



# Educational and Awareness Campaigns to Optimize Patient Nutrition in the ICU



JOHNS HOPKINS  
SCHOOL of NURSING

Jennifer Haddaway BSN, RN

Weinberg ICU, Department of Surgery, The Johns Hopkins Hospital, Baltimore, MD  
Johns Hopkins University School of Nursing, Baltimore MD

## Background

- An estimated 20-50% of hospitalized adult patients are malnourished and negative outcomes with underfeeding include increased length of stay, higher readmission rate, decreased wound healing, and increased rate of pressure injuries.
- Studies have shown that patients in the ICU on average receive approximately half of their goal estimated needs.
- SCCM/ASPEN Guidelines: The goal for patients is to receive >80% of goal volume tube feeds (VBF)
- JHH has a policy for Enteral Feeding in Adults with a VBF option which has been underutilized since its release in 2022
- Previous education was surveyed, and it found that 69.2% of nurses did not recall receiving education on the Volume-based enteral feeding policy.

## Aim of the Project

- AIM1: Increase provider awareness of best practices related to EN feeding in the ICU patient population.
- AIM 2: Increase nursing confidence in the utilization of the workflow included in the policy.
- AIM3: Increase utilization of the established volume-based EN feeding policy.
- AIM4: Increase patient consumption of tube feeds (total volume) to >80% of the prescribed volume.

## Description of the Intervention

### Nursing:

- Inservice's via PowerPoint presentation. The policy will be reviewed including order view, titration workflow, and communication with providers around adverse outcomes. A case study will be utilized to simulate interventions for the worksheet.

### Providers and Dietitians:

- Power point presentation sent via email. Reminder cards were placed at the mobile workstations used during rounds and at the provider workstation in the unit, and quick reference cards were given out to facilitate questions about order entry

## Description of Data Collection and Analysis

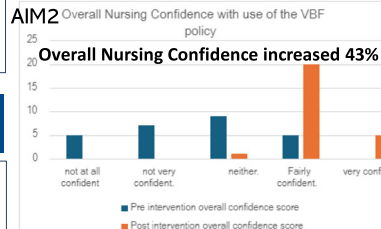
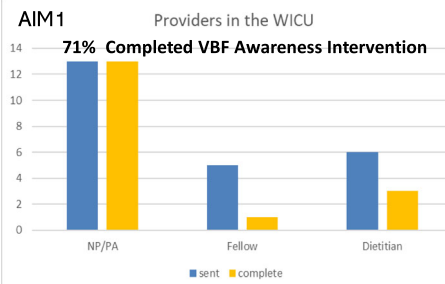
- Nursing staff confidence was measured pre and post educational in-service using a 5-point confidence scale (C-VAD) related to when to initiate, titrate, identify adverse events, assessment of total volume feed, and overall confidence in using the policy
- To raise awareness of the project, a provider/dietitian awareness campaign was conducted, and attendance was recorded. The campaign included a PowerPoint presentation with a Qualtrics survey QR code to scan for attendance
- Primary data sources for patient outcome data were order entries, provider's notes, and nursing documentation, including overall usage of the order set and the proportion of days those patients received at least 80% of their prescribed TF volume
- Data collection took place from September 2023-November 2023.

## Outcomes Measures or Results

### Demographic Characteristics

Primary surgery team n(%)	Preintervention n=32	Postintervention n=20
GI	7(22)	1(5)
ENT	8(25)	5(25)
Trauma	8(25)	6(30)
Other	9(28%)	8(40)

ICU provider Team	Preintervention n=32	Postintervention n=20
Resident	14(44)	10(50)
Advance Practice provider	18(56)	10(50)



AIM2 Overall Nursing Confidence with use of the VBF policy  
Overall Nursing Confidence increased 43%

AIM 4-Patient met >80% of EN goal (n=45)	Pre-campaign (N=34)	Post-campaign (n=11)
No	26(83.9)	5(16.1)
Yes	8(57.1)	6(42.9)
** Patients that met >80%	30.77%	54.55%

### AIM 3

Use of VBF orderset (n=45)

VBF orderset n(%)	Pre-campaign (N=31)	Post-campaign (n=14)
No	31 (77.5)	9(12.5)
Yes	0	5(100)
** Order use increased by		55.56%

Use of orderset and Patient met >80% EN volume(n=45)

	Did NOT meet goal (n=34)	Met Goal (n=11)
Use of orderset		
No	33	7
Yes	1	4
Use of order set increase patient consumption of EN		

## Implications for Practice

- Dietitians provided consistent practice with the fluctuation of providers in and out the ICU. Dietitian can pend the order set for provider approval and are experts in nutrition.
- In the WICU average LOS is 48hrs which lead to many patients not obtain a goal rate to initiate the titration of VBF. VBF maybe better utilized in a unit where LOS is greater than 48hrs for example the Medical ICU.
- Previous studies were not conducted in the Surgical ICU setting and future projects could look more specifically at surgical oncology patients.

## Lessons Learned

- Order set was not functioning properly in EPIC and cause noncompliance due to complexity of order entry
- Staff turnover for both MDs and nursing staff proved difficult to sustain the project.

## References

\*Bharal, M., Morgan, S., Husain, T., Hilari, K., Morawiec, C., Harrison, K., Bassett, P., & Culkin, A. (2019). Volume-based feeding versus rate-based feeding in the critically ill: A UK study. *Journal of the Intensive Care Society*, 20(4), 299-308. <https://doi.org/10.1177/1751143719847324>

\*Bielewicz, B. J., George, E., Gunn, S., Oroukmi, M., Ren, D., Beach, M., & Tuttle, P. (2018). A Clinical Nurse Specialist-Led Initiative to Reduce Deficits in Tube Feeding Administration for the Surgical and Trauma Populations. *Clinical Nurse Specialist*, 32(6), 299-306. <https://doi.org/10.1097/NUR.0000000000000405>

\*Bonomo, A., Blume, D. L., Davis, K., & Kim, H. J. (2021). Implementing Volume-Based Feeding to Optimize Delivery of Enteral Nutrition. *Critical Care Nurse*, 41(2), 16-26. <https://doi.org/10.4037/ccn2021556>

\*Holyk, A., Belden, V., Sirmaturos, M., Chiles, K., Fontenot, N., Lista, A., Broadway, M. K., & Leon, R. S. (2020). Volume-Based Feeding Enhances Enteral Delivery by Maximizing the Optimal Rate of Enteral Feeding (FEED MORE). *JPEN. Journal of Parenteral and Enteral Nutrition*, 44(6), 1038-1046. <https://doi.org/10.1002/jpen.1772>

\*Kim, H., Statts, N. A., Froelicher, E. S., Engler, M. M., & Porter, C. (2012). Why patients in critical care do not receive adequate enteral nutrition? A review of the literature. *Journal of Critical Care*, 27(6), 702-713. <https://doi.org/https://doi.org/10.1016/j.jccr.2012.07.019>

\*McClave, S., et al. (2015) Volume-based feeding in the critically ill patient. *JPEN* 39(6), 707-712.

\*Prest, P. J., Justice, J., Bell, M., McCarroll, R., & Watson, C. M. (2020). A Volume-Based Feeding Protocol Improves Nutrient Delivery and Glycemic Control in a Surgical Trauma Intensive Care Unit. *JPEN. Journal of Parenteral and Enteral Nutrition*, 44(5), 880-888. <https://doi.org/10.1002/jpen.1712>

\*Roberts, S., et al (2019) Volume-based vs rate-based enteral nutrition in the intensive care unit: Impact on nutrition delivery and glycemic control. *JPEN*, 43(3), 365-375

\*Sachdev, G., Backes, K., Thomas, B. W., Sing, R. F., & Huynh, T. (2020). Volume-Based Protocol Improves Delivery of Enteral Nutrition in Critically Ill Trauma Patients. *JPEN. Journal of Parenteral and Enteral Nutrition*, 44(5), 874-879. <https://doi.org/10.1002/jpen.1711>

\*Taylor, B., McClave, S., Martindale, R., Warren, M., Johnson, D., Braunschweig, C., McCarthy, M., Davanos, E., Rice, T., Cresci, G., Gervasio, J., Sacks, G., Roberts, P., & Compher, C. (2016). Guidelines for the Provision and Assessment of Nutrition Support Therapy in the Adult Critically Ill Patient: Society of Critical Care Medicine (SCCM) and American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.). *Critical Care Medicine*, 44(2), 390-438. <https://doi.org/10.1097/CCM.0000000000001925>

\*Wallanga, G. J. (2021). Implementing a Volume-based Feeding Protocol in a Neurosciences Critical Care Unit. Unpublished manuscript. [https://archive.is/hiul.umaqyand.edu/bitstream/handle/10713/15743/Wallanga\\_Volum-e-basedFeeding320Protocol570\\_2021.pdf](https://archive.is/hiul.umaqyand.edu/bitstream/handle/10713/15743/Wallanga_Volum-e-basedFeeding320Protocol570_2021.pdf)