8. Active efforts to expel water from the airway (by abdominal thrusts or other means) should be avoided as they delay resuscitative efforts and increase the potential for vomiting and aspiration
9. Long-standing teaching has suggested that rescuers should always assume c-spine injury in victims of drowning
    a. The 2010 American Heart Association update on special circumstances in cardiac arrest notes that routine c-spine precautions in all victims of drowning is likely unnecessary unless the mechanism or injury, history, or physical exam suggests a cervical spine injury
    b. Mechanisms of injury highly suggestive of cervical spine injury include diving, water skiing, surfing, or watercraft accidents
10. Uncertainty exists regarding survival in cold water drowning; however, recent literature suggests the following:
    a. If water temperature is less than 43°F (6°C) and the patient is submerged with evidence of cardiac arrest:
        i. Survival is possible for submersion time less than 90 minutes and resuscitative efforts should be initiated
        ii. Survival is not likely for submersion time greater than 90 minutes and clinicians may consider not initiating resuscitation or termination of resuscitation on scene
    b. If water temperature is greater than 43°F (6°C) and the patient is submerged with evidence of cardiac arrest:
        i. Survival is possible for submersion time less than 30 minutes and resuscitative efforts should be initiated
        ii. Survival is not likely for submersion time greater than 30 minutes and clinicians may consider not initiating resuscitation or termination of resuscitation on scene
11. Patients may develop subacute respiratory difficulty after drowning and therefore all victims of drowning should be transported for observation
12. Decompression illness may have a variety of presentations depending on system affected (e.g., skin, joint(s), pulmonary, neurologic), and can occur even when a diver does not exceed dive table limits

Quality Improvement

Associated NEMSIS Protocol(s) (eProtocol.01) *(for additional information, go to www.nemsis.org)*

- 9914091 – Injury - Diving Emergencies
- 9914093 – Injury - Drowning/Near Drowning

Key Documentation Elements

- Mechanism of injury or history suggesting cervical spine injury
- Submersion time
- Water temperature
- Activities leading to drowning
- Consider a standardized data collection metrics such as the Utstein drowning data reporting elements

Performance Measures

- Recognition and appropriate care of pulmonary/respiratory complaints