

**Washington University Emergency Medicine Journal Club**  
**Upper GI Bleeds: Lavage It or Leave It**

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### Vignette

It is a typical Saturday afternoon in TCC when you are roomed a patient with a history of COPD and GERD who appears short of breath. When they bring him back from triage in a wheelchair, you watch him shakily stand and transition to the stretcher, appearing dizzy when he does so. As you go in to greet the patient, you ask the nurse to get him started on the monitor. You can hear wheezing on your exam.

HR 116            RR 24            BP 88/54            Sat 100%            Temp 36.3

During the review of systems, your patient embarrassedly admits to having several large bowel movements over the past two days that appeared dark and have progressively gotten more tarry throughout the day. He has had smaller episodes in the past, but nothing so large or frequent. He denies any vomiting, and specifically has had no hematemesis. DRE reveals black, heme positive stool.

His respiratory rate improves a little with a nebulizer, but he still appears short of breath. His labs are significant for a hemoglobin of 6.8, so you initiate your resuscitation. The patient's vital signs improve slightly but do not normalize. When you hear back from your GI consult, he asks you to admit the patient for serial CBCs overnight after performing a nasogastric lavage.

However, you remember reading an editorial about NG lavage in evaluating GI bleeds in patients without hematemesis that was not entirely flattering. On top of that, you are concerned about worsening your patient's already existing respiratory distress (or risk aspiration) if it is unnecessary. You decide to perform a quick search to see if there are any articles that might help you weight the pros and cons...

#### **PICO Question**

**Population:** Adult patients with potential upper GI bleeding

**Intervention:** NG tube lavage

**Comparison:** No NG tube placement

**Outcome:** Mortality, transfusion requirement, need for surgery, gastric visualization at endoscopy, triage of patients

### Search Strategy

No formal search strategy was used. Two emergency medicine residents used multiple sources to identify articles that evaluated the use of NG lavage in potential upper GI bleeding with regards to any outcome.

**Article 1:** [Pateron D, Vicaut E, Debuc E, et al; HDUPE Collaborative Study Group. Erythromycin infusion or gastric lavage for upper gastrointestinal bleeding: a multicenter randomized controlled trial. Ann Emerg Med. 2011 Jun;57\(6\):582-9. Answer Key.](#)

**Article 2:** [Aljebreen AM, Fallone CA, Barkun AN. Nasogastric aspirate predicts high-risk endoscopic lesions in patients with acute upper-GI bleeding. Gastrointest Endosc. 2004 Feb;59\(2\):172-8. Answer Key.](#)

**Article 3:** [Palamidessi N, Sinert R, Falzon L, Zehtabchi S. Nasogastric aspiration and lavage in emergency department patients with hematochezia or melena without hematemesis. Acad Emerg Med. 2010 Feb;17\(2\):126-32. Answer Key.](#)

**Article 4:** [Huang ES, Karsan S, Kanwal F, Singh I, Makhani M, Spiegel BM. Impact of nasogastric lavage on outcomes in acute GI bleeding. Gastrointest Endosc. 2011 Nov; 74\(5\):971-80. Answer Key.](#)

### Bottom Line

Considered to be [one of the more painful procedures](#) performed in the ED, nasogastric tube (NG) insertion is also associated with complication rates of 0.3% to 0.8% ([Pillai 2005](#)). NG tubes are often placed in patients with a known or suspected upper GI bleed, with potential goals of determining if the source is upper or lower, improving endoscopic visualization of the gastric fundus by lavage, and potentially triaging patients to urgent vs. non urgent endoscopy (particularly off hours). Unfortunately, very little evidence exists to support routine NG tube placement or lavage in these patients. We therefore sought to broadly evaluate the potential benefits of NG tube placement in patients with suspected or known upper GI bleeds.

One of the earlier studies performed sought to evaluate the predictive ability of NG lavage (NGL) in predicting the presence of a high risk lesion (spurting, oozing of blood, or a visible non-bleeding vessel) at endoscopy ([Aljebreen 2005](#)). A total of 520 patients with known upper GI bleeding were enrolled from the Canadian Registry of patients with Upper Gastrointestinal Bleeding undergoing Endoscopy (RUGBE). When considering a bloody NGL as a positive test (and coffee-ground, clear, or “other” aspirate as negative), the positive likelihood ratio (LR) was 2.00 and the negative LR was 0.68. When bloody or coffee-ground NGL was considered positive, the positive LR decreased to 1.20 and the negative LR decreased to 0.63. Overall, these likelihood ratios are quite poor, and would [do very little to alter the probability of the disease](#), no matter the results.

Another study, conducted in Paris, France, compared NGL and erythromycin in terms of ability to clear the stomach and improve gastric visualization during endoscopy ([Pateron 2011](#)). In this randomized, controlled trial, 253 patients were randomized to either NGL until clear, a dose of IV erythromycin, or both NGL and erythromycin. The mean visualization score at the time of endoscopy was similar between all 3 groups, with no difference in duration of endoscopy, need for hemostasis, ability to identify the source of bleeding, or need for a second endoscopy.

A third study, undertaken in the West Los Angeles VA system, attempted to compare outcomes between patients with GI bleed who underwent NGL and those who did not ([Huang 2011](#)). This retrospective study included 632 patients, of whom 378 patients underwent NGL. The authors used [propensity score matching](#) to try and achieve prognostic balance between the two groups by balancing for several known confounding factors. Following propensity matching, two groups with 193 patients in each were compared. There was no significant difference in mortality (OR 0.84, 95% CI 0.37 to 1.92), mean length of stay (difference 0.80 days, 95% CI -1.4 to 3.0), need for emergency surgery (OR 1.51, 95% CI 0.42 to 5.43), or mean blood transfusion requirement (difference -0.18 units, 95% CI -0.98 to 0.62). Of note, significantly more patients in the NGL group underwent endoscopy (OR 1.71, 95% CI 1.12 to 2.62) and were more likely to undergo earlier endoscopy, suggesting that significant imbalance remained between the groups in spite of propensity matching. This finding significantly limits the internal validity of the study.

Finally, a systematic review was identified from 2010 that attempted to determine the accuracy of NGL in differentiating upper from lower GI bleeds in patients with hematochezia or melena without hematemesis ([Palamidessi 2010](#)). The authors identified 3 articles; unfortunately, one of these ([Aljebreen 2005](#)) did not actually address the question being asked, as it only included patients with upper GI bleeds. For the remaining two articles, positive LRs were 4.74 and 4.44, while negative LRs were 0.2 and 0.65. As before, these likelihood ratios (with the exception of the negative LR of 0.2) suggest that the results of the test would do little to change the probability of an upper (or lower) GI hemorrhage.

In all, there is very little evidence to support the routine use of NG lavage in patients presenting to the ED with suspected upper GI hemorrhage. The only potential benefit not explored was the triage of patients to emergent, urgent, or non-urgent endoscopy, which would likely only be helpful during off hours. Given the poor ability of lavage to identify patients with high risk lesions, and given the significant discomfort associated with the procedure, this seems like a fairly soft reason to place an NG tube. Additional factors associated with poor outcomes in upper GI hemorrhage, such as older age, presence of upper GI malignancy, and vatical disease ([Roberts 2012](#)), in addition to signs of clinical instability may provide better triage of these patients, and should be considered prior to NG tube placement.