Patient presents with the following symptoms:
- Flank, Abdominal, or back pain
- Nausea
- Vomiting
- Hematuria

Initial Management
- NPO (if not tolerating PO)
- Urinalysis with Microscopic with reflex culture
- IV Fluids (if IV available): 20 mL/kg normal saline, 1L max
- Pain Management for all severity of pain levels: (NSAIDs recommended first line to reduce renal colic)
  - First line: PO acetaminophen/ibuprofen PRN or IM/IV ketorolac PRN
  - Second line: IV morphine PRN
  - For patients in severe pain, unable to tolerate PO, and/or do not have IV access consider intranasal fentanyl PRN
- Anti-emetics
  - Ondansetron
- Imaging: US RENAL (KIDNEYS, URETER, BLADDER) w/o Doppler (include 1 of the following indications: calcium nephrolithiasis, flank pain, hydronephrosis, hematuria, nephrolithiasis, and/or renal colic)

Were there other abnormal findings suggestive of kidney stone? (hematuria, hydronephrosis)
- No
- Yes
  - Manage off pathway; consider other diagnoses and/or imaging modalities

Was ultrasound positive for obstructing ureteral stone?
- No
- Yes
  - Does patient meet discharge criteria?
  - No
  - Is there concern for sepsis?
    - Yes
      - Consider other diagnosis and manage off pathway
    - No
  - Yes
    - Consult Urology
    - Obtain the following labs:
      - CBC
      - Renal panel
      - Blood culture (if febrile)
    - If UA POSITIVE for infection:
      - Start antibiotics per UTI (febrile) pathway
      - Consult Urology
      - Obtain the following labs:
        - CBC
        - Renal panel
        - Blood culture (if febrile)
    - Does patient meet discharge criteria?
      - Yes
      - Admit patient and refer to Renal Calculi Inpatient Pathway
      - No
        - Does patient meet discharge criteria?
          - No
          - Admit patient and refer to Renal Calculi Inpatient Pathway
          - Yes
    - Admit patient and refer to Renal Calculi Inpatient Pathway

Discharge with the following instructions:
- Anti-emetics and pain medications
- Tamsulosin 0.4 mg Daily (only pts ≥ 2 yrs + if ureteral calculus)
- Antibiotics if needed (refer to UTI (febrile) pathway)
- Return to Urology clinic (2-4 weeks) for calculus in ureter
- Send home with strainer if stone not passed (Capsure #100630)
- Education: Kidney Stone Signs & Symptoms, indications to return to ED

Admission Criteria
- Not tolerating PO
- Pain not controlled
- Need for IV antibiotics

Discharge Criteria
- Pain well controlled
- Tolerating PO
- No fever
- No indications for Urology consult
- Stone passed

Disclaimer: Pathways are intended as a guide for practitioners and do not indicate an exclusive course of treatment nor serve as a standard of medical care. These pathways should be adapted by medical providers, when indicated, based on their professional judgement and taking into account individual patient and family circumstances.
Indications for Urology Consult:
- Calculi confirmed on US and does not meet discharge criteria
- No calculi seen on screen but provider maintains high suspicion
- Obstructing calculi with concern for Urinary Tract Infection (UTI)
- Obstructing calculi with solitary kidney
- Obstructing calculi with Acute Kidney Injury (AKI)
- Bilateral obstructing calculi

Indications for Nephrology Consult:
- Chronic Kidney Disease Stage II or worse

Dosing Guidelines

**Ketorolac (Toradol) IV**
- 0.5 mg/kg/dose Q6H for 3-5 days
- <50 kg max 15 mg/dose
- ≥ 50 kg max 30 mg/dose

**Morphine IV**
- 0.05-0.1 mg/kg/dose

**Tamsulosin PO**
- 0.4 mg daily (only pts ≥ 2 yrs + ureteral calculus)

**Ondansetron PO**
- 8-15 kg = 2 mg
- 15-30 = 4 mg
- >30 kg = 8 mg

**Ondansetron IV**
- 0.15 mg/kg/dose; max 4 mg