



Bleeding Part B | Bleeding Control

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Welcome to Part B of the lesson on Bleeding. In this part, we look at the various methods of Assessment and Care of an External Hemorrhage.
Standard precautions and ABC assessment are how we begin. And then, over these next slides, we will examine various methods to control an external bleed. Good Studying.

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Assessment and Care of External Hemorrhage

- Control bleeding only after assessing and treating prior elements
- Be aware of signs or symptoms of shock
- Use direct pressure, elevation, hemostatic agent, or a tourniquet to control bleeding



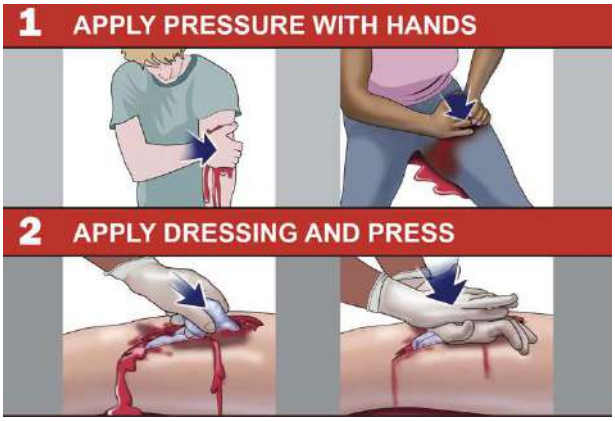
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So, the Assessment and Care of External Hemorrhage begins with a standard primary assessment. That is, unless the patient is experiencing Exsanguinating hemorrhage as described in the previous lesson.
Therefore, the EMT must begin by using Standard Precautions and PPE. Then ensure both an open airway and adequate breathing.
Then be aware of signs or symptoms of shock. You can refer back to the chart on hemorrhage classifications and/or hypovolemic shock in your assessment.
The next slides will show how and when to use various methods to control bleeding. We will discuss direct pressure, elevation, and when to use a hemostatic agent, splints, or a tourniquet.

Controlling External Bleeding

- Direct pressure
- Apply firm pressure to wound with gloved hand and gauze bandage
- Hold pressure until bleeding is controlled
- If necessary, add dressings when lower ones are saturated



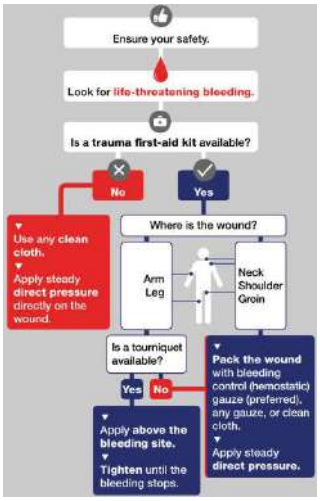
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So with a bleeding wound, the first step is to attempt to apply direct pressure. You should:
Apply firm pressure to the wound with a gloved hand and gauze bandage. Use a sterile or clean bulky pad and apply it firmly with hand pressure. Hold pressure until the bleeding is controlled. Apply a bandage to keep the dressing in place. If necessary, add dressings when the lower ones are saturated.
If the bleeding is severe, DO NOT waste time looking for suitable padding, but be prepared to use the patient's hand, or your hand to hold the wound together if the patient is unable to do this unaided.

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CONTROLLING EXTERNAL BLEEDING (CONT.)

- Direct pressure
- Once bleeding is controlled, bandage a dressing firmly in place to form a pressure dressing
- Never remove bandages—even when bleeding is controlled
- When controlled, check for pulse distal to wound to make sure dressing has not been applied too tightly



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- Once bleeding is controlled, bandage a dressing firmly in place, to form a pressure dressing.
- Never remove bandages—even when bleeding is controlled.
- When controlled, check for the pulse distal to the wound, to make sure the dressing has not been applied too tightly.

Take some time to process the steps on the chart from the American College of Surgeons on the right.

Controlling External Bleeding (Cont.)

- Direct pressure | Pressure dressing
- Place several gauze pads on wound
- Hold dressings in place with self-adhering roller bandage wrapped tightly over dressings and above and below wound site
- Create enough pressure to control bleeding



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Pressure bandages are used to control bleeding and encourage blood clotting without constricting normal blood circulation. They help to:

- Minimize swelling
- Protect the wound from contamination
- Protect the injured area from additional trauma, and
- Prevent heat and fluid loss

When using pressure bandages, place several gauze pads on the wound.
Hold the dressings in place with a self-adhering roller bandage wrapped tightly over the dressings, and above and below the wound site.
Be sure to create enough pressure to control the bleeding.

Controlling External Bleeding (Cont.)

- Elevation
- Elevate injured extremity above level of the heart while applying direct pressure
- Do not elevate if musculoskeletal injury, impaled objects in extremity, or spine injury is suspected



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Here we add Elevation in the process of Controlling External Bleeding. “Elevation uses the force of gravity to help reduce the blood pressure in the injured area, and thus aid in slowing down the blood loss through the wound opening. The steps are:

- Elevate the injured extremity above the level of the heart, while applying direct pressure.
- Do not elevate if you suspect a musculoskeletal injury, impaled objects in the extremity, or a spine injury.

As a result, the act of elevating a bleeding limb above the level of the heart, provides both gravitational and hydrostatic pressure advantages, in the reduction of blood flow.

Controlling External Bleeding (Cont.)

- Hemostatic agents
- Designed to enhance direct pressure's ability to control bleeding
- Work by applying a material design to absorb liquid portion of blood and leave larger formed elements to clot
- Originated as powders, but does not include dressings and gauze bandages
- Manual pressure is always necessary



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Another method of Controlling Severe External Bleeding is with the use of hemostatic agents.

Originally created for military applications, Hemostatic agents such as Celox, QuikClot and Hemcon are designed to promote rapid blood coagulation in the event of a traumatic wound involving an arterial bleed. Hemostatic gauze products are now widely available to EMS professionals and first responders, and approved for all levels of training in some areas. These products have saved many lives on the battlefield and are now also being used to stop traumatic bleeding in the workplace, motor vehicle, and at-home accidents.

Hemostatic agents Work by applying a material designed to absorb the liquid portion of blood, and leave the larger formed elements to clot. They originated as powders, and did not include gauze dressings or bandages. However, newer capabilities include hemostatic gauze dressings as shown in the image.

Whether using hemostatic gauze or agents with additional gauze products, Manual pressure is always necessary.

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CONTROLLING EXTERNAL BLEEDING (CONT.)

- Used for control of severe and life-threatening bleeding injuries
- Locate source of the bleeding and apply firm pressure
- Remove excess blood from the wound
- Tightly pack on the source of bleeding, cover and compress
- Wrap for evacuation



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Here is a short video on how to use the hemostatic agent Celox. It describes the steps used to control external hemorrhage.

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CONTROLLING EXTERNAL BLEEDING (CONT.)

- Tourniquet
- Use if bleeding is uncontrollable by direct pressure
- Use only on extremity injuries
- Always apply between the wound and the heart



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Now, continuing the lesson on bleeding control, we look at Tourniquets. Tourniquets are small and simple devices that stop arterial blood loss from injured limbs in just a few seconds. They work by pinching off the artery — similar to cutting off the flow of a garden hose, by pinching the hose in half.

The protocol for the use of a Tourniquet is as follows:

- Use when the bleeding is uncontrollable by direct pressure and hemostatic agents
- Use only on extremity injuries
- Always apply between the wound and the heart

Battlefield testing has shown that Tourniquets are useful in severe bleeding, when not otherwise controllable. And that the average transport time of less than one hour does not pose a severe risk to the long-term outcome. Note that Removing a Tourniquet can dislodge clots that have formed, resulting in further blood loss.

Controlling External Bleeding (Cont.)

- The Mechanical Advantage Tourniquet (MAT)
- Ensures MATCombat does not slip or loosen
- Light weight with compact design and durable
- Operates in extreme conditions



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Here we discuss Controlling External Bleeding using The Mechanical Advantage Tourniquet (MAT).

Three independent military medical tests conducted in 2005 have shown the MAT to be the fastest, easiest-to-use, most efficient and most preferred device in stopping critical blood loss and saving life and limbs. The MAT is the best performing tourniquet tested by the Army, Navy, and Marines.

The MAT has been selected as standard equipment by Homeland Security, and has been deployed to AFT, Border Patrol, and military troops throughout the world, and is now used to protect the highest members of the US Government and other dignitaries. The MAT is now part of the Tactical Emergency Medical training courses of many police departments, and is being utilized by EMS services and ER departments.

The Mechanical Advantage Tourniquet system ensures that MATCombat does not slip or loosen. It is Light weight with a compact design and Durable. And it operates in extreme conditions, such as mud, water and sand submersion, extreme cold, ice-encrustment and hard surface impact.

Controlling External Bleeding (Cont.)

- Tourniquet
- Follow manufacturer's instructions
- Once applied, do not remove or loosen
- Attach notation to patient alerting other providers tourniquet has been applied



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When you are Controlling External Bleeding using a Tourniquet, be sure to follow the manufacturer's instructions for the model you have been issued.
Once the Tourniquet has been applied, do not remove or loosen.
And be sure to attach proper notation to a patient alerting other providers Tourniquet has been applied.

Think About It

- Is the current method of bleeding control working?
- Do you need to move on to a more aggressive step?
- How would you evaluate this?



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Now, let's pause and think about how:

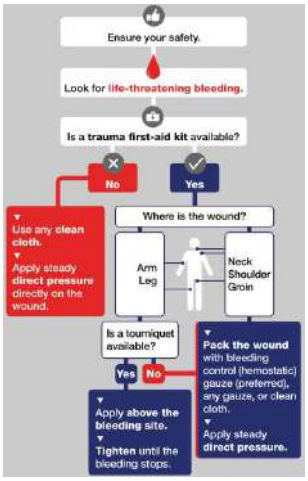
- EMTs must evaluate the efficacy of the current treatment before escalating.
- Is the current method of bleeding control working; for example is direct pressure enough or do you need a clotting agent or pressure bandage.
- When do you need to move on to a more aggressive step?
- And how would you evaluate this?

Please discuss on the forum or with your instructor during one of the scheduled video chat sessions.

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CONTROLLING EXTERNAL BLEEDING

- A systematic approach to treat uncontrolled external hemorrhage
- Recommendations from American College of Surgeons
- Begin with direct pressure
- If not controlled, apply tourniquet
- If ineffective and wound on trunk or head, apply hemostatic dressing or bandage with direct pressure



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Here is a systematic approach from the American College of Surgeons to treat uncontrolled external hemorrhage.

- Begin by applying firm direct pressure to the bleeding wound.
- Use a sterile or clean bulky pad and apply it firmly with hand pressure. Apply a bandage to keep the dressing in place.
- If bleeding is severe, DO NOT waste time looking for suitable padding, but be prepared to use the patient's hand, or your gloved hand to hold the wound together if the patient is unable to do this unaided.

Then, raise the injured area

- If the wound is on a limb, raise it in a supported position to reduce blood flow to the injured area.
- If an arm is injured, you could apply an arm sling or elevation sling.
- On an arm or a leg, If it remains uncontrolled, apply a tourniquet.
- If ineffective and the wound on the trunk or head, apply a hemostatic dressing or bandage with direct pressure.

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Other Methods of Bleeding Control

- Splinting
  - ✓ Stabilizing sharp ends of broken bones
  - ✓ Inflatable (air) splints
- Cold application
  - ✓ Minimizes swelling, constricts blood vessels, and reduces pain
  - ✓ Use in conjunction with other manual techniques



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Some Other Methods of Bleeding Control to consider include:

- Splinting: First, use a bandage to secure the dressings in place. You may then apply a rigid splint to the bleeding extremity, to lessen the movement of the extremity and thereby reducing bleeding. Pressure points may be used in the upper and lower extremities if the bleeding does not stop, and continues to soak through the dressings. It also helps stabilizing the sharp ends of broken bones.
- Inflatable splints will surround the extremity including the digits, and is a good first aid measure for the immobilization of fractures.
- Cold application over a wound will constrict the blood vessels, allowing a clot to form more quickly and stop the bleeding. The best way to do this is to wrap a cold pack or ice, in a clean dry cloth and place it on the wound. Cold application also minimizes swelling, and reduces pain. Use it in conjunction with other manual techniques.

That's it for Part B of this lesson on Bleeding. Next up is Part C, Special situations, and internal bleeding. See you soon.