

Introduction to Bleeding Control and Shock Management Curriculum



Every effort has been made to trace the ownership of copyrighted material and to make full acknowledgment of its use. If errors or omissions have occurred, they will be corrected in subsequent editions, provided that notification is submitted in writing to the publisher.



© 2020, Realityworks, Inc. All rights reserved.
RealCare® is a registered trademark of Realityworks, Inc.

2709 Mondovi Road
Eau Claire, WI 54701 USA
800.830.1416
+1.715.830.2040
www.realityworks.com

1054660-01

Table of Contents

About the Author.....	4
Curriculum Structure.....	5
Lesson Structure.....	6
Lesson One – Introduction to Bleeding Control and Shock Management.....	7
FOCUS: Developing Awareness of Patient-Focused Care	8
LEARN: Bleeding Control and Shock Management Slide Presentation	13
REVIEW: Practice and Assessment of Bleeding Control and Shock Management	15
Sources	18

About the Author



Krista Wenz has been a Licensed Paramedic for 34 years. She holds a bachelor's degree in Fire Safety Management and worked 23 years as a Firefighter-Paramedic for a large Metropolitan Fire Department in California. Krista has extensive knowledge in Emergency Medicine, including experience as an Adjunct Instructor at community and private colleges teaching Emergency Medical Technician (EMT) and Paramedic students. She has additional experience working as a Mental Health Technician in a psychiatric ward and emergency crises, Drill-Instructor and Field Training Officer for multiple agencies, CPR, First-Aid, PALS, BLS, and ALS instructor, and EMS Captain for a rural Fire Department. Now retired from the Fire Service, Krista is passionate about passing on knowledge and experience for those interested in entering into the emergency medical pre-hospital field.



Curriculum Structure

The *Introduction to Bleeding Control and Shock Management* curriculum is composed of the following lessons. Approximate lesson times are included.

Lesson	Title	Approximate Time
One	FOCUS: Developing Awareness of Patient-Focused Care	20-30 minutes
One	LEARN: Introduction to Bleeding Control and Shock Management Slide Presentation	20-30 minutes
One	REVIEW: Practice and Assessment of Bleeding Control and Shock Management	50-60 minutes
	Total	1.5-2 hours

Lesson Structure

Each lesson begins with a Lesson Overview, Lesson Objectives, and a Lesson at a Glance table, which lists the lesson activities, materials required, suggested preparation steps, and approximate class time.

Lesson Sections

The actual lesson follows the overview, which will contain some of the sections described below. Most lessons are designed to be completed within 45 minutes.

FOCUS

Every lesson begins with a FOCUS activity intended to capture participants' attention. This may be in the form of a small or large class discussion, a game, a review of previous lesson information, or a demonstration. During this activity, participants are introduced to the topic of the lesson.

LEARN

The LEARN activity in each lesson varies in its presentation mode. It may be a slide presentation, group activity, or demonstration.

REVIEW

The majority of lessons end with a REVIEW activity intended to briefly review the lesson's key messages or main points.

Lesson One – Introduction to Bleeding Control and Shock Management

Lesson Overview

In this lesson, students will learn how to identify and manage hypovolemic shock, how to apply a tourniquet to stop an arterial bleed, how to apply a chest seal to a sucking chest wound, how to pack a deep wound using hemostatic dressings, and how to apply a pressure dressing.

Pre-Lesson Knowledge

- Basic anatomy and physiology
- The difference between arteries, veins, and capillaries
- Use of personal protective equipment and BSI procedures
- Proper patient care and documentation

Lesson Objectives

After completing this lesson, participants will be able to:

- Demonstrate how to manage shock
- Demonstrate proper application of a tourniquet
- Demonstrate proper application of a chest seal
- Demonstrate packing a wound using hemostatic dressings
- Demonstrate proper application of a pressure dressing

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS:	• <i>Introduction to Bleeding Control and Shock Management (Focus on Empathy)</i> worksheet • <i>Introduction to Bleeding Control and Shock Management (Focus on Empathy)</i> Instructor Resource • <i>Introduction to Bleeding Control and Shock Management Pre-test</i> • <i>Introduction to Bleeding Control and Shock Management Pre-test – Answer Key</i>	1. Print/photocopy <i>Introduction to Bleeding Control and Shock Management (Focus on Empathy)</i> and <i>Introduction to Bleeding Control and Shock Management Pre-test</i> (one per participant)	20-30 minutes
LEARN	• <i>Introduction to Bleeding Control and Shock Management</i> slide presentation • Arm Amputation/Bleeding Model • Trauma Wound Sim Suit • Medical Manikin (if available)	1. Prepare <i>Introduction to Bleeding Control and Shock Management</i> slide presentation for viewing	20-30 minutes
REVIEW	• Arm Amputation/Bleeding Model for student practice and demonstration of skills • Trauma Wound Sim Suit • Medical Manikin (if available) • <i>Introduction to Bleeding Control and Shock Management Post-test – Answer Key</i>	1. Print <i>Introduction to Bleeding Control and Shock Management Post-test</i> (one per participant)	50-60 minutes

Instructor Note: Focus activities may also be completed prior to class.

Lesson One – Introduction to Bleeding Control and Shock Management

FOCUS: Developing Awareness of Patient-Focused Care

20-30 minutes

Purpose:

To help students develop an awareness of patient-focused care and see what knowledge they already have on the topics of bleeding control and shock management.

Materials:

- *Introduction to Bleeding Control and Shock Management (Focus on Empathy) worksheet*
- *Introduction to Bleeding Control and Shock Management (Focus on Empathy) Instructor Resource*
- *Introduction to Bleeding Control and Shock Management Pre-test*
- *Introduction to Bleeding Control and Shock Management Pre-test – Answer Key*

Facilitation Steps:

1. Distribute the *Introduction to Bleeding Control and Shock Management (Focus on Empathy) worksheets* prior to or at the beginning of class.
2. Have the *Introduction to Bleeding Control and Shock Management (Focus on Empathy) Instructor Resource* available.
3. Pair up students and have them complete the *Introduction to Bleeding Control and Shock Management (Focus on Empathy) worksheet*.
4. Distribute the *Introduction to Bleeding Control and Shock Management Pre-test* and have students complete it.
5. Either collect the pre-test or have students self-correct, using the *Introduction to Bleeding Control and Shock Management Pre-test – Answer Key* as a resource.

Introduction to Bleeding Control and Shock Management (Focus on Empathy)

Skill: Bleeding control of a gunshot victim

READ the following:

Your EMS unit is called to a possible gunshot victim in a well-known part of town. You start responding to the location but wait a few blocks away until the police department clears the scene. Dispatch updates you that you have a 35-year-old male patient who has multiple gunshot wounds and is conscious and alert. Shortly afterwards, the police say the scene is secure and you are cleared to continue responding. When you arrive, you are met by an officer who takes you to the patient inside a residence, telling you that the patient was shot multiple times by an intruder. Your patient is conscious and alert, with gunshot wounds to his shoulder, abdomen, and arm. While your partner is assessing the patient, you apply pressure to the abdominal wound since it is bleeding the most. The fire department arrives shortly afterwards to assist you with your patient. You ask them to apply pressure, dress the other wounds, and administer high flow oxygen. While you are preparing your patient for transport, his wife comes home to see the first responders at their house and is visibly concerned and afraid. You ask the wife if she would like to ride with you in front of the ambulance so she can be with her husband when he arrives at the hospital.

REFLECT on the situation:

What emotions do you think the wife is feeling?

Why do you think the EMT asked the wife if she wanted to ride with them to the hospital?

What could the EMT say to the wife that could be helpful in this situation?

What should the EMT say to the wife if she asks if her husband is going to die?

SHARE your thoughts with a peer when it's discussion time.

Introduction to Bleeding Control and Shock Management (Focus on Empathy) Instructor Resource

Skill: Bleeding control of a gunshot victim

READ the following:

Your EMS unit is called to a possible gunshot victim in a well-known part of town. You start responding to the location but wait a few blocks away until the police department clears the scene. Dispatch updates you that you have a 35-year-old male patient who has multiple gunshot wounds and is conscious and alert. Shortly afterwards, the police say the scene is secure and you are cleared to continue responding. When you arrive, you are met by an officer who takes you to the patient inside a residence, telling you that the patient was shot multiple times by an intruder. Your patient is conscious and alert, with gunshot wounds to his shoulder, abdomen, and arm. While your partner is assessing the patient, you apply pressure to the abdominal wound since it is bleeding the most. The fire department arrives shortly afterwards to assist you with your patient. You ask them to apply pressure, dress the other wounds, and administer high flow oxygen. While you are preparing your patient for transport, his wife comes home to see the first responders at their house and is visibly concerned and afraid. You ask the wife if she would like to ride with you in front of the ambulance so she can be with her husband when he arrives at the hospital.

REFLECT on the situation:

What emotions do you think the wife is feeling?

Pain, anguish, uncertainty, helplessness, doubt, confusion.

Why do you think the EMT asked the wife if she wanted to ride with them to the hospital?

The EMT wanted to help comfort the wife in this scary situation. By going to the hospital with them, the EMT can explain what they are doing to help her husband, and the wife can ask questions and not be alone during this emergency.

What could the EMT say to the wife that could be helpful in this situation?

The EMT can explain what injuries her husband has and what they are doing to help him. The EMT can honestly answer any questions the wife has to help her have peace of mind.

What should the EMT say to the wife if she asks if her husband is going to die?

It is not good to give false hope to a patient or a loved one. The best answer is to say that you are doing everything you can, the patient is in good hands, and you'll be at the hospital soon. I would explain the procedures we are doing to help her husband, so she has an idea of what help we are administering.

SHARE your thoughts with a peer when it's discussion time.

Name: _____ Class: _____

Introduction to Bleeding Control and Shock Management Pre-test

Select the correct answer to the following multiple-choice questions:

1. What is the definition of hypovolemic shock?
 - a. Shock due to loss of body heat
 - b. Shock due to an allergic reaction
 - c. Shock due to blood or fluid loss
 - d. Shock due to an infection
2. What does the NREMT recommend for bleeding control and shock management?
 - a. Apply direct pressure to a wound
 - b. Apply a tourniquet if indicated
 - c. Administer high-flow oxygen
3. What are the three main methods to control bleeding, in order of priority?
 - a. Pressure points, tourniquets, bandaging
 - b. Elevate, hemostatic dressings, pressure dressings
 - c. Direct pressure, elevate, pressure points
 - d. Pressure dressings, tourniquets, hemostatic dressings
4. Tourniquets are used on what body part?
 - a. Neck
 - b. Torso
 - c. Extremities
 - d. Head
5. When applying a pressure dressing, what do you never want to do?
 - a. Apply pressure
 - b. Remove the first bandage before applying a new one
 - c. Use sterile dressings
 - d. Elevate a limb above the heart

Introduction to Bleeding Control and Shock Management Pre-test – Answer Key

1. What is the definition of hypovolemic shock? *Refer to slide 3*
 - a. Shock due to loss of body heat
 - b. Shock due to an allergic reaction
 - c. **Shock due to blood or fluid loss**
 - d. Shock due to an infection
2. What does the NREMT recommend for bleeding control and shock management? *Refer to slide 5*
 - a. Apply direct pressure to a wound
 - b. Apply a tourniquet if indicated
 - c. Administer high flow oxygen
 - d. **All of the above**
3. What are the three main methods to control bleeding, in order of priority? *Refer to slide 6*
 - a. Pressure points, tourniquets, bandaging
 - b. Elevate, hemostatic dressings, pressure dressings
 - c. **Direct pressure, elevate, pressure points**
 - d. Pressure dressings, tourniquets, hemostatic dressings
4. Tourniquets are used on what body part? *Refer to slide 7*
 - a. Neck
 - b. Torso
 - c. **Extremities**
 - d. Head
5. When applying a pressure dressing, what do you never want to do? *Refer to slide 12*
 - a. Apply pressure
 - b. **Remove the first bandage before applying a new one**
 - c. Use sterile dressings
 - d. Elevate a limb above the heart

Lesson One – Introduction to Bleeding Control and Shock Management

LEARN: Bleeding Control and Shock Management Slide Presentation

20-30 minutes

Purpose:

Participants receive a thorough introduction to signs and symptoms of shock, how to manage shock, how to apply a tourniquet, how to seal a chest wound, how to use hemostatic dressings, and how to apply a pressure dressing to control bleeding.

Materials:

- *Introduction to Bleeding Control and Shock Management* slide presentation
- Arm Amputation/Bleeding Model for student practice and demonstration of skills
- Trauma Wound Sim Suit for student practice and demonstration of skills
- Medical Manikin (if available) for student practice and demonstration of skills

Facilitation Steps:

Share the following information as you show the slide presentation.

Slide 1: Introduction slide to Bleeding Control and Shock Management

Slide 2: Prerequisite knowledge for this lesson is basic anatomy and physiology, the difference between arteries, veins, and capillaries, the use of personal protective equipment and BSI procedures, as well as proper patient care, evaluation, and documentation.

Slide 3: Explain how the term “shock” is used very loosely by the layperson because they are unaware of the different types of shock. Hypovolemic shock is the type of shock most seen by first responders. Other types are anaphylactic shock, cardiogenic shock, and neurogenic shock.

Slide 4: Prompt recognition and aggressive treatment of shock are vital to patient survival.

In the early stages of shock, the body is trying to compensate for blood loss. Most of the signs and symptoms of shock are the body’s compensating mechanisms attempting to adequately perfuse the tissues.

Slide 5: These are the steps that NREMT requires for their skills check-off. Reiterate the importance of the ABC’s and how one EMT can be performing the ABC’s while the other can be applying direct pressure to the wound.

Slide 6: Demonstrate the three major methods of controlling external bleeding and stress the importance of elevating a limb above the heart.

Slide 7: For this lesson, we are only referring to commercial tourniquets. Stress the importance of tourniquets being applied only to limbs, never to the head, neck, or torso.

Slide 8: For this lesson, we are only referring to commercial tourniquets. There are makeshift tourniquets that can be made in the event a commercial tourniquet is not available.

Improvised tourniquets can be made from belts, clothing, triangular bandages, towels, or any material that is wide and won’t cut into the skin like a rope. A rod or windlass can be fabricated using a pen, spoon, or other rigid material. Applying a tourniquet is a painful process for the patient, but that does not mean the EMT applied it incorrectly.

Slide 9: It is very important to pack the dressing deep into the wound for it to be effective. If it is placed on top of the wound, it cannot clot the bleeding. Multiple dressings may need to be packed into the wound.

Slide 10: An open chest wound usually means that the chest wall is penetrated. As air enters the chest cavity, the delicate pressure balance within

the chest cavity is destroyed. This causes the lung on the injured side to collapse.

Slide 11: There are two methods for sealing a sucking chest wound. One method is to seal all four sides of the bandage, the last side being sealed upon the patient's forceful exhalation. If the seal is effective, respirations will be partially stabilized. The other method calls for leaving one corner, or the entire side, unsealed to create a flutter valve. As the patient inhales, the dressing will seal the wound. Upon exhalation, the free corner or side will release the air that is trapped in the chest cavity.

Slide 12: It is important to never remove a bloody dressing because it will interrupt the clotting process. If it's difficult to control bleeding in an arm wound, pressure can be applied to the brachial artery. If it's a leg wound, pressure can be applied to the femoral artery.

Lesson One – Introduction to Bleeding Control and Shock Management

REVIEW: Practice and Assessment of Bleeding Control and Shock Management

50-60 minutes

Purpose:

Participants will practice managing shock, applying a tourniquet, applying a chest seal, packing a wound with hemostatic dressings, and applying a pressure bandage.

Materials:

- Arm Amputation/Bleeding Model
- Trauma Wound Sim Suit
- Medical Manikin (if available)
- *Introduction to Bleeding Control and Shock Management Post-test*
- *Introduction to Bleeding Control and Shock Management Post-test – Answer Key*

Facilitation Steps:

1. **Slide 5:** Have students practice shock management using the steps recommended by NREMT. Using the Trauma Wound Sim Suit, have students practice application of direct pressure to a laceration on the top of the thigh. The laceration is a simulated injury from the fin of a surfboard during a surfing accident.
2. **Slide 6:** Have students demonstrate the three methods of bleeding control using the Trauma Suit. The scenario will be a laceration to the upper arm as a result of a motorcycle accident. Participants will practice applying pressure to the laceration, raising the arm above the heart, and applying pressure to the brachial or radial artery if bleeding is not controlled.
3. **Slide 8:** Have the students demonstrate the proper application of a tourniquet following the steps in the slide. Using the Arm Amputation/Bleeding Model, have them apply the tourniquet until arterial bleeding has stopped. The scenario is an arm amputation

from a meat grinder accident at a commercial meat packing factory. If a Medical Manikin is available, apply the Trauma Suit to the manikin and simulate a gunshot wound to the thigh. Have the students demonstrate applying a tourniquet 2 inches above the wound, tightening the tourniquet until arterial bleeding has stopped. Do NOT use the suit on a student or instructor for this portion. Only apply tourniquets to injured persons.

4. **Slide 9:** Have the students demonstrate packing a wound with hemostatic dressings, applying pressure until the bleeding is controlled. Using the Trauma Suit on a student or instructor, the students will pack an armpit wound. The scenario is a deep armpit wound as a result of a gunshot from a large caliber rifle during a hunting accident.
5. **Slide 11:** Have the students demonstrate the proper application of a chest seal on a sucking chest wound using the Trauma Suit on a student or instructor. The scenario is a stab wound to the chest that did not go through and through. Only one seal needs to be applied and monitored. Use local protocols as your guide for taping down the seal.
6. **Slide 12:** Have the students demonstrate applying a pressure bandage to a laceration on the upper arm. Using the Trauma Suit on a student or instructor, the scenario is that of a patient who has sustained a deep laceration on the upper arm as a result of a motorcycle accident.
7. **Slide 13:** Instruct students to take a few minutes to complete the post-test. Have students self-check their answers as you share from the answer key.

Name: _____ Class: _____

Introduction to Bleeding Control and Shock Management Post-test

Select the correct answer to the following multiple-choice questions:

1. What is the definition of hypovolemic shock?
 - a. Shock due to loss of body heat
 - b. Shock due to an allergic reaction
 - c. Shock due to blood or fluid loss
 - d. Shock due to an infection
2. What does the NREMT recommend for bleeding control and shock management?
 - a. Apply direct pressure to a wound
 - b. Apply a tourniquet if indicated
 - c. Administer high-flow oxygen
 - d. All of the above
3. What are the three main methods to control bleeding, in order of priority?
 - a. Pressure points, tourniquets, bandaging
 - b. Elevate, hemostatic dressings, pressure dressings
 - c. Direct pressure, elevate, pressure points
 - d. Pressure dressings, tourniquets, hemostatic dressings
4. Tourniquets are used on what body part?
 - a. Neck
 - b. Torso
 - c. Extremities
 - d. Head
5. When applying a pressure dressing, what do you never want to do?
 - a. Apply pressure
 - b. Remove the first bandage before applying a new one
 - c. Use sterile dressings
 - d. Elevate a limb above the heart

Introduction to Bleeding Control and Shock Management Post-test – Answer Key

1. What is the definition of hypovolemic shock? *Refer to slide 3*
 - a. Shock due to loss of body heat
 - b. Shock due to an allergic reaction
 - c. **Shock due to blood or fluid loss**
 - d. Shock due to an infection
2. What does the NREMT recommend for bleeding control and shock management? *Refer to slide 5*
 - a. Apply direct pressure to a wound
 - b. Apply a tourniquet if indicated
 - c. Administer high flow oxygen
 - d. **All of the above**
3. What are the three main methods to control bleeding, in order of priority? *Refer to slide 6*
 - a. Pressure points, tourniquets, bandaging
 - b. Elevate, hemostatic dressings, pressure dressings
 - c. **Direct pressure, elevate, pressure points**
 - d. Pressure dressings, tourniquets, hemostatic dressings
4. Tourniquets are used on what body part? *Refer to slide 7*
 - a. Neck
 - b. Torso
 - c. **Extremities**
 - d. Head
5. When applying a pressure dressing, what do you never want to do? *Refer to slide 12*
 - a. Apply pressure
 - b. **Remove the first bandage before applying a new one**
 - c. Use sterile dressings
 - d. Elevate a limb above the heart

Sources

1. Nall, Rachel; Gotter, Ana (2016). *Hypovolemic Shock*. Retrieved from <https://www.healthline.com/health/hypovolemic-shock#symptoms>
2. DeMuro, Jonas MD (2019). *How to Dress a Chest Wound*. Retrieved from <https://www.wikihow.com/Dress-a-Chest-Wound>
3. NREMT Website (2016). *Bleeding Control/Shock Management*. Retrieved from https://content.nremt.org/static/documents/skills/E213_NREMT.pdf
4. Stark, Anthony EMR (2019). *How to Apply a Pressure Bandage*. Retrieved from <https://www.wikihow.com/Apply-a-Pressure-Bandage>
5. NAEMT Website (2019) *Tourniquets and Hemostatic Dressings*. Retrieved from <http://www.naemt.org/docs/default-source/education-documents/tccc/tccc---tourniquets-and-hemostatic-dressings.pptx?sfvrsn=2>