UNIT TERMINAL OBJECTIVE

5-6 At the completion of this unit, the paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with a gastroenterologic problem.

COGNITIVE OBJECTIVE

At the conclusion of this unit, the paramedic student will be able to:

5-6.1 Describe the incidence, morbidity and mortality of gastrointestinal emergencies. (C-1)
5-6.2 Identify the risk factors most predisposing to gastrointestinal emergencies. (C-1)
5-6.3 Discuss the anatomy and physiology of the organs and structures related to gastrointestinal diseases. (C-1)
5-6.4 Discuss the pathophysiology of inflammation and its relationship to acute abdominal pain. (C-1)
5-6.5 Define somatic pain as it relates to gastroenterology. (C-1)
5-6.6 Define visceral pain as it relates to gastroenterology. (C-1)
5-6.7 Define referred pain as it relates to gastroenterology. (C-1)
5-6.8 Differentiate between hemorrhagic and non-hemorrhagic abdominal pain. (C-3)
5-6.9 Discuss the signs and symptoms of local inflammation relative to acute abdominal pain. (C-1)
5-6.10 Discuss the signs and symptoms of peritoneal inflammation relative to acute abdominal pain. (C-1)
5-6.11 List the signs and symptoms of general inflammation relative to acute abdominal pain. (C-1)
5-6.12 Based on assessment findings, differentiate between local, peritoneal and general inflammation as they relate to acute abdominal pain. (C-3)
5-6.13 Describe the questioning technique and specific questions the paramedic should ask when gathering a focused history in a patient with abdominal pain. (C-1)
5-6.14 Describe the technique for performing a comprehensive physical examination on a patient complaining of abdominal pain. (C-1)
5-6.15 Define upper gastrointestinal bleeding. (C-1)
5-6.16 Discuss the pathophysiology of upper gastrointestinal bleeding. (C-1)
5-6.17 Recognize the signs and symptoms related to upper gastrointestinal bleeding. (C-1)
5-6.18 Describe the management for upper gastrointestinal bleeding. (C-1)
5-6.19 Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with upper GI bleeding. (C-3)
5-6.20 Define lower gastrointestinal bleeding. (C-1)
5-6.21 Discuss the pathophysiology of lower gastrointestinal bleeding. (C-1)
5-6.22 Recognize the signs and symptoms related to lower gastrointestinal bleeding. (C-1)
5-6.23 Describe the management for lower gastrointestinal bleeding. (C-1)
5-6.24 Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with lower GI bleeding. (C-3)
5-6.25 Define acute gastroenteritis. (C-1)
5-6.26 Discuss the pathophysiology of acute gastroenteritis. (C-1)
5-6.27 Recognize the signs and symptoms related to acute gastroenteritis. (C-1)
5-6.28 Describe the management for acute gastroenteritis. (C-1)
5-6.29 Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with acute gastroenteritis. (C-3)
5-6.30 Define colitis. (C-1)
5-6.31 Discuss the pathophysiology of colitis. (C-1)
5-6.32 Recognize the signs and symptoms related to colitis. (C-1)
5-6.33 Describe the management for colitis. (C-1)
5-6.34 Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with colitis. (C-3)

5-6.35 Define gastroenteritis. (C-1)
5-6.36 Discuss the pathophysiology of gastroenteritis. (C-1)
5-6.37 Recognize the signs and symptoms related to gastroenteritis. (C-1)
5-6.38 Describe the management for gastroenteritis. (C-1)
5-6.39 Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with gastroenteritis. (C-3)
5-6.40 Define diverticulitis. (C-1)
5-6.41 Discuss the pathophysiology of diverticulitis. (C-1)
5-6.42 Recognize the signs and symptoms related to diverticulitis. (C-1)
5-6.43 Describe the management for diverticulitis. (C-1)
5-6.44 Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with diverticulitis. (C-3)
5-6.45 Define appendicitis. (C-1)
5-6.46 Discuss the pathophysiology of appendicitis. (C-1)
5-6.47 Recognize the signs and symptoms related to appendicitis. (C-1)
5-6.48 Describe the management for appendicitis. (C-1)
5-6.49 Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with appendicitis. (C-3)
5-6.50 Define peptic ulcer disease. (C-1)
5-6.51 Discuss the pathophysiology of peptic ulcer disease. (C-1)
5-6.52 Recognize the signs and symptoms related to peptic ulcer disease. (C-1)
5-6.53 Describe the management for peptic ulcer disease. (C-1)
5-6.54 Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with peptic ulcer disease. (C-3)
5-6.55 Define bowel obstruction. (C-1)
5-6.56 Discuss the pathophysiology of bowel obstruction. (C-1)
5-6.57 Recognize the signs and symptoms related to bowel obstruction. (C-1)
5-6.58 Describe the management for bowel obstruction. (C-1)
5-6.59 Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with bowel obstruction. (C-3)
5-6.60 Define Crohn's disease. (C-1)
5-6.61 Discuss the pathophysiology of Crohn's disease. (C-1)
5-6.62 Recognize the signs and symptoms related to Crohn's disease. (C-1)
5-6.63 Describe the management for Crohn's disease. (C-1)
5-6.64 Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with Crohn's disease. (C-3)
5-6.65 Define pancreatitis. (C-1)
5-6.66 Discuss the pathophysiology of pancreatitis. (C-1)
5-6.67 Recognize the signs and symptoms related to pancreatitis. (C-1)
5-6.68 Describe the management for pancreatitis. (C-1)
5-6.69 Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with pancreatitis. (C-3)
5-6.70 Define esophageal varices. (C-1)
5-6.71 Discuss the pathophysiology of esophageal varices. (C-1)
5-6.72 Recognize the signs and symptoms related to esophageal varices. (C-1)
5-6.73 Describe the management for esophageal varices. (C-1)
5-6.74 Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with esophageal varices. (C-3)
5-6.75 Define hemorrhoids. (C-1)
5-6.76 Discuss the pathophysiology of hemorrhoids. (C-1)

5-6.77 Recognize the signs and symptoms related to hemorrhoids. (C-1)
5-6.78 Describe the management for hemorrhoids. (C-1)
5-6.79 Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with hemorrhoids. (C-3)
5-6.80 Define cholecystitis. (C-1)
5-6.81 Discuss the pathophysiology of cholecystitis. (C-1)
5-6.82 Recognize the signs and symptoms related to cholecystitis. (C-1)
5-6.83 Describe the management for cholecystitis. (C-1)
5-6.84 Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with cholecystitis. (C-3)
5-6.85 Define acute hepatitis. (C-1)
5-6.86 Discuss the pathophysiology of acute hepatitis. (C-1)
5-6.87 Recognize the signs and symptoms related to acute hepatitis. (C-1)
5-6.88 Describe the management for acute hepatitis. (C-1)
5-6.89 Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with acute hepatitis. (C-3)
5-6.90 Integrate pathophysiological principles of the patient with a gastrointestinal emergency. (C-3)
5-6.91 Differentiate between gastrointestinal emergencies based on assessment findings. (C-3)
5-6.92 Correlate abnormal findings in the assessment with the clinical significance in the patient with abdominal pain. (C-3)
5-6.93 Develop a patient management plan based on field impression in the patient with abdominal pain. (C-3)

AFFECTIVE OBJECTIVES
None identified for this unit.

PSYCHOMOTOR OBJECTIVES
None identified for this unit.

DECLARATIVE

I. Introduction
  A. Epidemiology
    1. Incidence
    2. Mortality/ morbidity
    3. Risk factors
    4. Prevention strategies

II. General pathophysiology, assessment and management
  A. Pathophysiology of abdominal pain
    1. Bacterial contamination
      a. Perforated appendix
      b. Pelvic inflammatory disease
    2. Chemical irritation
      a. Perforated ulcer
      b. Pancreatitis
    3. Types of abdominal pain
      a. Somatic pain
        (1) Appendicitis
        (2) Pancreatitis
        (3) Perforated viscus
          (a) Gallbladder
          (b) Ulcer
          (c) Intestine
      b. Visceral pain
        (1) Appendicitis
        (2) Pancreatitis
        (3) Cholecystitis
        (4) Obstruction of hollow viscera
          (a) Intestines
          (b) Biliary tree
      c. Referred pain
      d. Hemorrhagic abdominal pain
      e. Non hemorrhagic abdominal pain
  B. Assessment findings
    1. Scene size-up
      a. Scene safety
      b. Personal protective equipment (PPE)
      c. General impression
        (1) Trauma
          (a) Responsive
          (b) Unresponsive
        (2) Medical
          (a) Responsive
          (b) Unresponsive
    2. Initial assessment
      a. Airway
      b. Breathing
      c. Circulation

- d. Disability
- e. Chief complaint

3. Focused history
   - a. Onset
   - b. Provoking factors
   - c. Quality
   - d. Region/ radiation
   - e. Severity
   - f. Time
   - g. Previous history of same event
   - h. Nausea/ vomiting
   - i. Change in bowel habits/ stool
     - (1) Constipation
     - (2) Diarrhea
   - j. Weight loss
   - k. Last meal
   - l. Chest pain

4. Focused physical examination
   - a. Appearance
   - b. Posture
   - c. Level of consciousness
   - d. Apparent state of health
   - e. Skin color
   - f. Vital signs
   - g. Inspect abdomen
   - h. Auscultate abdomen
   - i. Percuss abdomen
   - j. Palpate abdomen
   - k. Female abdominal exam
   - l. Male abdominal exam

5. Assessment tools
   - a. Hematocrit

C. Management/ treatment plan

1. Airway and ventilatory support
   - a. Maintain an open airway
   - b. High flow oxygen

2. Circulatory support
   - a. Electrocardiogram
   - b. Monitor blood pressure

3. Pharmacological interventions
   - a. Consider initiating intravenous line
   - b. Avoid intervention which mask signs and symptoms

4. Non-pharmacological interventions
   - a. Nothing by mouth
   - b. Monitor LOC
   - c. Monitor vital signs
   - d. Position of comfort

5. Transport consideration
   - a. Persistent pain for greater than six hours requires transport
   - b. Gentle but rapid transport

6. Psychological support
   a. All actions reflect a calm, caring, competent attitude
   b. Keep patient and significant others informed of your actions

III. Specific Injuries/ illness
   A. Upper gastrointestinal bleeding
      1. Epidemiology
         a. Incidence
         b. Mortality/ morbidity
         c. Risk factors
         d. Prevention
         e. Anatomy and physiology review
         f. Pathophysiology
            (1) Lesions
            (2) Peptic ulceration
            (3) Erosive gastritis
            (4) Esophagogastric varices
      2. Assessment findings
         a. History
            (1) Acute/ chronic
            (2) Vomiting/ hematemesis
            (3) Stool/ melena
         b. Physical
            (1) Altered level of consciousness
            (2) Skin
               (a) Pale
               (b) Cool
               (c) Moist
            (3) Inspect abdomen
               (a) Scars
               (b) Ecchymosis
               (c) Contour
                  i) Bulges
                  ii) Symmetry
            (4) Auscultate
               (a) Bowel sounds
            (5) Percuss
            (6) Palpate
         c. Assessment tools
            (1) Hematocrit
      3. Management
         a. Airway and ventilatory support
            (1) High flow oxygen
         b. Circulatory support
            (1) Positioning
            (2) Consider MAST
            (3) Consider fluid bolus or resuscitation
            (4) Consider fluid lavage
         c. Psychological support
         d. Transport consideration

- B. Lower gastrointestinal bleeding
  - 1. Epidemiology
    - a. Incidence
    - b. Mortality/ morbidity
    - c. Risk factors
    - d. Prevention strategies
    - e. Pathophysiology
      - (1) Lesions
      - (2) Anal and rectal lesions
        - (a) Hemorrhoids
        - (b) Anal fissures
        - (c) Fistulas
      - (3) Colonic lesions
        - (a) Carcinoma
        - (b) Polyps
      - (4) Diverticula
  - 2. Assessment findings
    - a. History
      - (1) Acute/ chronic
      - (2) Vomiting/ hematemesis
      - (3) Stool/ melena
      - (4) Meal history
      - (5) Chest pain/ "gas pain"
    - b. Physical
      - (1) Altered level of consciousness
      - (2) Skin
        - (a) Pale
        - (b) Cool
        - (c) Moist
      - (3) Inspect abdomen
        - (a) Scars
        - (b) Ecchymosis
        - (c) Contour
          - i) Bulges
          - ii) Symmetry
      - (4) Auscultate
      - (5) Percuss
      - (6) Palpate
    - c. Assessment tools
      - (1) Hematocrit
  - 3. Management
    - a. Airway and ventilatory support
      - (1) High flow oxygen
    - b. Circulatory support
      - (1) Positioning
      - (2) Consider MAST
      - (3) Consider fluid bolus or resuscitation
      - (4) Consider fluid lavage
    - c. Psychological support
    - d. Transport consideration

C. Acute gastroenteritis
  1. Epidemiology
    a. Incidence
    b. Mortality/ morbidity
    c. Risk factors
    d. Prevention strategies
    e. Anatomy and physiology review
    f. Pathophysiology
      (1) Gastric mucosa
      (2) Inflammatory process
      (3) Pathogenesis
  2. Assessment
    a. History
      (1) Quality of pain
      (2) Onset of pain
      (3) Location of pain
      (4) Blood in the stool
      (5) Epigastric pain
      (6) Nausea
      (7) Vomiting
    b. Physical
      (1) Restless
      (2) Skin
        (a) Pale
        (b) Cool
        (c) Moist
      (3) Vital Signs
        (a) Hypotension
      (4) Abdominal Exam
        (a) Inspect
          i) Contour
            a) Bulges
            b) Symmetry
        (b) Auscultate
        (c) Percuss
        (d) Palpate
  3. Management
      (1) Positioning
      (2) Airway and ventilatory support
        (a) Oxygen
      (3) Circulatory support
        (a) Fluid bolus
      (4) Pharmacological interventions
      (5) Non-pharmacological interventions
      (6) Transport consideration

D. Colitis
  1. Epidemiology
    a. Incidence
    b. Morbidity/ mortality
    c. Risk factors

- d. Anatomy and physiology review
- e. Pathophysiology
  - (1) inflammatory bowel disease
  - (2) inflammatory action of colonic mucosa

2. Assessment
   - a. History
     - (1) Quality of pain
     - (2) Onset of pain
     - (3) Location of pain
     - (4) Bloody diarrhea
     - (5) Fever
     - (6) Weight loss
   - b. Physical
     - (1) Restless
     - (2) Skin
       - (a) Pale
       - (b) Cool
       - (c) Moist
       - (d) Warm
     - (3) Fever
     - (4) Vital signs
       - (a) Hypotension
     - (5) Abdominal exam
       - (a) Inspect
         - i) Contour
           - a) Bulges
           - b) Symmetry
       - (b) Auscultate
       - (c) Percuss
         - i) Dull over bladder
       - (d) Palpate

3. Management
   - (1) Positioning
   - (2) Airway and ventilatory support
     - (a) Oxygen
   - (3) Circulatory support
     - (a) Fluid bolus
   - (4) Pharmacological interventions
   - (5) Non-pharmacological interventions
   - (6) Transport consideration

E. Gastroenteritis

1. Causative organisms
   - a. Rotavirus, Norwalk virus, and many others
   - b. Parasites
     - (1) Protozoa giardia lamblia
     - (2) Crypto sporidium parvum
     - (3) Cyclosporidium cayetensis
   - c. Contracted via fecal-oral transmission, contaminated food and water
   - d. Cyclosporidium reported to be contracted by swimming in contaminated waters

2. Bacteria

a. Escherichia coli
b. Klebsiella pneumonia
c. Enterobacter
d. Campylobacter jejuni
e. Vibrio cholera
f. Shigella
(1) Not part of normal intestinal flora
g. Salmonella
(1) Not part of normal intestinal flora

3. System affected - GI system
4. Modes of transmission
   a. Fecal-oral
   b. Ingestion of infected food or non-potable water
5. Susceptibility and resistance
   a. Travelers into endemic areas are more susceptible
   b. Populations in disaster areas, where water supplies are contaminated, are susceptible
   c. Native populations in endemic areas are generally resistant
6. Signs and symptoms - nausea, vomiting, fever, abdominal pain and cramping, anorexia, lassitude, and frank shock
   a. Diarrhea of enteric bacteria - different clinical pictures depending on the degree of intestinal invasion
   b. Chronic gastritis and ulcers with abdominal pain, nausea, and “heartburn” are caused by Helicobacter pylori infection
7. Patient management and protective measures
   a. EMS personnel - do not work when ill if your job involves patient contact
   b. Focused on environmental health and development/ availability of clean water reservoirs, food preparation and sanitation
   c. Disaster workers and travelers to endemic areas must be vigilant in knowing the sources of their water supplies or drink hot beverages that have been brisk-boiled or disinfected
   d. Health care workers treating gastroenteritis patients must be careful to avoid habits that facilitate fecal-oral/ mucous membrane transmission, observe BSI and effective hand washing
   e. Selected organisms may be sensitive to antibiotics
   f. Epidemic treatment is normally symptomatic
8. Immunizations are unavailable for many of the enteric bacteria, which are part of the normal intestinal flora

F. Diverticulitis
1. Epidemiology
   a. Incidence
   b. Mortality/ morbidity
   c. Risk factors
   d. Prevention strategies
   e. Anatomy and physiology review
   f. Pathophysiology
      (1) Inflammation in or around the diverticula
      (2) Retention of undigested food residue and bacteria
2. Assessment
   a. History

(1) Quality of pain
(2) Onset of pain
(3) Location of pain
(4) Dark stool

b. Physical
(1) Altered level of consciousness
(2) Skin
(a) Pale
(b) Cool
(c) Moist
(3) Inspect abdomen
(a) Scars
(b) Ecchymosis
(c) Contour
i) Bulges
ii) Symmetry
(4) Auscultate
(a) Bowel sounds
(5) Percuss
(6) Palpate

c. Assessment tools
(1) Hematocrit

3. Management/ treatment plan
a. Airway and ventilatory support
(1) Oxygen
b. Circulatory support
(1) Positioning
(2) Consider fluid bolus
c. Pharmacological interventions
d. Non-pharmacological interventions
e. Psychological support
f. Transport consideration

G. Appendicitis
1. Epidemiology
a. Incidence
b. Mortality/ morbidity
c. Risk factors
d. Anatomy and physiology review
e. Pathophysiology
(1) Obstruction appendiceal lumen
(2) Ulceration of appendiceal mucosa
(a) Viral
(b) Bacterial

2. Assessment findings
a. History
(1) Quality of pain
(2) Onset of pain
(3) Location of pain
(4) Anorexia
(5) Nausea/ vomiting

- b. Physical
  - (1) Skin
    - (a) Pale
    - (b) Cool
    - (c) Moist
    - (d) Warm
  - (2) Fever
  - (3) Inspect abdomen
    - (a) Scars
    - (b) Ecchymosis
    - (c) Contour
      - i) Bulges
      - ii) Symmetry
  - (4) Auscultate
    - (a) Bowel sounds
  - (5) Percuss
  - (6) Palpate

3. Management/ treatment plan
   - a. Airway and ventilatory support
     - (1) Oxygen
   - b. Circulatory support
     - (1) Positioning
     - (2) Consider fluid bolus
   - c. Pharmacological interventions
   - d. Non-pharmacological interventions
   - e. Psychological support
   - f. Transport consideration

H. Peptic ulcer disease

1. Epidemiology
   - a. Incidence
   - b. Mortality/ morbidity
   - c. Risk factors
   - d. Prevention strategies
   - e. Anatomy and physiology review
   - f. Pathophysiology
     - (1) Ulcerative disorder
     - (2) Acid-pepsin formation
     - (3) Loss of protective effects
       - (a) Gastric mucosa
       - (b) Bicarbonate ions
       - (c) Prostoglandins

2. Assessment findings
   - a. History
     - (1) Acute/ chronic
     - (2) Quality of pain
     - (3) Onset of pain
     - (4) Location of pain
     - (5) Last meal
     - (6) Nausea
     - (7) Stool/ melena

(8) Vomiting/ hematemesis
b. Physical
(1) Altered level of consciousness
(2) Cardiovascular
(a) Hypotension
(b) Tachycardia
(3) Skin
(a) Pale
(b) Cool
(c) Moist
(4) Inspect abdomen
(a) Scars
(b) Ecchymosis
(c) Contour
i) Bulges
ii) Symmetry
(5) Auscultate
(a) Bowel sounds
(6) Percuss
(7) Palpate
c. Assessment tools
(1) Hematocrit
3. Management
a. Airway and ventilatory support
(1) High flow oxygen
b. Circulatory support
(1) Positioning
(2) Consider fluid bolus or resuscitation
c. Pharmacological
(1) Antacid
(2) H_2 Blockers
d. Psychological support
e. Transport consideration

I. Bowel obstruction
1. Epidemiology
a. Incidence
b. Mortality/ morbidity
c. Risk factors
d. Anatomy and physiology review
e. Pathophysiology
(1) Mechanical
(2) Non-mechanical
(3) Lesions
(4) Obturation of the lumen
(5) Small/ large bowel
(6) Adhesions
(7) Hernias
2. Assessment findings
a. History
(1) Acute/ chronic

(2) Quality of pain/ paroxysms
(3) Onset of pain
(4) Location of pain
(5) Nausea
(6) Vomiting/ odor/ bile
(7) Stool/ diarrhea/ unable

b. Physical
(1) Altered level of consciousness
(2) Cardiovascular
(a) Hypotension
(b) Tachycardia
(3) Skin
(a) Pale
(b) Cool
(c) Moist
(4) Inspect abdomen
(a) Scars
(b) Ecchymosis
(c) Contour
i) Bulges
ii) Symmetry
(5) Auscultate
(a) Bowel sounds/ absent
(6) Percuss
(7) Palpate

3. Management
a. Airway and ventilatory support
(1) High flow oxygen
b. Circulatory support
(1) Positioning
(2) Consider fluid bolus or resuscitation
c. Psychological support
d. Transport consideration

J. Crohn's disease
1. Epidemiology
a. Incidence
b. Mortality/ morbidity
c. Risk factors
(1) Positive family history same disorder
(2) Stress
d. Prevention strategies
e. Anatomy and physiology review
f. Pathophysiology
(1) Inflammatory disorder
(a) Small bowel
(b) Large bowel
(2) Increased suppressor T-cell activity
(3) Intestinal submucosa
(4) Lesions
(5) Fistulas

2. Assessment findings
    a. History
        (1) Acute/ chronic
        (2) Quality of pain
        (3) Onset of pain
        (4) Location of pain
        (5) "Irritable bowel"
        (6) Stool/ diarrhea
        (7) Weight loss
    b. Physical
        (1) Skin
            (a) Pale
            (b) Cool
            (c) Moist
        (2) Inspect abdomen
            (a) Scars
            (b) Ecchymosis
            (c) Contour
                i) Bulges
                ii) Symmetry
        (3) Auscultate
            (a) Bowel sounds
        (4) Percuss
        (5) Palpate
3. Management
    a. Airway and ventilatory support
        (1) High flow oxygen
    b. Circulatory support
        (1) Positioning
    c. Psychological support
    d. Transport consideration

K. Pancreatitis
1. Epidemiology
    a. Incidence
    b. Mortality/ morbidity
    c. Risk factors
        (1) Gallstones
        (2) Alcohol
    d. Prevention strategies
    e. Anatomy and physiology review
2. Pathophysiology
    a. Inflammation
    b. Injury or disruption of pancreatic ducts or acini
    c. Leaked enzymes
3. Assessment findings
    a. History
        (1) Acute/ chronic
        (2) Quality of pain
        (3) Onset of pain
        (4) Location of pain

(5) Nausea/ vomiting
b. Physical
(1) Cardiovascular
(a) Hypotension
(b) Tachycardia
(2) Lungs
(a) Pulmonary edema
(3) Skin
(a) Pale
(b) Cool
(c) Moist
(4) Edema
(5) Inspect abdomen
(a) Scars
(b) Ecchymosis
(c) Contour
i) Bulges
ii) Symmetry
(6) Auscultate
(a) Bowel sounds
(7) Percuss
(8) Palpate
4. Management
a. Airway and ventilatory support
(1) High flow oxygen
b. Circulatory support
(1) Positioning
(2) Fluid bolus
c. Psychological support
d. Transport considerations

L. Esophageal varices
1. Epidemiology
a. Incidence
b. Mortality/ morbidity
c. Risk factors
d. Prevention strategies
e. Anatomy and physiology review
f. Pathophysiology
(1) Portal hypertension
(2) Esophagitis with erosion
(3) Ingestion caustic substance
2. Assessment findings
a. History
(1) Acute
(2) Painless
(3) Nausea
(4) Vomiting/ hematemesis
b. Physical
(1) Cardiovascular
(a) Hypotension

(b) Tachycardia
(2) Skin
(a) Pale
(b) Cool
(c) Moist
3. Management
a. Airway and ventilatory support
(1) High flow oxygen
(2) Suction
b. Circulatory support
(1) Positioning
(2) Fluid bolus or resuscitation
c. Transport consideration

M. Hemorrhoids
1. Epidemiology
a. Incidence
b. Mortality/ morbidity
c. Risk factors
d. Prevention strategies
e. Anatomy and physiology review
f. Pathophysiology
(1) Internal/ external hemorrhoid
(2) Increased portal vein pressure
(3) Mucosal surface
(a) Thrombosis
(b) Infection
(c) Erosion
2. Assessment findings
a. History
(1) Rectal pain
(2) Increased pain with bowel movement
(3) Stool/ blood
b. Physical
3. Management
a. Psychological support
b. Transport consideration

N. Cholecystitis
1. Epidemiology
a. Incidence
b. Mortality/ morbidity
c. Risk factors
d. Prevention strategies
e. Anatomy and physiology review
f. Pathophysiology
(1) Gallstones in cystic duct
2. Assessment findings
a. History
(1) Acute/ chronic
(2) Quality of pain
(3) Onset of pain

(4) Location of pain
b. Physical
(1) Skin
(a) Pale
(b) Cool
(c) Moist
(d) Warm
(2) Fever
(3) Inspect abdomen
(a) Scars
(b) Ecchymosis
(c) Contour
i) Bulges
ii) Symmetry
(4) Auscultate
(a) Bowel sounds
(5) Percuss
(6) Palpate
3. Management/ treatment plan
a. Pharmacological interventions
(1) Consider pain medication
b. Transport consideration

O. Acute hepatitis
1. Epidemiology
a. Incidence
b. Mortality/ morbidity
c. Risk factors
d. Prevention strategies
e. Anatomy and physiology review
f. Pathophysiology
(1) Systemic infection of the liver
(2) Types
(3) Chronic liver disease
(4) Cirrhosis
(5) Pathogenesis
2. Assessment findings
a. History
(1) Acute/ chronic onset
(2) Quality of abdominal pain
(3) Location of pain
(4) Anorexia
(5) Nausea
(6) Vomiting
(7) Fatigue
(8) Headache
(9) Malaise
(10) Photophobia
(11) Pharyngitis
(12) Cough
b. Physical

(1) Skin
(a) Warm
(b) Rash
(2) Fever
(3) Inspect abdomen
(a) Scars
(b) Ecchymosis
(c) Contour
i) Bulges
ii) Symmetry
(4) Auscultate
(a) Bowel sounds
(5) Percuss
(6) Palpate

3. Management
a. Psychological support
b. Transport consideration

IV. Integration