Acute Abdominal Pain

Differential	
GI	Appendicitis, trauma, pancreatitis, intussusception, malrotation ± volvulus, inflammatory bowel disease, gastritis, bowel obstruction, irritable bowel syndrome, abscess, hepatitis, perforated ulcer, Meckel diverticulum, cholecystitis, choledocholithiasis, constipation, gastroenteritis (particularly with associated mesenteric adenitis)
Renal	Urinary tract infection, pyelonephritis, nephrolithiasis
GU	Ectopic pregnancy, ovarian cyst/torsion, tubo-ovarian abscess, pelvic inflammatory disease, testicular torsion
Oncologic	Wilms tumor, neuroblastoma, rhabdomyosarcoma, lymphoma
Other	Henoch-Schonlein purpura, lower lobe pneumonia, sickle cell anemia, diabetic ketoacidosis, juvenile idiopathic arthritis, incarcerated hernia, Streptococcal pharyngitis
Workup	
History	Course and characterization, diarrhea, emesis, melena, hematochezia, fever, last oral intake, menstrual history, vaginal symptoms, urinary symptoms, respiratory symptoms, travel history, diet, pertinent family history
PE	• Vital signs, toxic appearance, rashes, arthritis, jaundice • Thorough abdominal exam (if concern for appendicitis, check for psoas sign, obturator, Rovsing's) • Rectal exam with stool Hemoccult • Bimanual exam in sexually active females • Genital exam
Studies	• KUB to assess for obstruction, constipation, free air, gallstones • Abdominal/pelvic ultrasound • Consider abdominal CT • Pelvic MRI for appendicitis if institutionally available
Labs	• Laboratory studies • CBC, chemistry, electrolytes, liver and kidney function, ESR, CRP, amylase, lipase, gonorrhea/ Chlamydia, urine pregnancy
Treatment	• NPO, fluids • "GI cocktail" - multiple antacids • Consider nasogastric decompression • Serial abdominal exams • Surgical/gynecologic/GI evaluation • Pain control and antibiotics as indicated

Blunt Abdominal Trauma

Sources	**BCH EBG** (Trauma, abdominal)**, CHOP Clinical Pathway,** Fleisher GR, Ludwig S, eds. (2010) Textbook of Pediatric Emergency Medicine. 6th ed. Philadelphia: Lippincott Williams & Wilkins.
Assessment	1. Abdominal wall abrasion, erythema, ecchymosis or seat belt sign 2. Any abdominal tenderness/pain 3. Evidence of thoracic wall trauma 4. Absent or decreased breath sounds
If #1 or >2 of the above present	• FAST assessment limited compared to adults • Abdominal CT with IV contrast • Labs: CBC, LFTs, lipase, UA, type and screen • Surgical consult

Abdominal Trauma continued on next page →

Blunt Abdominal Trauma	
Treatment	• Any traumatic findings: admit to trauma surgery service • No traumatic findings: observe 4 hrs after CT, reevaluate including: PO challenge, vital signs, repeat abdominal/thoracic exams • If symptoms worsening, consider imaging • If symptoms improved, discharge to home with return instructions

Appendicitis	
Sources	**BCH EBG** (appendicitis)**, CHOP Clinical Pathway**
Definition	Inflammation of the appendix caused by obstruction of the lumen
Patho	• The appendix is a blind pouch in the RLQ that can become obstructed with a fecalith or lymph tissue. Once it becomes obstructed, it becomes inflamed and edematous which eventually leads to necrosis and perforation. • Inflammation can also occur as a result of bacterial invasion without obstruction.
Clinical	• Pain begins in periumbilical region (referred pain) and then moves to RLQ • Anorexia, nausea, vomiting, and fever • Young children may not have classic signs and therefore many present with perforation! • Perforation will occur between 24-48 hours after symptom onset if not diagnosed. ▪ Perforation can present with high fevers and peritoneal signs
Physical Exam	• Pain on palpation in periumbilical region that migrates to RLQ • Rovsing's sign: palpation of LLQ causes pain in RLQ • Psoas sign: increased abdominal pain when patient flexes right hip against resistance • Obturator sign: increased abdominal pain when patient's right leg is raised with knee flexed and then internally rotated at the hip. • Rectal exam: may have tenderness if have retrocecal appendix. • If perforated: guarding and/or rebound

Studies	• If female, obtain urine HCG
	• CBC: poly-predominant leukocytosis is strongly associated with appendicitis
	• UA may show mild pyuria
	• KUB: not indicated in most. may show fecalith, localized ileus, free air (if perforated), SBO in young child without prior surgical history is appendicitis unless proven otherwise
	• Start with US:
	  ▪ US: increased diameter, thickened wall, echogenicity surrounding appendix, appendicolith. Interpretation heavily influenced by pre-test probability.
	  ▪ CT with IV contrast or MRI: increased diameter, fat streaking

Treatment	• NPO • Consult surgery • IV antibiotics: Zosyn. If allergic to penicillin: Clindamycin + Gentamicin • Urgent appendectomy • If perforated: antibiotics with interval appendectomy