GI Assessment & Diagnostics

History:
Signs & symptoms, chief complaint, changes in app, weight, stool patterns
Allergies, medications - OTC (laxatives, softeners, **Tylenol**), travel history, smoking/etoh (irritants)
Family history: colon or breast cancer, diverticulitis
Psychosocial: sedentary occupation=constipation
high stress = GI problems
emotional problems = GI complaints
financial problems = may prevent seeking proper care
Nutritional - types of food and portion sizes. Binge eating, sugar and salt use, caffeine
Elimination – frequency, time of day, consistency of stool
Activity/ADL - eating habits, sedentary lifestyle, caffeine intake, secure and prepare food, feed self
Sleep/Rest – Do GI problems interfere with sleep (GERD, hunger, N/V, diarrhea)

Key GI Symptom = PAIN
Identifying and evaluating **key symptoms** help **recognize GI problems**. Some are obvious, some subtle.
Normally no sensation of touch within visceral walls. Possible to tear, crush, or cut the intestines without pain
Abdominal pain:

- True visceral pain: initiated by stimulus acting upon sensory nerve endings or affected viscerus.
- Results from stretching or pressure within internal viscera, +/or ischemia
- Stretching, distention, or contraction that causes severe pain on surface of skin.
- May signal complications of distention, bleeding, obstruction, or abscess
- Deep Diffuse Severe Vaguely situated at midline. Usually confined to area of affected viscera, Aching or burning
- **Localized, specific pain**
    - Inflammation or neoplasm in abdominal organs causes somatic nerve stimulation in the parietal peritoneum
    - May have muscle guarding with this
- **Referred or somatic pain**:
    - Described as sharp, well localized, not midline
    - Usually results from inflammation of affected organ or peritoneum.
    - Often follows complicated patterns referred to areas close during embryonic development
    - renal colic= pain in groin, testes
    - pathology irritating diaphragm= pain in shoulder
- **Psychogenic**
    - pain unrelated to any pathological process.
    - psychological disturbances, i.e. anger, aggression, depression may change GI tone & motility

- Characteristics:
- sharp, knife-like: peritoneal inflammation
- burning, hot,"on fire" : ulcer
- gnawing or chewing: changes in gastric or duodenal tone
- colicky, intermittent, stabbing: colon obstruction, enteritis, diarrhea
- crampy (comes & goes): ulcerative colitis
- radiating-shooting pain from back to shoulder: GB or perforated ulcer
- constant pain: malignancy
- When assessing pain ask:
    - relationship to food ingestion or alcohol intake
    - pain relieved by food but recurring in 1-4 hrs
    - 3-5 hrs after eating heavy meal
    - pain after eating or feeling of fullness & reflux
    - After high fiber intake
- Relief measures:
    - milk, antacids, food, position changes, belching, elimination
    - relationship to intake of medications
    - relationship to menstrual cycle
    - accompanying symptoms

1: Inspection: Note patient's position of comfort View abdomen at eye level with patient supine Skin changes – color, texture, scars, dilated veins, rashes, lesions, Cullen's sign: bluish color around umbilicus – blood collecting in abdomen. Life threatening (hemorrhagic pancreatitis) **Note contour & symmetry of abdomen, movement – best to do by coming down towards the side of the bed** Note abdominal girth measurement - Done to assess for distention & fluid accumulation Mark both sides of tape for placement Compare to baseline Note any pulsations--- abdominal aorta not visible except in very thin pts. AAA can be seen as pulsating mass in midline at umbilicus DO NOT PALPATE- may rupture notify MD immediately	3: Percussion: Used by APNs or specialty RNs Percuss generally over entire abdomen to detect fluid or gas **Dullness** or flat sound over solid areas **Tympanic** sound over air Liver size may be percussed
2: Auscultation: Use diaphragm of stethoscope for normal auscultation, bell for low pitched sounds. Warm the stethoscope in hands to prevent muscle guarding place stethoscope diaphragm in center of each quadrant always turn off NG suction when listening listen for bowel sounds – epigastrum and all four quadrants High pitched irregular gurgles 5 – 15 seconds Absent BS could mean paralytic ileus or peritonitis – **listen for 5 minutes to deem absent** **Rapid, high pitched rushing, gurgling BS= diarrhea, gastroenteritis, early bowel obstruction** Bowel sounds absent uncommon…usually hypoactive. Note amount of time listen do not drag stethoscope from quad to quad be systematic- follow same sequence each time	4: Palpation: **Light Palpation:** Use one hand Board-like abdomen of peritonitis tender to slightest test Subcutaneous emphysema: air accumulation under skin from intestine ruptured Rebound tenderness or Blumberg's sign -Push finger pads gently but deeply into tender area & quickly remove ---If pt feels severe pain on release= rebound tenderness Positive McBurney's sign: palpate deeply at area 1/3 distance between umbilicus & iliac crest on right side, release suddenly. Pain on rebound indication of **appendix irritation or inflammation** **rebound tenderness** **classic sign of peritoneal irritation** Always perform at end of exam – if + = emergency and will need to be **prepped for surgery** **Deep palpation:** Helps delineate abd organs and masses- if it is palpable – do not continue r/f rupture • used by MDs, APNs • press about 3" using 2 hands • Palpate Liver • Spleen Not normally palpable. Never use deep palpation- only light- on spleen.

CBC= Detects anemia, infection, hemorrhage (GI Bleed most frequent cause of anemia in adults) WBC= Detects infection, inflammatory process (Appendicitis, Pancreatitis, Abcess, etc.) Prothrombin Time (PT)- Evaluates levels of clotting factors – we do pt/inr together and must be done prior to any invasive procedure Electrolytes- Altered in many GI tract dysfunction (Need to be replaced, can cause variety of issues- like potassium)	Liver Function studies: enzymes measured to indicate liver cell damage ALT- alanine aminotransferase (SGPT): hepatocellular enzyme **most specific indicator of liver cell damage** Bilirubin - Liver, Gallbladder, Biliary tract AST – Asparate aminotransferase (SGOT) GGT – glutamyl transferase Alkaline phosphatase- ALP – enzyme increased with hepatic disease – (bone disorders too) Amylase and lipase- refer to pancreas
Oncofetal antigens: • CEA and CA 19-9 • Elevated with cancer of GI • **Used to monitor** success of cancer treatment; **Monitor** for cancer recurrence	Fecal Analysis: Form, consistency, color noted narrow, ribbon like stools-spastic or irritable bowel, partial bowel obstruction, rectal obstruction or narrowing. Diarrhea=spastic bowel, viral infections hard stools= medications, diet, dehydration stool with blood & mucus= bacterial infection --- ecoli – think foodborne food poisoning stool with blood & pus=colitis Color: yellow or green=prolonged diarrhea black= GI bleed, iron, rare meat, some foods tan or white: liver or GB duct blockage, hepatitis, or cancer red= lower colon or rectal bleed, meds, food Content: increase fat, greasy, pasty stool=intestinal malabsorption, pancreatic disease Stool Culture: detects bacteria; ex: C-diff Ova & Parasite (O&P)=detects parasites or their eggs Ex: hookworm, tape worm, pin worm
Fecal Occult Blood Test (hemoccult): Detects occult or hidden blood in stool. red meat, vitamin C can cause false positive Collect in clean, dry specimen container Do not take from toilet Get specimen from bedpan, “hat” Not contaminated with urine Send to lab immediately	Gastric analysis: Evaluates hydrochloric acid and pepsin --Basal Gastric Secretion- Measures secretion of HCL between meals (done for peptic ulcer disease) --Gastric Acid Stimulation- Follow-up to Basal test – if abnormalities found during basal-duodenal ulcers, cancer etc will inject med pentagastrin (stimulates acid output) Basal-NPO for 12 hours prior Gastric contents aspirated via NG tube every 15 min for 90 min – saliva ejected to not interfere with contents
Paracentesis- thru abdominal wall into the peritoneal space used to drain fluid accumulation (ascites) , used to examine fluid in abdominal trauma Prep: void prior to procedure Position: seated, high fowler’s position, or supine lying on side Post test care: apply dressing, monitor site, vs q 30 mins, monitor patient for signs of shock or hemorrhage if used for drainage for ascites, usually remove no more than 1500cc at a time to prevent hypovolemic shock fluid drains by gravity or into vacuum bottle	Esophageal manometry: -Measures intraluminal pressures of the esophagus & upper & lower sphincters -Evaluates quality of esophageal peristalsis Esophageal motility catheter is inserted thru mouth or nose into stomach water under pressure allows measurement of esophageal contraction strength. Prep: NPO p MN, patient teaching (repeated swallowing & will have water pumped into stomach) Post test: sore throat & full bladder.
<u>Bernstein or Acid Perfusion Test</u> -Attempt to reproduce symptoms of gastroesophageal reflux -Instill hydrochloric acid into esophagus -Pain confirms reflux esophagitis GI cocktail (done in ED mainly with CP vs GERD) –determine between GERD or Heart - lidocaine, donnatol, and maalox	CT/MRI: Noninvasive cross-sectional view of abdomen Performed with or without contrast (allergies) NPO for 4 – 8 hours before Must drink contrast material IV access needed for IV contrast Must lie still and hold breath when asked

Upper GI/Barium Swallow: Traces barium contrast as move through upper GI tract Detects disorders of esophagus, stomach, duodenum Nursing implications: Explain procedure NPO for 8-12 hours prior to test Will have to drink barium contrast Laxatives after to aid in emptying bowel of barium barium impaction stools may be white	Small bowel series: Traces barium through small bowel to ileocecal valve Xrays taken q15-20 minutes May take up to 4 hrs or longer Pre-post test care: needs rest nutrition provided as soon as able since been NPO dehydration can occur, esp in elderly If NG tube, make sure irrigated after barium
Lower GI/Barium Enema: Used for: history altered bowel habits; lower abd pain; passage of blood, mucous, or pus in stool X-ray of large intestine after rectal instillation of contrast (barium) warn patient that barium may cause cramping & urge to defecate Laxative given after to help eliminate barium Stools will be chalky white for 24 – 72 hours Nursing implications Prep: bowel must be empty of all feces Enema or bowel prep: Dulcolax, fleets: low residue diet- low fiber day before, laxatives & enemas night before and morning of exam additional fluids to prevent dehydration Never give cleansing enema within 2-3 hours before BE, may irritate colon causing altered test results Post test care: Rest Nutrition Laxatives	Abd Angiogram: • Catheter inserted into blood vessel & dye injected • Visualization of hepatic artery, portal venous system & hepatic vein. • provides information about arterial, capillary, +/or venous network of major abdominal organs. Visualization of vascular supply to liver • look for tumors, varices, bleeding, etc. Prep: consent form, allergies Post: monitor bleeding, vital signs, ice to site, bedrest 12-24 hours.
Upper: EGD (Esophagogastroduodenoscopy) Visualize esophagus, stomach, duodenum Esophagoscopy Gastroscopy Gastroduodenoscopy Patient NPO for 8 hours prior Local anesthesia for throat and Sedated- consent **Keep the patient NPO until gag reflex returns for EGD-** tickle the back of the throat Warm salt water gargle post – temperature spike after is sign of perf Lower: Colonoscopy: examination of large bowel for polyps, tumors, ulcerative colitis Sigmoidoscopy Rectum and sigmoid colon Prep: must clean bowel of all fecal material	ERCP: Visualization of liver, gallbladder, bile ducts, and pancreas Cannula inserted into bile ducts and dye injected to visualize with x-ray NPO 6 – 8 hours prior Combination of radiologic and endoscopic techniques permitting comprehensive exam for diagnosis and some treatments. Fiberoptic scope guided down throat, thru stomach & pylorus, thru duodenum, to ampulla of Vater. Dye then injected upwards into distal end of common bile duct, against flow of bile & pancreatic secretions take xray pictures of CBD & pancreatic duct. Used for jaundice of unknown etiology, dx pancreatic disease, unexplained abd pain. MRCP - Magnetic Resonance Cholangiopancreaticography – will do this is ercp is contraindicated or unsuccessful – noninvasive imaging
Nuclear Med (Nuclear Imaging Scans -Gastric emptying study- beebe- scrambled eggs with toast and jelly- dye in eggs, eat, images taken for two minutes every 30-60 minutes until emptying is complete -HIDA: evaluates hepato-biliary function -Bleeding Scan: used in non-urgent situations to ID GI bleeding sites.	US: High frequency sound waves passed through body with transducer Echoes of sound waves converted into images Painless and non-invasive **If doing an US of the gallbladder and it's not emergent or stat, will need to be npo**

Liver Biopsy: • safe, simple method to diagnosing pathological liver conditions • Needle inserted through abdominal wall into liver, sample removed for microscopic exam • may be blind stick or CT/US guided • Risk for: hemorrhage • Risk for: chemical peritonitis from bile leak into abdomen • Risk for: pneumothorax (improper placement of needle into thoracic cavity)	Post procedure: small dressing over needle site position patient on right side 2 hour minimum – also flat for 12-14 hr --compresses liver against abdominal wall --Decreases risk of hemorrhage +/or bile leak assess vital signs every 15 mins for one hour Assess vitals for evidence of hemorrhage (↓BP & ↑pulse) and peritonitis (fever)
Geriatric Considerations: • <u>Changes in functional ability of GI tract</u> Tooth enamel and dentin wear down Susceptible to cavities Periodontal disease = loss of teeth Decreased sense of taste and smell Anorexia, lack of interest in eating Decreased motility, decrease in HCL acid Liver changes affect metabolism of drugs and hormones • Pancreas function decreases = NIDDM • Increase incidence of gallstones • Economic considerations May lack money to buy nutritious foods • Susceptible to constipation, fecal impaction, incontinence, flatulence	