Trauma: Blunt Solid Organ Injury Clinical Pathway

Objective of Clinical Pathway

Provide care standards, evidence informed care for pediatric trauma patients with blunt solid organ injury across Emergency Department and inpatient settings at Children's Mercy. The pathway aligns trauma surgery, emergency medicine, and inpatient care to reduce unwarranted variation while supporting safe discharge.

Background

Blunt abdominal solid organ injury accounts for a large share of pediatric trauma encounters, with most injuries classified as low grade and managed without operative intervention. Children with isolated Grade I-II liver or splenic injuries are often hospitalized, but rarely require hospital-based intervention such as transfusion or surgery (Evans et al., 2021; Plumblee et al., 2020). This suggests that hemodynamically stable children with isolated low grade injuries without peritonitis may achieve safe outcomes when discharged directly from the emergency department. Routine admission for isolated low grade solid organ injury may not improve clinical outcomes and contributes to potentially avoidable inpatient utilization (Butt et al., 2021).

Target Users

- Physicians (Emergency Medicine, Hospital Medicine, Intensivists, Trauma Surgeons, Fellows, Resident Physicians)
- Nurse Practitioners

Target Population

Inclusion Criteria

- Patient in the Emergency Department with suspected blunt abdominal trauma without peritonitis

Exclusion Criteria

- Hemodynamic instability / Signs of shock
- Peritonitis
- Penetrating Trauma
- Suspected Child Abuse

Practice Recommendations

In lieu of a clinical practice guideline fully addressing the management of blunt solid organ injury in pediatric and adolescent patients, guidance from pediatric literature was used in conjunction with the expert consensus of the Clinical Pathway Committee to inform the assessment, acute management, and referral guidance in this pathway.

Measures

- Access of the clinical pathway (website hits)

Value Implications

The following improvements may increase value by reducing healthcare costs and non-monetary costs (e.g., missed school/work, loss of wages, stress) for patients and families and reducing costs and resource utilization for healthcare facilities.

- Decreased risk of overtreatment (e.g., multiple blood draws if not needed)
- Decreased frequency of admission, when appropriate
- Decreased unwarranted variation in care

Organizational Barriers and Facilitators

Potential Barriers

- Variability of acceptable level of risk among providers
- Need for effective communication and coordination among clinicians of different specialties

Potential Facilitators

- Collaborative engagement across the continuum of clinical care settings and healthcare disciplines during clinical pathway development
- Anticipated high rate of use of the clinical pathway

Bias Awareness

Our goal is to recognize the social determinants of health and minimize healthcare disparities, while acknowledging that our unconscious biases can contribute to these disparities.

Clinical Pathway Preparation

This pathway was prepared by the EBP Department in collaboration with the Blunt Solid Organ Injury Clinical Pathway Committee, composed of content experts at Children's Mercy. If a conflict of interest is identified, the conflict will be disclosed next to the committee member's name.

Blunt Solid Organ Injury Clinical Pathway Committee Members and Representation

- Shahab Abdessalam, MD, FACS, FSSO | Surgery | Committee Chair
- David Seastrom, MSN, RN | Trauma Services | Committee Member
- Elise Wright, DNP, APRN, CPNP AC-PC, CCRN | Surgery | Committee Member
- Efua Bolouvi, MD | Surgery | Committee Member
- Christine Symes, RN, MSN, CPN, CPNP-PC | Infectious Diseases | Committee Member
- Allison Adam, MD | Emergency Medicine | Committee Member

EBP Committee Members

- Kathleen Berg, MD, FAAP | Evidence Based Practice
- Todd Glenski, MD, MSHA, FASA | Anesthesiology, Evidence Based Practice
- Jarrod Dusin, PhD, RD, CPHQ | Evidence Based Practice

Clinical Pathway Development Funding

The development of this clinical pathway was underwritten by the following departments/divisions: Evidence Based Practice, Trauma Services, Surgery, Infectious Diseases, and Emergency Department.

Conflict of Interest

The contributors to the Blunt Solid Organ Injury Clinical Pathway have no conflicts of interest to disclose related to the subject matter or materials discussed.

Approval Process

- This pathway was reviewed and approved by the EBP Department and the Blunt Solid Organ Injury Clinical Pathway Committee after committee members garnered feedback from their respective divisions/departments. It was then approved by the Medical Executive Committee.

Review Requested

Department/Unit	Date
Med Exec	April 2026
Surgery	March 2026
Emergency Department	February 2026

Version History

Date	Comments
March 2026	Version one – Conversion of trauma pathway into algorithms for ED and Inpatient

Date for Next Review
- March 2029

Implementation & Follow-Up
- Once approved, the pathway was implemented and presented to appropriate care teams:
  - Announcements made to relevant departments
  - Additional institution-wide announcements were made via the hospital website and relevant huddles
- Care measurements may be assessed and shared with appropriate care teams to determine if changes need to occur.
- Pathways are reviewed every 3 years (or sooner) and updated as necessary within the EBP Department at CM. Pathway committees are involved with every review and update.

Disclaimer

When evidence is lacking or inconclusive, options in care are provided in the supporting documents and the power plan(s) that accompany the clinical pathway.

These clinical pathways do not establish a standard of care to be followed in every case. It is recognized that each case is different, and those individuals involved in providing health care are expected to use their judgment to determine what is in the best interests of the patient based on the circumstances existing at the time.

It is impossible to anticipate all possible situations that may exist and to prepare clinical pathways for each. Accordingly, these clinical pathways should guide care with the understanding that departures from them may be required at times.

References

1. Evans, L.L.; Williams, R.F.; Jin, C.; Plumblee, L.; Naik-Mathuria, B.; Streck, C.J.; Jensen, A.R. Hospital-based intervention is rarely needed for children with low-grade blunt abdominal solid organ injury: An analysis of the Trauma Quality Improvement Program registry. J. Trauma Acute Care Surg. 2021, 91, 590–598.
2. Plumblee, L.; Williams, R.; Vane, D.; Zhang, J.; Jensen, A.; Naik-Mathuria, B.; Evans, L.; Streck, C.J. Isolated low-grade solid organ injuries in children following blunt abdominal trauma: Is it time to consider discharge from the emergency department? J. Trauma Acute Care Surg. 2020, 89, 887–893.
3. Butt, E.; Kotagal, M.; Shebesta, K.; Bailey, A.; Moody, S.; Falcone, R., Jr. Admission for Isolated Low-Grade Solid Organ Injury May Not Be Necessary in Pediatric Patients. J. Trauma. Nurs. 2021, 28, 283–289.