

Surgical Intensive Care Unit

Practice Management Guideline: Gastrointestinal Stress Ulcer Prophylaxis

I. Purpose

The purpose of this guideline is to standardize the prevention of stress ulcers in the Surgical Intensive Care Unit (SICU).

II. Indications for stress ulcer prophylaxis (SUP)

Table 1: Risk Factors and Indications for Stress Ulcer Prophylaxis (SUP)

Indications for all critically ill patients

- Coagulopathy
 - Defined as INR >1.5, platelets <50,000, or PTT > 2 times the upper limit of normal
- Shock
- Chronic liver disease

Other indications for special populations

- Esophagectomy
- Gastric bypass or other gastric surgery
- Traumatic brain injury (TBI)
- Intracranial hemorrhage

Indications for treatment dose proton pump inhibitors (PPI)

(pantoprazole 40mg IV twice a day)

- Treatment of *helicobacter pylori* infection
- Active upper gastrointestinal bleed (UGIB)

III. Pharmacologic agent

First-line

- Famotidine IV/PO/PT (enteral administration is preferred)
 - CrCl ≥ 50 mL/min: Famotidine 20 mg_PO/PT/IV q12h
 - o CrCl < 50 ml/min: Famotidine 20 mg PO/PT/IV q24h

Second-line or on a PPI prior to admission

Pantoprazole 40mg IV/PO/PT daily (enteral administration is preferred)

IV. Enteral nutrition recommendations

Patients receiving enteral nutrition with an indication for SUP listed in Table 1 should receive pharmacologic SUP.

V. Discontinuation

SUP should be discontinued when the patient is no longer critically ill or no longer has an indication for SUP. Patients on a SUP medication prior to admission should have the indication reviewed and consideration made for discontinuation.

VI. Trauma patients

If a trauma patient is admitted to the SICU, the trauma SUP guidelines will be followed and can be found on the trauma website (https://www.vumc.org/trauma-and-surgical-critical-care-practice-management-guidelines).

Authors

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References

- 1. MacLaren R, Dionne J, Granholm, A, et al: Society of Critical Care Medicine and American Society of Health-System Pharmacists guideline for the prevention of stress-related gastrointestinal bleeding in critically ill adults. Crit Care Med. 2024 Aug;52(8):e421-e430.
- 2. Cook D, Deane A, Lauzier F, Zytaruk N, Guy, et al: Stress Ulcer Prophylaxis during Invasive Mechanical Ventilation. The REVISE randomized clinical trial. N Engl J Med. 2024 Jul 4;391(1):9-20.
- 3. Liu B, Liu S, Yin A, et al: Risks and benefits of stress ulcer prophylaxis in adult neurocritical care patients: A systematic review and meta-analysis of randomized controlled trials. Crit Care 2015; 19:409.
- 4. Daou M, Dionne JC, Teng JF, et al: Prophylactic acid suppressants in patients with primary neurologic injury: A systematic review and meta-analysis of randomized studies. J Crit Care 2022; 71:154093.
- 5. Granholm A, Zeng L, Dionne JC, et al; GUIDE Group: Predictors of gastrointestinal bleeding in adult ICU patients: A systematic review and meta-analysis. Intensive Care Med 2019; 45:1347–1359.
- 6. Granholm A, Krag M, Marker S, et al: Predictors of gastrointestinal bleeding in adult ICU patients in the SUP-ICU trial. Acta Anaesthesiol Scand 2021; 65:792–800.
- 7. Guillamondegui OD, Gunter OL, Bonadies JA, Coates JE, Kurek SJ, De MOya MA, Sing RF, Sori AJ. Practice Management Guidelines for Stress Ulcer Prophylaxis, EAST Practice Management Guidelines Committee.
- 8. Krag M, Perner A, Wetterslev J, et al. SUP-ICU investigators. Stress ulcer prophylaxis with a proton pump inhibitor versus placebo in critically ill patients (SUP-ICU trial): study protocol for a randomised controlled trial. Trials. 2016;19;17(1):205.
- 9. The PEPTIC Investigators. Effect of stress ulcer prophylaxis with proton pump inhibitors vs histamine-2 receptor blockers on in-hospital mortality among ICU patients receiving invasive mechanical ventilation: The PEPTIC Randomized Clinical Trial. JAMA. 2020;323(7):616–626.
- 10. Wang Y, Ge L, Ye Z, et al: Efficacy and safety of gastrointestinal bleeding prophylaxis in critically ill patients: An updated systematic review and network meta-analysis of randomized trials. Intensive Care Med 2020; 46:1987–2000.
- 11. Wang Y, Parpia S, Ge L, et al. Proton-Pump Inhibitors to Prevent Gastrointestinal Bleeding An Updated Meta-Analysis. NEJM Evid. 2024 Jul;3(7):EVIDoa2400134.

12.	Young PJ, Bagshaw SM, Forbes AB, et al: Effect of stress ulcer prophylaxis with proton pump inhibitors vs histamine-2 receptor blockers on in-hospital mortality among ICU patients receiving invasive mechanical ventilation: The PEPTIC randomized clinical trial. JAMA 2020; 323:616–626.