

## 5.2b Strategies to Optimize Delivery and Minimize Risk of EN: Motility Agents vs Intestinal Feeding

*There were no new randomized controlled trials since the 2015 update and hence there are no changes to the following summary of evidence.*

**Question:** Compared to gastric feeds with motility agents, does the use of intestinal feeding without motility agents result in better outcomes in the critically ill adult patient?

**Summary of evidence:** This is a new topic in 2018. There were 2 level 2 studies that compared the use of intestinal feeds vs a combination of gastric feeds and motility agents.

**Mortality, LOS and Ventilator Days:** In both studies, no effect was seen on mortality, ICU LOS, hospital LOS or ventilator days between groups.

**Ventilator Associated Pneumonia:** Only 1 study reported on VAP (Taylor 2016). When the two groups in this study were compared, no effects were seen regarding VAP occurrence.

**Other:** Taylor et al found that intestinal feeds may result in better tolerance of the goal rate of EN (percent of goal rate) than gastric feeds with motility agents (more than 20-50% increase in the percent of target reached daily from days 1-5; overall value not available). Overall EN tolerance was defined in the study as GRVs <250 mL and no vomiting in the gastric feeds with motility agents group and where GRVs contained no macroscopic feed in the intestinal feeds group.

Boivin et al found no difference between groups regarding time to reach and maintain goal rate of EN and high gastric residual volume occurrence.

### **Conclusions:**

Compared to gastric feeds with motility agents:

- 1) Intestinal feeds have no effect on mortality, VAP, LOS or ventilator days.
- 2) Intestinal feeds may be associated with improved feeding tolerance and amount of EN received.

**Level 1 study:** if all of the following are fulfilled: concealed randomization, blinded outcome adjudication and an intention to treat analysis.

**Level 2 study:** If any one of the above characteristics are unfulfilled.

**Table 1. Randomized Studies Evaluating Intestinal Feeds vs. Gastric Feeds + Motility Agents in Critically ill Patients**

Study	Population	Methods (score)	Intervention	Mortality # (%)		Infections # (%)	
				Intestinal	Gastric+prokinetics	Intestinal	Gastric+prokinetics
1) Boivin 2001	Mixed ICU patients N=80	C.Random: not sure ITT: no Blinding: no (5)	Erythro 200 mg q 8 hrs x 96 hrs vs transpyloric feeding	7/39 (18)	7/39 (18)	NR	NR
2) Taylor 2016	ICU patients with delayed gastric emptying who failed first line prokinetic treatment. N=50	C. Random: yes ITT: yes Blinded: no (9)	Nasointestinal feeds vs nasogastric feeds + 250 mg IV erythromycin 4x/day + metoclopramide	4/30 (16)	4/30 (16)	VAP 2/30	VAP 4/30

**Table 1. Randomized Studies Evaluating Intestinal Feeds vs. Gastric Feeds + Motility Agents in Critically ill Patients (Continued)**

Study	Mechanical Ventilation		LOS		Nutritional outcomes	
	Intestinal	Gastric+prokinetics	Intestinal	Gastric+prokinetics	Intestinal	Gastric+prokinetics
1) Boivin 2001	Ventilator free days 13                      13		ICU free days 14                      14		High tube residuals 9/39                      8/39 Time to goal rate achieved and maintained for 4h 33h                      32h	
2) Taylor 2016	Ventilator free days 21 (16-25)                      20 (13-25)		ICU free days 10 (0-16)                      11 (0-19)		Diarrhea 0/30                      2/30 Gastric Distension 1/30                      0/30 Vomiting 3/30                      5/30 Tolerance of goal feeds over 5 days 87-95%                      50-89% Area under the curve (tolerance in 5 days), median [IQR] 432 [253-464]%                      350 [213-381] % P=0.026	

C.Random: concealed randomization  
VAP: ventilator associated pneumonia

± : mean ± standard deviation  
ITT: intent to treat

NR: Not Reported  
LOS: length of stay

ICU: intensive care unit

## References

### Included Articles

1. Taylor SJ, Allan K, McWilliam H, Manara A, Brown J, Greenwood R, Toher D. A randomised controlled feasibility and proof-of-concept trial in delayed gastric emptying when metoclopramide fails: We should revisit nasointestinal feeding versus dual prokinetic treatment. *Clinical Nutrition ESPEN*. 2016 Aug; 14(1):1-8. doi: 10.1016/j.clnesp.2016.04.020.
2. Boivin MA, Levy H. Gastric feeding with erythromycin is equivalent to transpyloric feeding in the critically ill. *Crit Care Med*. 2001 Oct;29(10):1916-9.

### Excluded Articles

#	Reason excluded	Citation
1	Acid suppression trial, not a trial of EN optimization	El-Kersh K, Jalil B, McClave SA, Cavallazzi R, Guardiola J, Guilkey K, Persaud AK, Furmanek SP, Guinn BE, Wiemken TL, Alhariri BC, Kellie SP, Saad M. Enteral nutrition as stress ulcer prophylaxis in critically ill patients: A randomized controlled exploratory study. <i>J Crit Care</i> . 2018 Feb;43:108-113.