Emergency General Surgery

EGS guidelines

- Adhesive Small Bowel Obstruction (ASBO) Management
- Perforated Peptic Ulcer Disease (PUD) Management
- Ogilvie’s (Acute Colonic Pseudo-obstruction) Management
- EGS Wound Evaluation and Management Guidelines
- Referral Guidance for Surgical Oncology Patients
- STAT Emergency General Surgery Consult Protocol
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Adhesive Small Bowel Obstruction (ASBO) Management

UNMC - Emergency General Surgery
Adhesive Small Bowel Obstruction (ASBO) Management

Initial evaluation reveals ASBO (see Exclusion Criteria, next page)

→ Peritonitis / Shock → Proceed to OR Emergently

Admit to EGS with NG tube to low intermittent suction (confirm placement with KUB) and order KUB with indication: "prelim WSCC" timed to occur 12 hours later (13 hours if contrast allergy*) (see Special Cases, next page)

→ If patient is declining NG tube, OK to proceed directly to water-soluble contrast challenge with "No NG tube" option once patient cleared for WSCC by attending

*If contrast allergy, at admission order "Contrast Allergy Medications" → "Recommended - 13 hour" order set

→ Trend lactic acid q4 hours (if elevated) and do not perform water-soluble contrast challenge (WSCC) until lactic acid cleared

→ If patient develops worsening vital signs, physical exam, or labs (including lactic acid) during admission, OR should be considered

12 hours later, confirm NG tube is in stomach on "prelim WSCC" KUB; film must be done within two hours prior to starting WSCC to reduce risk of concentrated Gastrografin aspiration pneumonitis

→ If not in stomach, discuss with attending

Order "Small Bowel Obstruction Contrast Challenge" order set to initiate the water-soluble contrast challenge (WSCC); choose Gastrografin if patient is A&Ox3 and GCS=15 (use Isovue if altered or confused); contact 9T charge nurse (531-557-3100) if help needed with nurse administrating contrast and x-ray coordination

Contrast in colon at any time on serial KUB within 8 hours

→ No → NG tube to suction and take patient to OR as add-on unless attending documents reason for continued observation

Yes → Discontinue NG tube and all future KUB orders, order regular diet immediately, and discharge home if tolerated

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Exclusion Criteria – do not use this pathway for EGS as written if any of the following apply:

- History of gastric bypass (admit to MIS)
- History of Crohn's / Ulcerative colitis (admit to colorectal)
- Large bowel obstruction or evidence of carcinomatosis
- Obstruction itself is directly caused by hernia of any kind
- Patient actively followed by surgical oncology or on chemoradiation (admit to surgical oncology)

Special Cases – if any of the following apply, discuss with attending before proceeding down pathway:

- Worrisome findings on imaging or labs—including, but not limited to, the following: closed-loop obstruction, high-grade obstruction, "whirl sign," mesenteric twisting, stranding, or thickening, poor or absent bowel wall enhancement, pneumatosis, portal venous gas, free fluid, lactic acidosis, leukocytosis, electrolyte abnormalities
- Obliterative peritonitis ("hostile abdomen") with known dense adhesions
- Virgin abdomen (carries 10% chance of occult malignancy causing obstruction despite CT scan report)
- Recent abdominal surgery (within six weeks)

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Perforated Peptic Ulcer Disease (PUD) Management

UNMC - Emergency General Surgery
Perforated Peptic Ulcer Disease (PUD) Management

Patient with concern for perforated PUD:
- send patient to MIS if patient has gastric bypass hx
- bleeding peptic ulcers are **not** included in these guidelines

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Non-operative management (consider only if hemodynamically normal without peritonitis):
- NPO (including pills) / NGT and isotonic crystalloid infusion / admit to EGS service
- FL upper gastrointestinal adult (aka UGI) STAT (alt: CT abdomen & pelvis with oral contrast STAT)
  - if no leak seen, remove NG tube on hospital day #4 and adv diet
  - if leak seen, proceed to operative management (skip to next section below)
- cefoxitin 2g IV q6h x 1 week (alt: levofloxacin 750mg IV q24h + metronidazole 500mg IV q8h x 1 week)
- pantoprazole 40mg IV BID
- H. pylori antigen, stool x1 (see H. pylori, stool (antigen testing) results section on next page)
- follow-up outpatient with gastroenterology, complete antibiotic course (1 week total), and continue PPI
  - amoxicillin-clavulanate 875mg-125mg PO BID (alt: levofloxacin 750mg PO q24 + metronidazole 500mg PO q8h) when tolerating PO
  - pantoprazole 40mg PO BID until seen by gastroenterology
  - counsel absolute smoking cessation

Operative management (initial):
- **attending discretion to deviate from these guidelines is allowed if plan is clearly described in op note**
- laparoscopic vs open approach at attending discretion
- NPO / NGT and isotonic crystalloid infusion

Gastric ulcer (intra-op):
- consider biopsy (esp if > 2cm)
- repair via wedge resection or primary repair with Graham patch, damage control if indicated
- consider drain placement
- NG tube in stomach, consider DHT post-pyloric

Duodenal ulcer (intra-op):
- biopsy not indicated
- primary repair with Graham patch vs. pyloric exclusion, and/or duodenostomy tube if indicated, damage control if indicated
- drain placement
- NG tube in stomach, consider placing post-pyloric DHT or j-tube

Post-operative care:
- cefoxitin 2g IV q6h x 4 days (alt: levofloxacin 750mg IV q24h + metronidazole 500mg IV q8h x 4 days)
- consider micafungin 100mg q 24h x 4 days if high-risk for fungal infection (such as immunosuppressed)
- pantoprazole 40mg IV BID
- H. pylori antigen, stool x1 (see H. pylori, stool (antigen testing) results section on next page)
- if no drain was placed, obtain FL upper gastrointestinal adult (aka UGI) POD #3 and if no leak seen then d/c NG tube and adv diet (discuss with attending if leak seen)
- if drain was placed, d/c NG tube POD#3 and adv diet; d/c drain when on regular diet if no signs of leak
- remove DHT prior to discharge
- timing of removal of J-tube or duodenostomy tube (if present) at attending discretion
- follow-up outpatient with gastroenterology for EGD +/- H. pylori testing/re-testing
  - continue pantoprazole 40mg PO BID until seen by gastroenterology
  - counsel absolute smoking cessation

H. pylori, stool (antigen testing) results:

- positive for H. pylori, triple therapy is indicated **once tolerating PO**
  - pantoprazole 40mg PO BID, clarithromycin 500mg PO BID, metronidazole 500mg PO BID x 14 days
    - if infection is a known recurrence, follow EPIC "H. Pylori Infection Treatment" order set
- negative for H. pylori, pantoprazole 40mg PO BID and treat underlying cause (e.g. NSAIDs) (see table below)
- specimen not obtained, give suppository and re-attempt
- if results pending at discharge, **note this in discharge summary** and review results at post-op visit

Ulcer Type	Location	Acid hypersection	Complications	Incidence
I	Gastric body, lesser curvature	No	Bleeding uncommon	55%
II	Body of stomach + duodenal ulcer	Yes	Bleeding, perforation, obstruction	20%
III	Prepyloric	Yes	Bleeding, perforation	20%
IV	High on lesser curvature	No	Bleeding	<5%
V	Anywhere (medication-induced)	No	Bleeding, perforation	<5%

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Ogilvie’s (Acute Colonic Pseudo-obstruction) Management

UNMC - Emergency General Surgery
Ogilvie's (Acute Colonic Pseudo-obstruction) Management

Acute colonic distension on imaging → CT scan with rectal contrast or Gastrografin enema to assess entire colon and confirm no large bowel obstruction

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If ischemia, perforation, cecal volvulus, cecum $\geq$ 12 cm, mechanical obstruction, fever, leukocytosis, tachycardia, neutropenia, or peritonitis, then consider emergency operation

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Primary management for Ogilvie's (if confirmed):
- NPO, IV hydration
- Limit narcotics, calcium channel blockers, and anticholinergics
- Electrolyte correction, including $K^+ \geq 4$, $Mg^{++} \geq 2$, and $PO_4 \geq 2$
- Mobilize patient
- Treat underlying cause, if known

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Secondary management for Ogilvie's (it no bowel movement after initial management):
- Transfer patient to surgical ICU
- Neostigmine 2mg IV push over five minutes with atropine at bedside
- Repeat neostigmine once if no bowel movement

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Tertiary management for Ogilvie's (if no bowel movement after secondary management):
- Gastroenterology consultation for colonoscopic decompression
- Can repeat primary and secondary management as needed along with repeat scopes
- Surgery is rarely indicated for Ogilvie's, consider second surgical opinion if considering surgery

↓

Consider polyethylene glycol 17g PO daily after resolution

Approved 9/13/2023

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Reviewed by Sean Langenfeld, MD; Jennifer Leinicke, MD; Rishi Batra, MD; and W. T. Hillman Terzian, MD

EGS Wound Evaluation and Management Guidelines

Except for wounds and acute infections located in specific anatomic locations managed by other services such as (but not limited to) urology, ENT, breast surgery, and neurosurgery, many of the wounds and acute infections at UNMC will be evaluated and managed by EGS. The decision to defer management to another specialty or subspecialty (e.g., colorectal) may be made at the discretion of the EGS team, but EGS is expected to ensure that proper communication has occurred with that team and, if there is ultimately disagreement over whose responsibility it is to manage that wound or acute infection, EGS will initiate an attending-to-attending discussion to resolve the disagreement. EGS may also be asked by the bed desk (through the trauma phone) to engage in conversations between UNMC inpatient medical services and outside facilities regarding the transfer of inpatients for surgical evaluation.

Necrotizing soft tissue infections:

- EGS is usually consulted early; if another service is better served based on below criteria (e.g., hand surgery or vascular surgery for wounds below the knee), EGS will ensure communication with that team has been facilitated if the appropriate team was not contacted.
    - If NSTI is distal to elbow, hand surgery should be on initial transfer call
    - If NSTI is distal to knee, vascular surgery should be on initial transfer call
    - EGS should not accept NSTIs distal to the elbow or knee without communicating with hand surgery or vascular surgery
    - If an ED consult has been placed for an NSTI in these locations to EGS, it is our practice to ensure patient stability and facilitate communication to the appropriate team

Wounds distal to elbow:

- Forearm:
    - Superficial infections or simple abscesses of the forearm can be managed by EGS (EGS may consult hand surgery with concern)
    - Deep or complex infections of the forearm to be managed by hand surgery

- Wrist or hand:
    - Any wound or infection in this location to be managed by hand surgery

Wounds distal to knee:

- Vascular surgery to evaluate and manage
- If hardware is involved, vascular may involve orthopedics at their own discretion

Sacral wounds:

- EGS to manage acutely infected sacral wounds with support from wound care at EGS' discretion
- Chronic sacral wounds that are not infected may be managed by wound care without an EGS consultation
- Plastic surgery referral is generally done outpatient when reconstruction can be considered
- If plastic surgery operated on a sacral wound within the last six months, plastic surgery should be consulted inpatient to evaluate wound

Post-op infected or dehisced surgical wounds:

- The surgical service that performed the operation should be initially consulted prior to EGS evaluation
- EGS is available to assist with evaluation and management of all post-op surgical wound complications at the operating surgeon's discretion or if a patient is presenting from an outside facility

Frostbite:

- Acute frostbite (<72 hours since cold exposure):
  - Admit to trauma
    - Consult orthopedics for management and outpatient follow-up
    - Consult hand for upper extremity frostbite and outpatient follow-up

- Chronic wounds secondary to frostbite (≥72 hours since cold exposure):
  - If no other injuries or hypothermia, admit to primary home admitting service (Hospital Medicine, UNMC family medicine, or Clarkson Family Medicine)
    - Consult orthopedics for management and outpatient follow-up
    - Consult hand for upper extremity frostbite and outpatient follow-up

- Frostbite re-admissions:
  - Admit to primary home admitting service (Hospital Medicine, UNMC family medicine, or Clarkson Family Medicine), NOT trauma
    - Consult orthopedics for management and outpatient follow-up
    - Consult hand for upper extremity frostbite and outpatient follow-up

Osteomyelitis:

- Orthopedics consultation is not mandatory if the problem can be managed by another service such as EGS, hand, or vascular surgery since orthopedics' role is largely limited to

aggressive debridement and/or amputation

Wound clinic referrals:

- If a patient needs to be expediated to wound clinic, please contact Drs. Sean Figy, James Willcockson, or Kai Yang directly or through EPIC to discuss

Approved 11/19/2025 by W. T. Hillman Terzian, MD (EGS Medical Director), John Tierney, MD (EGS), Sara Putnam, MD (Orthopedics), Jonathan Thompson, MD (Vascular), Sean Figy, MD (Plastics), James Willcockson, MD (Plastics/Hand), Kai Yang, MD (Plastics/Hand), Daniel Firestone, MD (Hand), Joseph Morgan, MD (Hand), Tabatha Matthias, DO (Hospital Medicine), and Morgan Walgren, MD (Hospital Medicine)

Referral Guidance for Surgical Oncology Patients

Lymph node biopsies- Surgical Oncology

Abdominal issues in cancer patients:

1. Patient established with UNMC surgical oncology division for malignancy, seen within three years, and issue is related to previous intervention (for example, SBO) - *Surgical oncology*
2. Presenting manifestation related or likely related to primary malignancy - *Surgical Oncology or to the appropriate Cancer focused surgery team (e.g., colorectal)*
    1. If discovered intraoperatively, Surgical Oncology consultation is at discretion of EGS staff

        i. If surgical oncology assumes care intraoperatively - *Surgical oncology*

        ii. If malignancy determined to not change treatment strategy - *EGS*

3. General surgical conditions (symptomatic cholelithiasis or acute/chronic cholecystitis, acute appendicitis, incarcerated hernia, small bowel obstruction) in patient with active cancer issue (on or off active treatment) or history of malignancy – EGS

Approved by Josh Mammen, MD and Hillman Terzian, MD 6/25/2025

STAT Emergency General Surgery Consult Protocol

STAT Emergency General Surgery Consult Protocol

This protocol is applicable to the timely notification of an emergent patient condition requiring STAT consultation of the Emergency General Surgery (EGS) Service.

CLINICAL MANAGEMENT

A. Notify the EGS team immediately if a patient presents with any of the following known or suspected diagnoses:

1. Unstable patient with high suspicion of surgical abdomen as source
    a. Hypotension (SBP < 90, requiring vasopressors)
    b. Persistent tachycardia (HR > 120)
    c. Signs of end organ failure (mental status changes, renal failure, respiratory failure, etc.)
2. Necrotizing soft tissue infection (NSTI) by physical exam or radiographic evidence
3. Pneumoperitoneum (excluding contained perforation from diverticulitis or appendicitis)
4. Mesenteric ischemia, pneumatosis intestinalis

B. Place a “General Surgery” consult order and identify it as “STAT” in the electronic medical record --- see screenshot below
    a. Include Emergency General Surgery in the “*reason for consult*,” along with the indication for consult

C. Send Urgent Perfect Serve message the first-call resident/APP for EGS

D. Patients with a STAT consult will be seen by an EGS provider within 30 minutes of consult order time

E. The EGS provider completing initial patient evaluation will document time the patient was seen in the EGS Consult note

F. Patients requiring emergent surgical intervention will be prepared for the OR and the OR Lead will be notified following current protocols

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For all STAT or EMERGENT consults, the ordering provider is required to check "yes" and call the consulting provider. If a nurse is placing a STAT or URGENT consult order through a telephone order, the nurse is responsible for communicating the consult order to the consulting physician.

Acute Appendicitis Management

UNMC - Emergency General Surgery
Acute Appendicitis Management

1) **Uncomplicated appendicitis** *(appendicitis without perforation, abscess, phlegmon, or peritonitis):*
   a) Operative management (stable patient):
      i) Post case B6
         (1) if OR is readily available, patient may remain in ED and avoid admission
      ii) Pre-op IV antibiotics: Cefoxitin 2g IV within 60 minutes before incision
      iii) Proceed with appendectomy
      iv) Discharge post-operatively without antibiotics (if uncomplicated and adequate source control)
   b) Non-operative management:
      i) Contraindications to non-operative management:
         (1) appendicolith
         (2) pregnancy
         (3) suspicion for appendiceal neoplasm (appendix >15mm, mass, mucocele, etc.)
         (4) peritonitis
         (5) septic shock
         (6) evidence of free air
      ii) Counsel patient on 39% five-year recurrence rate with non-operative management and lower overall complication-free success with surgery
      iii) Admit to observation
      iv) Initiate IV antibiotics*
      v) If clinical improvement:
         (1) transition to PO antibiotics* for a total antibiotic course of 10 days
         (2) Strongly consider colonoscopy within three months if patient ≥ 40 years old
      vi) If no clinical improvement after three days:
         (1) proceed to appendectomy

2) **Complicated appendicitis** *(perforation, abscess, phlegmon, or peritonitis)*
   a) Consider surgery (especially robotic) if evidence of non-involved appendiceal base
      i) Appendix stump ≥ 2cm on CT is associated with lower operative complication rate including conversion to open and extended resection
   b) Septic / unstable patient OR free perforation/peritonitis
      i) Proceed directly to appendectomy
      ii) If source control is achieved, postoperative antibiotics* for 4 days

c) Stable patient with localized disease:
    i) Phlegmon
        (1) If appendectomy without bowel resection likely:
            (a) Proceed with appendectomy
            (b) postoperative antibiotics* for 4 days if source control is achieved
        (2) if appendectomy not feasible OR bowel resection likely:
            (a) antibiotics* for 10 days + hospital observation
            (b) if no clinical improvement after three days:
                (i) proceed to appendectomy (4 days antibiotics post-op) or operative drain placement without appendectomy (4-7 days antibiotics post-op)
            (c) follow-up in 1-2 weeks** with outpatient CT abdomen/pelvis w IV contrast
    ii) Abscess
        (1) ≥ 3cm AND amenable to drainage:
            (a) IR percutaneous drainage + antibiotics* for 4-7 days after drain placed
            (b) follow-up in 1-2 weeks** with outpatient CT abdomen/pelvis w IV contrast
        (2) < 3cm OR undrainable:
            (a) antibiotics* for 10 days + hospital observation
            (b) if no clinical improvement after three days:
                (i) repeat CT abdomen/pelvis w IV contrast
                    1. if abscess now ≥ 3cm AND amenable to drainage:
                        a. IR percutaneous drainage + antibiotics* for 4-7 days after drain placed
                    2. if abscess remains < 3cm or undrainable
                        a. proceed to appendectomy (4 days antibiotics post-op) or operative drain placement without appendectomy (4-7 days antibiotics post-op)
            (c) follow-up in 1-2 weeks** with outpatient CT abdomen/pelvis w IV contrast

3) **Interval appendectomy consideration** (6-12 weeks after discharge):
    a) Strongly consider if:
        i) Age ≥ 40 years
        ii) Appendix diameter >15mm
        iii) Mucocele or cystic dilation
        iv) Appendiceal mass
        v) Mural calcifications
        vi) Phlegmon
        vii) Lymphadenopathy
        viii) Absence of fat stranding

        Note: appendicolith and fat stranding are NOT hard indications for interval appendectomy by themselves

4) **Colonoscopy**
    a) Strongly consider colonoscopy:
        i) Prior to interval appendectomy if age ≥ 40 years
        ii) Within three months if either of the following:
            (1) Age ≥ 40 years and treated non-operatively
            (2) Abnormal imaging suspicious for neoplasm or IBD at any age

5) ***Antibiotic Selection**
    a) Intravenous
        i) Preferred: Ceftriaxone 2g IV daily PLUS metronidazole IV/PO q8h
            (1) Alternative: Piperacillin-tazobactam 4.5g q8h IV over 4 hrs
        ii) Septic shock: add amikacin 15mg/kg IV x 1 to one of the above regimens
        iii) History of intra-abdominal *Pseudomonas*: Piperacillin-tazobactam 4.5g IV q8hrs over 4 hrs
        iv) History of ESBL colonization: Ertapenem 1g IV daily
    b) Oral
        i) Preferred: levofloxacin 750mg PO daily PLUS metronidazole 500mg IV/PO q8h
            (1) Alternative: Amoxicillin-clavulanate 875-125mg PO BID

6) ****** Follow-up in EGS elective clinic (not Thursday afternoon clinic) OR Complex Care Clinic with outpatient CT abdomen/pelvis w IV contrast if:**
    - phlegmon (without surgical resection)
    - abscess (drained OR undrained)
    - any situation where a patient had an operation for appendicitis, but the appendix was not resected

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Approved 6/3/2026 by Margaret A. Baumann, APRN, Emergency General Surgery Program Leader and W. T. Hillman Terzian, MD, Emergency General Surgery Medical Director

Approved 06/03/2026

ACS Guidelines for Discharging Patients Home with TPN

ACS Guidelines for Discharging Patients Home with TPN

1. Patients should be formally discussed by ACS Faculty at either weekday morning faculty sign-out, Tuesday 7:30 conference, or Wednesday CCC meeting prior to making plans to discharge on outpatient TPN
2. First choice is contact the patient's PCP to see if they can do the TPN
3. If the PCP is unable to manage TPN, identify a Complex Care Clinic (CCC) member to take ownership:
   - Default to Dr. Tierney. Can consider other CCC Faculty including: Dr. Berning, Dr. Josef, Dr. S. Kemp, Dr. Terzian, and Dr. Veatch

4. In general, most of these patients will probably need to be seen in the CCC so consideration should be given to scheduling them there instead of the regular trauma or EGS follow-up clinic
   - Unless the discharging surgeon plans to manage the TPN and patient themselves, they must discuss the patient with the staff seeing the patient in follow up at the time of discharge
   - IRP will not do TPN for a patient until they have seen them for consultation on outpatient basis in their clinic
     - A formal discussion of an ACS patient, that includes at least two CCC members, is required before IRP consultation

5. Ensure adequate long-term access plan
   - PICC is acceptable. Patient needs to understand care instructions

6. Ensure home health care orders are entered.
7. Confirm that CTN has identified what specialty pharmacy the patient will be using and provide them with the CCC Faculty's name and fax number (402-836-9459) for them to send TPN adjustment orders
   - We have used Option Care with success for those in the Omaha area, although there are other options including the Nebraska Medicine infusion center

8. Ensure weekly labs are ordered (CMP, phosphorus, magnesium, CBC, triglycerides) with results going to the pharmacy and the surgeon; it’s possible that the CCC member will have to order these labs personally for them to be routed back correctly
9. For the surgeon managing the TPN, after 3 months of stability consider checking iron panel and trace elements (chromium, copper, manganese, selenium, and zinc) if the patient is still on TPN that we are managing

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