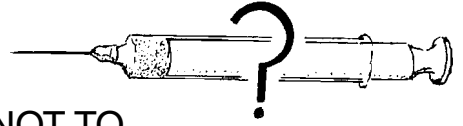


Instructions and Precautions for Injections

CHAPTER

9



WHEN TO INJECT AND WHEN NOT TO

Injections are not needed often. Most sicknesses that require medical treatment can be treated as well or better with medicines taken by mouth. Each year, millions of people—especially children—become ill or injured, or die as a result of unnecessary injections. Combating misuse and overuse of medicines is as important to good health as vaccination, clean water, or the correct use of latrines. As a general rule:

**It is more dangerous to inject medicine
than to take it by mouth.**

Injections should be used only when absolutely necessary. Except in emergencies, they should be given only by health workers or persons trained in their use.

The only times medicines should be injected are:

1. When the recommended medicine does not come in a form that can be taken by mouth.
2. When the person vomits often, cannot swallow, or is unconscious.
3. In certain unusual emergencies and special cases (see the next page).

WHAT TO DO WHEN THE DOCTOR RECOMMENDS INJECTIONS

Doctors and other health workers sometimes use injections when they are not needed. After all, they can charge more money for injections. They forget the problems and dangers of giving injections in rural areas.

1. If a health worker or healer wants to give you an injection, be sure the medicine is *appropriate* and that she takes all the necessary precautions.
2. If a doctor recommends injections, explain that you live where no one is well trained to give injections and ask if it would be possible to prescribe a medicine to take by mouth.
3. If a doctor wants to give injections of vitamins, liver extract, or vitamin B₁₂, but has not had your blood tested, tell him you would prefer to see another doctor.

WHEN IT IS IMPORTANT TO GIVE INJECTIONS

In case of the following sicknesses, get medical help as fast as you can. If there will be any delay in getting help or in taking the sick person to a health center, inject the appropriate medicine as soon as possible. For details of the doses, consult the pages listed below. Before injecting, know the possible side effects and take the needed precautions (see the Green Pages).

↓ For these sicknesses	↓ Inject these medicines
Severe pneumonia (p. 171) Gangrene (p. 213)	benzylpenicillin (p. 352)
Infections after giving birth (p. 276)	ampicillin (p. 352) and gentamicin (p.358) taken with metronidazole by mouth (p. 370).
Tetanus (p. 182)	antitetanus immunoglobulin (p. 389) with metronidazole taken by mouth (p. 370)
Appendicitis or Peritonitis (p. 93-94)	ampicillin (p. 352) OR ciprofloxacin (p. 356) OR ceftriaxone (p. 358) with metronidazole taken by mouth (p. 370)
Poisonous snakebite (p. 105) Scorpion sting (in children, p. 106)	antitoxins and antivenom (p. 388)
Meningitis (p. 185) when you do not suspect tuberculosis	ampicillin (p. 352) and ceftriaxone (p. 358) OR gentamicin (p. 358)
Meningitis (p. 185) when you suspect tuberculosis	ampicillin together with streptomycin (p. 353) and, if possible, other TB medicines (p. 359)
Vomiting (p. 161) when it cannot be controlled	antihistamines, for example, promethazine (p. 387)
Severe allergic reaction and allergic shock (p. 70)	epinephrine (adrenaline, p. 386) and, if possible, diphenhydramine (<i>Benadryl</i> , p. 388).

The following chronic illnesses may require injections, but they are rarely emergencies. It is best to consult a health worker for treatment.

Tuberculosis (p. 179 and 180)	streptomycin (p. 361) together with other TB medicines taken by mouth (p. 359)
Syphilis (p. 238)	benzathine benzylpenicillin (pages 238 and 352)
Gonorrhea (p. 236)	ceftriaxone (p. 359) OR spectinomycin (p. 359) with other medicines taken by mouth (p. 359)

WHEN NOT TO INJECT:

- Never** give injections if you can get medical help quickly.
- Never** give an injection for a sickness that is not serious.
- Never** give injections for a cold or the flu.
- Never** inject a medicine that is not recommended for the illness you want to treat.
- Never** give an injection unless your needle has been boiled or sterilized.
- Never** inject a medicine unless you know and take all the recommended precautions.

MEDICINES NOT TO INJECT

In general, it is better **never** to inject the following:

- 1. Vitamins.** Rarely are injected vitamins any better than vitamins taken by mouth. Injections are more expensive and more dangerous. Use vitamin pills or syrups rather than injections. Better still, eat foods rich in vitamins (p. 111).
- 2. Liver extract, vitamin B₁₂, and iron injections** (such as *Imferon*). Injecting these can cause abscesses or dangerous reactions (shock, p. 70). Ferrous sulfate pills will do more good for almost all cases of anemia (p. 394).
- 3. Calcium.** Injected into a vein calcium is extremely dangerous, if not given **very slowly**. An injection in the buttock may cause a large **abscess**. Untrained people should never inject calcium.
- 4. Penicillin.** Nearly all infections that require penicillin can be effectively treated with penicillin taken by mouth. Penicillin is more dangerous when injected. **Use injectable penicillin only for dangerous infections.**
- 5. Chloramphenicol or tetracycline.** These medicines do as much or more good when taken by mouth. Use capsules or syrups rather than injections (pages 355 and 356).
- 6. Intravenous (I.V.) solutions.** These should be used only for severe dehydration and given only by someone who is well trained. When not given correctly they can cause dangerous infections or death (p. 53).
- 7. Intravenous medicines.** There is so much danger in injecting any medicine in the vein that only well trained health workers should do it. However, never inject into a muscle (the buttock) medicine that says “for intravenous use only.” Also, never inject in the vein medicine that says “for intramuscular use only.”

RISKS AND PRECAUTIONS

The risks of injecting any medicines are (1) infection caused by germs entering with the needle and (2) allergic or poisonous reactions caused by the medicine.

1. To lower the chance of infection when injecting, take great care that everything is clean and sterile. For information on cleaning and sterilizing equipment, see page 74.

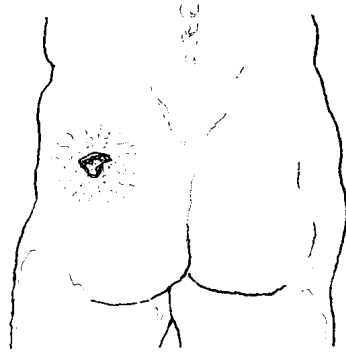
Never use the same needle and syringe to inject more than one person without sterilizing it again first. Carefully follow all of the instructions for injecting (see following pages).

Be sure to **wash your hands well** before preparing or giving injections.

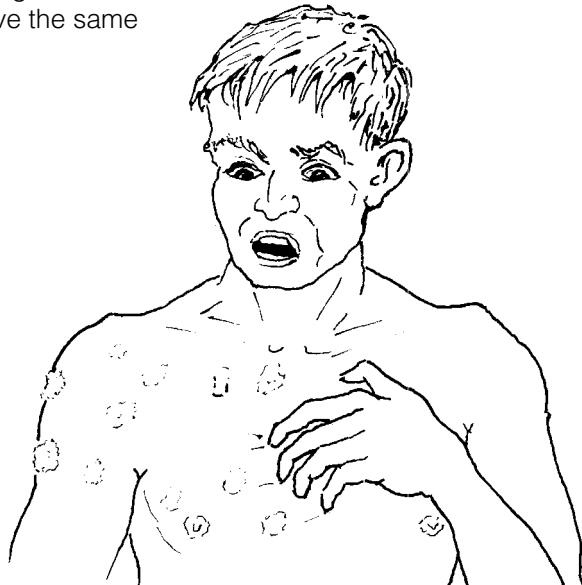
2. It is very important to know what reactions a medicine can produce and to take the recommended precautions before injecting.

If any of the following signs of allergic or poisonous reaction appear, never give the same or similar medicine again:

- *hives* (patchy swellings on skin) or a rash with itching
- swelling anywhere
- difficulty breathing
- signs of shock (p. 70)
- dizzy spells with nausea (wanting to vomit)
- problems with vision
- ringing in the ears or deafness
- severe back pain
- difficulty urinating



An abscess like this one comes from injecting with a needle that is not sterile (completely germ free).



Hives, or a rash with itching, can appear a few hours or up to several days after getting an injection. If the same medicine is given to the person again, it may cause a very severe reaction or even death (p. 70).

This child was injected with a needle that was not *sterile* (completely free of germs).

The dirty needle caused an infection that produced a large, painful abscess (pocket of pus) and gave the child a fever. Finally, the abscess burst as shown in the picture below.

This child was injected for a cold. It would have been far better to give him no medicine at all. Rather than doing good, the injection caused the child suffering and harm.

CAUTION: If possible, always give medicine by mouth instead of by injection especially to children.



To avoid problems like these:

- ◆ give medicines only when they are needed and safe to use.
- ◆ use only the medicine recommended for the illness and be sure it is still in good condition and not spoiled.
- ◆ give medicines by injection only when they cannot be given by mouth.
- ◆ use a sterile syringe and needle when an injection is necessary. For information on sterilizing tools, see page 74.
- ◆ give the injection in a safe place on the body when an injection is necessary. Do not inject infants and small children in the buttocks. Instead, inject them in the upper, outer part of the thigh. (Notice that this child was injected too low on the buttock, where it is possible to injure the nerve.)

DANGEROUS REACTIONS FROM INJECTING CERTAIN MEDICINES

The following groups of medicines sometimes produce a dangerous reaction called ALLERGIC SHOCK a short time after injection:

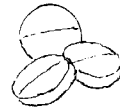
- penicillins (including ampicillin)
- antitoxins that are made from horse serum { scorpion antivenom
snake antivenom



The risk of a serious reaction is greater in a person who has previously been injected with one of these medicines or with another medicine of the same group. This risk is especially great if the medicine caused an allergic reaction (*hives*, rash, itching, swelling, or trouble breathing) a few hours or days after the injection was given.



Rarely, ALLERGIC SHOCK may result from the sting of a wasp or bee or from medicine taken by mouth.




To prevent a serious reaction from an injection:

1. Use injections only when necessary and only with a sterile needle and syringe.
2. Before injecting one of the medicines listed above, always have ready 2 ampules of epinephrine (adrenaline, p. 386). You may want to also have an ampule of an antihistamine like promethazine (*Phenergan*, p. 387) or diphenhydramine (*Benadryl*, p. 388).
3. Before injecting, always ask if at any other time a similar injection caused itching or other reactions. If the person says yes, do not use this medicine or any other medicine of the same group, either injected or taken by mouth.
4. In very serious cases, like scorpion or snakebite, if there is a good chance that the antitoxin might produce an allergic reaction (if the person suffers from allergies or asthma or has had horse serum before), inject promethazine or diphenhydramine (p. 388) 15 minutes before giving the antitoxin: adults, 25 to 50 mg; children, 10 to 25 mg, depending on their size.
5. After injecting any medicine, always stay with the person for 30 minutes to watch for any of the following signs of ALLERGIC SHOCK:
 - cool, moist, pale, gray skin (cold sweat)
 - weak, rapid pulse or heartbeat
 - difficulty breathing
 - loss of consciousness
6. If these signs appear, immediately inject epinephrine (adrenaline): adults, ½ ml; children, ⅓ to ¼ ml, depending on their size. Treat the person for shock (p. 77). You can also give a dose of antihistamine to treat symptoms such as itch and rash.

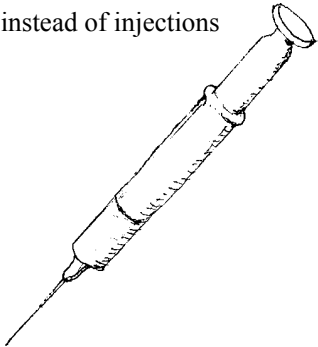
How to Avoid Serious Reactions to a Penicillin Injection

1. For mild to moderate infections:

give penicillin pills

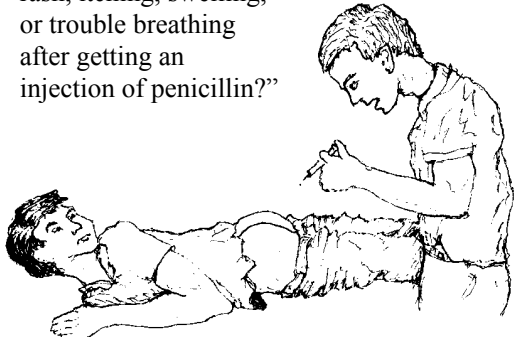


instead of injections



2. Before injecting ask the person:

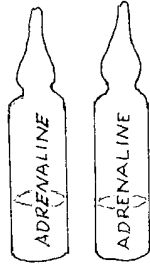
“Have you ever had a rash, itching, swelling, or trouble breathing after getting an injection of penicillin?”



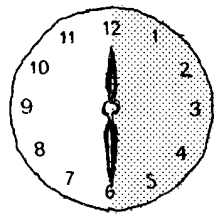
If the answer is yes, do not use penicillin, ampicillin, or amoxicillin. Use another antibiotic like erythromycin (p. 354) or a sulfonamide (p. 356).

3. Before injecting penicillin:

always have ampules of epinephrine (adrenaline) ready.




4. After injecting:



stay with the person for at least 30 minutes.

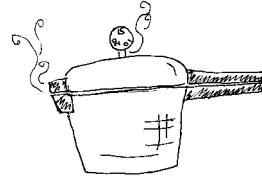
5. If the person becomes very pale, his heart beats very fast, he has difficulty breathing, or he starts to faint, immediately inject into a muscle (or just under the skin) half an ampule of epinephrine (adrenaline, a quarter of an ampule in small children) and repeat in 10 minutes if necessary.



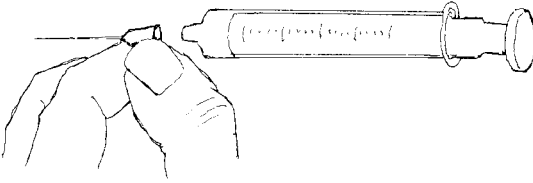
HOW TO PREPARE A SYRINGE FOR INJECTION

Before preparing a syringe, **wash hands with soap and water.**

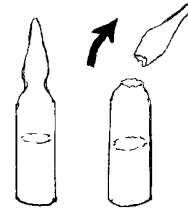
1. If you have a glass syringe, take the syringe apart and bake or pressure steam it and the needle (p. 74).
-OR- If it is plastic, carefully remove it from its sterile packaging. Remove the needle guard when you are ready for step 4.



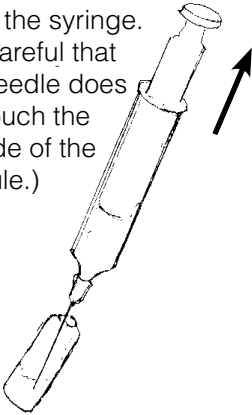
2. Put the needle and the syringe together, touching only the base of the needle and the button of the plunger.



3. Wipe the ampule clean with a cloth or with alcohol, then break off the top.



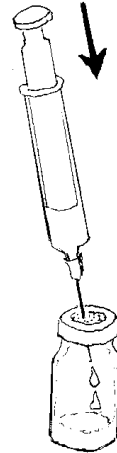
4. Fill the syringe. (Be careful that the needle does not touch the outside of the ampule.)



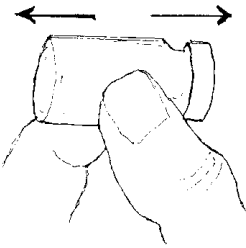
5. Rub the rubber of the bottle with clean cloth wet with alcohol or boiled water.



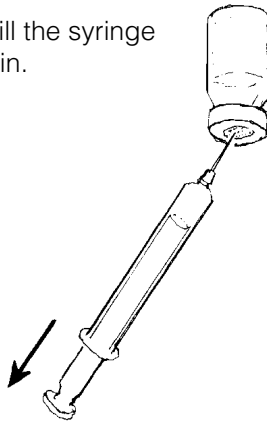
6. Inject the distilled water into the bottle with the powdered medicine.



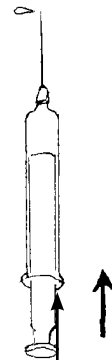
7. Shake until the medicine dissolves.



8. Fill the syringe again.



9. Remove all air from the syringe.

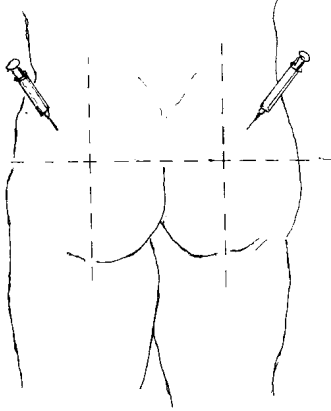


Be very careful not to touch the needle with anything—not even the cotton with alcohol. If by chance the needle touches your finger or something else, sterilize it again or get a new sterile needle.

WHERE TO GIVE AN INJECTION

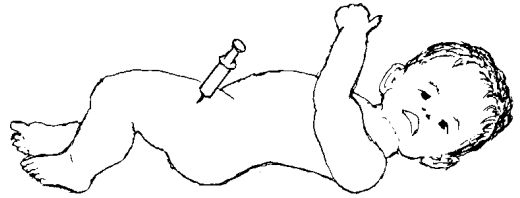
Before injecting, **wash hands with soap and water.**

It is preferable to inject in the muscle of the buttocks, always in the **upper outer** quarter.



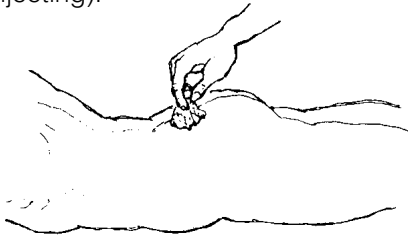
WARNING: Do not inject into an area of skin that is infected or has a rash.

Do not inject infants and small children in the buttock. Inject them in the **upper outer** part of the thigh.

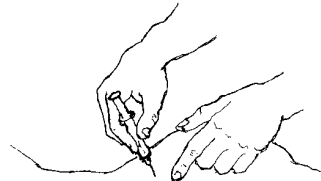


HOW TO INJECT

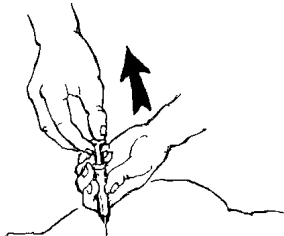
1. Clean the skin with soap and water (or alcohol—but to prevent severe pain, be sure the alcohol is dry before injecting).



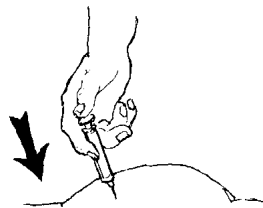
2. Put the needle straight in, all the way. (If it is done with one quick movement, it hurts less.)



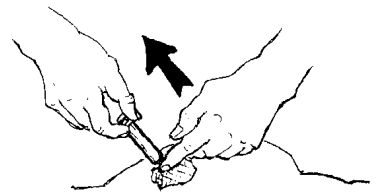
3. Before injecting, pull back on the plunger. (If blood enters the syringe, take the needle out and put it in somewhere else).



4. If no blood enters, inject the medicine slowly.



5. Remove the needle and clean the skin again.



6. After injecting, rinse the syringe and needle at once. If it is glass, squirt water through the needle and then take the syringe apart and wash it. Boil before using again.

HOW INJECTIONS CAN BE HARMFUL

Some injected medicines, when given safely and used correctly, protect health and prevent disability. These include vaccines that prevent illnesses. But injections given with needles or syringes that are not sterile can cause serious infections. Unsterilized needles and syringes can spread germs that cause hepatitis or HIV. They can also cause infections that lead to spinal cord injury or paralysis. **Never use the same needle or syringe to inject more than one person without sterilizing it again first.**

For more information on using medicines safely and on giving injections safely, see *Disabled Village Children*, Chapter 3.

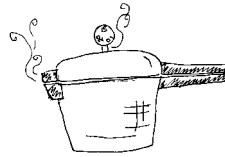
For ideas on teaching people about the danger of unnecessary injections, see *Helping Health Workers Learn*, Chapters 18, 19, and 27.

HOW TO CLEAN AND STERILIZE EQUIPMENT

The germs that cause many infections and illnesses, such as HIV (p. 401), hepatitis (p. 172), and tetanus (p. 182), can spread through the use of syringes, needles, and other tools that have not been sterilized. This includes tools used for piercing ears, acupuncture, tattoos, or circumcision. Any time the skin is cut or pierced, it should be done only with equipment that has been sterilized.

To clean and sterilize tools:

1. **Take apart your tools** so all their surfaces can be cleaned and then sterilized.
2. **Clean your tools** with clean water, soap or detergent, and a brush to remove any blood, mucus, or dirt. Wear gloves to protect your hands from cuts and from detergent.
3. **Sterilize your tools** to remove germs. To sterilize, bake your tools at 170°C (305°F) or higher for 2½ hours. Or pressure steam your tools at 15 to 20 pounds of pressure at 121°C (250°F) for 20 minutes.



For more information about cleaning and sterilizing tools, see Chapter 5 of *A Book for Midwives*.