POLICY:

1. Injury is the leading cause of death and disability in children. San Joaquin General Hospital Emergency Department (ED), in conjunction with the Department of Surgery, provides an initial screening assessment to all pediatric patients, defined as age 13 and under (Title 22) and age 14 and under per SJCEMSA Policy #5210, who present to the facility as a Trauma Activation following a traumatic event specified in the Trauma Activation Policy.

2. All pediatric patients sustaining trauma will have an initial screening assessment performed by a qualified physician or mid-level provider. Pediatric patients who receive a trauma activation and are evaluated by the ED MD or the Dept. of Surgery as having a traumatic injury, will have a specific Trauma related assessment and age-related documentation.

3. Most pediatric patients who meet the Major Trauma Patient criteria (EMS Policy 5210) are to be transported from the field to a higher level of care facility that is equipped and specifically trained to treat pediatric major (critical) trauma patients. (EMS Policy 5215).

4. At times, a critical pediatric patient, in the assessment by a field paramedic, is too unstable to be transported further away, they experience an inability to obtain an airway or have gone into respiratory and/or cardiac arrest. These critical pediatrics will be brought to the SJGH Trauma Center and will be activated as a Tier I Trauma. The patient will be emergently treated and immediate preparations made for transfer to a Tertiary Trauma Center (i.e. UC Davis Medical Center or Children’s Hospital, Oakland, CA).

5. Pediatric patients who are less critical, and do not meet Major Trauma Patient field criteria, will be brought to SJGH if they have sustained a traumatic injury per field protocols. All Pediatric patients who arrive at SJGH from the field will be activated at a minimum level of a Tier II or as a Tier I if that criterion is met.

PURPOSE:

It is the purpose of this policy to establish the assessment parameters and care regimen for determining the severity of injury of the pediatric trauma patient, ages 0-14, presenting to the Emergency Department following a traumatic injury. It will also describe what types of pediatric patients will be emergently transferred to a Tertiary Pediatric Facility or will be admitted to SJGH with appropriate evaluation by the Department of Pediatrics as requested by the Department of Surgery.

PROCEDURE:

1. Initial Evaluation and Management – Broselow Pediatric Emergency Tapes shall be utilized for every pediatric patient assessment.
2. **Primary Survey**

The goal of the primary survey is to find and relieve immediate life-threatening conditions. The primary survey also includes frequent reassessment to confirm or exclude injuries that require immediate surgical intervention.

   a. **Primary survey imaging**

   Kanz et al. introduced the term “focused assessment with computed tomography in trauma (FACTT). This imaging modality has been shown to shorten the time taken to make a definitive diagnosis. The potential risk of malignancy caused by radiation from Computed Tomography (CT) in children needs to be weighed against the benefit of avoiding fatality from missed injuries.”[1]

   b. **Cervical Spine Injuries**

   “While spinal cord injuries are rare in children, a missed injury may have devastating consequences for the child. All significantly injured children must be assumed to have a cervical spine injury until proven otherwise by objective clinical examination”.[1]

   “The National Emergency X-Radiography Utilization Study found that applying the following five clinical criteria for **NOT** obtaining cervical spine imaging in pediatric blunt trauma had a sensitivity of 99% 1) no midline cervical tenderness, 2) no focal neurologic deficit, 3) normal alertness, 4) no intoxication, and 5) no painful, distracting injury”. [1]. “All other children must have their spine immobilized with an appropriately fitted cervical collar until cleared clinically or by CT or Magnetic Resonance Imaging (MRI) at 72 hrs. post injury. Initial X-ray evaluation should routinely consist of three views; a cross-table lateral view, an anteroposterior view, and an open-mouth view to help visualize the odontoid process.”[1]

c. **Disability**

   “Perform a quick assessment of neurologic function at the end of the primary survey, and repeat during the secondary survey to monitor for changes in the child’s neurologic status. Causes of decreased level of consciousness in injured children include traumatic brain injury (TBI), hypoxemia, and poor cerebral perfusion. The latter two can exacerbate a TBI and result in secondary brain injury.”[1]

d. **Management of Breathing, Ventilation and Oxygenation**

   For non-intubated patients arriving to the emergency department, “it is vital to assess, re-assess, and keep re-assessing ABCs for adequacy until the patient is transferred to the definitive care place” [1], (transfer to a higher level of care facility, the assigned inpatient unit or operating room).

e. **A pediatric trauma patient who requires admission to an Intensive Care Unit (ICU), should **NOT** be admitted to this facility, (SJGH), unless, in the opinion of the attending surgeon, the benefits to stay outweigh the risks of transport to a higher level of care with consultation of a pediatric trauma surgeon in a pediatric trauma center.**
3. ADMISSION OR DISCHARGE DECISIONS

a. A pediatric patient who requires admission to the hospital should be placed in an appropriate inpatient unit. The Pediatrics unit, if available, cannot take a child >13 years of age according to Title 22. These children should be admitted to the Med-Surg unit or Telemetry unit.

b. For inpatient admissions – all pediatric trauma patients, 5 years and under MUST have a Pediatric Consultation, be admitted to the Surgery Service and be co-followed by Pediatrics. (Per American Academy of Pediatrics (AAP).

c. A Pediatric physician consultation shall be requested as needed for pediatric trauma patients admitted to an inpatient unit by the Trauma Surgeon. The Pediatric trauma patient will ALWAYS be admitted to the Surgery Service with a Pediatric Consult, as needed.

d. If it is deemed safe to discharge the patient to home, or the patient is to be transferred to a higher level of pediatric care, the attending trauma surgeon shall be responsible to make this decision and shall physically see the patient in the Emergency Department prior to discharge, or transfer, regardless of what trauma activation level was called, Tier I, II or III. The attending surgeon will document/dictate notes pertaining to the assessment, management and treatment of all pediatric trauma patients.

The goal of the secondary survey is to evaluate the patient from head to toe to ascertain any abrasions, lacerations, deformities, edema, hematoma, pain, etc. for any other signs or symptoms of potential trauma. The secondary survey allows the provider to order additional testing or evaluation as required to rule out injuries not yet diagnosed.

a. Thoracic evaluation. “The compliance of the child’s rib cage allows significant injury to occur with few obvious external signs of trauma. Energy is transmitted to the thoracic contents, and pulmonary contusions and hematomas are relatively more common…….pulmonary contusions can result in severe hypoxemia, which may be refractory to oxygen therapy.” [1] Pediatric patients who have suffered lung contusion(s), of any kind, should ALL be transferred to a Pediatric Intensive Care hospital.

b. Abdominal evaluation. “Abdominal trauma is the most common cause of unrecognized fatal injury in children…….The stomach and bladder need to be decompressed, and abrasions and contusions of the torso need to be looked for. Persistent, gentle palpation of the abdomen may find significant tenderness if the level of consciousness is not impaired and there are no distracting injuries.” [1] Focused Abdominal Sonography for Trauma (FAST) should be accomplished to evaluate for free intra-peritoneal fluid. “Computed Tomography (CT) remains the gold standard for diagnosing abdominal injuries…….It is prudent to type and crossmatch blood products for all trauma patients with blunt solid organ injuries, as sudden, unexpected deterioration due to internal hemorrhage is a possibility.” [1]
c. **Extremity evaluation** – All extremities should be visualized and palpated for circulation, deformity, tenderness, ecchymosis, lacerations or abrasions.

d. **Evaluation of the back** – Log roll every patient to visualize and palpate the back for deformity, tenderness, ecchymosis, lacerations or abrasions.

e. **Management of Pain**
   “Pain has, historically, been undertreated in patients presenting to the ED. This problem may be even greater in young pre-verbal injured children than in older children.” [1]
   “A multimodal analgesic technique combining acetaminophen and NSAIDs reduces the dose of opioids required to treat pain.” [1]

f. **Prevention of Hypothermia**
   “All victims of major trauma should be considered to be at risk for hypothermia. Children are more prone to develop hypothermia than adults. Hypothermia can lead to arrhythmias, coagulation abnormalities, and acidosis.” [1] “An initial core temperature measurement (oral, rectal or temporal or bladder) should be done as a part of the primary survey. Passive re-warming, i.e. removal of wet clothing/linen and coverage with warm blankets, along with minimizing exposure for diagnostic procedures, should be undertaken in all children. All IV fluids and blood products should be warmed using fluid warmers. Active external re-warming with a convective air blanket should be considered in all children with a core temperature of <36 degrees.” [1] A core temperature shall also be assessed prior to the patient leaving the Emergency Department.

g. **Psychosocial Support for the Child and Family**
   Social Services should be ordered for all critically injured children and/or the family. Experiences with accidents, injuries, physical abuse, or hospitalization can leave a lasting impact on some children’s minds. [1]

h. Many childhood injuries are preventable and one main focus of the Injury Prevention is to provide education and resources to prevent future injuries from occurring. In an effort to do so, the Emergency room staff provides beside education and consults to our inpatient population to address:
   1. Fall prevention
   2. Pedestrian injuries
   3. Child passenger safety
   4. Sports related injuries
   5. Poison prevention
   6. Gun safety
   7. Choking prevention
   8. Extreme temperature variations
   9. Fire safety

Educational materials and education are provided to trauma patients, customized to their specific mechanism of injury in an effort to prevent further similar injuries.
i. All Activated Pediatric trauma patients will be evaluated by the Trauma Patient Improvement and Patient Safety process.

Author(s): Trauma Department

References:
2. Daniel Mark Alterman. Considerations in Pediatric Trauma, Medscape Reference © 2011 WebMD, LLC

Educational Materials:
1. Injury Free Coalition for Kids
   http://www.childrenshospitaloakland.org/main/additional-resources-for-injury-prevention.aspx
2. AAP Health & Safety Tips

Approvals: Department of Surgery; Multi-Disciplinary Trauma Committee, Department of Pediatrics, Medical Executive Committee