Bureau of EMS

2015 BLS Protocol Update

June 29, 2015

Andrew Johnson, EMTP, CIC, BS
Deputy Director for Education & Certification

BLS Hemorrhage Protocol

2015 Protocol Update

June 29, 2015

Protocol Changes

A Technical Advisory Group (TAG), composed of members from the State Emergency Medical Advisory Committee (SEMAC) and the State Trauma Advisory Committee (STAC), reviewed new and updated relevant science to revise the New York State BLS Hemorrhage Control protocol. The State Emergency Medical Services Council (SEMSCO) approved the changes.

Final Version of Protocol……

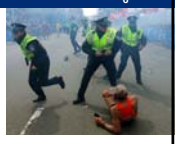
The final version on the protocol is scheduled to be voted on at the December SEMAC and SEMSCO meetings.

We are offering this educational update to you so you are aware of the changes that are forthcoming.

The current protocol is still active.

Reasons for change

- New science and evidence based studies
- Lessons learned from the military
- Lack of current use of tourniquets
- Lack of understanding of tourniquets



Patient Assessment

- Have always learned Airway, Breathing, Circulation order
- Reality? ABC's are done simultaneously on most patients
- Blood loss is seen before ABC's are "actually completed"
- If large active blood loss, don't delay hemorrhage control
- Hemorrhage control and ABC's can be simultaneously

Assessing Blood Loss

- Difficult to estimate and historically incorrect
- We tend to over estimate
- Look for pulsatile or brisk flow
  - Defer further assessment
  - Don't delay treatment
  - Control the bleeding
- Airway, Breathing and Circulation can occur simultaneously while attempting to control bleeding

Controlling the bleeding

- Personal Protective Equipment!
- Expose the site
- Apply direct pressure with sterile dressing OR if bleeding is severe (heavy flow or arterial pulsating), apply a hemostatic dressing directly to the site and then a dressing over the hemostatic dressing
- For severe bleeding and/or arterial bleeding, a tourniquet may be used as the fist-line of treatment to control bleeding

Assessing the Patient

- Assure ABC's are adequate
- Evaluate circulation and neurological status above and below the bleeding site
- No longer performing elevation and/or pressure point treatments

Direct Pressure Not Working?

- If bleeding through dressings, then direct pressure is inadequate to control the bleeding
- Add additional dressings or bandages over the top of the site and move to using a tourniquet, if the wound is amenable to tourniquet placement, i.e. extremity

Tourniquets

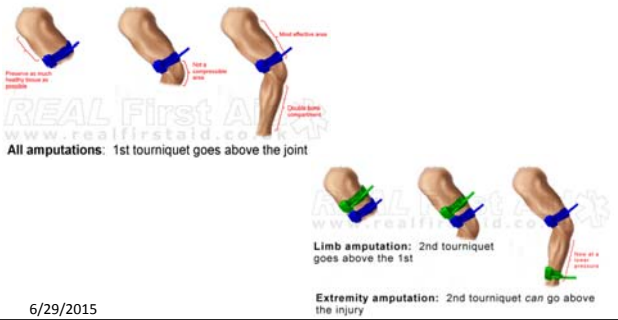
- Studies have shown that appropriate tourniquet usage improves patient outcomes [3]
- Tourniquets in previous protocol, but not being utilized [4]
- Commercial vs non-commercial devices [5]
- Must follow manufacturer's guidelines

Tourniquet Application

- Follow manufacturer's guidelines
- Apply tourniquet proximal to the site of the hemorrhage
  - Most manufacturer's state 1 to 3 inches above the site
- Goal is to have tourniquet in-place and controlling bleeding within 60 seconds[1]

Tourniquet Application

- If bleeding is still not controlled
  - Apply a second tourniquet
  - If first tourniquet is below the knee, place the second tourniquet 1 – 3 inches above the knee [2]
  - If first tourniquet is above the knee, place the second tourniquet 1 – 3 inches proximal to the first tourniquet [2]



Tourniquet Application

- Ensure tourniquet is tight enough to occlude distal pulses
- Leave tourniquet visible whenever possible – do not cover up with clothing
- Frequently re-check to determine if bleeding has restarted
  - Blood soaking through dressings/bandages
  - Continued bleeding distal to the tourniquet
  - Do not remove tourniquet or dressings to assess for bleeding

Tourniquet Time

TQ 18:34

Tourniquet Removal

- Tourniquets should not be removed until the patient reaches definitive care OR unless ordered by Medical Control
  - Transport time less than two hours
  - Unstable or complex multiple trauma patient
  - Unstable clinical or tactical situation
- If tourniquet is replaced with a pressure dressing, leave the loose tourniquet in-place so it may be retightened if bleeding resumes

Continued Patient Assessment

- Continue to monitor ABC's
- Continue to monitor bleeding
- Closely monitor for hypotension and signs of compensated and decompensated shock – refer to hypoperfusion protocol
- Transport to closest appropriate Emergency Department
- If applicable, follow Major Trauma Protocol to determine appropriate destination
- Document, document, document

Additional Considerations

- ALS intercepts
- Pain management
- Stabilizing/immobilizing associated fractures or dislocations
- Continued assessment of circulatory and neurological function of affected extremities

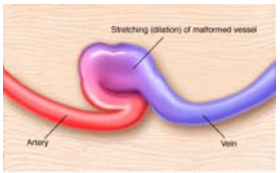
Junctional Tourniquets and Skin Closure Devices

- For use in formal designated tactical medical response teams
- REMAC approval required

Hemodialysis Site Bleeding

- Hemodialysis patients may have an Arteriovenous (AV) fistula in their arm

Arteriovenous Fistula



Hemodialysis Site Bleeding

- Hemodialysis catheters may result in life-threatening hemorrhage
- The use of direct digital pressure may be necessary
- The use of a tourniquet may result in thrombosis or clotting of the AV fistula and therefore, should only be used in the setting of managing life threatening hemorrhage

BLS Hemorrhage Protocol

2015 Protocol Update

Review of the Protocol

Trauma T – 2

Prehospital Bleeding/External Hemorrhage Control Protocol

Apply direct pressure/pressure dressing to the injury

Prehospital Bleeding/External Hemorrhage Control Protocol

Apply direct pressure/pressure dressing to the injury

Direct pressure effective (Bleeding Controlled)

Direct pressure ineffective or impractical (Hemorrhage Not Controlled)

Prehospital Bleeding/External Hemorrhage Control Protocol

Apply direct pressure/pressure dressing to the injury

Direct pressure effective (Bleeding Controlled)

Assure airway and breathing are adequate

Transport in accordance with New York State Trauma Triage Criteria. Maintain the patient's skin to a warm or normothermic condition. Record all patient care information, including the patient's medical history and all treatment provided on a prehospital care report (PCR)

Prehospital Bleeding/External Hemorrhage Control Protocol

Apply direct pressure/pressure dressing to the injury

Direct pressure ineffective or impractical (Hemorrhage Not Controlled)

Wound amenable to tourniquet placement (e.g. extremity injury)

Wound not amenable to tourniquet placement (e.g. junctional injury)

Prehospital Bleeding/External Hemorrhage Control Protocol

Apply direct pressure/pressure dressing to the injury

Direct pressure ineffective or impractical (Hemorrhage Not Controlled)

Wound amenable to tourniquet placement (e.g. extremity injury)

Wound not amenable to tourniquet placement (e.g. junctional injury)

Apply tourniquet, as proximal on limb as possible "high and tight"

Apply hemostatic dressing with direct pressure, directly to bleeding source or junctional tourniquet* or skin closure device*

Apply second tourniquet if hemorrhage is not controlled – adjacent to initial tourniquet

Apply tourniquet, as proximal on limb as possible "high and tight"

Apply hemostatic dressing with direct pressure, directly to bleeding source or junctional tourniquet* or skin closure device*

Apply second tourniquet if hemorrhage is not controlled – adjacent to initial tourniquet

Assure airway and breathing are adequate

Assess for hypotension. If hypotension is present, refer immediately to hypoperfusion protocol

Transport in accordance with New York State Trauma Triage Criteria. Maintain the patient's skin to a warm or normothermic condition. Record all patient care information, including the patient's medical history and all treatment provided on a prehospital care report (PCR)

Transport in accordance with New York State Trauma Triage Criteria. Maintain the patient's skin to a warm or normothermic condition. Record all patient care information, including the patient's medical history and all treatment provided on a prehospital care report (PCR)

*** Regional option may include the use of Junctional Tourniquet and/or cutaneous closure devices in accordance with directions for its use, and Medical Director authorization.**

If a tourniquet is placed, an alert patient may require narcotic analgesia to manage tourniquet-associated discomfort. Consider use of regionally approved pain management protocols including ALS intercept.

Hemodialysis access sites may result in life threatening hemorrhage. Direct digital pressure should be used first followed by tourniquet in the setting of life threatening hemorrhage when other means of hemorrhage control have been unsuccessful.

End Notes

[1] http://www.jems.com/articles/print/volume-37/issue-3/patient-care/civilian-ems-should-consider-tourniquets.html

[2] U.S. Army Medical Department Center and School, Fort Sam Houston, Texas; Tactical Combat Casualty Care and Wound Treatment; Sub-course MD0554 Edition 200

[3] http://www.ncbi.nlm.nih.gov/pubmed/18376169

[4] https://www.naemt.org/docs/default-source/trauma-resources/Prehospital_Tourniquet_Use_%E2%80%93_A_review_of_the_current_literature.pdf?sfvrsn=0

[5] http://www.mayoclinic.org/medical-professionals/clinical-updates/trauma/combat-tested-tourniquets-save-lives-limbs

Additional Resources

- http://www.jems.com/articles/2010/05/tourniquet-first.html
- ACEP Policy Statement - http://www.acep.org/Physician-Resources/Policies/Policy-statements/EMS/Out-of-Hospital-Severe-Hemorrhage-Control
- Bulger E. et al. An evidenced-based prehospital guidelines for external hemorrhage control: American College of Surgeons Committee on Trauma. Prehosp Emerg Care, 2014 18:163
- Gerard S. Doyle, Peter P. Taillac. Tourniquets: A Review of Current Use with Proposals for Expanded Prehospital Use Prehospital Emergency Care, 2008, Vol. 12, No. 2 : Pages 241-256
- http://www.ncbi.nlm.nih.gov/pubmed/25545737
- http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2151059/

Spinal Immobilization Protocol

Objective

Upon completion, the student will be prepared to utilize the updated New York State BLS protocol that incorporates the use of Spinal Motion Restriction vs traditional Spinal Immobilization

Cognitive Objectives

- The student will define Spinal Motion Restriction
- The student will assess a patient for the need of Spinal Motion Restriction
- The student will identify high risk vs low risk patients for spinal cord injury
- The student will list what devices could be used for Spinal Motion Restriction
- The student will list detrimental effects of Spinal Immobilization

Psychomotor Objectives

- The student will be able to demonstrate proper Spinal Motion Restriction techniques
- The student will be able to remove a patient from a long backboard and on the ambulance stretcher
- The student will be able to appropriately move a patient from supine, prone, seated and standing positions, to the ambulance stretcher while maintaining Spinal Motion Restriction

Psychomotor Objectives

- The student will demonstrate removing a patient from a long backboard to the ambulance stretcher with long backboard on the stretcher
- The student will demonstrate proper patient transfer from the ambulance stretcher to the hospital stretcher while maintaining Spinal Motion Restriction

Affective Objectives

- Student values the need for reduced Spinal Immobilization
- The student will appreciate the negative effects of Spinal Immobilization
- The student will value the need for proper Spinal Motion Restriction in all patient movements
- The student will value the team-work approach to maintaining Spinal Motion Restriction and patient transfers

Why not use spinal immobilization?

- Uncomfortable for patient
- Increased time immobilized = increased pain, risk of aspiration, skin ulcerations, etc.
- Unnecessary exposure to radiation from x-rays
  - > 800,000 patients receive cervical x-rays
  - > 97% are negative
- Cost exceeds 175 million dollars annually
- First, do no harm!
- Numerous studies describe the adverse effects of spinal immobilization

2015 Changes

- Based on NEXUS criteria
- Allows for use of a cervical collar alone
- Introduces the concept of "**Spinal Motion Restriction**"
- Various methods may be used to "limit spinal motion"

2015 Protocol

For patients meeting the Adult or Pediatric Major Trauma Criteria Protocol, with a BLUNT mechanism of injury:

1. Spinal injury should be suspected
2. The patient should be placed in a properly fitted cervical collar and **spinal movement minimized**

2015 Protocol

For patients meeting the Adult or Pediatric Major Trauma Criteria Protocol, with a PENETRATING mechanism of injury, OR for patients NOT meeting the Adult or Pediatric Major Trauma Criteria Protocol with a BLUNT mechanism of injury, **spine injury should be suspected if one or more of the following criteria are present:**

2015 Protocol

1. Altered mental status associated with a traumatic injury, including possible intoxication from alcohol or drugs (GCS <15)
2. Complaint of neck and/or spine pain or tenderness
3. Weakness, tingling or numbness of the trunk or extremities at any time after the injury

2015 Protocol

4. Deformity of the spine that was not present prior to the injury/incident
5. Distracting injury or circumstances (i.e. anything producing an unreliable physical assessment)

2015 Protocol

6. High risk mechanism of injury associated with unstable spinal injuries that include, but are not limited to:
   - A. Axial Load (i.e. diving, spear tackle injuries)
   - B. High speed motorized vehicle crashes or roll over
   - C. Pedestrian or bicyclist struck/collision
   - D. Falls > 3 feet or the patient's height

2015 Protocol

If a spine injury is suspected, the patient should be placed in a properly fitted rigid cervical collar and spinal movement minimized.

Patients without any of the above findings (1 – 6) may be transported without the use of a cervical collar or any other means to restrict spinal movement.

2015 Protocol

NOTES

A long spine board is one of multiple modalities that can be used to minimize spinal movement.

Spinal movement can be minimized by application of a properly fitted rigid cervical collar and properly securing the patient to the ambulance stretcher.

2015 Protocol

NOTES

When spinal motion restriction has been initiated and a higher level of care arrives, patients should be reassessed for spinal injury.

The highest level of care accompanying the patient will determine if spinal motion restriction is to be used or discontinued (i.e. collar removed)

Long spine boards do not have a role in transporting patients between facilities.

June 29, 2015 55

Spinal Motion Restriction

Defined as the movement of a patient from one point to another, usually from the position they are found in, to the ambulance stretcher, without the use of a long backboard and spinal immobilization, while not causing movement of the patient's spinal column.

June 29, 2015 56

Cervical Spine

Initially, manual cervical spinal stabilization should be initiated prior to application of an appropriately sized cervical collar.

June 29, 2015 57

Standing or Ambulatory Patients

- Standing takedown is no longer utilized.
- Manual cervical spine stabilization
- Apply appropriately sized rigid collar
- Allow patient to sit on the ambulance stretcher, and then lie flat.
- Secure patient to stretcher following the stretcher manufacturer's requirements

June 29, 2015 58

Seated Patients

- Short spine boards and similar devices are no longer utilized.
- If assessment allows, have patient stand, sit on the ambulance stretcher, and then lie flat. ***OR***
- Safely assist the patient to slide on to the stretcher. A long backboard could be used as a "slide board" to get the patient to the stretcher.

June 29, 2015 59

Supine Patients

- Various devices can be utilized to move the patient from the position found to the ambulance stretcher, while maintaining spinal motion restriction:
  - Long backboard
  - Orthopedic/Robertson/Scoop stretcher
- Patient may be log-rolled to position on a long backboard or similar device.

June 29, 2015 60

June 29, 2015 61

June 29, 2015 62

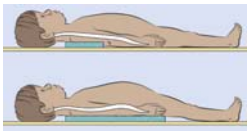
Prone or Lateral Recumbent Patients

- Log-roll the patient in to the supine position when possible and on to a long backboard or “scoop” stretcher type device.
- If unable to log-roll the patient in to the supine position, you may need to utilize a straddle life technique or “scoop” stretcher type device to move patient in the position they are found. As long as spinal motion restriction is maintained.

June 29, 2015 63

Padding

- Although patients are not on a backboard, they may still require padding to fill some voids to maintain spinal motion restriction and for patient comfort.
- Pediatric patients require 1 inch of padding on the stretcher prior to being placed on the stretcher.



June 29, 2015 64

At the Hospital

Moving a patient from the ambulance stretcher to the hospital stretcher can be much more challenging when spinal motion restriction is in-place instead of spinal immobilization on a long backboard.

June 29, 2015 65

Transfer Techniques

- Must maintain spinal motion restriction
- Patient must be moved as one unit
- Friction reducing devices can be a great help

June 29, 2015 66

Transfer Techniques

- Assure you have enough staff present to assist with the patient transfer so spinal motion restriction is continued
- It takes a team effort and a leader

Transfer Techniques

- Assure the stretchers are of equal height or the ambulance stretcher slightly (1 inch) higher than the hospital stretcher.

Transfer Techniques

- Assure proper body mechanics
  - Reposition assistants as necessary
  - Keep your body stacked and straight
  - Avoid twists and awkward positions
  - Keep weight as close to your body as possible when preparing to move the patient
  - Never use your back muscles to lift or move the patient
  - When reaching, reach no more than 15 – 20 inches in front of your body

Assuring you have enough staff as well as using proper lifting technique will save your back and the patient

June 29, 2015 73

Skills Lab

- Students will work in groups of no more than 6 students per instructor
- Students will demonstrate proper technique for spinal motion restriction
- Students will demonstrate proper technique for transferring a patient to the stretcher while maintaining spinal motion restriction from:
  - Supine
  - Seated
  - Prone
  - Standing

NEW YORK STATE Department of Health

June 29, 2015 74

Skills Lab

- Students will demonstrate proper technique for spinal motion restriction while utilizing a “scoop” type stretcher as well as a long backboard
- Students will demonstrate proper technique for transferring a patient from the ambulance stretcher to a hospital stretcher, while maintaining spinal motion restriction

NEW YORK STATE Department of Health