

# ANTIBIOTICS: WHAT THEY ARE AND HOW TO USE THEM

## CHAPTER

## 7

When used correctly, antibiotics are extremely useful and important medicines. They fight certain infections and diseases caused by *bacteria*. Well-known antibiotics are penicillin, tetracycline, streptomycin, chloramphenicol, and the sulfa drugs, or sulfonamides.

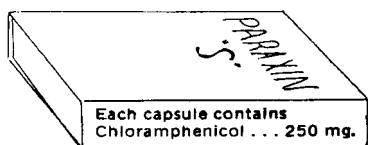
**The different antibiotics work in different ways against specific infections. All antibiotics have dangers in their use, but some are far more dangerous than others. Take great care in choosing and using antibiotics.**

There are many kinds of antibiotics, and each kind is sold under several 'brand names' This can be confusing. However, the most important antibiotics fall into a few major groups:

antibiotic group (generic name)	examples of brand names	brand names in your area (write in)	see page
PENICILLINS	<i>Pen-V-K</i>	_____	351
AMPICILLINS*	<i>Penbritin</i>	_____	353
TETRACYCLINES	<i>Terramycin</i>	_____	356
SULFAS (SULFONAMIDES)	<i>Gantrisin</i>	_____	358
COTRIMOXAZOLE	<i>Bactrim</i>	_____	358
STREPTOMYCIN, etc.	<i>Ambistryn</i>	_____	363,359
CHLORAMPHENICOL	<i>Chloromycetin</i>	_____	357
ERYTHROMYCIN	<i>Erythrocin</i>	_____	355
CEPHALOSPORINS	<i>Keflex</i>	_____	359

**\*Note:** Ampicillin is a type of penicillin that kills more kinds of bacteria than do ordinary penicillins.

If you have a brand-name antibiotic and do not know to which group it belongs, read the fine print on the bottle or box. For example, if you have some *Paraxin 'S'* but do not know what is in it, read the fine print. It says 'chloramphenicol'.



Look up chloramphenicol in the GREEN PAGES (p. 357). You will find it must be used only for a few very serious illnesses, like typhoid, and is especially dangerous when given to the newborn.

**Never use an antibiotic unless you know to what group it belongs, what diseases it fights, and the precautions you must take to use it safely.**

Information on the uses, dosage, risks, and precautions for the antibiotics recommended in this book can be found in the GREEN PAGES. Look for the name of medicine in the alphabetical list at the beginning of those pages.

### GUIDELINES FOR THE USE OF ALL ANTIBIOTICS

1. If you do not know exactly how to use the antibiotic and what infections it can be used for, do not use it.
2. Use only an antibiotic that is recommended for the infection you wish to treat. (Look for the illness in this book.)
3. Know the risks in using the antibiotic and take all the recommended precautions (see the GREEN PAGES).
4. Use the antibiotic only in the recommended doses—no more, no less. The dose depends on the illness and the age or weight of the sick person.
5. Never use injections of antibiotics if taking them by mouth is likely to work as well. Inject only when absolutely necessary.
6. Keep using the antibiotics until the illness is completely cured, or for at least 2 days after the fever and other signs of infection have gone. (Some illnesses, like tuberculosis and leprosy, need to be treated for many months or years after the person feels better. Follow the instructions for each illness.)
7. If the antibiotic causes a skin rash, itching, difficult breathing, or any serious reactions, the person must stop using it and **never use it again** (see p. 70).
8. **Only use antibiotics when the need is great.** When antibiotics are used too much they begin not to work as well.

### GUIDELINES FOR THE USE OF *CERTAIN* ANTIBIOTICS

1. Before you inject penicillin or ampicillin, always have ready ampules of *Adrenalin* (epinephrine) to control an allergic reaction if one occurs (p. 70).
2. For persons who are allergic to penicillin, use another antibiotic such as erythromycin or a sulfa (see p. 355 and 358).
3. Do not use tetracycline, ampicillin, or another *broad-spectrum* antibiotic for an illness that can probably be controlled with penicillin or another *narrow-spectrum* antibiotic (see p. 58). Broad-spectrum antibiotics attack many more kinds of bacteria than narrow-spectrum antibiotics.
4. As a rule, use chloramphenicol only for certain severe or life-threatening illnesses like typhoid. It is a dangerous drug. **Never** use it for mild illness. And never give it to newborn children (except perhaps for whooping cough, p. 313).
5. Never inject tetracycline or chloramphenicol. They are safer, less painful, and do as much or more good when taken by mouth.
6. Do not give tetracycline to pregnant women or to children under 8 years old. It can damage new teeth and bones (see p. 356).

7. As a general rule, use streptomycin, and products that contain it, only for tuberculosis—and always together with other anti-tuberculosis medicines (see p. 363). Streptomycin in combination with penicillin can be used for deep wounds to the gut, appendicitis, and other specific infections when ampicillin is not available (or is too costly). but should never be used for colds, flu, and common *respiratory* infections.

8. All medicines in the streptomycin group (including kanamycin and gentamicin) are quite toxic (poisonous). Too often they are prescribed for mild infections where they may do more harm than good. Use only for certain very serious infections for which these medicines are recommended.

9. Eating yogurt or curdled milk helps to replace necessary bacteria killed by antibiotics like ampicillin and to return the body's natural balance to normal (see next page).

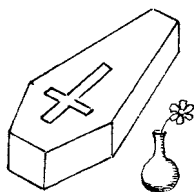
## WHAT TO DO IF AN ANTIBIOTIC DOES NOT SEEM TO HELP

For most common infections antibiotics begin to bring improvement in a day or two. **If the antibiotic you are using does not seem to help, it is possible that:**

1. The illness is not what you think. You may be using the wrong medicine. Try to find out more exactly what the illness is—and use the right medicine.
2. The dose of the antibiotic is not correct. Check it.
3. The bacteria have become *resistant* to this antibiotic (they no longer are harmed by it). Try another one of the antibiotics recommended for that illness.
4. You may not know enough to cure the illness. Get medical help, especially if the condition is serious or getting worse.

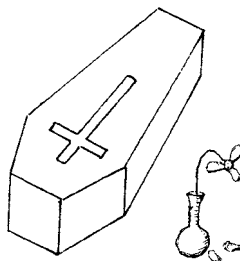
### These three children had a cold...

What was  
the villain?



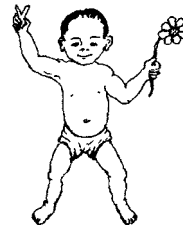
Penicillin!  
(see Allergic  
Shock, p. 70)

What took  
the toll?



Chloramphenicol!  
(see risks and precautions  
for this drug, p. 357)

Why did this child  
get well again?



He got no  
risky medicine—  
just fruit juice,  
good food, and rest.

**Antibiotics do no good for the common cold.**

**Use antibiotics only for infections they are known to help.**

## IMPORTANCE OF LIMITED USE OF ANTIBIOTICS

The use of all medicines should be limited. But this is especially true of antibiotics, for the following reasons:

1. **Poisoning and reactions.** Antibiotics not only kill bacteria, they can also harm the body, either by poisoning it or by causing allergic reactions. Many people die each year because they take antibiotics they do not need.

2. **Upsetting the natural balance.** Not all bacteria in the body are harmful. Some are necessary for the body to function normally. Antibiotics often kill the good bacteria along with the harmful ones. Babies who are given antibiotics sometimes develop fungus or yeast infections of the mouth (thrush, p. 232) or skin (moniliasis, p. 242). This is because the antibiotics kill the bacteria that help keep fungus under control.

For similar reasons, persons who take ampicillin and other *broad-spectrum* antibiotics for several days may develop diarrhea. Antibiotics may kill some kinds of bacteria necessary for digestion, upsetting the natural balance of bacteria in the gut.

3. **Resistance to treatment.** In the long run, the most important reason the use of antibiotics should be limited, is that WHEN ANTIBIOTICS ARE USED TOO MUCH, THEY BECOME LESS EFFECTIVE.

When attacked many times by the same antibiotic, bacteria become stronger and are no longer killed by it. They become *resistant* to the antibiotic. For this reason, certain dangerous diseases like typhoid are becoming more difficult to treat than they were a few years ago.

In some places typhoid has become resistant to chloramphenicol, normally the best medicine for treating it. Chloramphenicol has been used far too much for minor infections, infections for which other antibiotics would be safer and work as well, or for which no antibiotic at all is needed.

Throughout the world important diseases are becoming resistant to antibiotics—largely because antibiotics are used too much for minor infections. **If antibiotics are to continue to save lives, their use must be much more limited than it is at present.** This will depend on their wise use by doctors, health workers, and the people themselves.

For most minor infections antibiotics are not needed and should not be used. Minor skin infections can usually be successfully treated with mild soap and water, or hot soaks, and perhaps painting them with gentian violet (p. 371). Minor respiratory infections are best treated by drinking lots of liquids, eating good food, and getting plenty of rest. **For most diarrheas, antibiotics are not necessary and may even be harmful.** What is most important is to drink lots of liquids (p. 155), and provide enough food as soon as the child will eat.

**Do not use antibiotics for infections the body can fight successfully by itself. Save them for when they are most needed.**

For more information on learning to use antibiotics sensibly, see *Helping Health Workers Learn*, Chapter 19.