



Advanced Bleeding Control

MEDIC First Aid

An HSI Company

Advanced Bleeding Control

Student Book

Version 8.0

Purpose of this Guide

This MEDIC First Aid *Advanced Bleeding Control Version 8.0 Student Book* is solely intended to facilitate certification in a MEDIC First Aid Advanced Bleeding Control training class. The information in this book is furnished for that purpose and is subject to change without notice.

MEDIC First Aid certification may only be issued when a MEDIC First Aid–authorized Instructor verifies a student has successfully completed the required core knowledge and skill objectives of the program.

Notice of Rights

No part of this MEDIC First Aid *Advanced Bleeding Control Version 8.0 Student Book* may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or by any information storage and retrieval system, without written permission from MEDIC FIRST AID International, Inc.

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 MEDIC First Aid® programs. Science and technology are constantly creating new knowledge and practice. Like any printed material, this publication may become out of date over time.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. Signs and symptoms may be incomplete and can vary from person to person. Do not use the information in this program as a substitute for professional evaluation, diagnosis, and treatment from an appropriately qualified physician or other licensed healthcare provider. Local or organizational physician-directed practice protocols may supersede treatment recommendations in this program.

Trademarks

MEDIC First Aid and the MEDIC First Aid logo are registered trademarks of MEDIC FIRST AID International, Inc.

MEDIC FIRST AID International, Inc.
1450 Westec Drive ■ Eugene, OR 97402

800-447-3177 ■ 541-344-7099

E-mail: response@hsi.com ■ Visit our website at emergencycare.hsi.com

Copyright © 2017 MEDIC FIRST AID International, Inc.
All Rights Reserved. Printed in the United States of America

First Edition—2017



ADVANCED BLEEDING CONTROL

Severe External Bleeding	1
Commercial Bleeding Control Devices	
Immediate Treatment	
Physiology of Bleeding	3
Blood Vessels and Bleeding	
Shock	
Direct Pressure	5
Protective Barriers	
Direct Pressure Considerations	
Skill Guide 1 — Using Direct Pressure	7
Pressure Bandages	8
Commercial Pressure Bandages	Improvised Pressure Bandage
Using Pressure Bandages	
Skill Guide 2 — Using a Pressure Bandage	10
Skill Guide 3 — Using the Emergency Bandage™ (Israeli)	11
Skill Guide 4 — Using the Olaes® Modular Bandage	12
Skill Guide 5 — Using the H-Bandage	13
Skill Guide 6 — Using the Air Wrap® 4” Compression Bandage	14
Skill Guide 7 — Using an Improvised Pressure Bandage	15
Tourniquets	16
Commercial Tourniquets	Tourniquets as a First Step
Improvised Tourniquets	Tourniquet Considerations
Skill Guide 8 — Using a Commercial Tourniquet	19
Skill Guide 9 — Using the SOF® Tactical Tourniquet	20
Skill Guide 10 — Using the Combat Application Tourniquet® (C-A-T®)	21
Skill Guide 11 — Using the TX2™ Ratcheting Tourniquet	22
Skill Guide 12 — Using the SAM® XT Tourniquet	23
Skill Guide 13 — Using the SWAT-T™ Tourniquet	24
Skill Guide 14 — Using an Improvised Tourniquet	25

Packed Dressings	26
Hemostatic Dressings	
Packed Dressing Considerations	
Skill Guide 15 — Using a Packed Dressing	28
Skill Guide 16 — Using the QuikClot® Z-Fold Dressing	29
Skill Guide 17 — Using the XGauze® Trauma Dressing	30
Skill Guide 18 — Using an Improvised Packed Dressing	31
Caring for Severe External Bleeding	32
Planned Approach	Treat for Shock
Control Bleeding	Monitor Person
Skill Guide 19 — Caring for Severe External Bleeding	34
Being Prepared	35
Commercially Made Products	Locating Kits
Bleeding Control Kit	
ADDITIONAL INFORMATION	
Sources	37
Endnotes	37
Glossary	38
Knowledge Check Answers	39
Rate Your Program	41

Severe External Bleeding



Traumatic injuries are unexpected. They can happen at any time and in any place. Traumatic injury is one of the leading causes of death for people under 50 years of age in the United States.¹ A large portion of those deaths are from severe bleeding. Bleeding is the most treatable cause of death due to trauma.

Common mechanisms for traumatic injuries include the following:

- Falls from great height
- Significant blows to the body
- Motor vehicle crashes
- Slicing or stabbing from sharp objects
- Firearm shootings
- Explosions and shrapnel

Recent mass casualty events have highlighted the need for improvement in immediate care for severe bleeding due to traumatic injury.

Death from severe bleeding can occur rapidly. Survival is primarily dependent on how quickly bleeding is controlled.

Commercial Bleeding Control Devices

Military experience in the past few decades has guided the adoption and use of commercial bleeding control devices such as pressure bandages, tourniquets, and packed dressings in non-military settings to improve the speed at which serious bleeding is stopped.

- **Pressure bandages:**

Commercial pressure bandages are designed to quickly and effectively provide the well-aimed direct pressure needed to control heavy bleeding.



- **Tourniquets:** Commercial tourniquets have been

found to be very effective in controlling heavy bleeding. Previous fears of complications had prevented widespread use, but military evidence has shown that complications are actually minimal and the benefit of using a tourniquet, when needed, far outweighs the risk.

- **Packed dressings:** Commercial packed dressings, including hemostatic dressings, have proved to be beneficial, especially when other bleeding control measures such as direct pressure and tourniquets don't work or cannot be applied.

With military use and research that supports the successful use of these devices, more commercial products are available for non-military use. For example, many emergency medical services (EMS) systems have implemented the standard use of commercial bleeding control devices. Law enforcement personnel, who often deal with traumatic injury situations involving civilians or officers, have also adopted a more standardized approach to the use of these devices.

Immediate Treatment

The sooner bleeding is controlled, the more likely it is an injured person will survive. Similar to the use of CPR and AEDs for sudden cardiac arrest, the treatment for severe bleeding is best started immediately by the nearest person able to help.

Lay providers are now being encouraged to be trained to use the same commercial products utilized by EMS, fire departments, and law enforcement.



Knowledge Check

Why is it important to control bleeding as soon as possible?

Pressure Bandages



A bandage or a wrap designed to hold a dressing in place can be used as long as it maintains enough pressure to control bleeding. For minor and moderate bleeding, a simple roller bandage will most likely accomplish this.

Commercial Pressure Bandages

For heavy bleeding, consider the use of a commercial pressure bandage. A pressure bandage is specially designed to exert focused additional pressure directly on a bleeding site. This is accomplished by the use of a hard structure embedded in the bandage.



When using a commercial pressure bandage, place the hard embedded piece over the point of bleeding. Wrap this piece tightly to place more pressure directly under it than anywhere else under the wrap.

Using Pressure Bandages

Once in place, monitor a pressure bandage for effectiveness. A pressure bandage only needs to apply enough pressure to stop bleeding.

Be careful not to apply too much pressure that could prevent blood flow to the body beyond the bandage. Make note and alert EMS personnel if the skin beyond the bandage becomes cool to the touch, bluish, or numb.

Improvised Pressure Bandage

If you do not have a commercial pressure bandage, you can improvise one by placing a roll of spooled gauze or folded pad directly over the point of bleeding and wrapping it tightly in place.



Knowledge Check

How does a pressure bandage work to control bleeding?

Preview

Using a Pressure Bandage



Place Bandage

- Unwrap bandage to expose pad.
- Place pad on wound with hard pressure piece positioned to end up over the point of bleeding.



Wrap Bandage

- Wrap elastic bandage around limb, overlapping first wrap to secure pad and pressure piece in place.
- Tightly apply additional wraps on top of pressure piece, using counter pressure to keep limb from rolling. Use twists in bandage to provide more focused pressure.
- Apply enough pressure to stop bleeding.



Secure Bandage

- Latch hook at end of bandage on one of previous wraps to secure bandage in place.



Monitor Bandage

- Check frequently to ensure bleeding remains controlled.

Sources

Singletary EM, Zideman DA, et al., Part 9: first aid: 2015 International Consensus on First Aid Science with Treatment Recommendations. *Circulation*. 2015;132(suppl 1):S269–S311.

Singletary EM, Charlton NP, et al., Part 15: first aid: 2015 American Heart Association and American Red Cross Guidelines Update for First Aid. *Circulation*. 2015;132(suppl 2):S574–S589.

American College of Surgeons Bulletin; Hartford Consensus Compendium; September 2015; Volume 100, Number 1S

National Association of Emergency Medical Technicians (NAEMT); *Tactical Combat Casualty Care (TCCC) Guidelines for Medical Personnel*, January 31, 2017, available at <https://www.naemt.org/education/naemt-tccc/tccc-mp-guidelines-and-curriculum>

<https://www.dhs.gov/stopthebleed> (12/17)

<https://community.fema.gov/until-help-arrives> (12/17)

Endnotes

1. <https://www.cdc.gov/injury/wisqars/LeadingCauses.html> (12/17)

Preview

MEDIC First Aid

An HSI Company

MEDIC FIRST AID International, Inc.
1450 Westec Drive
Eugene, OR 97402 USA
800-447-3177 ■ 541-344-7099 ■ 541-344-7429 fax
emergencycare.hsi.com

Advanced Bleeding Control

