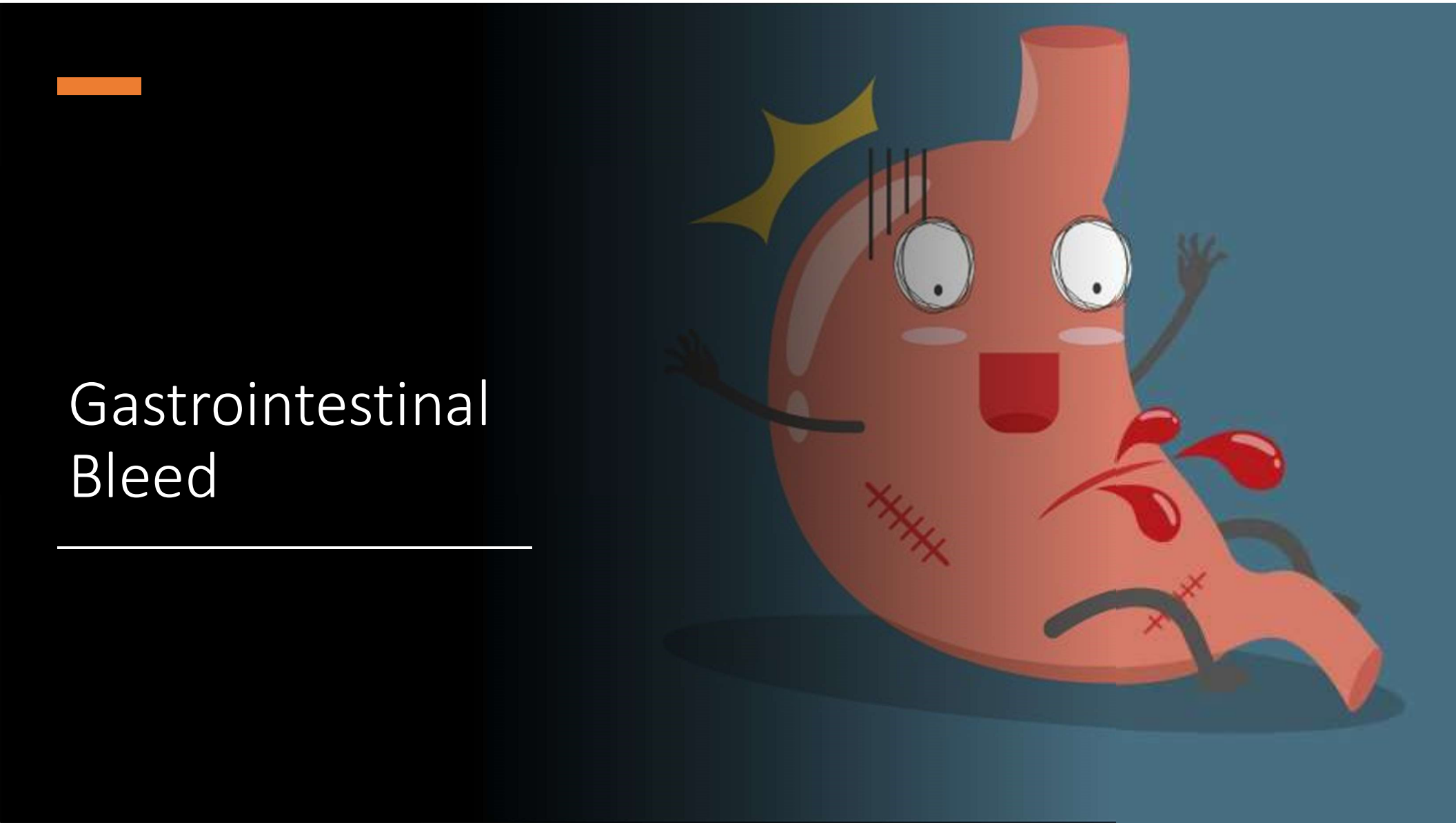
Gastrointestinal Bleed



Etiology UGIB	Comment & Treatment
PUD (20–67%) (*NEJM* 2016;374:2367) See "PUD"	*Treatment:* **PPI:** 80 mg IV bolus + 8 mg/h drip ≈ 40 mg IV BID boluses **Endoscopic therapy:** epi inj + bipolar cautery or hemoclip. Biopsies for ? *H. pylori* and treat if ⊕. High-risk (for rebleeding) ulcer: arterial spurting, adherent clot, visible vessel. Endo Rx, IV PPI × 72 h post EGD, then Δ to high-dose oral PPI. Arteriography w/ embolization; surgery (last resort). Intermediate-risk ulcer: oozing, in o/w stable Pt. Endo Rx, can Δ to oral PPI after EGD and observe 24–48 h. Low-risk ulcer: clean-based or flat. Oral PPI and ? discharge. Hold anticoag & antiplatelet Rx until hemostasis; can resume after hemostasis & PPI on board (*BMJ* 2012;344:e3412).
Erosive gastropathy (4–31%)	Precipitants: NSAIDs, ASA, EtOH, cocaine, gut ischemia, XRT Stress-related mucosal injury in ICU Pts. Risk factors include severe coagulopathy, mech vent >48 h, high dose glucocorticoids Treatment: high-dose PPI
Erosive esophagitis (5–18%)	Risk factors: cirrhosis, anticoagulation, critical illness. Rx offending cause + high dose PPI; repeat EGD later to r/o underling Barrett's.

GIB 3-4

Esophageal or gastric varices (4–20%) (*Hep* 2007;46:922; *NEJM* 2010;362:823) See "Cirrhosis"		2° to portal HTN. If isolated gastric → r/o splenic vein thrombosis. *Pharmacologic* **Octreotide** 50 μg IV bolus → 50 μg/h infusion (84% success). Usually × 5 d, but most benefit w/in 24–48 h. Abx: 20% cirrhotics p/w GIB have infxn, & ~50% develop infxn during hospitalization; Ppx w/ IV CTX, cipro, or levoflox × 7 d *Nonpharmacologic* **Endoscopic band ligation** (>90% success) or sclerotherapy Arteriography w/ coiling, or if available, endoscopic injection of cyanoacrylate (glue) for gastric varices Covered esophageal stent placement or balloon tamponade used for bleeding refractory to ligation as bridge to TIPS (consider early if persistent bleed on EGD or Child-Pugh C; *NEJM* 2010;362:2370) For persistent gastric variceal bleed: TIPS or balloon-retrograde transvenous obliteration
Portal HTN gastropathy		↑ portal venous pressure → ectatic vessels, hyperemia in prox. gastric body. No endoscopic option; Rx portal HTN (octreotide), βB.
Vascular (2–8%)	Angioectasia AVMs, HHT (see below)	AVMs congenital. Angioectasia (ectatic submucosal vessels) a/w ↑ age, CKD, cirrhosis, CTD, severe CV dis. *Heyde syndrome:* GIB d/t angioectasias + aortic stenosis. Endo Rx.
	Dieulafoy's lesion	Large (1–3 mm) submucosal artery protruding through fundal mucosa → sudden, massive UGIB. *Difficult to identify.* Endo Rx.
	Gastric antral vasc. ectasia (GAVE)	"*Watermelon stomach*"; ectatic gastric vessels, often a/w cirrhosis, CTD, typically older ♀. Rx w/ thermal hemostasis, repeat q4–8wk to eradicate lesions. TIPS does *not* improve outcomes.
	Aortoenteric fistula	AAA or aortic graft erodes into 3rd portion of duodenum. P/w "herald bleed"; if suspected, diagnose by endoscopy or CT.
Malignancy (2–8%)		Endoscopic hemostasis of mass temporizing measure till cancer Rx
Mallory-Weiss tear (4–12%)		GE jxn lacerations due to vomiting → ↑ intraabd pressure & shearing effect. Can self-resolve w/o endo Rx. Rx w/ antiemetics, PPI.
Cameron's lesions		Linear erosions in hiatal hernia due to mech trauma of diaphragm
Post-sphincterotomy bleeding		Occurs in ~2% of cases, ↑ risk w/ more complicated procedure. Bleeding into duodenum. Rx w/ endo hemostasis.

(*GI Endosc Clin N Am* 2015;25:415)

Etiology LGIB	Comment & Treatment (*Am J Gastro* 2015;110:1265 & 2016;111:755)
Diverticular bleed (30%)	*Pathophysiology:* Intimal thickening and medial thinning of vasa recta as they course over dome of diverticulum → weakening of vascular wall → arterial rupture. Diverticula more common in left colon; but *bleeding diverticula more often in right colon.* *Clinical:* older, ASA/NSAIDs, painless hematochezia, ± abd cramping *Treatment:* Usually stops spont. (~75%) but may take hrs–days; ~20% recur. Can perform endo hemostasis w/ epi injections ± electrocautery (*NEJM* 2000;342:78), hemoclip, banding. Intra-arterial vasopressin or embo. Surgery (partial colectomy) last resort.
Polyp/Tumor (20%)	Typically slow ooze, p/w fatigue, weight loss, iron deficiency anemia
Colitis (20%)	Infectious (see "Acute Diarrhea"), IBD, ischemic colitis, XRT
Anorectal disorders (20%)	Internal, external hemorrhoids; anal fissures, rectal ulcers, rectal varices (Rx by ↓ portal venous pressure in cirrhotics), XRT
Vascular (<10%)	Angioectasia & AVMs (see above). *Hereditary Hemorrhagic Telangiectasia (Weber-Osler-Rendu):* diffuse AVMs, telangiectasias throughout GI mucosa (also involve lips, oral mucosa, fingertips).
Meckel's diverticulum	Congenital blind intestinal pouch due to incomplete obliteration of vitelline duct. 2% of pop, w/in 2' of IC valve, 2" long, ♂:♀ 2:1, often present age 2 (but can cause obscure GIB in adults). Dx w/ ^{99m}Tc-pertechnetate scintigraphy. Rx w/ angioembo, surgical resection.

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Patient PHI

TRANSFUSION OF BLOOD/COMPONENTS ADVISORY AND CONSENT (Medical Record)

TRANSFUSION ADVISORY (physician check boxes that apply)

I have discussed the possible risks/benefits and alternatives of blood and/or blood components transfusion with the patient or legal representative, including:

- Any adverse reactions that may reasonably be expected to occur;
- Any alternative methods of treatment which may be medically viable;
- The potential problems that may occur during recuperation;
- Any research or economic interest he/she may have regarding this treatment and
- Techniques for blood conservation directed donation and processing, such as hemodilution, use of a cell saver, autologous banked blood, plasmapheresis, hemodialysis, cardiopulmonary bypass, chest tube drainage, autotransfusion, etc.

The patient or patient's legal representative has been provided with a copy of the State Department of Health Services information sheet, *A Patient's Guide to Blood Transfusions*, concerning the advantages, disadvantages, risks, and benefits of autologous blood and of directed and non-directed homologous blood products from volunteers. I have also allowed adequate time for the patient or other person to pre-donate blood for transfusion purposes, except where there are medical contraindications or the patient waives the right of pre-donation.

☐ Patient or legal representative consents to transfusion of all blood or blood components,

OR

☐ Patient or legal representative consents to receive some blood components/derivatives as checked ahead:
☐ Red Blood Cells ☐ Plasma ☐ Platelets ☐ Cryoprecipitate
☐ Human Derived Coagulation Factors

OR

☐ Patient or legal representative refuses transfusions of blood or blood components (Patient must sign form #5193ESV).

Date Time (AM/PM)	Signature MD	Provider Stamp (or MD Print Name /Number)
	Physician signs	

CONSENT FOR BLOOD TRANSFUSION

Your signature below indicates that:

1. You have received a copy of the information sheet, *A Patient's Guide to Blood Transfusions.*
2. You have received information from your doctor concerning the risks and benefits of blood and/or blood component transfusion and any alternative therapies and their risks and benefits.
3. You have had the opportunity to discuss this with your doctor, including pre-donation.
4. Subject to any exceptions listed above, you consent to such blood and/or blood component transfusion as your doctor may order.
5. Special Instructions if any: _____

A signed consent form will be applicable throughout the patient's hospitalization. For outpatients with a stable chronic medical condition for which ongoing transfusions are anticipated, a signed consent form is applicable for one year or if during that one-year period circumstances change so as to materially affect the nature of, or the risks of, the transfusion and/or the alternative to treatment. For outpatients without such a chronic condition, a consent form must be signed for each transfusion. The patient has the option to withdraw consent at any time.

Date Time (AM/PM)	Signature patient/parent/conservator/guardian//legal representative	Relationship to patient
	Pt/DPOA signs	

WITNESS _____ Printed Name _____

INTERPRETER'S STATEMENT

I have accurately and completely read this document to (patient or representative) _____ in the patient's or legal representative's primary language _____ (identify language). He/She understood all of the terms and conditions and acknowledged his/her agreement.

Date _____ Time _____ Signature of Interpreter (if applicable) _____ Interpreter ID _____

5193B-EE (Rev. 11/20) DISTRIBUTION: ORIGINAL: Medical Record, Administrative COPY: Patient

Published Estimates of Transfusion Risks

Reference: A Compendium of Transfusion Practice Guidelines 2019, Edition 3a by American Red Cross

The reported incidence of adverse reactions after transfusion varies widely among studies. Published rates depend on a number of factors, including but not limited to: the patient population and the presence of underlying disease, concurrent medication, or immunosuppression; blood component type and preparation method; and the surveillance methods used for reporting and characterizing transfusion reactions or suspected infections. Therefore, it is important to consider the many factors that affect the estimates of incidence in different clinical settings.

Before blood transfusion, the clinician should explain to the patient the potential risks, possible benefits and alternatives, when available, before transfusion. The Summary Table provides broad-based estimates from a variety of current sources which could be used to develop general information for patients. However, risk depends on patient-related factors, type and characteristics of the blood components, geographically-defined and other variables which should be periodically evaluated, as warranted.

Transfusion Reaction or Infection	Estimated Rate Among Transfused Patients
Allergic (mild)	1:20
Fever/chills (nonhemolytic)	1:50
Transfusion-associated circulatory overload (TACO)	1:100
TRALI	1:12,000
Acute hemolytic (mistransfusion)	1:40,000
Acute hemolytic (incompatible plasma)	1:50,000
Delayed hemolytic	1:50,000
Septic reaction (apheresis platelets)	1:100,000
Anaphylaxis	1:500,000
HIV, HBV, HCV	Approximately 1 :1,000,000

Risks of Autologous Transfusion: bacterial contamination, air/particle embolism, immunomodulation, wrong unit transfusion, volume overload, fainting at time of blood donation, bruising at time of blood donation, not getting own unit of blood, still needing additional blood from donor pool, autologous blood may not be suitable for transfusion, and unknown.

Expected Benefits of Transfusion:

- **RBC:** Restoration of O_2 carrying capacity in those patients who have preexisting cardiac and cerebral vascular disease and who are anemic, by increasing the circulating red blood cell mass.
- **Platelets:** Improves hemostasis; associated with cessation of bleeding, correction of prolonged bleeding time and a rise in the platelet count.
- **Plasma:** Contains plasma proteins, including nonlabile clotting factors such as fibrinogen and Factor IX; treats clotting factors deficiencies.

Alternatives - Proceed with planned treatment, but consider:

- No transfusion
- Use of other pharmacologic agents; metabolic supplements, drugs
- Cessation of offending drugs, electrolytes, or colloid solutions, hespan
- Transfusion, but only with autologous and/or directed donations

The greatest threat to blood safety is donation by seronegative individuals during the infectious window period when they are undergoing seroconversion and infection cannot be detected by available laboratory test.

CC: Coffee-ground emesis & melena

HPI: 57 y/o man.
1 day prior to admission: 1x coffee-ground emesis.
On day of admission: 2x melena, prompting him to go ED.

No prior history of EGD / colo.

ROS negative.

PMH: T2DM, HTN, afib
SH: Denied current or past use of ETOH, tobacco, or drugs.
FH: noncontributory
Allergies: NKDA
Meds:
- Xarelto 20mg daily
- Metformin 1000mg BID
- Lisinopril 5mg daily
- Metoprolol succinate 25mg daily

PHYSICAL EXAM:
Tmax: 36.3C, BP: 105/64, HR: 88, RR: 16, SpO2: 100% on RA
General: in NAD, resting in bed
HEENT: PERRL, EOMI, oropharynx clear, anicteric sclera
CV: irregular rhythm, no M/R/G
Pulm: unlabored breathing on room air, CTAB
GI: BS+, nondistended, soft, nontender to palpation, no rebound tenderness, no guarding
MSK: no edema, warm extremities with palpable distal pulses
Neuro: AOx3, answering questions appropriately, moving all extremities against gravity

LABS:

	8.4	
6.1		300
	27.5	

142	108	28	132
4.7	22	0.9	

5.7	3.2
0.8	0.3
15	22
69	

PT: 16.6
INR: 1.4
Fibrinogen: 326

H. Pylori IgG Ab:
0.21 (not detected)

EGD:
- Salmon-colored mucosa was present in distal esophagus, suspect barrett's.
- Four non-bleeding gastric ulcers with a clean ulcer base (Forrest Class III) were found in the gastric antrum and in the prepyloric region of the stomach.
- One non-bleeding duodenal ulcer with a clean ulcer base (Forrest Class III) was found in the duodenal bulb.

PROBLEM REPRESENTATION:
Middle-aged man w/ PMH T2DM, HTN, afib (on Xarelto), who presented with acute coffee-ground emesis and melena.

Diagnosis: UGIB due to gastric and duodenal ulcers

LEARNING POINTS:

1. **Practical skills when managing GIB**
   - IV Access! Two large-bore peripheral IVs
   - Blood transfusion consent
   - Type & Screen
2. **Favors UGIB**
   - Melena (also due to R-sided colonic bleed w/ slow transit)
   - Hematemesis, coffee-ground emesis
   - BUN/Cr > 30
   - Hx UGIB
3. **Favors LGIB**
   - Hematochezia (can also be massive UGIB w/ rapid transit through GI tract)
   - Clots per rectum
   - Hx of LGIB
4. **Worrisome features:**
   PMH of cirrhosis / AAA repair / comorbidities that reduce hemodynamic reserve, active bleeding, syncope/presyncope, nml Hgb w/ unstable VS, anemia unresponsive to transfusion(s)