Pediatric Submersion/Drowning

For any submersion injury, including drowning and dive (decompression) emergencies

**History**
- Age
- Duration of submersion
- Water temperature
- Type of water (salt, fresh, pool, etc.)
- SCUBA Diving
- Trauma possible? (Diving into pool)

**Signs and Symptoms**
- Airway – Clear vs. Foam vs. water/vomit
- Spontaneous Breathing
- AMS
- Cold/Shivering
- Motor neuro exam/priapism
- Bradycardia

**Differential**
- Hypothermia
- Hypoglycemia
- CNS dysfunction
- Seizure
- Head injury
- Spinal cord injury

**History**

- Alert, awake, and oriented
- Supplemental oxygen to maintain SpO₂ >92%
- SMR if indicated

**Signs and Symptoms**

- Awake but altered
- Assist ventilations if indicated
- Supplemental oxygen to maintain SpO₂ >92%
- Blood glucose analysis
- Spinal motion restriction if indicated
- Gently move to a warm environment
- Remove wet clothing and cover with warm dry sheets or blankets

**Differential**

- Unresponsive
- Assist ventilations as tolerated
- Supplemental oxygen to maintain SpO₂ >92%
- Spinal motion restriction if indicated
- Gently move to a warm environment
- Remove wet clothing and cover with warm dry sheets or blankets

**Pearls**

- Check for pulselessness for 30-45 seconds to avoid unnecessary chest compressions.
- Defer ACLS medications in hypothermic patients until patient is warmed. Patients with hypothermia may have good neurologic outcome despite prolonged resuscitation; resuscitative efforts should continue until the patient is rewarmed.
- If V-Fib or pulseless V-Tach is present, shock x1, and defer further shocks.
- Extremes of age, malnutrition, alcohol, and other drug use are contributing factors to hypothermia.
- Patients with prolonged hypoglycemia often become hypothermic; blood glucose analysis is essential.
- If a temperature is unable to be measured, treat the patient based on the suspected temperature.
- Warm packs can be placed in the armpit and groin areas. Care should be taken not to place directly on skin.

**Emergency Hyperbaric Chambers**

John Muir Medical Center – Walnut Creek

**ALOC**

- Monitor and reassess
- Establish IV/IO
- Cardiac monitor

**Cardiac Arrest**

- Monitor and reassess
- Establish IV/IO
- Cardiac monitor
- Assist ventilations if indicated
- Blood glucose analysis
- Spinal motion restriction if indicated
- Gently move to a warm environment
- Remove wet clothing and cover with warm dry sheets or blankets

**Respiratory Distress**

- Monitor and reassess
- Establish IV/IO
- Cardiac monitor
- Assist ventilations if indicated
- Blood glucose analysis
- Spinal motion restriction if indicated
- Gently move to a warm environment
- Remove wet clothing and cover with warm dry sheets or blankets

**SAN MATEO COUNTY HEALTH EMERGENCY MEDICAL SERVICES**

Treatment Protocol PR09

Effective April 2023