

**Title:** Determination of the percentage of and reasons why patients do not meet caloric goals at 72 hours following tube feeding (TF) initiation.

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**Introduction:** Enteral nutrition (EN) is considered superior to parenteral nutrition because of a reduction in associated infectious complications, a reduction in metabolic complications, maintenance of small bowel mucosa, stimulation of the small bowel mucosal immune system, reduced overall cost and reduced required laboratory monitoring. However, (EN) is often not delivered to patients at their daily caloric needs or stopped completely secondary to presumed intolerance (diarrhea, nausea, etc.) We were interested in the frequency of and reasons why patients failed to meet caloric goals with EN at our tertiary medical center. We currently have no standard TF policy with regards to reasons for withholding or terminating TF therapy.

**Methods :** This prospective study that was conducted on adult patients receiving EN at the Medical University of South Carolina in Charleston, SC for the month of September 2004. Patients were included regardless of their location (ward or ICU), the type of EN or the type of enteral access device. All patients initiated on EN orders were added to the data list. Patient information was gathered 72 hours following the initial EN order. 72 hours was considered a clinically acceptable time period for goal tube feeding (TF) rates to be reached. For each patient, the age, sex, medical service, enteral formula, enteral access device and reason for not meeting TF rate goals were recorded. Patients who were discharged prior to 72 hours or patients who were restarting their TF therapy during the same hospital admission were not included.

**Results:** 51 patients were initiated on TF. Follow-up was collected on 39 patients. Of the 39 patients, 25 met TF goal (Y) and 14 did not (N) ( $p>1.0$ ). Patients in both groups were usually fed through an NG/OG tube (Y) 12/25; N (8/14), or a PEG (Y) 6/25;(N) 3/14. No one TF formula predicted TF goal rate success or failure at 72 hours. There was no difference in attaining TF goals at 72 hours if the patient was on the floor or in the ICU. The most common causes of not reaching TF goals were due to: a) Increased gastric residuals-3 patients (21%), b) Abdominal pain with TF-3 patients (21%), c) Diet changed to PO intake-2 patients (14%), d) Slow advancement of TF-2 patients (14%), and e) Stopping TF for a procedure or test-2 patients (14%).

**Conclusion:** These results show several important factors that affect the nutrition treatment plans for patients. The main reasons most patients do not meet their TF goal are because of high gastric residual volumes, associated abdominal pain, progression to oral intake, pre-extubation, slow advancement of TF and as a preparation for a procedure or test. There was no statistical trend for not reaching TF goals for patients with a gastric or jejunal feeding tube, any specific TF formula or any one medical service or patient location. There was not a statistical difference between those who did reach TF goal and those who did not. However, the sample size was small and a larger trial may have demonstrated differences. We recommend that hospitals develop evidence-based protocols for appropriateness of initiating TF, advancement of TF, monitoring gastric residuals, assessing TF associated abdominal pain and re-examine the clinical significance of prolonged withholding of TF for extubation, procedures and tests.

**Results:**

Table 1: Patients who met goal TF requirements (Y)

Patients at goal feed	Service	#	Feeding Tube	#	Feed Formula	#
25	Neurology	5	NGT	9	Promote	7
	Cardio-Thoracic Sur	3	PEG	6	Promote/Osmolite	5
	Orthopedic	2	PEJ	3	Osmolite	3
	Medicine	2	OGT	3	Traumacal	3
	Surgery	2	PEG-J	1	Jevity	2
	General Internal Med	2			Promote w/ fiber	1
	Pulmonary	1			Perative	1
	Gastrointestinal	1			Lipisorb	1
	Plastics	1				

Table 2: Patients who did not meet goal TF requirements. (N)

Patients not at goal feed	Service	#	Feeding Tube	#	Feed Formula	#
14	Cardio-Thoracic Sur	4	NGT	7	Traumacal	5
	Neurology	2	PEG	3	Osmolite	4
	Pulmonary	2	PEJ	2	Promote/Osmolite	2
	Orthopedic	1	PEG-J	1	Promote	1
	Medicine	1	OGT	1	Jevity/ Promote	1
	General Internal Med	1			No Formula	1
	Cardiology	1				
	Nephrology	1				

Table 3: Reasons for not meeting goal enteral feeding requirements

Increased Residuals	3
Abdominal Pain	3
Diet advanced to PO	2
Slow to advance rate	2
Stopped for procedure	2
Tube never placed	1
Feed stopped for extubation	1
D/C other ???	1
Emesis	1