the cheek or under the tongue for 30 minutes and then swallow what is left. If the woman is feeling nauseous, you can also put the tablets in her rectum to dissolve there.

FOR PILES (HEMORRHOIDS)

Suppositories for hemorrhoids

Name: _____ price: _____ for _____

These are special bullet-shaped tablets to be put in the rectum. They help make hemorrhoids smaller and less painful. There are many different preparations. Those that are often most helpful, but are more expensive, contain **cortisone** or a **cortico-steroid**. Special ointments are also available. Diets to soften stools are important (see p. 126).

Dosage:

Insert a suppository in the rectum after the daily bowel movement, and another on going to bed

FOR MALNUTRITION AND ANEMIA

Powdered milk (dried milk)

Name: _____ price: _____ for _____

For babies, **mother's milk is best**. It is rich in body-building vitamins and minerals. When breast milk is not available, other milk products—including powdered milk—can be used. To allow a baby to make full use of its food value, mix the powdered milk with some sugar and cooking oil (see p. 120).

- In 1 cup of boiled water, put:
- 12 level teaspoons of powdered milk,
- 2 level teaspoons of sugar,
- and 3 teaspoons of oil

Mixed (or multi) vitamins

Name: _____ price: _____ for _____

These come in many forms, but tablets are cheapest and work well. Injections of vitamins are rarely necessary, are a waste of money, cause unnecessary pain and sometimes abscesses. Tonics and elixirs often do not have the most important vitamins and are usually more expensive.

Nutritious food is the best source of vitamins.

If additional vitamins are needed, use vitamin tablets.

In some cases of poor nutrition added vitamins may help, and multivitamins can be helpful for people with HIV. Be sure the tablets used contain all the important vitamins (see p. 118).

Using standard tablets of mixed vitamins, 1 tablet daily is usually enough.

Vitamin A (retinol)—for night blindness and xerophthalmia

Name: _____

Often comes as:

capsules of 200,000 units, 60 mg of retinol (also in smaller doses)

price: _____ for _____

injections of 100,000 units

price: _____ for _____

WARNING: Do not give too much Vitamin A, and keep out of the reach of children.

For prevention: In areas where night blindness and xerophthalmia are common problems in children, they should eat more yellow fruits and vegetables and dark green leafy foods as well as animal foods, such as eggs and liver. Fish liver oil is high in vitamin A. Or vitamin A capsules can be given. Give 1 capsule once every 4 to 6 months.

Mothers can help prevent these eye problems in their babies by taking 1 vitamin A capsule (200,000 units) by mouth when their baby is born or within 1 month after giving birth.

Children with measles are at especially high risk of xerophthalmia, and should be given vitamin A when the illness begins.

In areas where children do not get enough vitamin A, added foods or capsules with vitamin A often help children survive measles and other serious illnesses.

For treatment: Give 1 vitamin A capsule (200,000 units) by mouth, or an injection of 100,000 units. The next day give 1 vitamin A capsule (200,000 units) by mouth, and another capsule 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, 325, or 500 mg (also in drops, mixtures, and elixirs for children)

Ferrous sulfate is useful in the treatment or prevention of most anemias. Treatment with ferrous sulfate by mouth usually takes at least 3 months. If improvement does not take place, the anemia is probably caused by something other than lack of iron. Get medical help. If this is difficult, try treating with folic acid.

Ferrous sulfate is especially important for pregnant women who may be anemic or malnourished.

Iron may work best if it is taken with some vitamin C (either fruits and vegetables, or a vitamin C tablet).

Ferrous sulfate sometimes upsets the stomach and is best taken with meals. Also, it can cause constipation, and it may make the stools (feces) look black. For children under 3 years, a piece of a tablet can be ground up very fine and mixed with the food.

WARNING: Be sure the dose is right. Too much ferrous sulfate is poisonous. Keep tablets out of the reach of children. Do not give ferrous sulfate to severely malnourished persons.

Dosage of ferrous sulfate for anemia:

—using tablets of 200 or 325 mg (both sizes contain 65 mg of iron)—

Give 3 times a day, with meals.

In each dose give:

adults and children over 12: 1 tablet

children 2 to 12 years: ½ tablet

children under 2 years: ⅙ to ¼ tablet ground up fine and mixed with food.

Folic acid—for some kinds of anemia

Name: _____ price: _____ for _____

Often comes in: tablets of 400 mcg

Folic acid can be important in the treatment of kinds of anemia in which blood cells have been destroyed in the veins, as is the case with malaria. An anemic person who has a large spleen or looks yellow may need folic acid, especially if his anemia does not get much better with ferrous sulfate. Babies who are fed goat's milk and pregnant women who are anemic or malnourished often need folic acid as well as iron.

Folic acid can be obtained by eating dark green leafy foods, meat, and liver, or by taking folic acid tablets. Usually 2 weeks treatment is enough for children, although in some areas children with *sickle cell disease*, or a kind of anemia called *thalassemia* may need it for years. Pregnant women who are anemic and malnourished would be helped by taking folic acid and iron tablets daily throughout pregnancy.

Dosage of folic acid for anemia—using 400 mcg tablets:

Give by mouth once a day.

adults and children over 4 years:

1 tablet (0.4 mg)

children under 4 years: ½ tablet
(0.2 mg)

Vitamin B₁₂ (cyanocobalamin)—for pernicious anemia only

This is mentioned only to discourage its use. Vitamin B₁₂ 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 B₁₂ 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 B₆ (pyridoxine)

Name: _____ price: _____ for _____

Often comes in: 25 mg tablets

Persons with tuberculosis being treated with **isoniazid** sometimes develop a lack of vitamin B₆. To prevent this, 25 mg of vitamin B₆ (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 B₆—if problems develop while taking isoniazid:

- adults: take 50 mg (2 tablets), 3 times a day.
- children over 2 months old: give 10 to 25 mg, 3 times a day.
- newborns to 2 months old: give 10 mg once a day.

FAMILY PLANNING METHODS**ORAL CONTRACEPTIVES (BIRTH CONTROL PILLS)**

Information about the use, risks, and precautions for birth control pills can be found on page 289.

Most birth control pills contain 1 or 2 hormones similar to hormones that a woman's body normally makes during her menstrual cycle (see pages 245 and 291). These hormones are called estrogen and progesterin (see p. 288). Each type of pill comes in different strengths of each hormone and is sold under many different brand names.

Women who take birth control pills usually have lighter monthly bleeding than they would without the pills. This may be a good thing, especially for women who are anemic. But if a woman has no monthly bleeding or very light monthly bleeding for months and does not like this side effect, she can try changing to a pill with more estrogen.

Other medicines interact with birth control pills

Rifampicin (for tuberculosis), ritonavir (for HIV) and some epilepsy medicines make birth control pills less effective. If you take these medicines, use a different family planning method.

COMBINATION BIRTH CONTROL PILLS**Multiphasic combination pills**

These pills contain a mix of estrogen and progesterin that changes throughout the month. Since the amounts change, it is important to take the pills in order on a 28-day cycle.

Some multiphasic brand names:

<i>Gracial</i>	<i>Logynon</i>	<i>Qlaira</i>	<i>Synphase</i>
<i>Trinordiol</i>	<i>Trinovum</i>	<i>Triquilar</i>	<i>Triphasil</i>

Fixed-dose combination pills

These contain estrogen (usually 35 mcg) and progesterin (usually 0.1 mg). A 28-pill pack has 21 pills with hormones and 7 reminder (placebo) pills. A 21-pill pack has only hormone pills. The amounts of each hormone are the same in all 21 hormone pills in each pack.

Some brand names:

<i>Alesse</i>	<i>Cilest</i>	<i>Diane</i>	<i>Femoden</i>
<i>Gynera</i>	<i>Harmonet</i>	<i>Norinyl</i>	
<i>Ortho-Novum</i>		<i>Ovysmen</i>	

Fixed-dose combination pills with less estrogen

These pills are higher in progesterin (0.15 mg) and lower in estrogen (30 mcg). A 28-pill pack has 21 pills with hormones and 7 reminder (placebo) pills. A 21-pill pack has only hormone pills. The amounts of each hormone are the same in all 21 hormone pills in each pack. These pills may work better for a woman with very heavy monthly bleeding or painful breasts before her period begins.

Some brand names:

<i>Lo-Femeral</i>	<i>Lo/Ovral</i>	<i>Microgynon</i>
<i>Microvlar</i>	<i>Nordette</i>	

How to take the combination pill

If you are sure you are not pregnant and you are not breastfeeding a baby under 6 months old, you can start taking the pill any time. Pills will not prevent pregnancy until you have been taking them for about a week. So during the first 7 days after starting birth control pills, use condoms or avoid sex.

Combination pills can be used 3 ways

28-day use: Take the pills for 21 days. If you have a 28-day packet, take 1 pill every day. The last 7 pills of a different color do not contain hormones—they are there to help you remember to take a pill each day. If you have a 21-day packet, take 1 pill every day, stop for 7 days, and then start a new packet. During the 7 days when you do not take any hormone pills, you will have bleeding like a normal period.

Extended use (not with multiphasic pills): Take 1 pill every day for 84 days in a row and then stop for 7 days. Sometimes pills come in packets with 91 pills (84 with hormones and 7 different color pills without hormones). During those 7 days, you will have normal bleeding like a period but only once every 3 months. Spotting (very light bleeding) may occur but should go away after a few months.

Continuous use (not with multiphasic pills): Take 1 pill with hormones every day. If bothered by irregular bleeding, stop taking pills for 3 or 4 days in order to have a few days of regular bleeding, and then start taking the pill again every day.

All of these ways of using combination pills are safe. Choose the way that feels most comfortable to you.

With all combination pills:

If you forget to take 1 or 2 pills, take 1 pill as soon as you remember. Then take the next pill at the regular time. This may mean that you take 2 pills in one day.

If you forget to take 3 pills, 3 days in a row, take 1 pill right away. Then take 1 pill each day at the regular time. Use condoms until you start your period, or do not have sex until you have taken pills for 7 days in a row.

If your period does not come on time and you have missed some pills, keep taking your pills, but have a pregnancy test. If you find out you are pregnant, stop taking the pill.

Possible side effects of the combination pill

Some women get headaches, nausea, tender and swollen breasts, and changes in monthly bleeding when they start taking combination pills. These side effects are not dangerous and usually stop after about 3 months. A different kind of pill may give you fewer side effects.

Ending the combination pill

You can stop taking the pill at any time. You could then get pregnant right away, so if you want to avoid pregnancy, use condoms or another method.

THE MINIPILL

Progestin-only pills

These pills contain only progestin and come in 28-pill packs. All of the pills have the same amount of progestin.

Some brand names:

*Femulen Microlut Micronor Micronovum
Neogest Microval Ovrette Exluton*

How to take the minipill

Take your first pill on the first day of your period. Then take 1 pill at the same time every day. When you finish a packet, start your new packet the next day, even if you have not had any bleeding. Do not skip a day.

If you take the minipill even a few hours late, or if you forget 1 day's pill, you can become pregnant. If you miss a pill, take it as soon as you remember. Then take the next pill at the regular time, even if it means taking 2 pills in one day. Use condoms or do not have sex for 7 days. You may bleed a little if you miss your minipill or take it late.

Possible side effects of the minipill

The most common side effect of progestin-only minipills is changes in monthly bleeding. You may have bleeding when you do not expect it. Your period may go away altogether. This is not dangerous. Other possible effects include weight gain, headaches, and acne (pimples).

Ending the minipill

If you want to get pregnant or change methods, you can stop taking the minipill at any time. You could get pregnant as soon as you stop, so if you do not want to, start another method immediately.

EMERGENCY FAMILY PLANNING (EMERGENCY CONTRACEPTION, EC)

You can use emergency contraceptive pills or some brands of regular birth control pills to prevent pregnancy within 5 days after unprotected sex. The number of pills you need to take depends on the amount of estrogen or progestin each pill contains. There are many brands of pills, and some brand names are used for more than one type of pill. The chart on the next page lists only a few common brands for each type of pill. Make sure you know the type and amount of hormone in the pills before you use them. The chart shows the total dose of hormones needed and how many pills you would need to take to reach that dose depending on which hormones and how much of each are in each pill.

Common side effects of EC are headaches, nausea or pain in the belly, but these should go away in a day or two. It is also normal to have slight bleeding or a change in timing of your next monthly bleeding.

Progestin-only pills and special emergency pills have fewer side effects (headaches and nausea) than combined pills when used for emergency family planning.

How to take pills for emergency family planning

With a pack of 28 pills, use any of the first 21 pills for emergency contraception. Do not use the last 7 pills in a 28-day pack, because these pills do not contain any hormones. If you vomit within 1 hour of taking the dose, this means you need to repeat that same dose. Never mix different kinds of emergency contraceptive or other birth control pills together because that could make them not work at all.

Emergency pills containing 1.5 mg (1500 mcg) levonorgestrel (<i>Norlevo 1.5, Plan B One-Step, Postinor-1</i>)	Take 1 pill, one time only	
Emergency pills containing 30 mg ulipristal acetate (<i>Ella, Ella One</i>)	Take 1 pill, one time only	
Emergency pills containing 0.75 mg (750 mcg) levonorgestrel (<i>Norlevo 0.75, Optinor, Postinor, Postinor-2, Plan B</i>)	Take 2 pills, one time only	
Emergency pills containing 50 mcg ethinyl estradiol and 250 mcg levonorgestrel (<i>Tetragynon</i>)	Take 2 pills	Take 2 more pills 12 hours later
Combined pills containing 50 mcg ethinyl estradiol and 250 mcg levonorgestrel (<i>Neogynon, Nordiol</i>) or 500 mcg norgestrel (<i>Ovral</i>)	Take 2 pills	Take 2 more pills 12 hours later
Combined pills containing 30 mcg ethinyl estradiol and 150 mcg levonorgestrel (<i>Microgynon, Nordette</i>) or 300 mcg norgestrel (<i>Lo-Femenal, Lo/Ovral</i>)	Take 4 pills	Take 4 more pills 12 hours later
Combined pills containing 20 mcg ethinyl estradiol and 100 mcg levonorgestrel (<i>Alesse, Lutera</i>)	Take 5 pills	Take 5 more pills 12 hours later
Progestin-only pills (<i>minipills</i>) containing 75 mcg levonorgestrel (<i>Ovrette</i>)	Take 20 pills one time only	
Progestin-only pills (<i>minipills</i>) containing 37.5 mcg levonorgestrel (<i>Neogest</i>)	Take 40 pills one time only	
Progestin-only pills (<i>minipills</i>) containing 30 mcg levonorgestrel (<i>Microlut, Microval</i>)	Take 50 pills one time only	

Condoms (rubbers, prophylactics, sheaths)

Name: _____ price: _____ for _____

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

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

See p. 287 for use and care of condoms.

Diaphragm

Name: _____ price: _____

The diaphragm is most effective when used with a spermicide cream or jelly. Put some inside the diaphragm, and also spread some on the rim before putting it in the vagina (see p. 291).

Name of jelly or cream: _____
price: _____

Spermicides (Well-known brands: *Emko, Koromex, Delfen, Gynol II, VCF*)

Name: _____ price: _____

Spermicides come in different forms to put in the vagina just before having sex, or to use with a condom or diaphragm (see page 290). Do not douche or wash the spermicide out of the vagina for at least 6 hours after sex.

Intrauterine 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. If an IUD slips out of place, it will not be effective in preventing pregnancy. It is important for a woman with an IUD to learn how to check that 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)*, *Mesigyna*, *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 should not use estrogen, but should not be used by women who should not take any type of oral contraceptive (see p. 289). Progestin-only injections almost always cause changes in the monthly bleeding. A woman using these injections may have light bleeding every day or every once in a while. She will probably stop having monthly bleeding by the end of the first year. These changes are normal.

Combined injections, such as *Mesigyna* or *Cyclofem*, contain both estrogen and progestin. These injections are good for women who want to have regular monthly bleeding. Women who are breastfeeding or who should not use combination pills should not use combined injections (see p. 289). Combined injections are given every month and are more expensive than progestin-only injections.

Women using either progestin-only or combined injections sometimes gain weight and get headaches, but these effects usually go away after the first few injections. A woman can stop having family planning injections any time she wants. After 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: *Jadelle*, *Implanon*, *Norplant*)

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 breastfeeding, but should not be used by women who should not use any type of oral contraceptive (see p. 289). *Jadelle* has 2 tubes and prevents pregnancy for 5 years. *Implanon* has 1 tube and prevents pregnancy for 3 years. *Norplant* has 6 tubes and prevents pregnancy for 5 to 7 years.

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 — ANTIRETROVIRAL THERAPY (ART)

No medicine can cure HIV yet, but medicines called antiretrovirals can help people with HIV live longer and healthier lives, and taking them helps prevent HIV from spreading. Taken daily as a combination of at least 3 medicines, this is called Antiretroviral Therapy, or ART. The medicine cotrimoxazole (see p. 357) can prevent many infections in people with HIV.

HIV CARE AND ART PROGRAMS

As soon as you have a positive HIV test, try to find an HIV care program where health workers can see you regularly, treat your health problems quickly, and help you start ART.

When is ART needed?

- People who test positive for HIV need ART, especially if they are becoming less able to fight illnesses well (see p. 400). A blood test called a CD4 cell count can measure how well the body is able to fight illnesses. When your CD4 count is below 500, even if you feel healthy, talk to your health worker about starting ART.
- Anyone with HIV and either TB or Hepatitis B should start ART.
- Pregnant women with HIV should start ART as soon as possible to protect their own health and the health of the developing baby (p. 398).
- Babies and children under 5 with HIV need ART to protect their growth, health, and development.
- ART can also help prevent HIV spreading in a couple where one person has HIV and the other does not.

Get support from a person you trust or an HIV support group to help you take your ART every day, which is necessary for it to work.

Do not start taking ART on your own. They may be the wrong medicines for you and can have serious side effects or cause drug resistance.

Do not share ART with anyone. The medicines will not work if you take less than the recommended doses.

Do not buy ART from someone who is not part of an approved HIV care or ART program. Getting drugs from an ART program is more reliable and less costly than buying them from a private source.

How to take ART

ART works as a combination of at least 3 medicines. Four common combinations are listed in the box on the right. Ask your health worker what medicines are used in your area. Some ART comes in 1 or 2 tablets so there are fewer pills to take.

ART for children is often available as a liquid that can be easily mixed into food.

Whatever combination you use, take every medicine every day, at the same time of day. Twice-a-day medicines should be taken every 12 hours. Having too little medicine in your body for some hours can cause drug resistance and the drugs will no longer work for you or for others in your community as drug-resistant HIV spreads.

ART combinations for adults and adolescents (not for children)

TDF (tenofovir), 300 mg, once a day

+ 3TC (lamivudine), 300 mg, once a day.

+ EVF (efavirenz), 600 mg, once a day

or

AZT (ZDV, zidovudine), 250 to 300 mg, 2 times a day

+ 3TC (lamivudine), 150 mg, 2 times a day

+ EVF (efavirenz), 600 mg, once a day

or

AZT (ZDV, zidovudine), 250 to 300 mg, 2 times a day

+ 3TC (lamivudine), 150 mg, 2 times a day

+ NVP (nevirapine), 200 mg. Take NVP once a day for 14 days, then 2 times a day

or

TDF (tenofovir), 300 mg, once a day

+ 3TC (lamivudine), 150 mg, 2 times a day

+ NVP (nevirapine), 200 mg. Take NVP once a day for 14 days, then 2 times a day.

Side effects of specific ART medicines:

AZT: anemia, low white blood count

NVP: skin rash, liver problems

TDF: kidney problems

IMPORTANT: Some ART combinations use d4t (stavudine) instead of AZT. However, d4T can cause serious side effects after long-term use. Most HIV treatment programs are trying not to use stavudine. If you use stavudine, do not take more than 30 mg 2 times a day.

Side effects of ART

ART can have side effects. Some side effects decrease and go away completely with time. Others appear only after you have taken a medicine for a long time. Some common side effects are bothersome but are not serious, such as diarrhea, tiredness, headaches, and stomach problems. Talk to your health worker about how to handle these problems. But keep taking your ART until your health worker tells you to change or stop.

Other side effects can be life-threatening, such as severe liver problems, severe tiredness with shortness of breath, skin allergies and rashes, tingling or burning in the hands and feet, and anemia (p. 124). If you have serious side effects, see a health worker right away.

Preventing HIV right after a person has been exposed to it

When a health worker is exposed to HIV during her work, for example because she is stuck with a needle, or when a person is raped or has unprotected sex with someone who is likely to have HIV, taking ART for about a month can prevent HIV. This is called Post-Exposure Prophylaxis, or PEP.

If you may have been exposed to HIV (see p. 399 for how HIV is spread), start PEP as soon as possible. The decision about whether to take PEP can be complicated—talk with a health worker you trust. PEP works best if you start taking medicines within a few hours, and no later than 3 days after exposure. Start TDF + 3TC (or FTC) + LPV/r (or ATV/r) or use one of the ART combinations on p. 397. Other combinations may be available and recommended in your area. All must be taken for 28 days.

ART FOR PREGNANT WOMEN WITH HIV

Women who are pregnant, and any woman with a CD4 count of 500 or less or who is sick with AIDS, should start ART to improve their health. The mother's ART will also help prevent HIV from spreading to her baby. Pregnant women can take the same ART as other adults. Once a pregnant woman starts ART, she should continue for the rest of her life.

A woman who is already on ART when she becomes pregnant should continue taking it throughout her pregnancy, during the birth, while breastfeeding, and after. The baby will also need to be treated at birth.

Sometimes ART medicines are given to a pregnant woman with HIV and to the baby after birth, but then the woman stops taking ART after birth (if she is not breastfeeding) or after she finishes breastfeeding. Giving medicines in this way is called prevention of mother-to-child (or parent-to-child) transmission (PMTCT or PPTCT). But medicines are only one part of preventing HIV in a baby. Safer sex during pregnancy, safe birth practices, careful feeding of the baby, and treatment of illnesses in both mother and child, are also important. See *Where Women Have No Doctor* for more information.

GREEN PAGES

ART medicines to prevent HIV in babies (mother-to-child transmission)

If the mother IS already taking ART, she should continue taking her medicines and also give the medicines listed here "FOR THE BABY".

If the mother IS NOT taking ART, she should start taking the medicines listed here and give medicines "FOR THE BABY" to maintain her health and prevent HIV infection in her baby. Use the medicines recommended in your country.

FOR THE MOTHER

Start taking an ART combination (p. 397) as soon as possible. To protect the mother best, she will need to take ART every day. If the mother does not want to take ART for her own health, she should take ART to protect the baby during pregnancy, birth, and after birth until 1 week after she stops breastfeeding. If she is not breastfeeding, she could stop ART after birth.

FOR THE BABY

The baby should be given medicine for at least 6 weeks. If the mother had not been taking ART through the entire pregnancy, give the baby medicine for at least 12 weeks. If the mother is not on ART, give the baby medicine until 1 week after she stops breastfeeding.

Use these amounts:

NVP (nevirapine)

For babies, this medicine comes as a liquid to give by mouth.

- 0 to 6 weeks, weighing less than 2 kg (4.4 pounds): 2 mg per kg, once a day
- 0 to 6 weeks, weighing 2 to 2.5 kg (4.4 to 5.5 pounds): 10 mg once a day
- 0 to 6 weeks, weighing more than 2.5 kg (5.5 pounds): 15 mg once a day
- 6 weeks to 6 months: 20 mg once a day
- 6 months to 9 months: 30 mg once a day
- 9 months until breastfeeding ends: 40 mg once a day

or

If nevirapine is not available, and the mother is **NOT** breastfeeding, use:

AZT (ZDV, zidovudine)

For babies, this medicine comes as a liquid to give by mouth.

- 0 to 6 weeks, weighing less than 2 kg (4.4 pounds): 2 mg per kg, once a day
- 0 to 6 weeks, weighing 2 to 2.5 kg (4.4 to 5.5 pounds): 10 mg, 2 times a day
- 0 to 6 weeks, weighing more than 2.5 kg (5.5 pounds): 15 mg, 2 times a day