

# Bleeding

## ► Bleeding

The average-size adult has 5 to 6 quarts (10–12 pints) of blood and can safely donate a pint. However, rapid blood loss of 1 quart or more can lead to shock and death. A child who loses 1 pint of blood is in extreme danger.

## ► External Bleeding

External bleeding refers to blood coming from an open wound. The term **hemorrhage** refers to a large amount of bleeding in a short time. External bleeding can be classified into three types according to the type of blood vessel that is damaged: an artery, vein, or capillary **Figure 1**. In arterial bleeding, blood spurts (up to several feet) from the wound. **Arterial bleeding** is the most serious type of bleeding because a large amount of blood can be lost in a very short period of time. Arterial bleeding also is less likely to clot because blood can clot only when it is flowing slowly or not at all. Arterial bleeding is dangerous and must be controlled. Unless a very large artery has been cut, however, it is unlikely that a person will bleed to death before the flow can be controlled.

In **venous bleeding**, blood from a vein flows steadily or gushes. Venous bleeding is easier to control than arterial bleeding. Most veins collapse when cut. Bleeding from deep veins, however, can be as massive and as hard to control as arterial bleeding. In **capillary bleeding**,

## chapter *at a glance*

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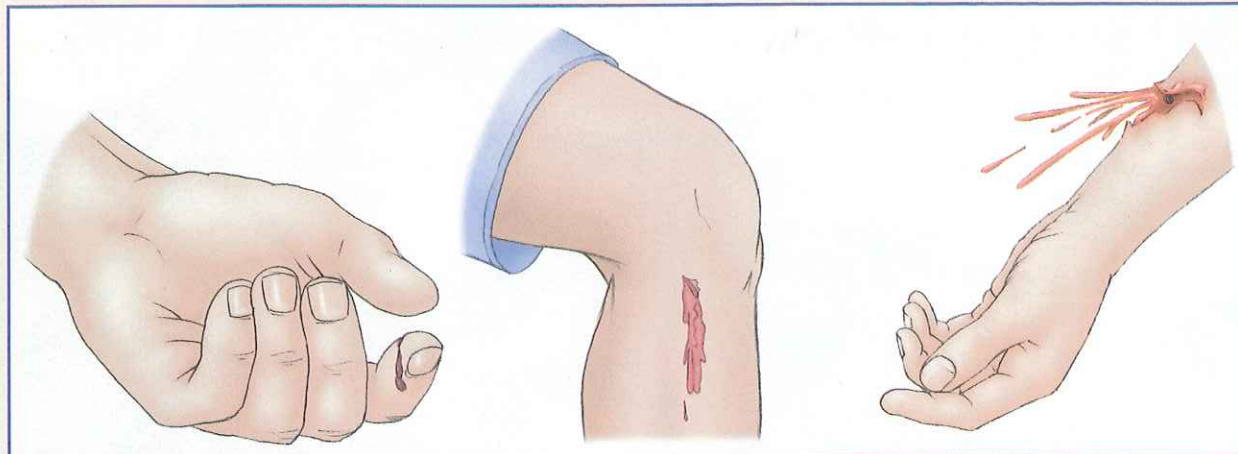


Figure 1

Capillary, venous, and arterial bleeding.

the most common type of bleeding, blood oozes from capillaries. It usually is not serious and can be controlled easily. Quite often, this type of bleeding will clot and stop by itself. Each type of blood vessel—artery, vein, or capillary—contains blood of a different shade of red. An inexperienced person may have difficulty detecting the color difference but would still be able to identify the type of bleeding by its flow.

### Care for External Bleeding

Regardless of the type of bleeding or the type of wound, the first aid is the same. First, and most important, you must control the bleeding **Skill Drill 1**:

1. Protect yourself against disease by wearing exam gloves. If they are not available, use several layers of gauze pads, clean cloths, plastic wrap, a plastic bag, or waterproof material. If those are unavailable, you can have the victim apply pressure on the wound with his or her hand.
2. Expose the wound by removing or cutting the victim's clothing to find the source of the bleeding (Step 1).
3. Place a sterile gauze pad or a clean cloth such as a handkerchief, washcloth, or towel over the entire wound and apply direct pressure with your fingers for small wounds and with the palm of your hand for large wounds (Step 2). Hold steady, firm, and

### CAUTION

**DO NOT** come in contact with blood with your bare hands. Protect yourself with exam gloves, extra gauze pads, or clean cloths, or have the victim apply the direct pressure. If you must use your bare hands, do so only as a last resort. After the bleeding has stopped and the wound has been cared for, vigorously wash your hands with soap and water.

**DO NOT** use direct pressure on an eye injury, a wound with an embedded object, or a skull fracture.

**DO NOT** remove a blood-soaked dressing. Doing so can pull off clots that have already formed. Apply another dressing on top and continue putting pressure over the wound.

uninterrupted pressure on the wound for at least 5 minutes. The gauze or cloth allows you to apply even pressure. Direct pressure stops most bleeding. Applying direct pressure to the wound compresses the sides of the torn vessel and helps the body's natural clotting mechanisms work. Be sure the pressure remains constant, is not too light, and is applied to the bleeding source. Do not remove blood-soaked dressings; simply add new dressings over the old ones.

4. To free you to attend to other injuries or victims, use a pressure bandage to hold the

# skill drill

**1****Care for External Bleeding****1** Put on exam gloves and expose the wound.**2** Apply direct pressure.**3** Apply a pressure bandage over the dressing and above and below the wound.

**CAUTION**

**DO NOT** apply a pressure bandage so tightly that it cuts off circulation. Check the radial pulse if the bandage is on an arm; for a leg, check the pulse between the inside ankle bone knob and the Achilles tendon (posterior tibial). Pulses are hard to feel. Other signs that the dressing is too tight are increasing pain, numbness or tingling, loss of color in the skin, loss of muscle function.

dressing on the wound. Wrap a roller gauze bandage tightly over the dressing and above and below the wound site (Step 3). Do not wrap it so tightly that it cuts off circulation.

5. When direct pressure cannot be applied, such as in the case of a protruding bone, skull fracture, or embedded object, use a doughnut-shaped (ring) pad to control bleeding. To make a ring pad, wrap one end of a narrow bandage (roller or cravat) several times around your four fingers to form a loop. Pass the other end of the bandage through the loop and wrap it around and around until the entire bandage is used and a ring has been made.

When bleeding stops, use procedures found in the Wounds chapter for wound care.

Some people panic when they see even the smallest amount of blood. The sight of more than a couple of tablespoonfuls of blood generally is enough to frighten victims and bystanders. Take time to reassure the victim that everything possible is being done. Do not belittle the victim's concerns.

## ► Internal Bleeding

Internal bleeding occurs when the skin is not broken and blood is not seen. It can be difficult to detect and can be life threatening. A person with bleeding stomach ulcers, a lacerated liver, or a ruptured spleen may lose a considerable amount of blood into the abdomen with no outward sign of bleeding other than the presence of shock. Broken bones can also cause serious

**Q&A**

**While attempting to control severe bleeding on an arm or leg, should the injured part be elevated and pressure points be used?**

Studies show that bleeding can be stopped by manual (direct) pressure applied over gauze pads. It is the single most effective method for controlling bleeding. Studies found that an elastic adhesive bandage applied over gauze pads is best for maintaining a hands-free stopping of bleeding. No evidence exists that pressure points eliminated distal pulses—blood flow continued. No evidence exists that elevation of a bleeding part has any role in stopping bleeding.

internal blood loss. A broken femur can easily result in a loss of 1 or more quarts of blood.

## Recognizing Internal Bleeding

The signs of internal bleeding may be seen in either injured or suddenly ill victims:

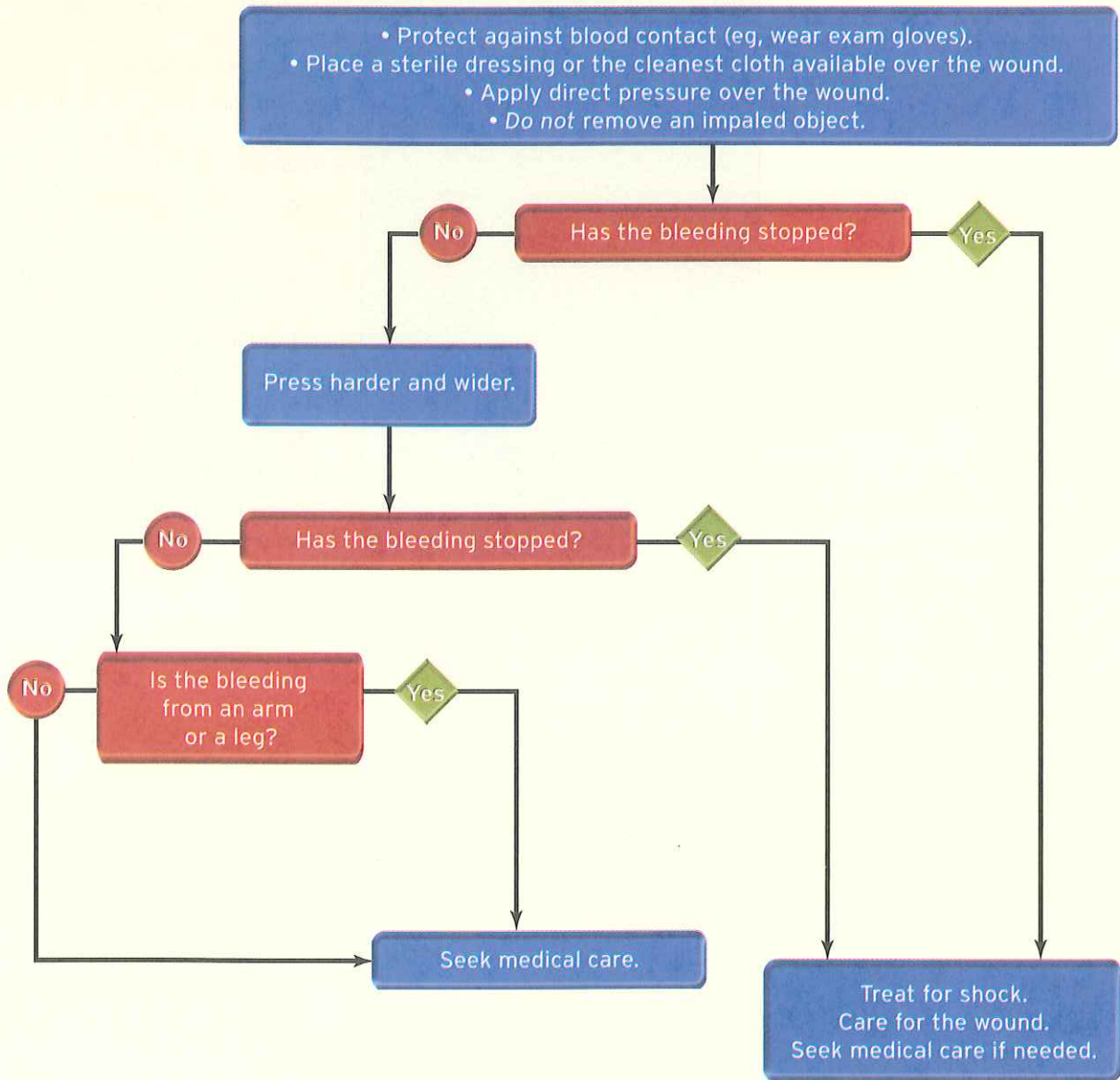
- Bright red blood from the mouth or rectum or blood in the urine
- Nonmenstrual vaginal bleeding
- Vomited blood; may be bright red, dark red, or look like coffee grounds
- Black, foul-smelling, tarry stools
- Pain, tenderness, bruising, or swelling
- Broken ribs, bruises over the lower chest, or a rigid abdomen

## Care for Internal Bleeding

For severe internal bleeding, follow these steps:

1. Monitor breathing.
2. Expect vomiting. If vomiting occurs, keep the victim lying on his or her left side to allow drainage and to prevent inhalation (aspiration) of vomitus.
3. Treat for shock and cover the victim with a coat or blanket for warmth. See the chapter entitled Shock for when to use other body positions.
4. Treat suspected internal bleeding in an extremity by applying a splint.
5. Seek immediate medical care.

# Bleeding



Bruises are a form of internal bleeding, but are not life threatening. To treat bruises:

1. Apply an ice pack over the injury for 20 minutes.
2. If an arm or a leg is involved, apply an elastic bandage for compression. Several layers of gauze pads or other cloth could be placed between the bandage and the injury to concentrate the compression to a specific location.

## CAUTION

**DO NOT** give a victim anything to eat or drink. It could cause nausea and vomiting, which could result in aspiration. Food or liquids could also cause complications if surgery is needed.

## ► Emergency Care Wrap-up

Condition	What to Look For	What to Do
Bleeding	<p>External bleeding</p> <p>Internal bleeding</p>	<p>Protect against blood contact.</p> <p>Place sterile dressing over wound and apply pressure.</p> <p>Apply a pressure bandage.</p> <p>Minor internal bleeding (bruise):</p> <p>Use RICE procedures (see the chapter entitled Extremity Injuries):</p> <ul style="list-style-type: none"> <li>R = Rest</li> <li>I = Ice</li> <li>C = Compress the area with an elastic bandage.</li> <li>E = Elevate the injured extremity.</li> </ul> <p>Serious internal bleeding:</p> <p>Call 9-1-1.</p> <p>Treat for shock.</p> <p>If vomiting occurs, roll the victim onto his or her side.</p>

## ► Ready for Review

- Rapid blood loss of 1 quart or more can lead to shock and death.
- External bleeding can be classified into three types according to the type of blood vessel that is damaged: artery, vein, or capillary.
- Regardless of the type of bleeding or the type of wound, the first aid is the same. First, and most important, you must control the bleeding.

## ► Vital Vocabulary

**arterial bleeding** Bleeding from an artery; this type of bleeding tends to spurt with each heartbeat.

**capillary bleeding** Bleeding that oozes from a wound steadily but slowly.

**hemorrhage** A large amount of bleeding in a short time.

**venous bleeding** Bleeding from a vein; this type of bleeding tends to flow steadily.

## ► Assessment in Action

You are enjoying a bike ride on a paved trail with your friend. As she rounds the next bend, her bike tires slide out on the gravel and she falls to the ground. She gets up but has a large scrape on her knee and part of her lower leg. Blood is oozing from the wound.

**Directions:** Circle Yes if you agree with the statement; circle No if you disagree.

- Yes No 1. This victim is experiencing capillary bleeding.
- Yes No 2. This type of bleeding is the most common type.
- Yes No 3. This type of bleeding is difficult to control and usually does not clot and stop by itself.
- Yes No 4. Direct pressure will control this type of bleeding.

## ► Check Your Knowledge

**Directions:** Circle Yes if you agree with the statement; circle No if you disagree.

- Yes No 1. Most cases of bleeding require more than direct pressure to stop the bleeding.
- Yes No 2. Remove any blood-soaked dressings before applying additional ones.
- Yes No 3. Applying a pressure bandage over a wound can allow you to attend to another injury or another injured victim.
- Yes No 4. If a bleeding arm wound is not controlled through direct pressure, apply pressure to the brachial artery.
- Yes No 5. Dressings are placed directly on a wound.
- Yes No 6. Internal bleeding is normal.
- Yes No 7. Dressings should be sterile or as clean as possible.
- Yes No 8. Clotting is the body's way of stopping bleeding.
- Yes No 9. If the victim feels sick to the stomach and may vomit, roll him or her onto the left side.
- Yes No 10. It is important to remove impaled objects because they could be driven in deeper.

# Wounds

## chapter at a glance

- ▶ **Open Wounds**
- ▶ **Amputations**
- ▶ **Blisters**
- ▶ **Impaled (Embedded) Objects**
- ▶ **Closed Wounds**
- ▶ **Wounds That Require Medical Care**
- ▶ **Dressings and Bandages**

### ▶ Open Wounds

An open wound is a break in the skin's surface resulting in external bleeding. It may allow bacteria to enter the body, causing an infection. There are several types of open wounds. Recognizing the type of wound helps you give proper first aid. With an **abrasion**, the top layer of skin is removed, with little or no blood loss **Figure 1**. Abrasions tend to be painful because the nerve endings often are abraded along with the skin. Ground-in debris may be present. This type of wound can be serious if it covers a large area or becomes embedded with foreign matter. Other names for an abrasion are scrape, road rash, and scuff.

A **laceration** is cut skin with jagged, irregular edges **Figure 2**. This type of wound is usually caused by a forceful tearing away of skin tissue. **Incisions** tend to have smooth edges and resemble a surgical or paper cut **Figure 3**. The amount of bleeding depends on the depth, the location, and the size of the wound. **Punctures** are usually deep, narrow wounds in the skin and underlying organs such as a stab wound from a nail or a knife **Figure 4**. The entrance is usually small, and the risk of infection is high. The object causing the injury may remain impaled in the wound.

With an **avulsion**, a piece of skin and/or underlying tissue is torn loose and is hanging from the body or completely removed. This type of wound can bleed heavily. If the flap is still attached, lay it flat and realign it into its normal position. Avulsions most often involve ears, fingers, and hands **Figure 5**. An **amputation** involves the cutting or