SAN FRANCISCO EMERGENCY MEDICAL SERVICES AGENCY

Effective: 01/07/13 **Protocol: P-033**
Supersedes: 01/01/11

EXTREMITY TRAUMA

SUBJECTIVE FINDINGS

- Mechanism of injury.
- Past medical history including history of previous injuries.

OBJECTIVE FINDINGS

- Check for amputation, deformity, open wounds, swelling, shortening and/or rotation.
- Note range of motion, check pulses, sensation and color of the extremity.
- Assess the severity of pain (1-10 scale).
- Assess for other associated injuries.

BLS Treatment	ALS Treatment

• Routine Medical Care.
• Control any external bleeding with direct pressure. Use lowest effective pressure to arrest hemorrhage.
• Apply a tourniquet proximal to injury when:
  ○ Direct pressure does not control bleeding.
  ○ Amputation.
  ○ Significant extremity hemorrhage with need for airway management; breathing support; other emergent interventions and/or circulatory shock.
  ○ Severe bleeding from an impaled foreign object.
  ○ Bleeding site is not accessible due to entrapment.
  ○ During a mass casualty incident in order to expedite care to all victims.
• Splint injured extremity.
• Elevate and apply cold packs.
• If amputation, place part in dry, sterile dressing, place in sealed plastic bag, and place on top of ice or cold packs.
• Cover open wounds with sterile dressings.
	FRACTURE / DISLOCATION
	• If the extremity is pulseless, attempt restore circulation by using gentle in-line traction to place it in a normal anatomic position.
	• If initial repositioning does not restore circulation, DO NOT manipulate further. Transport immediately.
	• Apply splint and cooling pack.
	• IV of NS in uninjured extremity.
	• Pain control with **Morphine sulfate** 4 mg slow IVP, repeat as needed to a total of 20 mg if no evidence of head injury, potential multi-system trauma, critical trauma, abdominal pain or AMS.
	Consider **Ondansetron** 4 mg IV/IM for nausea/vomiting, may be repeated q 20" to a maximum dose of 12 mg.
	
	AMPUTATION
	• IV of NS in uninjured extremity
	• Fluid challenge if patient is hypotensive according to the following guidelines:
	  ○ **Blunt Trauma:** SBP of 90 with AMS infuse a bolus of 300 ml of crystalloid. Document full effect of bolus i.e. B/P, heart rate, and improvement in mental status when infusion is finished.
	  ○ **Penetrating Trauma**: IV access TKO, unless SBP drops to less than 60. If SBP is less than 60, infuse a bolus of 300 ml of crystalloid to achieve SBP of 60.

	For distal amputations: • Pain control with **Morphine sulfate** 4 mg slow IVP. Repeat as needed to a total of 20 mg if no evidence of head injury, potential multi-system trauma, critical trauma, abdominal pain or AMS. Consider **Ondansetron** 4 mg IV/IM for nausea/vomiting, may be repeated q 20" to a maximum dose of 12 mg.
BASE HOSPITAL CONTACT CRITERIA	
For injuries associated with multi-system trauma and/or proximal amputations or requests for more than 20 mg of **Morphine sulfate.**	

DOCUMENTATION

- Time that tourniquet applied to affected limb.
- If deformity noted on exam and affected extremity immobilized.
- Patient's pain documented on 1-10 scale and **Morphine Sulfate** given.

PRECAUTIONS AND COMMENTS

- Limb with tourniquet should remain exposed at all times. Time of tourniquet start must be communicated to receiving hospital staff.
- Pad all splinted extremities and recheck neurological function and circulation q 5 min.
- If there is any question as to the hemodynamic status of a patient when administering **Morphine Sulfate** the Base Hospital shall be contacted.