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STOP LIFE-THREATENING BLEEDING

student book
ver. 9.0, 2022

Stop Life-Threatening Bleeding

Student Book, Version 9.0, 2023

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Stop Life-Threatening Bleeding Student Book

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ABOUT THIS STUDENT BOOK

HSI is in the process of transitioning all our individual health and safety training brands into a single unified one – HSI. **This Student Book consolidates the Advanced Bleeding Control training programs of American Safety and Health Institute (ASHI), EMS Safety Services, and MEDIC First Aid into a single, completely revised Stop Life-Threatening Bleeding training program that incorporates the most current guidelines and treatment recommendations.** To address the risk of confusion in the market and among state regulators and others during our brand transition, HSI's certification cards will continue to carry the ASHI, EMS Safety, and MEDIC First Aid logos for a prolonged period of time until they are slowly phased out.

DISCLAIMER

HSI has used reasonable effort to provide up-to-date, accurate information that conforms to generally accepted treatment recommendations at the time of publication. These recommendations supersede recommendations made in previous HSI programs. Science and technology are constantly creating new knowledge and practice. Like any published material, this material may become out of date over time. Guidelines for safety and treatment recommendations cannot be given that will apply in all cases/scenarios as the circumstances of each incident often vary widely. Local or organizational physician-directed medical protocols may supersede treatment recommendations in this program. Alert emergency medical services (EMS) or activate your occupational emergency action plan (EAP) immediately if you are not sure an emergency exists or when any person is unresponsive, badly hurt, looks or acts very ill, or quickly gets worse.

NOTICE

THE HSI STOP LIFE-THREATENING BLEEDING TRAINING PROGRAM, INCLUDING BUT NOT LIMITED TO THIS STUDENT BOOK, IS NOT ASSOCIATED OR AFFILIATED WITH, AND IS NOT SPONSORED OR ENDORSED BY, THE UNITED STATES DEPARTMENT OF DEFENSE (DOD). "STOP THE BLEED®" IS A REGISTERED TRADE AND SERVICE MARK OF THE DOD.

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Regarding the Simulated Bleeding and Blood Pools Portrayed in This Training Program

Life-threatening external bleeding from injury can lead to death within minutes before EMS providers arrive. Consequently, proper first aid by immediate responders can be the difference between life and death for the bleeding victim. This training program directs the immediate responder to consider external bleeding to be life-threatening if blood is gushing, spurting, or flowing continuously, or when there is about a half can of soda's worth of blood (6 fluid ounces, or 177 mL) on the ground or pooling on a surface. Yet, research has shown that blood loss estimations by both laypersons and medical professionals are largely inaccurate and underestimated, even more so for female victims. So, even if an immediate responder knows that a half can of soda's worth blood loss should be treated as life-threatening, they may incorrectly perceive the amount of blood present and fail to respond appropriately. Given these facts, all the simulated pools of blood used in this program were measured at 6 oz. Showing this amount of simulated blood pooling (and other signs of life-threatening external bleeding including clothing or bandages soaked in simulated blood) is necessary, appropriate, and justified to help students recognize the severity of the injury and respond appropriately. It is expressly not intended to be gratuitously graphic.

This training program is dedicated to every person who is present at a life-threatening, severe external bleeding incident and who voluntarily chooses to offer assistance as an immediate responder to another in need. Such an unselfish choice is an inspiring act of human kindness.

FOR THAT, WE APPRECIATE AND ADMIRE YOU.

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INTRODUCTORY

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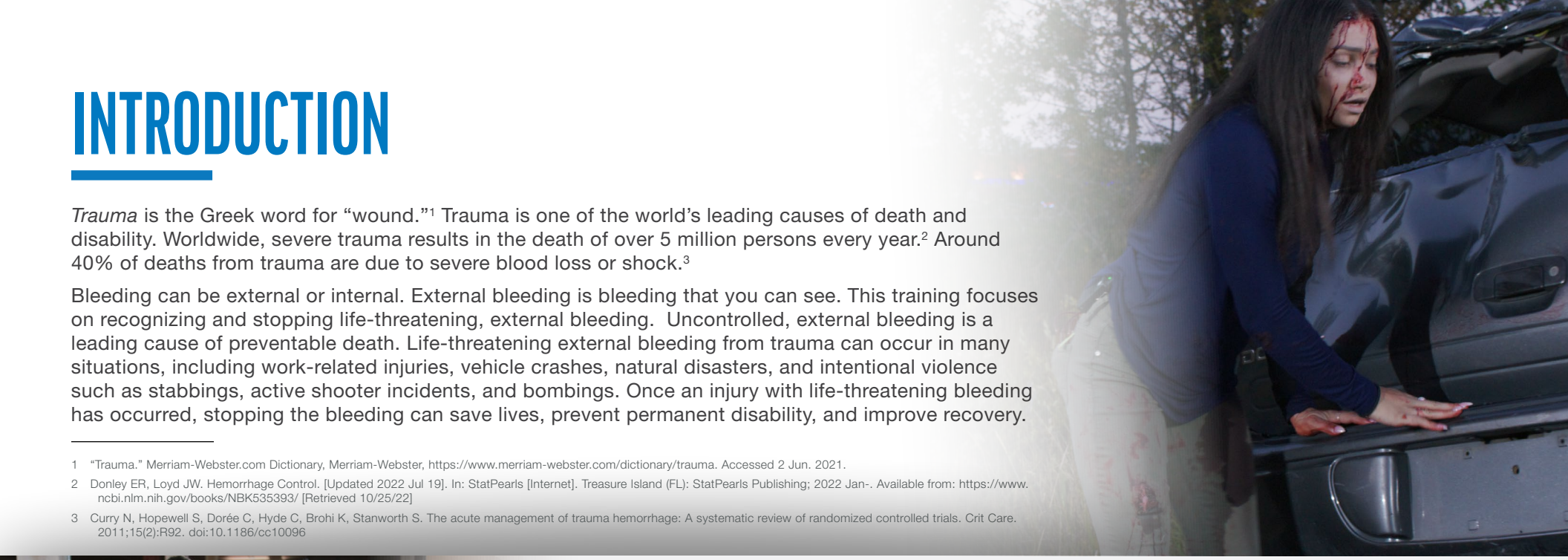
INTRODUCTION



Trauma is the Greek word for "wound."[1] Trauma is one of the world's leading causes of death and disability. Worldwide, severe trauma results in the death of over 5 million persons every year.[2] Around 40% of deaths from trauma are due to severe blood loss or shock.[3]

Bleeding can be external or internal. External bleeding is bleeding that you can see. This training focuses on recognizing and stopping life-threatening, external bleeding. Uncontrolled, external bleeding is a leading cause of preventable death. Life-threatening external bleeding from trauma can occur in many situations, including work-related injuries, vehicle crashes, natural disasters, and intentional violence such as stabbings, active shooter incidents, and bombings. Once an injury with life-threatening bleeding has occurred, stopping the bleeding can save lives, prevent permanent disability, and improve recovery.

1 "Trauma." Merriam-Webster.com Dictionary, Merriam-Webster, https://www.merriam-webster.com/dictionary/trauma. Accessed 2 Jun. 2021.

2 Donley ER, Loyd JW. Hemorrhage Control. [Updated 2022 Jul 19]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK535393/ [Retrieved 10/25/22]

3 Curry N, Hopewell S, Dorée C, Hyde C, Brohi K, Stanworth S. The acute management of trauma hemorrhage: A systematic review of randomized controlled trials. Crit Care. 2011;15(2):R92. doi:10.1186/cc10096

BYSTANDER VS. IMMEDIATE RESPONDER

A bystander is one who is present but does not take part in a situation or event. [4] An immediate responder is one who is present when a life-threatening bleeding incident occurs and contributes to a person's survival by taking action to stop the bleeding.[5] This class is intended to empower people to become immediate responders who can stop life-threatening bleeding with their hands, and with equipment for that purpose when it is available.

Immediate responders have a vital role in delivering life-saving care during the first minutes before emergency medical services (EMS) providers arrive and take over. In urban and suburban settings, EMS units average 7 minutes from the time of a 911 call to arrival on scene. That median time increases to more than 14 minutes in rural settings.[6] However, a person with life-threatening bleeding can die from blood loss within 5 minutes.[7] Because time to receiving care can affect survival, and delay can have fatal consequences, recognizing the signs of life-threatening bleeding and taking quick, effective action can potentially save the life of a loved one, friend, colleague, stranger, and even yourself.

Learning, practicing, and using step-by-step procedures will help you develop the confidence and competency to act quickly as an immediate responder to stop life-threatening bleeding.

4 Bystander. Available: https://www.merriam-webster.com/dictionary/bystander [Retrieved 10/12/22]

5 The Hartford Consensus III: Implementation of Bleeding Control. Available: https://bulletin.facs.org/2015/07/the-hartford-consensus-iii-implementation-of-bleeding-control/ [Retrieved 10/12/22]

6 Mell HK, Mumma SN, Hiestand B, Carr BG, Holland T, Stopyra J. Emergency Medical Services Response Times in Rural, Suburban, and Urban Areas. JAMA Surg. 2017 Oct 1;152(10):983-984. doi: 10.1001/jamasurg.2017.2230. PMID: 28724118; PMCID: PMC5831456.

7 National Highway Traffic Safety Administration, Office of EMS. Available: https://www.ems.gov/projects/stop-the-bleed.html [Retrieved 10/10/22]

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LEGAL CONCEPTS

There are relevant legal concepts that any immediate responder should be familiar with.

DUTY TO RESCUE

Duty to rescue is a concept in law that refers to the duty of a person to rescue another who is in a dangerous situation.[8,9] In the U.S., in general circumstances, there is no duty to rescue. A person cannot be held liable for doing nothing while another person is in peril. Some people, by the nature of their occupation, have a legal duty to provide first aid while on duty. This includes firefighters, law enforcement officers, lifeguards, schoolteachers, and others.

GOOD SAMARITAN LAWS

A Good Samaritan is defined as "one who voluntarily renders aid to another in distress although under no duty to do so."[10] Good Samaritan laws generally apply to any person who voluntarily comes to the aid of an ill or injured person, and acts as any ordinary reasonably prudent person would have acted under the same or similar circumstances. Although these laws vary from state to state, they typically require these circumstances to apply:

- The situation is an emergency.
- Any aid is voluntarily given.
- The person must give consent whenever possible.
- The aid must be given free of charge and in good faith.
- The aid cannot be "grossly negligent."

Grossly negligent means a lack of care that demonstrates reckless disregard for the safety or lives of others that is so great it appears to be a conscious violation of other people's rights to safety. It is more than simple carelessness.[11]

CONSENT

To provide aid for someone in an emergency, you must have their consent, meaning their approval or agreement. Consent comes in two forms: expressed or implied. Expressed consent can be given verbally or in writing, or non-verbally, for example, when a person nods their head to agree when asked, "May I help you?" Don't touch or give aid to a conscious adult who objects to it. Consent is implied when circumstances would lead a reasonable person to believe that consent would be given but it was not directly expressed. Implied consent in an emergency usually occurs when you're unable to communicate with the person, such as if someone is unresponsive. The assumption is that they would ask for help if they were able to.

Minors, or those under the age of 18, are generally not legally qualified to give their consent to treatment. Consent must be received from a parent or legal guardian. However, consent is implied when the child is severely injured and a parent or legal guardian is not readily available to provide consent.

ABANDONMENT

To be abandoned is to be left without needed protection, care, or support. Although there is generally no duty to rescue, once you decide to help, you should not abandon the person. Stay with them and continue to care for them until someone with equivalent or higher training takes over for you.

8 https://definitions.uslegal.com/d/duty-to-rescue/ [Retrieved 10/10/22

9 https://www.findlaw.com/injury/accident-injury-law/specific-legal-duties.html [Retrieved 10/10/22]

10 Legal Definition of Good Samaritan https://www.merriam-webster.com/dictionary/Good%20Samaritan [Retrieved 5/18/21]

11 https://www.law.cornell.edu/wex/gross_negligence [Retrieved 5/20/21]

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ASSESSMENT

Assess Scene Safety → **Take** Standard Precautions* → **Assess** for Life-Threatening Bleeding† → **Activate** EMS and/or EAP‡ → **Send** Someone to Get a Bleeding Control Kit (unless readily available to you)

Immediate responders should follow established procedures for stopping life-threatening bleeding. These procedures are modeled after "decision tree"-type medical algorithms and are based on scientific evidence, national guidelines, and the consensus of experts. The procedures for stopping life-threatening external bleeding list actions in sequence, but in a real emergency they may need to be carried out in a different order or performed simultaneously, especially when multiple immediate responders are available. The first steps of the procedure for stopping life-threatening bleeding are always the same. Assess scene safety. Take standard precautions. Assess for life-threatening bleeding. Activate EMS and/or your emergency action plan (EAP). Send someone to get a bleeding control kit unless it is readily available to you.

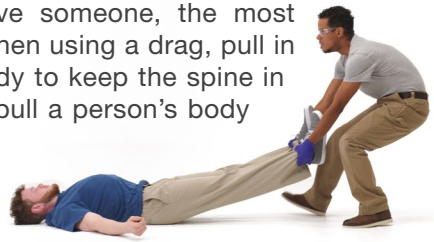
ASSESS SCENE SAFETY

Emergency scenes can be dangerous. Your personal safety is the highest priority, even before the safety of the wounded person.

Always pause for a moment before approaching. Look for obvious hazards and consider the possibility of hidden dangers. If the scene is unsafe, do not approach it. Activate EMS and/or your EAP. If at any time your safety is threatened, attempt to remove yourself and the victim from danger and find a safe location, if it is possible to do so without placing yourself at unreasonable risk.

Emergency Moves

If you decide it is necessary to move someone, the most effective emergency move is a drag. When using a drag, pull in the direction of the long axis of the body to keep the spine in line. Never pull on a person's head or pull a person's body sideways.



Use your legs, not your back, and keep the person's weight as close to your body as possible. Avoid twisting. Consider if you can safely move the person based on your physical ability without hurting yourself.

Drags

Common drags include the extremity drag, performed by grasping and pulling on the ankles or forearms; the clothing drag, performed by pulling on a person's shirt in the neck and shoulder area; and the blanket drag, performed by rolling a person onto a blanket and dragging the blanket.

TAKE STANDARD PRECAUTIONS

In this class, "take standard precautions" means use appropriate personal protective equipment (PPE) when available to minimize exposure to bloodborne infections. There are infectious microorganisms present in blood that can cause disease including hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV).

Personal Protective Equipment (PPE)

Appropriate PPE for a bleeding emergency includes gloves and goggles or face shields. Latex-free disposable gloves are usually included in bleeding control kits and in first aid kits. If you have them, use them. If a person has life-threatening bleeding, do not wait until gloves are available to begin providing care. If possible, use improvised PPE, such as a plastic bag.

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REMOVAL OF CONTAMINATED GLOVES

Proper removal of contaminated gloves is imperative.

one

GRASP FIRST GLOVE

Avoiding bare skin, pinch the glove at either palm with the gloved fingers of the opposite hand.

two

REMOVE INSIDE OUT

Gently pull the glove away from the palm and toward the fingers, turning the glove inside out without snapping.

Gather the glove you just removed with your gloved hand.

three

SLIDE FINGER UNDER SECOND GLOVE

Carefully slide your bare index finger inside the wrist band of the gloved hand.

four

REMOVE INSIDE OUT

Gently pull outwards and down, inverting the glove and trapping the first glove inside.

Place contaminated gloves in a biohazard waste bag or as directed by your employer's bloodborne pathogens or PPE program.

Properly wash your hands immediately after removing gloves.

WASH YOUR HANDS

Wash your hands immediately after removing gloves. Follow these five steps every time.

1. Wet your hands with clean, running water (warm or cold), turn off the tap, and apply soap.
2. Lather your hands by rubbing them together with the soap.
3. Scrub your hands for at least 20 seconds.
4. Rinse your hands well under clean, running water.
5. Dry your hands using a clean towel or air dry them.[12]

If soap and water are not readily available, use an alcohol-based hand sanitizer that contains at least 60% alcohol, and wash with soap and water as soon as you can.

12 https://www.cdc.gov/handwashing/when-how-handwashing.html [Retrieved 5/21/21]

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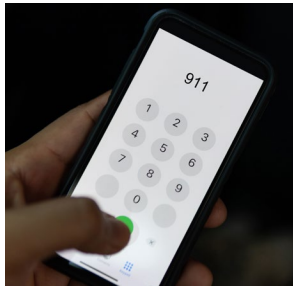
ASSESS FOR LIFE-THREATENING BLEEDING

Consider external bleeding to be life-threatening if blood is gushing, spurting, or flowing continuously, or when there is about a half can of soda's worth of blood on the ground or pooling on a surface. Other signs of life-threatening external bleeding include clothing or bandages soaked in blood, loss of all or part of an arm or leg, and confusion or unresponsiveness in a bleeding person.[13]

ACTIVATE EMS &/OR EAP



If life-threatening external bleeding is present, or you are unsure, call 911 to activate EMS using a mobile device or activate your occupational EAP. EMS dispatchers, also called telecommunicators, have the responsibility to prioritize emergency calls using the information provided by the caller. They notify and dispatch the appropriate responders and offer first aid instructions to callers. When you activate EMS, listen to and follow the dispatcher's instructions. Answer questions as clearly and concisely as you can. Turn on the speaker function of your mobile phone so you can listen to the dispatcher and provide first aid following their directions at the same time.

EMERGENCY ACTION PLAN (EAP)

An emergency action plan (EAP) is a written document required by particular Occupational Safety and Health Administration (OSHA) standards. The purpose of an EAP is to facilitate and organize employer and employee actions during workplace emergencies.

As an immediate responder, you should know how to activate your EAP at work. It might be just calling 911, or you may have to use an internal telephone number, intercom, public address system, or a specialized emergency notification system.

SEND SOMEONE TO GET A BLEEDING CONTROL KIT

After activating, send someone to get a bleeding control kit unless it is readily available to you. In some public places, a wall mounted bleeding control kit may be available next to an automated external defibrillator (AED). The contents of a bleeding control kit vary but typically contain disposable gloves; at least one commercially manufactured, ready-made tourniquet; 4x4 gauze sponges; a gauze roll; hemostatic dressings; trauma shears that are designed to cut through clothing; and an instruction card for proper use of the kit contents. The procedure you use to stop life-threatening bleeding will depend on the availability of a bleeding control kit and its contents.

13 Pons P, Jacobs L. SAVE A LIFE: What Everyone Should Know to Stop Bleeding After an Injury. © 2016 American College of Surgeons.

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IF A BLEEDING CONTROL KIT IS **NOT** READILY AVAILABLE

When life-threatening external bleeding is present, but a bleeding control kit is not readily available, apply direct manual pressure on the wound to stop bleeding. If a basic first aid kit is or becomes available, it should include trauma pads and sterile gauze pads to stop bleeding.

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DIRECT MANUAL PRESSURE

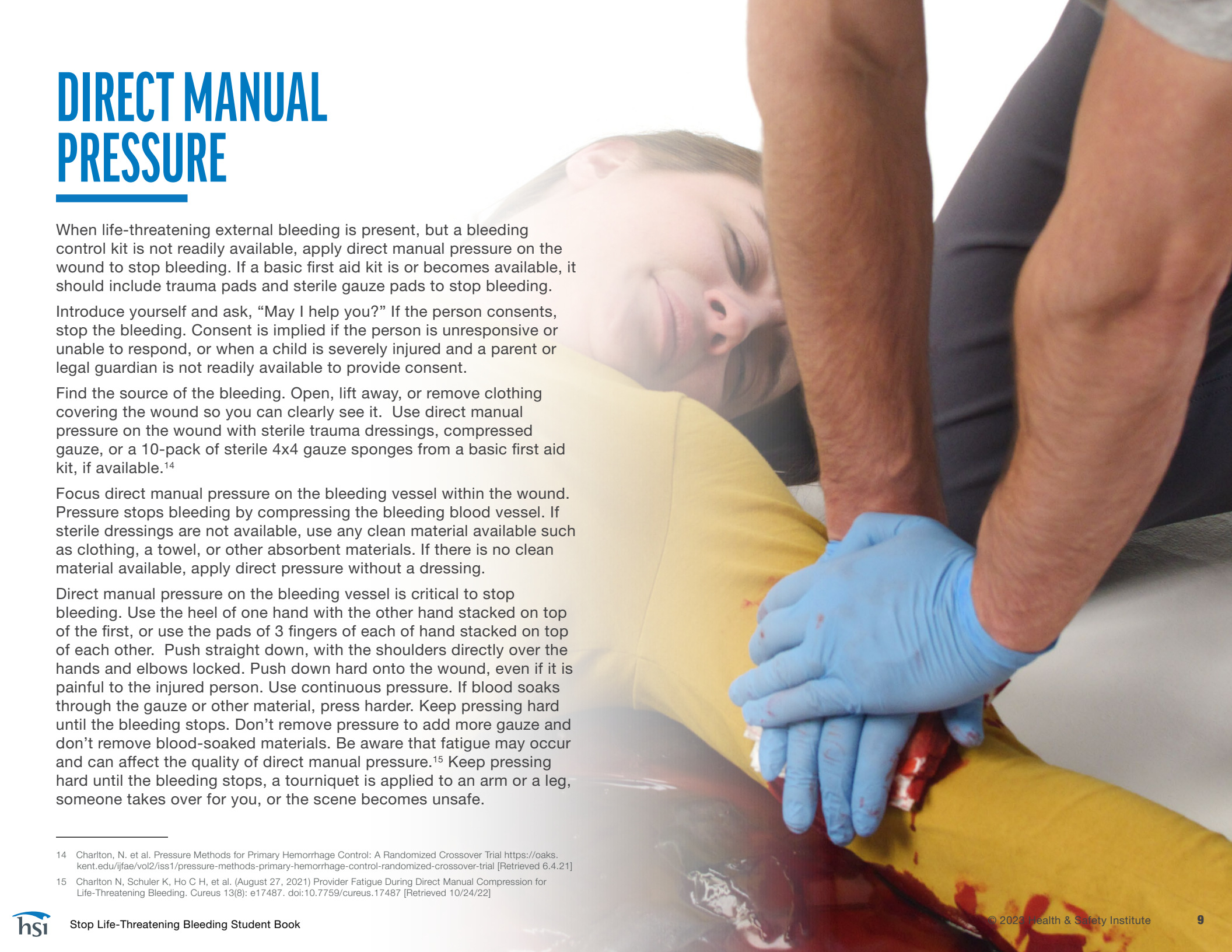
When life-threatening external bleeding is present, but a bleeding control kit is not readily available, apply direct manual pressure on the wound to stop bleeding. If a basic first aid kit is or becomes available, it should include trauma pads and sterile gauze pads to stop bleeding.

Introduce yourself and ask, “May I help you?” If the person consents, stop the bleeding. Consent is implied if the person is unresponsive or unable to respond, or when a child is severely injured and a parent or legal guardian is not readily available to provide consent.

Find the source of the bleeding. Open, lift away, or remove clothing covering the wound so you can clearly see it. Use direct manual pressure on the wound with sterile trauma dressings, compressed gauze, or a 10-pack of sterile 4x4 gauze sponges from a basic first aid kit, if available.[14]

Focus direct manual pressure on the bleeding vessel within the wound. Pressure stops bleeding by compressing the bleeding blood vessel. If sterile dressings are not available, use any clean material available such as clothing, a towel, or other absorbent materials. If there is no clean material available, apply direct pressure without a dressing.

Direct manual pressure on the bleeding vessel is critical to stop bleeding. Use the heel of one hand with the other hand stacked on top of the first, or use the pads of 3 fingers of each of hand stacked on top of each other. Push straight down, with the shoulders directly over the hands and elbows locked. Push down hard onto the wound, even if it is painful to the injured person. Use continuous pressure. If blood soaks through the gauze or other material, press harder. Keep pressing hard until the bleeding stops. Don’t remove pressure to add more gauze and don’t remove blood-soaked materials. Be aware that fatigue may occur and can affect the quality of direct manual pressure.[15] Keep pressing hard until the bleeding stops, a tourniquet is applied to an arm or a leg, someone takes over for you, or the scene becomes unsafe.



14 Charlton, N. et al. Pressure Methods for Primary Hemorrhage Control: A Randomized Crossover Trial https://oaks.kent.edu/ijfae/vol2/iss1/pressure-methods-primary-hemorrhage-control-randomized-crossover-trial [Retrieved 6.4.21]

15 Charlton N, Schuler K, Ho C H, et al. (August 27, 2021) Provider Fatigue During Direct Manual Compression for Life-Threatening Bleeding. Cureus 13(8): e17487. doi:10.7759/cureus.17487 [Retrieved 10/24/22]

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IF A BLEEDING CONTROL KIT IS READILY AVAILABLE

When life-threatening external bleeding is present and a bleeding control kit is readily available, use a commercial tourniquet, wound-packing materials, or a hemostatic dressing depending on where the wound is located.

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COMMERCIAL TOURNIQUET

When life-threatening bleeding from a wound on an arm or leg is present, use the commercially manufactured, ready-made tourniquet from the bleeding control kit as soon as possible to stop the bleeding.

A commercially manufactured, ready-made tourniquet is a tight, wide band placed around an arm or a leg and tightened to compress blood vessels and to stop bleeding. They may be used on persons approximately 2 years of age and older.[16,17]

Introduce yourself and ask, “May I help you?” If the person consents or consent is implied, open or cut away clothing over the wound so you can clearly see it. Follow the tourniquet manufacturer’s instructions.

The basic steps are place the tourniquet, turn the windlass, secure the windlass, and document.

Once you have applied a tourniquet, do not loosen or remove it.

16 American Red Cross Scientific Advisory Council Pediatric Tourniquet Use Scientific Review. June 2019. Available: https://www.redcross.org/content/dam/redcross/docs/Pediatric%20Tourniquet%20Use%E2%80%94ADVISORY.pdf [Retrieved 7/9/2021]

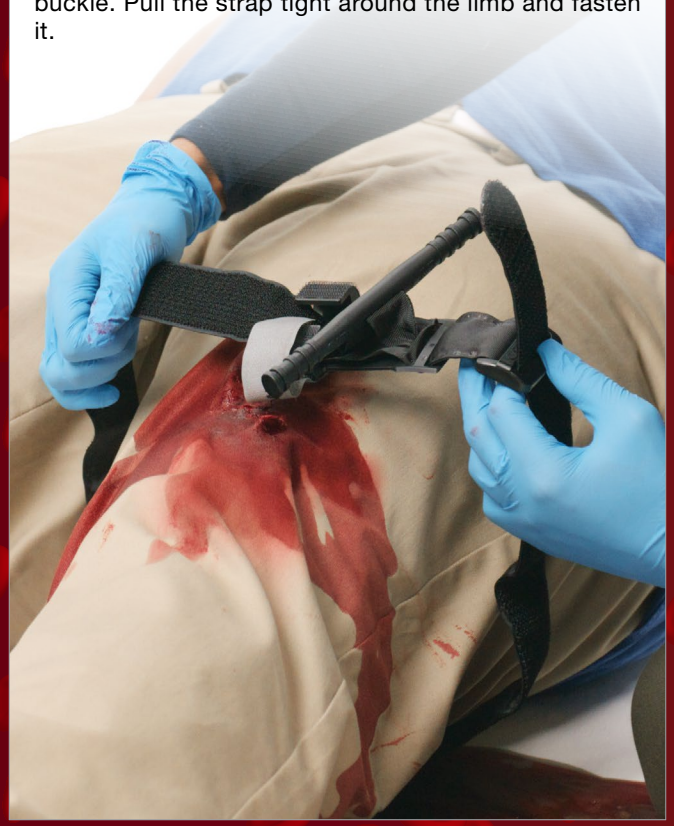
17 Charlton N P, Goolsby C A, Zideman D A, et al. (April 13, 2021) Appropriate Tourniquet Types in the Pediatric Population: A Systematic Review. Cureus 13(4): e14474. doi:10.7759/cureus.14474 [Retrieved 7/9/2021]

one
FIND BLEEDING SOURCE

Open, lift away, or remove clothing covering the wound so you can clearly see it.

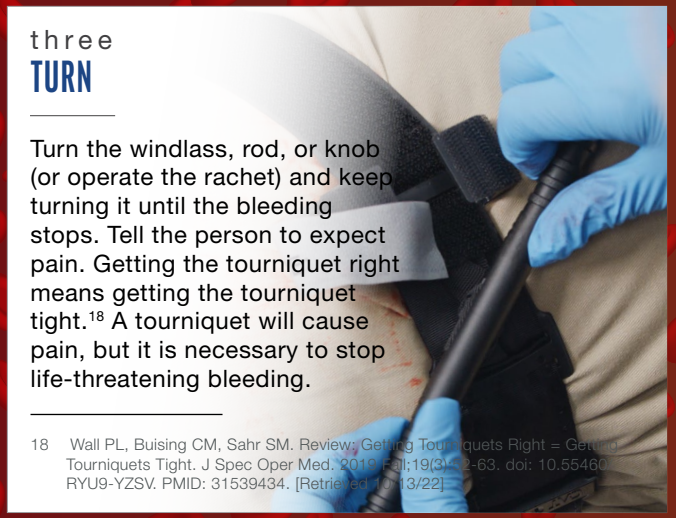
two
PLACE

Place the tourniquet at least 2-3 (5-7 cm) inches above the wound, between the torso and the wound. It may be applied over bare skin or clothing. Do not place the tourniquet over the wound or over a joint. Pull the free end of the tourniquet strap through the buckle. Pull the strap tight around the limb and fasten it.



three
TURN

Turn the windlass, rod, or knob (or operate the rachet) and keep turning it until the bleeding stops. Tell the person to expect pain. Getting the tourniquet right means getting the tourniquet tight.[18] A tourniquet will cause pain, but it is necessary to stop life-threatening bleeding.



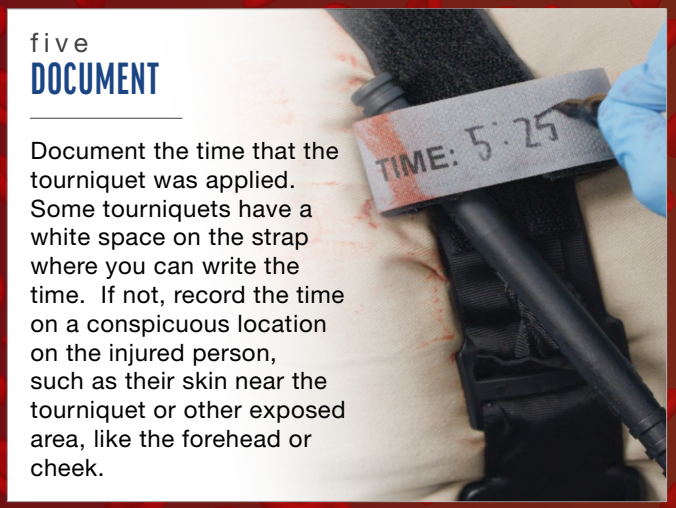
18 Wall PL, Buising CM, Sahr SM. Review: Getting Tourniquets Right = Getting Tourniquets Tight. J Spec Oper Med. 2019 Fall;19(3):62-63. doi: 10.55460/RYU9-YZSV. PMID: 31539434. [Retrieved 10/13/22]

four
SECURE

Secure the windlass to the tourniquet so it does not untwist.

five
DOCUMENT

Document the time that the tourniquet was applied. Some tourniquets have a white space on the strap where you can write the time. If not, record the time on a conspicuous location on the injured person, such as their skin near the tourniquet or other exposed area, like the forehead or cheek.



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WOUND PACKING WITH DIRECT MANUAL PRESSURE

When a commercially manufactured, ready-made tourniquet is not immediately available, or when there is life-threatening bleeding from the neck, shoulder, or groin, then pack (or stuff) the wound, preferably with a hemostatic dressing.

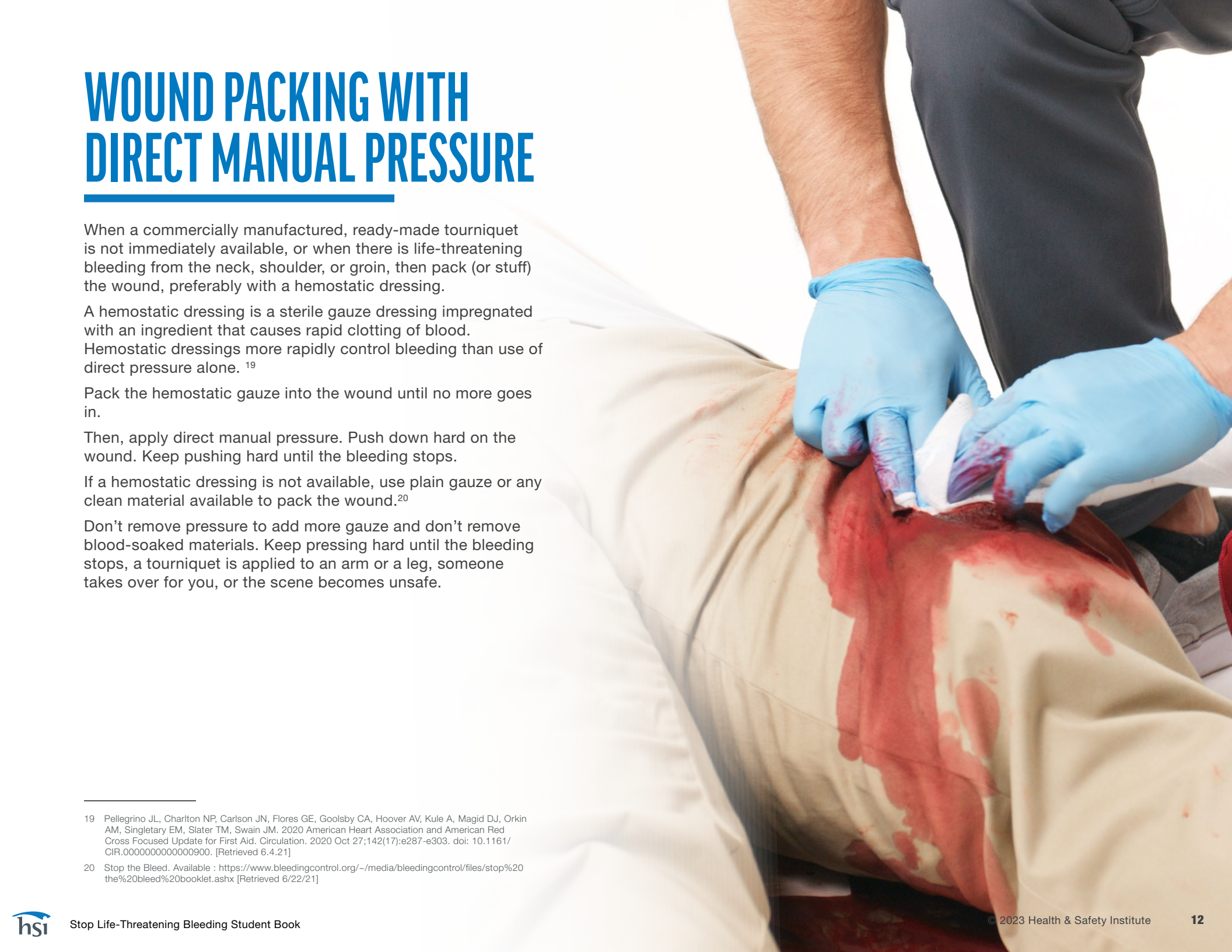
A hemostatic dressing is a sterile gauze dressing impregnated with an ingredient that causes rapid clotting of blood. Hemostatic dressings more rapidly control bleeding than use of direct pressure alone. [19]

Pack the hemostatic gauze into the wound until no more goes in.

Then, apply direct manual pressure. Push down hard on the wound. Keep pushing hard until the bleeding stops.

If a hemostatic dressing is not available, use plain gauze or any clean material available to pack the wound.[20]

Don't remove pressure to add more gauze and don't remove blood-soaked materials. Keep pressing hard until the bleeding stops, a tourniquet is applied to an arm or a leg, someone takes over for you, or the scene becomes unsafe.



19 Pellegrino JL, Charlton NP, Carlson JN, Flores GE, Goolsby CA, Hoover AV, Kule A, Magid DJ, Orkin AM, Singletary EM, Slater TM, Swain JM. 2020 American Heart Association and American Red Cross Focused Update for First Aid. Circulation. 2020 Oct 27;142(17):e287-e303. doi: 10.1161/CIR.0000000000000900. [Retrieved 6.4.21]

20 Stop the Bleed. Available : https://www.bleedingcontrol.org/~/media/bleedingcontrol/files/stop%20the%20bleed%20booklet.ashx [Retrieved 6/22/21]

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IMPROVISED TOURNIQUETS

If a commercially manufactured, ready-made tourniquet is not available and direct manual pressure with or without the use of a hemostatic dressing fails to stop life-threatening bleeding on an arm or leg, use an improvised tourniquet if you have trained and practiced in its correct use.

An improvised tourniquet can be created using common materials such as a triangular bandage or clothing and a rigid stick-like object for twisting, called a windlass.

The windlass must be hard, strong, and capable of withstanding the twisting force placed on it without bending or breaking.[21]

A correctly improvised windlass tourniquet can be as effective as a commercially manufactured device;[22,23] however, without a windlass, improvised tourniquets will not stop bleeding.[24]

Once you have applied a tourniquet, do not loosen or remove it.

21 Rohrich C, Plackett TP, Scholz BM, Hetzler MR. Proficiency in Improvised Tourniquets for Extremities: A Review. J Spec Oper Med. 2019 Fall;19(3):123-127. doi: 10.55460/5XTW-C355. PMID: 31539448. [Retrieved 10/13/2022]

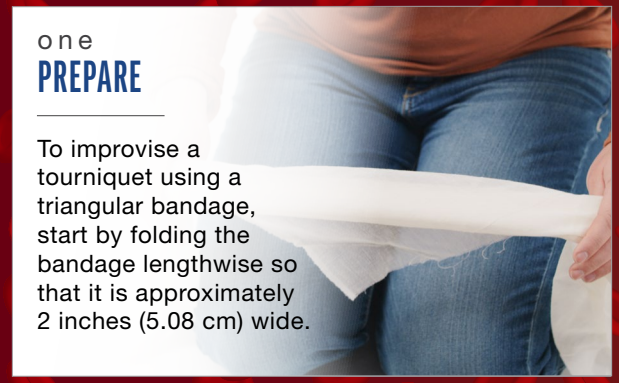
22 Cremonini C, Nee N, Demarest M, Piccinini A, Minneti M, Canamar CP, Benjami ER, Demetriades D, Inaba K. Evaluation of the efficacy of commercial and noncommercial tourniquets for extremity hemorrhage control in a perfused cadaver model. J Trauma Acute Care Surg. 2021 Mar 1;90(3):522-526. doi: 10.1097/TA.0000000000003033. PMID: 33230091. [Retrieved 10/18/2022]

23 Hay-David AGC, Herron JBT, Thurgood A, Whittle C, Mahmood A, Bodger O, Hodgetts TJ, Pallister I. A Comparison of Improvised and Commercially Available Point-of-Wounding Tourniquets in Simulated Traumatic Amputation with Catastrophic Hemorrhage. Mil Med. 2020 Sep 18;185(9-10):e1536-e1541. doi: 10.1093/milmed/usaa085. Erratum in: Mil Med. 2021 Feb 26;186(3-4):e463. PMID: 32426823. . [Retrieved 10/18/2022].

24 Altamirano MP, Kragh JF Jr, Aden JK 3rd, Dubick MA. Role of the Windlass in Improvised Tourniquet Use on a Manikin Hemorrhage Model. J Spec Oper Med. 2015 Summer;15(2):42-46. doi: 10.55460/DTPO-G5OG. PMID: 26125163. [Retrieved 10/18/2022]

one
PREPARE

To improvise a tourniquet using a triangular bandage, start by folding the bandage lengthwise so that it is approximately 2 inches (5.08 cm) wide.



two
PLACE

Place the center of the bandage under the limb, a few inches above the wound site and not directly over a joint. Wrap the bandage firmly around the limb, bringing both ends back to the top. Tie half a knot over the top of the bandage. Place the rigid stick-like object on top of the half-knot and tie a full knot over it.

three
TURN

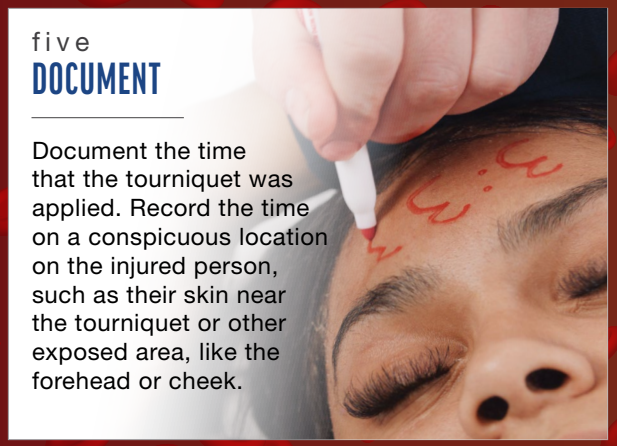
Turn or twist the object and keep twisting until the bleeding completely stops.

four
SECURE

Secure the windlass to the tourniquet so it does not untwist.

five
DOCUMENT

Document the time that the tourniquet was applied. Record the time on a conspicuous location on the injured person, such as their skin near the tourniquet or other exposed area, like the forehead or cheek.



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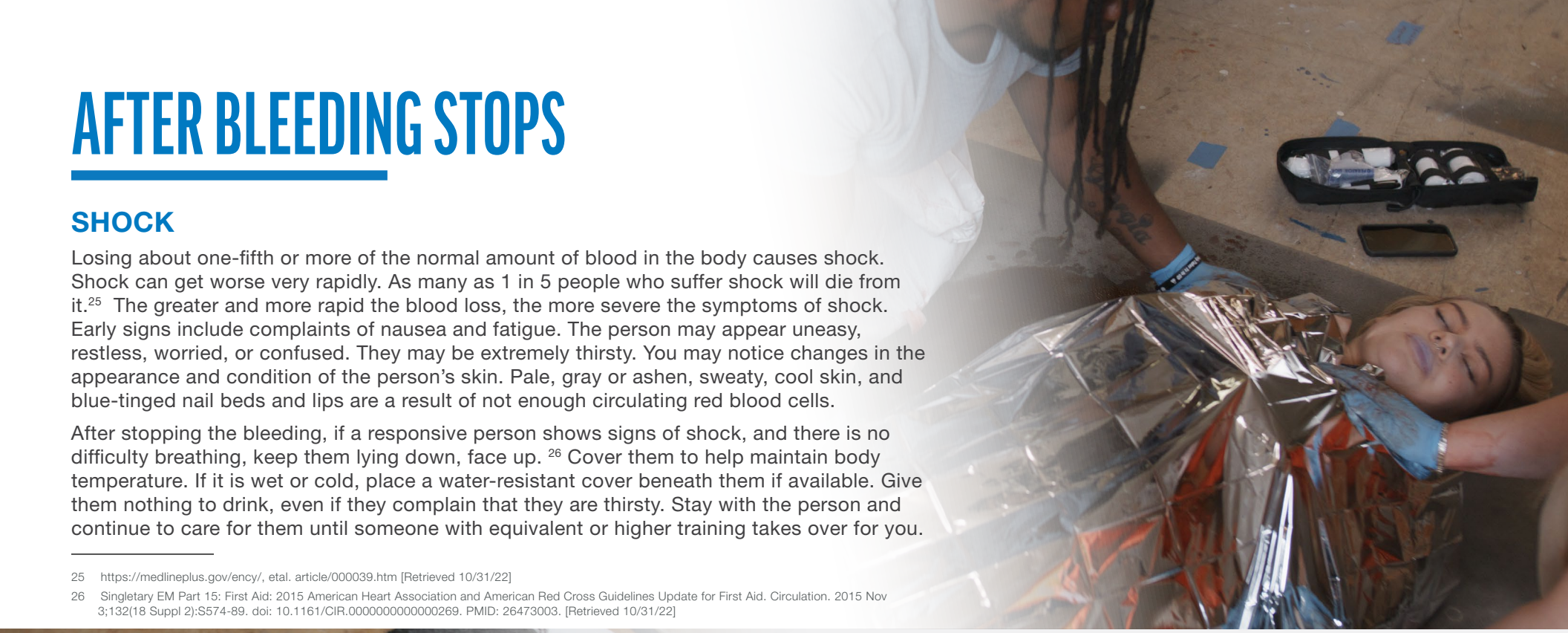
AFTER BLEEDING STOPS



SHOCK

Losing about one-fifth or more of the normal amount of blood in the body causes shock. Shock can get worse very rapidly. As many as 1 in 5 people who suffer shock will die from it.[25] The greater and more rapid the blood loss, the more severe the symptoms of shock. Early signs include complaints of nausea and fatigue. The person may appear uneasy, restless, worried, or confused. They may be extremely thirsty. You may notice changes in the appearance and condition of the person's skin. Pale, gray or ashen, sweaty, cool skin, and blue-tinged nail beds and lips are a result of not enough circulating red blood cells.

After stopping the bleeding, if a responsive person shows signs of shock, and there is no difficulty breathing, keep them lying down, face up. [26] Cover them to help maintain body temperature. If it is wet or cold, place a water-resistant cover beneath them if available. Give them nothing to drink, even if they complain that they are thirsty. Stay with the person and continue to care for them until someone with equivalent or higher training takes over for you.

25 https://medlineplus.gov/ency/, etal. article/000039.htm [Retrieved 10/31/22]

26 Singletary EM Part 15: First Aid: 2015 American Heart Association and American Red Cross Guidelines Update for First Aid. Circulation. 2015 Nov 3;132(18 Suppl 2):S574-89. doi: 10.1161/CIR.0000000000000269. PMID: 26473003. [Retrieved 10/31/22]

RECOVERY POSITION

When an unresponsive person is lying flat on their back, decreased muscle tone and the pull of gravity causes the base of the tongue to obstruct the upper airway. Without an open airway, the person cannot breathe. Their heart will stop within minutes. The "recovery position" uses gravity to keep the tongue from blocking the airway and allows fluids to drain from the mouth. If the person is unresponsive or not fully awake after stopping the bleeding, place them in the recovery position to protect the airway.

Place the arm nearest you up alongside the head. Bring the far arm across the chest and place the back of the hand against the cheek. Grasp the far leg just above the knee and pull it up so the foot is flat on the ground. Grasping the shoulder and hip, roll the person toward you in a single motion, keeping the head, shoulders, and body from twisting. Make sure the head ends up resting on the extended arm and roll far enough for the face to be angled towards the ground.

Make sure there is no pressure on the chest that might restrict breathing.

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APPENDIX

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PROCEDURE TO STOP LIFE-THREATENING BLEEDING

IMMEDIATE RESPONDER

PERFORM AN ASSESSMENT

Assess Scene Safety

Take Standard Precautions*

Assess for Life-Threatening Bleeding†

Activate EMS and/or EAP‡

Send Someone to Get a Bleeding Control Kit (unless readily available to you)

IS A BLEEDING CONTROL KIT READILY AVAILABLE?

NO

STOP THE BLEEDING!

- Obtain consent.§ Introduce yourself and ask, "May I help you?"
- If the person consents and life-threatening bleeding is present, stop the bleeding.
- Find the bleeding source. Open, lift away, or remove clothing covering the wound so you can clearly see it.
- Use direct manual pressure on the wound with any clean material. If there is no material available, apply direct pressure without a dressing.
- Use the heel of one hand with the other hand stacked on top of the first or use the pads of 3 fingers of each of hand stacked on top of each other.
- Push down hard on the wound. Use continuous pressure.
- Keep pressing hard until the bleeding stops, a tourniquet is applied (to an arm or a leg), someone takes over for you, or the scene becomes unsafe.

YES

STOP THE BLEEDING!

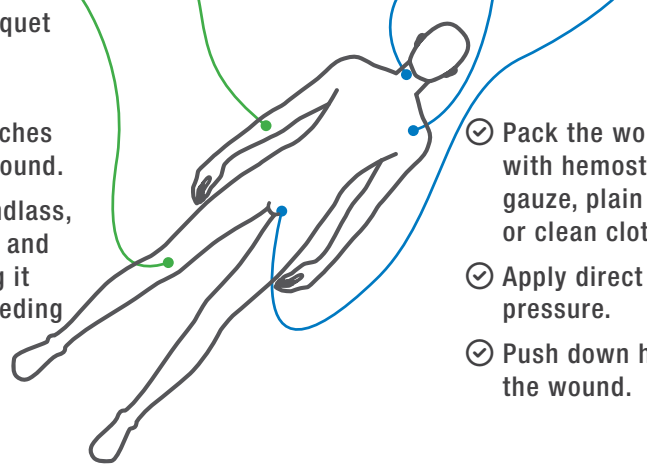
- Obtain consent.§ Introduce yourself and ask, "May I help you?"
- If the person consents and life-threatening bleeding is present, stop the bleeding.
- Find the bleeding source. Open, lift away, or remove clothing covering the wound so you can clearly see it.

ARM OR LEG?

- Use a tourniquet as soon as possible.
- Place 2-3 inches above the wound.
- Turn the windlass, rod, or knob and keep turning it until the bleeding stops.

NECK, SHOULDER, OR GROIN?

- Pack the wound with hemostatic gauze, plain gauze, or clean cloth.
- Apply direct manual pressure.
- Push down hard on the wound.



* When readily available, use appropriate personal protective equipment (PPE). PPE may include gloves, goggles, or face shields. Wash your hands immediately after removing gloves.

† Call 911 to activate Emergency Medical Services (EMS) using a mobile device and/or activate your emergency action plan (EAP). Listen to the dispatcher's instructions.

‡ Consider bleeding to be severe and life-threatening if blood is gushing, spurting, or flowing continuously, or when there is about a half can of soda's worth of blood on the ground or pooling on a surface.

§ Consent is implied when the person is unresponsive, or when a child is severely injured and a parent or legal guardian is not readily available to provide consent

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