

Non-Trauma Shock

1. For the pediatric patient presenting with non-traumatic **septic** shock in the prehospital setting, does rapid delivery of initial fluid bolus(es) improve quality of care (decreased ICU admission rate, decreased hospital LOS, improved mortality, decreased end-organ failure)?
2. For the pediatric patient presenting with non-traumatic **hypovolemic** shock from dehydration in the prehospital setting, does rapid delivery of initial fluid bolus(es) improve quality of care (decreased ICU admission rate, decreased hospital LOS, improved mortality, decreased end-organ failure)?
3. For the pediatric patient presenting with non-traumatic **septic** shock in the prehospital setting, does the use of pulse oximetry/oxygen saturation monitoring improve quality of care (decreased ICU admission rate, decreased hospital LOS, improved mortality, decreased end-organ failure)?
4. For the pediatric patient presenting with profound non-traumatic **septic or hypovolemic** shock in the prehospital setting, does a fluid bolus via Intraosseous needle (when peripheral access has failed) result in improved quality of care (decreased ICU admission rate, decreased hospital LOS, improved mortality, decreased end-organ failure) relative to deferring IV placement at the receiving hospital?
5. For pediatric patients in the prehospital setting presenting with non-traumatic **septic** shock who are non-responsive to fluid bolus(es), does inotropic medication therapy initiated in the out-of-hospital setting improve quality of care (decreased ICU admission rate, decreased hospital LOS, improved mortality, decreased end-organ failure)?
6. For pediatric patients in the prehospital setting presenting with non-traumatic **septic** shock that is non-responsive to fluid bolus(es), what is the optimal time to initiation of inotropic medication therapy to improve quality of care (decreased ICU admission rate, decreased hospital LOS, improved mortality, decreased end-organ failure)?
7. For pediatric patients in the prehospital setting presenting with non-traumatic **septic or hypovolemic** shock who are non-responsive to an initial fluid bolus, what is the maximum recommended volume of fluid that should be administered to improve quality of care (decreased ICU admission rate, decreased hospital LOS, improved mortality, decreased end-organ failure)?
8. When using rapid sequence induction for the pediatric patient with non-traumatic **Septic** shock, which medications are preferred for induction to avoid adverse outcomes (adrenal suppression, worsened hypertension)?

PICO Questions for Selected Protocol Review

9. For pediatric patients presenting with non-traumatic **septic or hypovolemic** shock in the prehospital setting, what are the clinical indicators for intubation and ventilation?

Post-Resuscitation Management

(Definition of post-resuscitation: the phase of treatment provided to a patient after he/she has had a return of spontaneous circulation for at least 2 minutes after having a pulseless cardiac arrest.)

1. Does pulse oximetry monitoring with titration of oxygen delivery improve outcomes (mortality upon arrival, 30 day mortality, neurologic outcome) in the post resuscitation management of the **pediatric** patient in the prehospital setting?
2. Does pulse oximetry monitoring with titration of oxygen delivery improve outcomes (mortality upon arrival, 30 day mortality, neurologic outcome) in the post resuscitation management of the **neonatal** patient in the prehospital setting? ?
3. In the post resuscitation management of the pediatric patient in the prehospital setting who has not been previously intubated, how does intubation compare with bag valve mask ventilation in terms of improved outcomes (mortality upon arrival, 30 day mortality, neurologic outcome, ICU length of stay)
4. Does therapeutic hypothermia compared to no intervention in the post resuscitation management of the **neonate** in the prehospital setting result in better outcomes (Mortality upon arrival, 30 day mortality, neurologic outcome)?
5. Does therapeutic hypothermia compared to no intervention in the post resuscitation management of the **infant (non-neonate) or child** in the prehospital setting result in better outcomes (Mortality upon arrival, 30 day mortality, neurologic outcome)?
6. In the post resuscitation management of the pediatric patient in the prehospital setting, should fever (>38°C) be aggressively treated?

C-Spine Immobilization

1. For pediatric patients with suspected cervical spine injury in the prehospital setting, what are the most age-appropriate methods of in-line spinal immobilization to minimize harm?
2. For stable, alert, non-cooperative pediatric trauma patients in the prehospital setting, do the potential benefits of full spinal immobilization outweigh the potential harm of physiological and/or psychological injury secondary to forced immobilization?
3. For pediatric patients in the prehospital setting, what are the specific risk factors for cervical spine injury that can be used to create a selective spinal immobilization protocol?
4. For pediatric trauma patients in the prehospital setting, can EMS providers accurately apply criteria for clearing cervical spines in the field?
5. In the absence of significant risk factors for cervical spine injury, are children who present to the emergency department by ambulance or air medical transport with full spinal immobilization precautions more likely to receive radiological imaging than children with similar trauma who are not immobilized prior to arrival to the emergency department?

Pediatric Non-Transport

1. Are pediatric patients who are non-transported based on decisions made by prehospital emergency medical services personnel in the field more likely to experience adverse events than those who are transported?
2. Does the use of on-line physician consultation in prehospital pediatric non-transport decisions improve outcomes (decreased adverse events, decreased inappropriate transports)?
3. Does on-line physician consultation significantly reduce the medical and/or legal risks associated with non-transport decisions for pediatric patients in the prehospital setting?
4. For pediatric patients who were initially evaluated by prehospital EMS personnel and not transported, are there significant differences in the percentage of repeat 9-1-1 calls for EMS, intensive care admissions, deaths, or litigation filed based on whether or not the EMS agency requires mandatory on-line physician consultation?

PICO Questions for Selected Protocol Review

5. For pediatric patients who were initially evaluated by prehospital EMS personnel and not transported, are there significant differences in the percentage of repeat 9-1-1 calls for EMS, intensive care admissions, deaths, or litigation filed based on level of EMS certification?
6. For the pediatric patient in the prehospital setting, is there a significant correlation between parental refusal of EMS transport to the emergency department and subsequent diagnosis of abuse?
7. For the pediatric patient in the prehospital setting, is there a significant difference in the percentage of non-transport dispositions based on the patient's age, race, family religion, or socio-economic status?