Gastrointestinal Hemorrhage
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- **Etiology**
  ✓ 350K hospital admissions annually in US for GIB
  ✓ Estimated mortality of 2 – 15%
  ✓ Acute, massive UGIB incidence of 40 to 150 episodes per 100,000 persons annually
  ✓ Acute, massive LGIB incidence of 20 to 27 episodes per 100,000 persons annually

<table>
<thead>
<tr>
<th>Causes of Acute UGIB</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUD</td>
<td>40-79</td>
</tr>
<tr>
<td>Gastritis/duodenitis</td>
<td>5-30</td>
</tr>
<tr>
<td>Esophageal varices</td>
<td>6-21</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Causes of Acute LGIB</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diverticular Disease</td>
<td>17-40</td>
</tr>
<tr>
<td>Colonic Neoplasm</td>
<td>11-14</td>
</tr>
<tr>
<td>AV Malformation</td>
<td>2-30</td>
</tr>
<tr>
<td>Colitis</td>
<td>9-21</td>
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- **Presentation**
  ✓ Microscopic blood loss → hemoccult positive stool or iron def anemia
  ✓ Hematemesis → vomiting fresh blood
  ✓ “Coffee-ground” emesis → black (digested) blood
  ✓ Melena → Black, tarry stool
  ✓ Hemochezia → bright red blood via rectum (usually LGIB, but brisk UGIB can also cause)

- **Initial Evaluation**
  1. Lab evaluation: CBC, Coags, Type and Cross. Also consider LFTs, Troponins/ECG (in hemodynamic compromise)
  2. History: Use of NSAIDs and other anticoagulants, use of EtOH, Prior GI bleed (60% of repeat GI bleeds are from the same source); Prior GI/thoracic surgery
  3. Physical Exam: Findings suggestive of cirrhosis

- **Diagnosis**
  ✓ UGIB (Above Ligament of Treitz)
    1. Esophagogastroduodenoscopy (EGD) → diagnostic tool of choice
    2. NGL → Does not improve outcomes in GIB; 1/6th of pts with active bleed will have a neg NGL; Huang et al Gastrointest Endosc nov 2011: 193 pts received NGL & 193 did not: in retrospective analysis, bloody aspirate was associated with high risk lesion at endoscopy (OR 2.69) and therefore more likely to have endoscopy & receive it sooner, but no affect on mortality, LOS, need for transfusion or surgery

- **LGIB**
  1. Colonoscopy → diagnostic tool of choice
  2. Arteriography → contrast study that can identify brisk bleeding; second line diagnostic tool
  3. Technetium-99m-tagged RBC Scan → can identify slow bleeding (0.1 to 0.4 cc/min)
  4. Double-contrast barium enema with sigmoidoscopy → if contraindication to colonoscopy

- **Small Bowel**
  1. Push enteroscopy → extension of EGD of 15 to 160cm of small bowel distal to ligament of Treitz
  2. Barium-contrast upper GI series with SBFT → low sens (0 to 5.6%)
  3. Enteroclysis → endoscopic placement of contrast material directly into the prox small bowel
  4. Technetium-99m-tagged RBC Scan
  5. Meckel’s scan → high sens 75 – 100% for identifying gastric mucosa in small bowel
  6. Capsule endoscopy → pill-shaped camera that patient swallows; diagnostic yield 66 – 69%

- **Prognosis**
  ✓ Rockall Score → best predictor of mortality in GIB (Score <3 good prognosis with <12% death; Score >8 high mortality with 75% death)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Score 0</th>
<th>Score 1</th>
<th>Score 2</th>
<th>Score 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>&lt;60</td>
<td>60-79</td>
<td>&gt;80</td>
<td></td>
</tr>
<tr>
<td>Shock</td>
<td>SBO &gt;100</td>
<td>Pulse &gt;100</td>
<td>SBP &gt;100</td>
<td>SBP &lt;100</td>
</tr>
<tr>
<td>Co-morbidity</td>
<td>None</td>
<td>CHF, IHD, Major Co-Morbidity</td>
<td>Renal failure, liver failure, metastatic CA</td>
<td></td>
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<tr>
<td>Diagnosis</td>
<td>Mallory-weiss</td>
<td>All other dx</td>
<td>GI Malignancy</td>
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<tr>
<td>Evidence of Bleeding</td>
<td>None</td>
<td>Blood, adherent clot, spurring vessel</td>
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✓ Blatchford Score ➔ best predictor of need for endoscopy (high risk lesion) (Score 0 low risk; any score greater than 0 is high risk)

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<thead>
<tr>
<th>Risk Factor</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<tbody>
<tr>
<td>BUN (mmol/L)</td>
<td>6.5 - 8</td>
<td>8 - 10</td>
<td>10 - 25</td>
<td>➔</td>
<td>25</td>
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<tr>
<td>Hb for men (g/L)</td>
<td>120 - 130</td>
<td>100 - 120</td>
<td>&lt;100</td>
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<tr>
<td>Hb for women (g/L)</td>
<td>100 - 120</td>
<td>&lt;100</td>
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<tr>
<td>SBP (mmHg)</td>
<td>100 - 120</td>
<td>90 - 99</td>
<td>&lt;90</td>
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<td>Pulse &gt; 100 bpm</td>
<td>+</td>
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<td>Presentation with melena</td>
<td>+</td>
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<tr>
<td>Presentation with syncope</td>
<td>+</td>
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<tr>
<td>Hepatic disease</td>
<td>+</td>
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<tr>
<td>Cardiac Failure</td>
<td>+</td>
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• Treatment
  ✓ Stability of the patient and rate of bleeding dictate the order of treatment
  ✓ Hemodynamically unstable patient ➔ 2 large bore IV, IV Crystalloid, Crash emergency release PRBCs
  ✓ Benefit of conservative over liberal transfusion threshold in upper GI bleed (transfuse for Hb > 7) ¹⁹
  ✓ With endoscopy, erythromycin (125 mg over 5 min) is as good as NGL for visualization ²
  ✓ Management of coagulopathy and thrombocytopenia ➔ no guidelines exist on management in UGIB. Correction to <1.5 is sine qua non. Elevated INR at initial presentation does not predict rebleeding in non-variceal UGIB, but INR >1.5 is associated with increased patient mortality
  ✓ Octreotide ➔ a somatostatin analog, causes splanchnic vasoconstriction. Improved control of variceal hemorrhage when combined with endoscopic treatment within 24 hours
  ✓ Prophylactic Antibiotics in acute variceal bleed ➔ Chavez-Tapia et al. Cochrane Database of Syst Rev; IV ceftriaxone 1 gm/d for 5 days has beneficial effect on mortality, mortality from bacterial infections, bacterial infections, rebleeding events, and LOS; If PCN allergic, quinolone is just as good and supported by American and British guidelines
  ✓ PPI therapy ➔ Sreedharan et al Cochrane Database 2010: no significant differences in mortality, rebleeding or need for surgery, but does reduce active bleeding
  ✓ Timing of Endoscopy ➔ patients with UGIB who are unstable should generally undergo EGD within 24 hours of admission after resuscitation; patients who are stable and without comorbidities should undergo EGD in a non-emergent setting to identify lesions

• Pearls
  ✓ NGL not proven to improve mortality, but bloody aspirate does require EGD ASAP
  ✓ Erythromycin just as good as NGL for visualization on EGD
  ✓ No evidence to support FFP and platelets to get INR <1.5 and platelets above 50k
  ✓ Prophylactic abx in variceal bleed reduce mortality and bacteremia
  ✓ PPI therapy stops acute bleeding, but has no benefit on mortality
  ✓ Rockall Score is the best predictor of mortality in GIB
  ✓ Blatchford Score is the best predictor of need for endoscopy (high risk lesion)

• References