REGION 11 CHICAGO EMS SYSTEM PROTOCOL	Title: Extremity Trauma / External Hemorrhage Management
	Section: Trauma
	Approved: EMS Medical Directors Consortium
	Effective: September 15, 2020

EXTREMITY TRAUMA / EXTERNAL HEMORRHAGE MANAGEMENT

I. PATIENT CARE GOALS

1. Minimize blood loss from extremity hemorrhage.
2. Avoid hemorrhagic shock as a result of extremity hemorrhage.
3. Minimize pain and further injury as a result of potential fractures or dislocations.

II. PATIENT MANAGEMENT

A. Assessment

1. Evaluate for obvious deformity, shortening, rotation, or instability.
2. Neurologic status of extremity
    a. Sensation to light touch
    b. Distal movement of extremity
3. Vascular status of extremity
    a. Pallor
    b. Pulse
    c. Capillary refill
    d. Degree of bleeding/blood loss with assessment of the color of the blood (venous or arterial) and whether it is pulsatile or not

B. Treatment and Interventions (see Prehospital External Hemorrhage Control diagram below)

1. Manage bleeding
    a. Apply direct pressure to bleeding site followed by pressure dressing.
    b. If direct pressure/pressure dressing is ineffective or impractical:
        i. If the bleeding site is amenable to tourniquet placement, apply tourniquet to extremity (see Hemorrhage Control procedure)
            1. Tourniquet should be placed 2-3 inches proximal to wound, not over a joint, and tightened until bleeding stops and distal pulse is eliminated.
            2. If bleeding continues, place a second tourniquet proximal to the first.
        ii. If the bleeding site is not amenable to tourniquet placement (i.e. junctional injury), pack wound tightly with a hemostatic gauze and apply direct pressure.

c. Groin/axillary injury:
   i. Apply direct pressure to wound.
   ii. If still bleeding, pack wound tightly with hemostatic gauze and apply direct pressure.

2. Manage pain (see Pain Management protocol)

   a. Pain management should be strongly considered for patients with suspected fractures.
   b. If tourniquet is placed, an alert patient will likely require pain medication to manage tourniquet pain.

3. Stabilize suspected fractures/dislocations

   a. Strongly consider pain management before attempting to move a suspected fracture.
   b. If distal vascular function is compromised, gently attempt to restore normal anatomic position.
   c. Use splints as appropriate to limit movement of suspected fracture.
   d. Elevate extremity fractures above heart level whenever possible to limit swelling.
   e. Apply ice/cold packs to limit swelling in suspected fractures or soft tissue injury - do not apply ice directly to skin.
   f. Reassess distal neurovascular status after any manipulation or splinting of fractures/dislocations.

4. Amputations

   a. Amputated body parts should be transported with patient for possible re-implantation.
   b. Amputated parts should be covered with dry gauze.
   c. Place the amputated part in a plastic bag.
   d. Place the bag with the amputated part on ice in a second bag.
   e. Do not let the amputated part come into direct contact with the ice.
   f. The stump should be covered with saline moistened gauze.

C. Patient Safety Considerations

1. If tourniquet is used:

   a. Ensure that it is sufficiently tight to occlude the distal pulse.
   b. Ensure that it is well marked and visible and that all subsequent providers are aware of the presence of the tourniquet.
   c. Do not cover with clothing or dressings.

2. Mark time of tourniquet placement prominently on the patient.

3. If pressure dressing or tourniquet is used, frequently re-check to determine if bleeding has restarted. Check for blood soaking through the dressing or continued bleeding distal to the tourniquet. Do not remove tourniquet or dressing in order to assess bleeding.

III. NOTES/EDUCATIONAL PEARLS

A. Tourniquet may be placed initially to stop obvious severe hemorrhage, then replaced later with pressure dressing after stabilization of ABCs and packaging of patient. Tourniquet should not be removed if:

1. Transport time short (less than 30 minutes)
2. Amputation or near-amputation
3. Unstable or complex multiple-trauma patient
4. Unstable clinical or tactical situation

B. If tourniquet is replaced with pressure dressing, leave loose tourniquet in place so it may be retightened if bleeding resumes.

C. Survival is markedly improved when a tourniquet is placed *before* shock ensues.

D. Commercial/properly tested tourniquets are preferred over improvised tourniquets.

E. If hemostatic gauze is not available, plain gauze tightly packed into a wound has been shown to be effective.

F. Arterial pressure points are not effective in controlling hemorrhage.

Prehospital External Hemorrhage Control Protocol