*CLINICAL PATHWAY:*

# Renal Injury

THIS PATHWAY SERVES AS A GUIDE AND DOES NOT REPLACE CLINICAL JUDGMENT.

**Inclusion Criteria:** Blunt trauma to abdomen/back +/- gross hematuria with concern for renal injury
**Exclusion Criteria:** Penetrating injury to chest or abdomen, clinically significant central nervous system (CNS) or thoracic injury, suspected physical abuse (see Suspected Physical Abuse Pathway)

**Initial care in the ED:**

- Consult Pediatric Surgery/Trauma via Voalte or call/text 860-578-5071
- History and physical exam by Surgery/Trauma team
- Trauma labs: "Trauma panel" (comprehensive metabolic panel, LFTs, amylase, lipase, CBC with differential, coags), type and cross
- Consider focused assessment with Sonography in Trauma (FAST) exam
- Establish reliable peripheral intravenous (PIV) access with 2 PIVs

***Seatbelt sign mandates a hospital admission***

Hemodynamic instability and/or peritonitis?

- Yes → Treat off pathway
  - Consider IR/OR or ICU at attending pediatric surgeon discretion
- No → CT scan of abdomen and pelvis with IV contrast

CT shows renal injury?

- No → Evaluate off pathway for other injuries
- Yes → **Perform Delayed CT images 15-60 minutes after IV contrast administration to evaluate for extravasation**

**Grade I-III Kidney Injury**

**Admit to MS unit on Pediatric Surgery/Trauma Service**

**Labs:**
- Hematocrit (Hct) on admission, then q6hr x1
- Further Hct at the discretion of pediatric surgeon

**FEN/GI:**
- Advance as tolerated
- **Miralax** 1 g/kg/day to a max of 17 g daily until stooling

**Pain Control:**
- **Acetaminophen** 15 mg/kg/dose PO q6hr (max 1000 mg/dose, not to exceed 4000 mg/day)
- Consider **oxycodone** 0.1 mg/kg/dose (max 5 mg/dose) PO q4hr **or morphine** 0.05 mg/kg/dose (max 5 mg/dose) IV q3hr **or hydromorphone** 0.015 mg/kg/dose (max 0.5 mg/dose) q3hr PRN if acetaminophen is insufficient

**Other:**
- Vital signs q4hr
- Activity as tolerated
- Sequential compression device (SCD) if age ≥12 years
- Tertiary survey and CRAFFT screen (for alcohol and substance misuse) by MS RNs within 24 hours

**Discharge Criteria:**
- Hgb/Hct stable x 3
- Afebrile, normal heart rate, and urine output
- Resolution of gross hematuria
- Tolerating diet
- Pain controlled with oral medications

**Discharge Medications:**
- **Hydrocodone-acetaminophen** 0.2 mg/kg q4hr PRN pain (max 5-10 mg/dose) **or Oxycodone** 0.1 mg/kg/dose (max 5 mg/dose). * Dispense only 3 days worth.
- **Acetaminophen** 15 mg/kg/dose q6hr PRN pain (max 75 mg/kg/day or 4000 mg/day)
- *NO NSAIDs

**Discharge Instructions:**
- No strenuous activity or contact sports for grade of injury + 2 weeks (e.g., grade III injury = 5 weeks). Only activities that keep 2 feet on the ground (no trampolines, no bikes, no dirt bikes, no horseback riding, no ATV, no skiing, etc)
- Follow up in 4-6 weeks with attending pediatric surgeon

**Grade IV-V Kidney Injury**

**Consider Admission to PICU on Pediatric Surgery/Trauma Service**

**Labs:**
- Hct q6hr until vitals are normal for age

**FEN/GI:**
- NPO until vitals are normal for age and Hct stable

**Pain Control:**
- **Acetaminophen** 15 mg/kg PO q6hr (max 1000 mg/dose, not to exceed 4000 mg/day)
- Consider **oxycodone** 0.1 mg/kg/dose (max 5 mg/dose) PO q4hr **or morphine** 0.05 mg/kg/dose (max 5 mg/dose) IV q3hr **or hydromorphone** 0.015 mg/kg/dose q3hr (max 0.5 mg/dose) PRN if acetaminophen is insufficient
- Consider **morphine or hydromorphone PCA** – Please see PCA policy

**Other:**
- Vital signs q2hr x24 hrs, then q4hr if stable
- Bedrest until vitals are normal for age, then increase as tolerated
- Sequential Compression Device if age ≥12 years
- Consult Pediatric Urology via Voalte

Hemodynamically stable and no other injuries?

- Yes → **Transfer to MS floors on Pediatric Surgery/Trauma Service**

**Labs:**
- Hematocrit (Hct) daily

**FEN/GI:**
- Clears and advance as tolerated
- **Miralax** 1 g/kg/day to a max of 17 g daily until stooling

**Other:**
- Activity as tolerated
- Tertiary survey and CRAFFT screen if not completed

- No → **Failure of non-operative management:**

*Treatment plan at the discretion of the attending pediatric surgeon.*

- Continued non-operative management
  or
- Angiography and embolization
  or
- Laparoscopy/laparotomy

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