SYMPTOMS AND LABS
- Obstructing stone with fever, chills, rigors, elevated WBC, infected urine
- Intractable pain, nausea or vomiting
- Signs of acute renal failure
- Solitary kidney
- Immunocompromise

SUGGESTED PREVISIT WORKUP
- CBC, BMP, UA, Urine culture
- Only if does not delay emergent transfer to emergency department

SUGGESTED EMERGENT CONSULTATION

HIGH RISK

SUGGESTED WORKUP
- CT abdomen (preferred) or KUB or renal US
- CBC, BMP, UA
- Consider alpha blockers for ureteral stones, especially distal stones
- Symptomatic pain and nausea control as needed
- If patient pass stone, send stone for analysis

SYMPTOMS AND LABS
- Flank, abdominal, groin or genital pain that can be reasonably controlled with oral pain medications, and patient desires intervention
- Any ureteral stone above 5 mm in largest diameter
- If stone passage on observation with or without Medical Expulsion Therapy (MET) is not successful after four to six weeks
- Incidentally found on imaging for other conditions and patient desires intervention
- Stones discovered in work up of recurrent urinary tract infections
  - Bladder stones
  - Non obstructing stone in solitary kidney
  - Kidney stone in pregnancy
- Patients with recurrent stone passage
- Patients with known rare stones such as struvite or cysteine

SUGGESTED CONSULTATION OR CO-MANAGEMENT

MODERATE RISK

SUGGESTED EMERGENT CONSULTATION

LOW RISK

SUGGESTED ROUTINE CARE

SYMPTOMS AND LABS
- Stones less than or equal to 5 mm in largest diameter where flank, abdominal, groin or genital pain, nausea and anorexia can be reasonably controlled with oral pain medications
- Uncomplicated (i.e. do not have any of the criteria in the high and moderate risk columns)

SUGGESTED WORKUP
- CT abdomen (preferred) or KUB or renal US
- CBC, BMP, UA
- Consider alpha blockers, especially in distal ureter
- Offer reimaging to patients to verify passage of stones at 4-6 weeks or if stone movement will change management. Reimaging should focus on the region of interest and limit radiation exposure to uninvolved regions
- If stone passed, send for analysis
- If pain cannot be controlled, emergent signs develop or patient desires intervention, Consult Urology

CLINICAL PEARLS
- Majority of stones less than or equal to 5 will pass spontaneously, but these numbers refer to success rates at 6 weeks. Patients may or may not be willing to wait that long.
- Smaller asymptomatic renal stones, especially in the lower pole of the kidney may not need intervention, but a discussion of risk and benefits of observation vs. intervention is advised.