1. Crush Injury syndrome

**Definition**: Crush injury syndrome is the name given to the systemic manifestations of muscle crush injury and cell death. Crush injury syndrome should be suspected in patients with certain patterns of injury. Most patients in whom the syndrome develops have an extensive area of involvement such as a lower extremity and/or pelvis. It requires more involvement than just one hand or foot. The syndrome may develop after one hour in a severe crush situation, but usually requires 4 – 6 hours of compression for the processes that cause crush injury syndrome to occur.

2. Hyperkalemia in the context of dialysis

**Definition**: Hyperkalemia is common in patients with end-stage renal disease, and may result in serious electrocardiographic abnormalities. Dialysis is the definitive treatment of hyperkalemia in these patients. EKG findings are critical to proper treatment decisions. Findings such as peaked “T” waves and absent “P” waves as well as widening QRS complexes are signs that a renal patient in the context of dialysis is suffering from hyperkalemia. Renal patients who are taking ACE inhibitors, ARBs (aldosterone receptor blockers), NSAIDS, beta blockers and/or sodium channel blockers have an increased risk of hyperkalemia in the context of dialysis. Obtain a thorough history paying special attention to the patient's medications. In the peri-arrest dialysis patient, correcting hyperkalemia can be vital in the patient’s overall survival.
**CRUSH INJURY SYNDROME/ HYPERKALEMIA IN A DIALYSIS PATIENT**

Immediate care of crush injury patient (prior to release) or Care of a dialysis patient with suspected hyperkalemia

- **Cardiac Monitor**
- **12 Lead EKG**
- **Albuterol** 5 mg in 6ml NS via nebulizer
- **Sodium Bicarbonate** 1 mEq/kg IVP
  Note: flush IV tubing after administration to avoid precipitation.

Care of crush injury patient after release of compression or continuing care of renal patient with suspected hyperkalemia

- **Calcium Chloride** 1 gm slowly IVP (over 60 sec.) Note: flush IV tubing after administering CaCl to avoid precipitation
- **Sodium Bicarbonate** 1 mEq/ kg added to 1000 ml NS wide open.
  Note: make sure to have a second IV line as other medications may not be compatible.

Hyperkalemia suspected? (see note #1)

- Yes
- No

Considering transport to facility with hyperbaric oxygen chamber?

- Yes
- No

Contact the base physician (see note #2)

Reassess as needed

Note #1: Entrapment more than 4 hours and/or abnormal EKG findings – peaked “T” wave – absent “P” waves or widened “QRS”

Note #2: Area hospitals that have hyperbaric oxygen chambers are:
- Eden Medical Center – Castro Valley 889-5073 or 889-5015 (off hours)
- John Muir Medical Center – Walnut Creek (925) 947-3212
- Travis Air Force Base – Fairfield (707) 423-3987