

Bayfield-Ashland Counties EMS TRAUMA	T-5 EXTREMITY and EXTERNAL HEMORRHAGE
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SYMPTOMS: Extremity trauma including fractures, dislocations, rotation, instability and/or amputations. External hemorrhage.

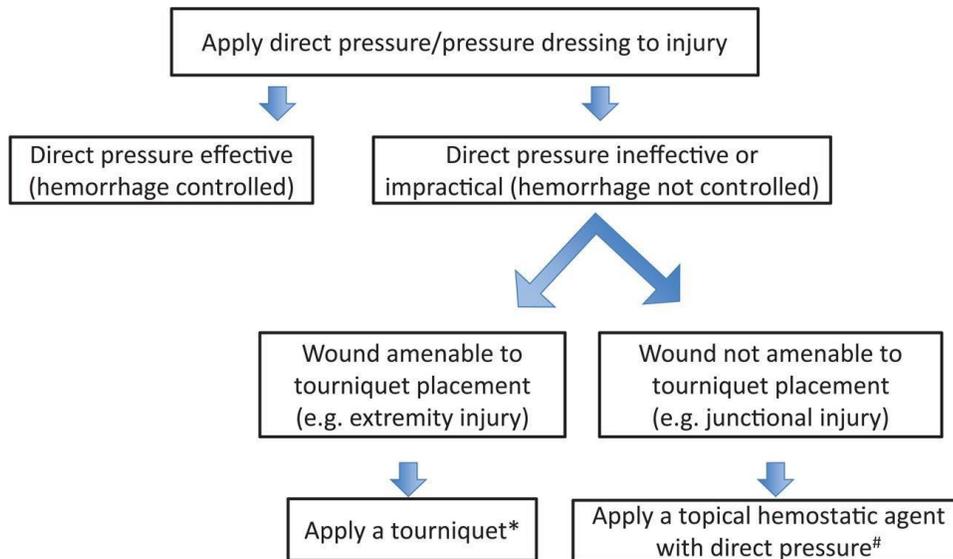
Assessment, Treatment and Interventions

ALL LEVELS

1. Assure scene is safe.
2. Perform rapid assessment of patient.
3. Manage bleeding.
 - a. Apply direct pressure to bleeding site followed by pressure dressing.
 - b. Apply tourniquet if direct pressure and/or pressure dressing is ineffective.
 - i. Tourniquet should be placed 2-3 inches proximal to wound, not over a joint.
 - ii. Tighten until bleeding stops and distal pulse is eliminated.
 - iii. Ensure that the distal pulse is eliminated to avoid compartment syndrome.
 - iv. If bleeding continues, place a second tourniquet proximal to the first.
 - v. Consider placement of two tourniquets, side-by-side, for thigh wounds; Tighten sequentially to eliminate distal pulse.
 - vi. Make sure tourniquets are visible.
 - vii. Mark time of tourniquet placement on tourniquet and/or patient.
 - c. If pressure dressing or tourniquet used, check frequently to determine if bleeding has restarted. Do not remove tourniquet or dressing to assess bleeding.
 - d. Groin or axillary injury
 - i. Apply direct pressure to wound.
 - ii. If still bleeding, pack wound tightly with hemostatic gauze and apply direct pressure.
 - iii. Consider using a junctional hemostatic device if available.
4. Evaluate extremities for obvious deformity, shortening, rotation, or instability.
 - a. Assess neurologic status
 - i. Sensation to light touch
 - ii. Distal movement of extremity
 - b. Assess vascular status of extremity
 - i. Pale skin / pallor
 - ii. Pulse
 - iii. Capillary refill
 - iv. Degree of bleeding/blood loss with assessment of the color of the blood (venous or arterial) and whether it is pulsative or not.
5. Stabilize suspected fractures or dislocations:
 - a. Apply splints as appropriate to limit movement and decrease pain of suspected fracture.
 - b. If distal vascular function is compromised, gently attempt to restore normal anatomic position.
 - c. Apply ice/cool packs to limit swelling in suspected fracture or soft tissue injury. Do not apply ice directly to skin.
 - d. Reassess distal neurovascular status after any manipulation or splinting of fracture or dislocations to assure motor and sensory function
6. Amputated body parts should be transported with patient for possible re-implantation.
 - a. Keep the amputated body part cool but dry.

- b. Place the amputated part in a plastic bag.
 - c. Place the bag with the amputated part on ice in a second bag.
 - d. Do not let the amputated part come into direct contact with the ice.
7. Manage pain. (See [Pain Management guideline \[M-11\]](#).)
- a. Pain management should be strongly considered for patients with suspected fractures.
 - b. If tourniquet placed, an alert patient will likely require pain medication to manage tourniquet pain.

Prehospital External Hemorrhage Control Protocol



* Use of tourniquet for extremity hemorrhage is strongly recommended if sustained direct pressure is ineffective or impractical; use a commercially produced, windlass, pneumatic, or ratcheting device, which has been demonstrated to occlude arterial flow, and avoid narrow, elastic, or bungee-type devices; utilize improvised tourniquets only if no commercial device is available; do not release a properly-applied tourniquet until the patient reaches definitive care.

Apply a topical hemostatic agent, in combination with direct pressure, for wounds in anatomic areas where tourniquets cannot be applied and sustained direct pressure alone is ineffective or impractical; only apply topical hemostatic agents in a gauze format that support wound packing; only utilize topical hemostatic agents which have been determined to be effective and safe in a standardized laboratory injury model.

Source: Bulger et al. 2014