Parenteral Nutrition Therapy

P1 - Nourishing Solutions: Exploring Clinical Outcomes of Using Multichambered Premixed Parenteral Nutrition Amid Shortages

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Background: Parenteral Nutrition (PN) formulations contain many sterile injectable drugs that are susceptible to shortages due to having few manufacturers with limited geographic diversity. In 2024, a hurricane damaged a manufacturing facility that produced a large quantity of Dextrose 70% (D70) and sterile water for the United States leading to nationwide shortages. Use of multichambered premixed parenteral nutrition (MPPN) may be explored during shortages. MPPN is a commercially available product containing amino acids, dextrose with electrolytes, and lipids in separate chambers. The seams are ruptured, allowing components to mix before administration. The purpose of this retrospective study is to determine the clinical impact of utilizing MPPN instead of custom PN during sterile water and dextrose 70% national shortages and to identify clinical factors associated with better tolerance of MPPN.

Methods: To continue meeting patients' nutrition needs, MPPN was utilized by KabaFusion in the home setting from October 22, 2024, through April 15, 2025. Registered Dietitians determined the type of MPPN for each patient based on laboratory values and patients' current PN formulation. The following data was reviewed retrospectively: primary diagnosis for therapy, length of time on MPPN, hospitalizations and line infection after initiating MPPN, diet, tolerance of MPPN, ostomy or gastrostomy tube output, electrolyte stability at time of MPPN initiation, and patient feedback. Inclusion criteria included all patients that received MPPN during the specified time frame.

Results: A total of 15 patients received three different types of MPPN. The breakdown of primary diagnoses is summarized in Table 1. The longest duration on MPPN was 151 days and the shortest was 6 days with an average of 47 days. One patient was hospitalized for electrolyte disturbances related to MPPN formulation. No line infections were reported from any patients while on MPPN. Patients were on the following diets: 60% solid food, 20% full liquids, 13% clear liquids, and 7% NPO. Ultimately, 80% tolerated MPPN while 20% did not tolerate MPPN and required transition back to custom PN. The patients that tolerated MPPN had less than two liters of gastrostomy or ostomy output while the patients that did not tolerate MPPN had greater than two liters of output. In the patients that did not tolerate MPPN, electrolytes were abnormal in 66% and normal in 33% at initiation. Comparatively, in patients that tolerated MPPN, electrolytes were abnormal in 17% and normal in 83% at initiation. The clinical factors likely to impact tolerance of MPPN are summarized in Table 2. Product feedback included two patients reporting that MPPN bags were larger than custom bags and two patients preferring MPPN over custom bags due to shelf stability.

Conclusion: In this study, patients on a diet with less than two liters of ostomy or gastrostomy tube output and stable electrolytes were associated with better tolerance of MPPN in the home setting during periods of PN shortages. Blood stream infections were not observed, and hospitalizations were limited, suggesting MPPN is safe to use in the home setting.

Table 1. Primary diagnoses of patients initiated on MPPN

ICD-10 Diagnosis Code	Number of Patients
K95.89 Complications d/t gastric bypass	4
K63.2 Fistula of intestines	3
K90.82 Short bowel Syndrome	2
K56.6 Unspecified Intestinal Obstruction	2
K86.1 Other Chronic Pancreatitis	2
K90.9 Unspecified Intestinal Malabsorption	1
K31.84 Gastroparesis	1

Table 2. Clinical Factors likely impacting tolerance of MPPN

Patient Number	Tolerance of MPPN	G-Tube/Ostomy Output >2L	Electrolytes Normal at Initiation	Diet
1	Did Not Tolerate	Yes	No	Clear Liquids
2	Did Not Tolerate	Yes	No	Full Liquids
3	Did Not Tolerate	Yes	Yes	Solids
4	Tolerated	No	No	Solids
5	Tolerated	No	No	Full Liquids
6	Tolerated	No	Yes	Solids
7	Tolerated	No	Yes	Solids
8	Tolerated	No	Yes	Solids
9	Tolerated	No	Yes	Clear Liquids
10	Tolerated	No	Yes	Solids
11	Tolerated	No	Yes	NPO
12	Tolerated	No	Yes	Solids
13	Tolerated	No	Yes	Solids
14	Tolerated	No	Yes	Solids
15	Tolerated	No	Yes	Full Liquids

P2 - Hypersensitivity Reaction to Parenteral Nutrition: A Case Report

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Background: Central parenteral nutrition (PN) is an option when a patient is unable to receive adequate nutrition via the gastrointestinal route.[1] PN is considered a complex, high-risk medication and can be associated with adverse reactions.[1-3] Adverse reactions are believed to be uncommon and can manifest as pruritus, anaphylaxis, respiratory distress, tachycardia and less common, back pain and gastrointestinal symptoms.[3-5] Common allergens in PN are intravenous lipid emulsions (ILE), multivitamins, and amino acid solutions.[3] We present a case of back pain and shortness of breath with PN administration.

Methods: None Reported.

Results: A 66-year-old female presented with progressive epigastric pain and inability to take oral nutrition over several months. She had no food allergies and no past medical history. Surgical history included a cholecystectomy. An esophagogastroduodenoscopy was done on

hospital day #2 revealing a gastric outlet obstruction. An upper gastrointestinal series showed complete obstruction at the first portion of the duodenum. There was concern for malignancy. PN was started on hospital day #5 via a peripherally inserted central catheter (PICC). A 3-in-1 solution [soy oil-based ILE 20%, multivitamin, trace elements, sodium chloride, potassium chloride, magnesium sulfate, and sodium phosphate] was administered. The patient immediately reported back pain and shortness of breath when the PN was started. The PN was stopped with resolution of symptoms. Patient had received magnesium sulfate, potassium chloride, dextrose and sodium chloride solutions on prior days without any hypersensitivity reactions. Nothing else had been administered via the PICC. On hospital day #6, PN was administrated for a 2nd time. The patient was pre-medicated with diphenhydramine and methylprednisolone sodium succinate. Back pain and shortness of breath were immediately reported with the PN infusion. It was stopped and symptoms resolved. There were no new medications administered before or after the 1st and 2nd administrations of PN. Since ILE is one of the most common allergens, it was eliminated from the PN. The patient did not experience any hypersensitivity reactions on the 3rd or subsequent 9 days of administration. On hospital day #8 the patient had a Whipple procedure. The pathology showed pancreatic adenocarcinoma. PN was discontinued on hospital day #16 given the patient's oral intake had improved. Discussion. In a systematic review of hypersensitivity reactions to parenteral nutrition, ILE was the most concerning causative agent (48.4%).[3] Back pain is an unusual hypersensitivity reaction. Weidmann et al.[5] outlined three patients who experienced back pain, as well as other symptoms. The back pain was seemingly caused by the soy lipid emulsion because symptoms resolved when it was removed. Swartz et al.[4] outlined a case where back pain appeared to be associated with the multivitamin in the PN solution since the back pain did not reoccur when the multivitamin was removed. Since PN without ILE did not cause an allergic reaction for this patient., ILE appeared to cause of the hypersensitivity reaction manifesting as back pain and shortness of breath.

Conclusion: The ILE component of the PN appeared to be the most likely cause of the hypersensitivity reaction seen in this case. It is important to consider PN component(s) as a reason for these types of reactions.

Figure 1.

P3 - The Impact of Enduring Strength Training on Body Composition, Frailty Index, GI Symptomatology, and Functional Capacity in an Ambulatory Adult Receiving Long-Term TPN

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Financial Support: None Reported.

Background: This case study assesses the anthropometric data, gastrointestinal (GI) symptomatology, muscle strength progression, physical stamina, and Fried Frailty Phenotype (FFP) scoring of an adult undertaking enduring personal strength training with chronic intestinal pseudo-obstruction (CIPO) and secondary total parenteral nutrition (TPN) dependency, managed by a single multidisciplinary adult gastroenterology center.

Methods: A retrospective chart review was conducted over 8 years after obtaining consent. Anthropometric data, GI symptomatology measures, and FFP scores were collected from the patient's electronic medical records. Muscle strength and stamina progression were collected from the patient's certified personal training records.

Results: The patient is a 34-year-old male with chronic intestinal pseudo-obstruction (CIPO) and secondary total parenteral nutrition (TPN) dependency who presented to clinic with an initial body mass index (BMI) of 13.6 kg/m^2, negligible oral intake, FFP scoring indicative of severe frailty, and poor self-reported scoring of GI symptomatology (constipation, oral intake intolerance, fatigue, and malaise). At his initial visit, the patient expressed concerns about his quality of life (QoL) and desire to improve his level of fitness. The patient received education about central venous access device (CVAD)-related exercise precautions, activity moderation, hydration measures, and ensuring adequate nutrition provision. The patient gradually incorporated calisthenics exercises into his weekly routine (3-5 days/week) in close collaboration with his clinical team. Every 3 months, after obtaining medical clearance, the patient would then slowly incorporate resistance training via a stepwise personal training regimen. His energy, protein, and fluid allocations were adjusted accordingly to meet his increased needs. By the end of the study period, the patient experienced significant progress in weight-bearing capacity (Table 1) and physical stamina. The patient had marked improvement in BMI measuring at 22.3 kg/m^2, increased oral intake and tolerance, non-frail FFP scoring, and improved self-reported scoring of GI symptomatology (positive stooling, oral intake tolerance, energy level, and physical wellness rating).

Conclusion: Desired improvements in anthropometric data, GI symptomatology, muscle strength and stamina progression, and FFP scoring were observed, retrospectively, in this patient undertaking enduring personal strength training at a single adult gastroenterology center. These findings underscore the potential benefits of strength training and physical activity for individuals on long-term TPN, with prospective implications for QoL measures and medical resilience. However, research on physical activity and strength training for individuals on TPN with CVADs is sparse. The retrospective design and use of a single patient measure are limitations to this study; however, this supports the need to expand upon these initial observations, with a larger prospective trial on strength training in long-term TPN consumers to help guide future standards of practice.

Table 1.

Weight Bearing Capacity Progression from Study Start to End		
Exercise Type*	**Highest Weight Resistance at Study Start**	**Highest Weight Resistance at Study End**
Deadlift	95lbs	245lbs
Bench Press	45lbs	155lbs
Squat	45lbs	185lbs
Leg Press	45lbs	300lbs

* Exercises were completed via standardized 10 repetition-maximum (10RM) test

P4 - Identifying Safe Patients for Home-Initiated Parenteral Nutrition: An App-Based Screening Tool

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Previous Publication: Tweedy, E., Hunter, K., Murphy, L., & Scippa, A. (2025). Identifying safe patients for home-initiated parenteral nutrition: An app-based screening tool [Abstract]. National Home Infusion Association. https://nhia.org/wp-content/uploads/2025/09/2968814.pdf.

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Background: Home initiated parenteral nutrition (HIPN) is a growing method to start patients on parenteral nutrition (PN). HIPN can minimize healthcare costs and improve quality of life by avoiding hospitalization. However, not all patients are candidates for HIPN. Determining suitable HIPN patients consists of several factors highlighted in the American Society for Parenteral and Enteral Nutrition (ASPEN) Consensus Recommendations. According to ASPEN, establishing organizational policies and procedures to determine safe and clinically appropriate HIPN patients includes assessing the patient's overall medical, clinical, and psychosocial status. To standardize this procedure, an app-based screening tool was developed and implemented throughout the organization to provide a streamlined approach from the start of the HIPN referral process

(Figure 1). The dietitian-led, app-based HIPN screening tool pilot program aims to identify safe and clinically appropriate patients for HIPN with the goal of improving patient safety and adherence to HIPN best practice recommendations.

Methods: Patients referred to this home infusion organization for HIPN from November 1, 2023, to September 30, 2024, were selected for this pilot program. The Registered Dietitian (RD) completed the "Home Initiated PN Dietitian Screening" (HIPDS), a screening tool in an app-based platform. The 28-question HIPDS was adapted from the ASPEN Consensus Recommendations and Newton AF, DeLegge MH 2007 Home Initiation of Parenteral Nutrition. A team of dietitians completed implementation and covers four categories (clinical, patient/caregiver home initiation education process/agreement, environment, and RD confirmation/approval) to help determine if the patient is a HIPN candidate (Figure 2). The screening was completed by collecting data from clinical documents and performing a telephonic assessment with the patient or caregiver. Exclusion criteria included patients less than 18 years old, patients deemed appropriate for HIPN but did not initiate PN at home, and patients who did not have a HIPDS completed before the first dose of PN.

Results: A total of 36 patients were reviewed by an RD for HIPN of which 30 met the inclusion criteria and the HIPDS was completed (Table 1). Six patients were excluded from the study, three due to initiating PN in a hospital and three did not have the HIPDS completed prior to the first dose. For the 30 patients that had HIPDS completed, 23 were deemed appropriate and safe for HIPN and seven were not a candidate for the following reasons: uncorrectable electrolytes (57%), appropriate for enteral nutrition (14%), patient refused PN, (14%), and psychosocial discrepancy (14%). Of the 23 patients that had HIPN, no patients required hospitalization related to the clinical management of PN. However, one patient was hospitalized for a line infection within 30 days of initiating therapy. No patients had electrolytes that were uncorrectable; no patients had an adverse drug reaction; and 18 patients (78%) reached goal PN within 30 days of therapy initiation. To evaluate if the use of the HIPDS helped to enforce best practice recommendations, thiamine usage, and lab draw within 24-48 hours, post-initiation were reviewed retrospectively; 21 patients (91%) received intravenous thiamine with PN initiation, and 20 patients (86%) had labs drawn within 24-48 hours post-initiation (Table 2).

Conclusion: The use of an app-based screening tool by RDs is effective in identifying safe and clinically appropriate patients for HIPN. All patients in the pilot that received HIPN avoided hospitalizations related to PN management, adverse drug reactions, uncorrectable electrolyte abnormalities, and advanced PN to goal without complications.

Table 1. Baseline characteristics

Characteristic	HIPN Patients (n = 23)	Patients Not Appropriate for HIPN (n = 7)
Sex		
Female	22 (96%)	5 (71%)
Male	1 (4%)	2 (29%)
Median Age		
Years	53	61
Classification of Primary PN Indication		
Motility Disorder	8 (35%)	1 (14%)
Malabsorptive Disorder	5 (22%)	0 (0%)
Anatomical Condition Other	3 (13%)	0 (0%)
Intestinal Disease	3 (13%)	0 (0%)
Nutrition Disorder	2 (9%)	1 (14%)
Anatomical Condition Neoplasm	2 (9%)	5 (71%)

Baseline characteristics of patients who met inclusion criteria (n = 30).

Table 2. HIPN 30-day outcomes

Patient Outcome	Number of Patients (n = 23)
Hospitalization	0 (0%)
Uncorrectable Electrolytes	0 (0%)
Adverse Drug Reaction	0 (0%)
Reached Goal PN	18 (78%)
Received IV Thiamine with HIPN	21 (91%)
Labs Drawn within 24-48 hours Post-HIPN	20 (86%)

Outcomes from within the first 30 days of HIPN.

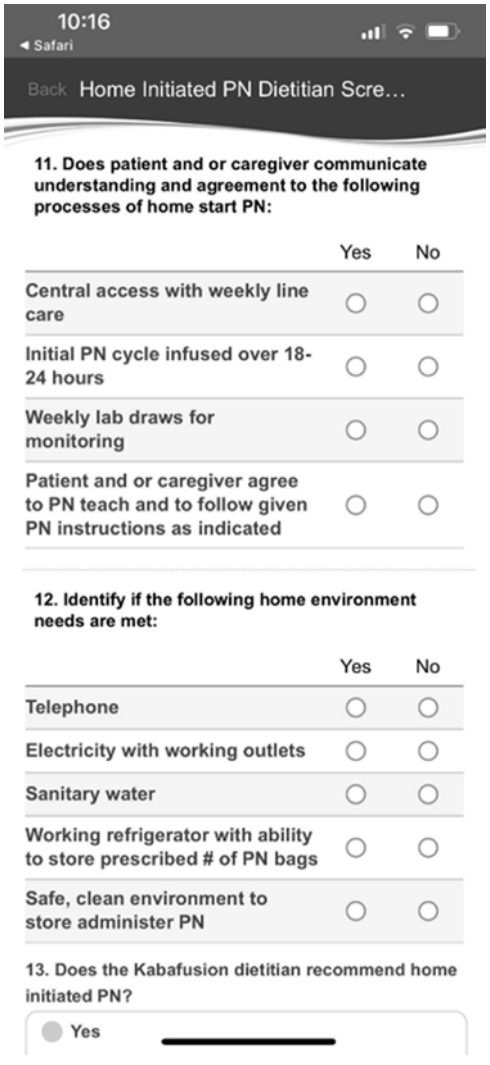

Figure 1. HIPN screening tool app

Screenshot of HIPN screening tool app.

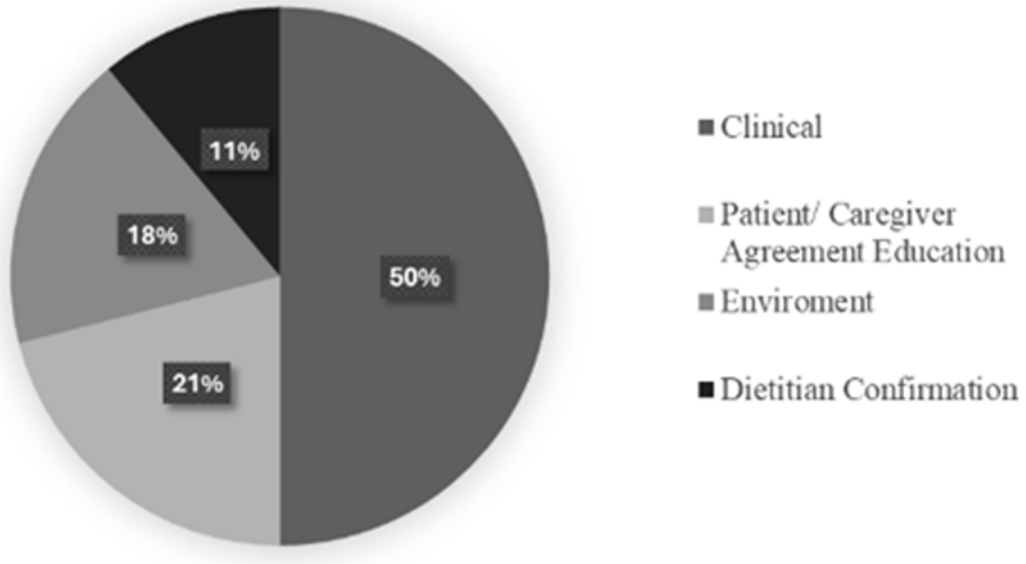

Figure 2. Categorization of HIPDS questions

Categorization of HIPDS questions created using ASPEN Consensus Recommendations.

P5 - Tracking Parenteral Nutrition Utilization and Safety Using Dashboard at VA Medical Center

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Financial Support: None Reported.

Background: The use of parenteral nutrition (PN) requires continuous safety monitoring and a multidisciplinary team approach. In 2024 our Nutrition Support Team (NST) developed a dashboard to review safety and utilization of PN at the Greater Los Angeles VA Medical Center. The dashboard eliminated the need for manual data extraction and allowed for review of clinical parameters in real-time as well as aggregate overtime. We previously reported on the development of our dashboard at our facility. Here we report on the lessons learned and potential opportunities for improvement.

Methods: A dashboard was constructed using data from the VA electronic health record. The dashboard used Microsoft Power BI technology to customize data visualization. The NST group worked closely with the Data Analytics team at the facility to modify and validate the dashboard to accommodate the needs of the group. The dashboard was maintained behind a VA firewall and only accessible to members of the NST. The extracted information included patient's demographics, clinical service, principal discharge diagnosis, number of orders for PPN/TPN, counts of hyperglycemia, hypophosphatemia, hypokalemia, thiamine deficiency and hypertriglyceridemia. The dashboard was set to alert each time a potassium level was < 3.5 mmol/L, serum glucose > 200 mg/dL, serum phosphorus < 2.5 mg/dL and serum triglycerides were > 400 mg/dL. The dashboard also flagged abnormal thiamine and folate levels. Specific complications such as refeeding, sepsis, and catheter associated infection were flagged using ICD-10 codes.

Results: Between July 2023 and July 2025, 87 consults for parenteral nutrition were placed from the acute care services. Majority of the requests came from the General Medicine and Medical ICU Service (51 consults) followed by the General Surgery (31 consults) and surgical subspecialities (4 consults). One request came from the Cardiology service. The average age of the patients was 72 years old (range 26-95 years) and majority were male (96%). Thirty patients were White/Caucasian, 29 patients were Black, and 11 patients were Hispanic with 3 patients of Hawaiian/ Pacific Islander descent. In July of 2024, the dashboard was updated to better separate patients on PPN formulations from those on TPN formulations. In reviewing the dashboard at-a-glance, it seems the most frequent lab abnormalities were abnormal potassium and abnormal glucose. In reviewing the data from July 2024 to July 2025, all patients who had >5 abnormal potassium values were receiving TPN (9/25). Similarly, only one patient receiving PPN had >5 abnormal glucose levels while 8/25 patients receiving TPN had >5 abnormal glucose readings. Other lab values such as triglycerides, vitamins, and other electrolyte levels were not significantly abnormal. The use of PN remained consistently low during the monitoring period. The duration of PPN was appropriately short, with most hospitalized patients needing parenteral support received TPN. Significant refeeding or catheter-related infection was not noted.

Conclusion: Parenteral nutrition monitoring dashboard is a useful tool and allows for easy, at a glance representation of PN delivery. Review of our dashboard revealed low incidence of hypertriglyceridemia, vitamin deficiency, infection or refeeding diagnoses. However, frequent instances of hypokalemia and hyperglycemia were noted which requires further work to identify cause or triggers.

Figure 1. Screenshot of the nutrition dashboard

P6 - Factors Influencing Adherence to Weight-Based Lipid Injectable Emulsion Dosing Protocols in Parenteral Nutrition

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Background: Lipid injectable emulsions (ILEs) are a key component of parenteral nutrition (PN), providing a concentrated source of calories and helping to reduce reliance on dextrose, thereby lowering the risk of carbohydrate overfeeding. Weight-based dosing of ILEs has been associated with improved clinical outcomes; however, variability in patient characteristics may contribute to deviations from recommended dosing practices and increase the risk of complications. Understanding individual characteristics which influence ILE dosing can optimize TPN management. This

study aimed to identify such factors associated with ILE dosing discrepancies to support clinical decision-making and enhance adherence to established protocols.

Methods: A retrospective study was conducted using electronic health record data from hospitalized patients receiving PN at a Midwest academic medical center between December 1, 2023, and March 31, 2024. Patients were categorized into two groups based on adherence to the ILE dosing protocol: those who received the appropriate volume according to weight-based guidelines (500 mL for patients >75 kg; 250 mL for ≤75 kg) and those who received a dose other than the recommended weight-based volume. Patient characteristics were compared between ILE dose groups using Chi-square or Fisher's exact tests for categorical variables and independent t-tests for continuous variables.

Results: Of the 172 patients included, 66.3% (n = 114) received ILE volumes consistent with the ILE dosing guidelines, while 33.7% (n = 58) received amounts outside the recommended lipid protocol criteria. Those deviating from the protocol had higher proportions of the following categories: > 75 kg ($p < 0.001$), overweight or obese BMI ($p < 0.001$), seen by a critical care team ($p = 0.01$), have contraindications ($p = 0.013$), on propofol ($p < 0.001$), received pancreatic procedure ($p = 0.008$), and have no malnutrition diagnosis ($p < 0.001$).

Conclusion: One-third of the study population did not receive lipids per ILE dosing protocols, identifying several baseline clinical and demographic factors significantly associated with these deviations. These findings highlight the complexity of ILE prescribing practices and underscore the need for targeted strategies to support protocol adherence.

P7 - Are Baseline Liver Function Tests Enough? A Retrospective Review of ILE Selection in Parenteral Nutrition

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Financial Support: None Reported.

Background: In hospital settings, lipid injectable emulsions (ILE) are essential components of parenteral nutrition (PN). Our institutional guidelines recommended restriction of the use of soy, MCT, olive, and fish oil ILE (SO, MCT, OO, FO-ILE) to patients with baseline aspartate transaminase (AST) or alanine transaminase (ALT) > 3 times the upper limit of normal, direct bilirubin (DB) > 2 mg/dL, or anticipated PN duration > 2 weeks, with the aim to reduce liver-related complications and control costs. However, limited data exist on whether baseline laboratory values alone are sufficient to guide ILE selection. This study compared change from baseline and peak liver function tests (LFTs) in patients receiving either SO, MCT, OO, FO-ILE or standard soy oil-based ILE (SO-ILE) regardless of baseline lab values, to assess compliance with our current guidelines and inform future clinical decision-making.

Methods: We conducted a retrospective chart review of adult patients who received PN containing either SO, MCT, OO, FO-ILE or standard SO-ILE between January 1, 2023 and December 31, 2023 at a single research hospital. Collected data included baseline and peak levels of alkaline phosphatase (ALP), AST, ALT, Triglycerides (TG), and DB while on PN, as well as PN duration and compliance with institutional ILE guidelines. Patients who received PN for 5 days or less or had missing baseline or repeat LFTs on PN were excluded from the LFTs comparison. Statistical analysis was performed using Fisher's tests and Mann-Whitney U tests as appropriate.

Results: 105 PN events were analyzed for guideline compliance, and 69 patients (60 SO, MCT, OO, FO-ILE; 9 SO-ILE) met criteria for assessment of LFTs and TG (Table 1). Elevations in LFTs and TG levels were observed in both cohorts, with no significant differences in the frequency or magnitude of elevation (Table 2). Guideline compliance was observed in 66 of 105 PN events (63%) (Figure 1). Among the 39 non-compliant cases, 34 patients (87%) received SO, MCT, OO, FO-ILE outside of institutional criteria. The remaining 5 patients (13%) received SO-ILE, despite meeting criteria for SO, MCT, OO, FO-ILE, due to suspected essential fatty acid deficiency (n=2), continuation of SO-ILE from home PN (n=1), and prolonged PN duration without ILE adjustment (n=2).

Conclusion: In this cohort, LFT and TG elevations from baseline did not differ significantly between patients receiving SO, MCT, OO, FO-ILE and SO-ILE. Further research is needed to determine if more individualized criteria for ILE selection could enhance patient outcomes as relying solely on LFT lab thresholds for ILE selection may not fully capture patients' risk for developing elevated LFTs during PN therapy. As part of the nutrition support team, Registered Dietitians (RDs) have an essential role in the process of ILE selection and must be actively engaged in the development, implementation, and continual reevaluation of institutional guidelines to ensure they remain clinically relevant, evidence-based, and responsive to patient needs.

Table 1. Demographics

Characteristic	SO-ILE	SO, MCT, OO, FO-ILE
Age, median (IQR), years	51 (32-71)	41 (28-56)
Male sex, n (%)	3 (33)	41 (68)
Days on PN, median (IQR)	10 (8-41)	16 (10-29)

Table 2. Comparison of liver function tests and triglyceride levels in patients receiving SO-ILE vs. SO, MCT, OO, FO-ILE

Marker	Group	Baseline (median [IQR])	p-value	Peak (median [IQR])	p-value	% Change
ALT (U/L)	SO-ILE	34 (10-51)	0.70	41 (37-77)	0.56	17
	SO, MCT, OO, FO-ILE	39 (18-51)		64 (41-153)		39
AST (U/L)	SO-ILE	24 (16-57)	0.77	68 (57-87)	0.67	65
	SO, MCT, OO, FO-ILE	29 (18-66)		63 (34-93)		54
ALP (U/L)	SO-ILE	117 (94-154)	0.25	150 (127-260)	0.87	22
	SO, MCT, OO, FO-ILE	85 (59-135)		167 (105-244)		49
DB (mg/dL)	SO-ILE	0.5 (0.2-0.7)	0.95	0.7 (0.4-3.3)	0.76	29
	SO, MCT, OO, FO-ILE	0.4 (0.2-0.8)		0.7 (0.3-1.5)		38
TG (mg/dL)	SO-ILE	107 (95-143)	0.11	122 (84-257)	0.2	12
	SO, MCT, OO, FO-ILE	152 (120-217)		215 (134-304)		29
		n (%)		n (%)		
ALT and/or AST > 3x UNL[a]	SO-ILE	1 (11)	> 0.99	2 (22)	> 0.99	n/a
	SO, MCT, OO, FO-ILE	6 (10)		16 (27)		
DB > 2 mg/dL	SO-ILE	1 (11)	> 0.99	3 (33)	0.4	
	SO, MCT, OO, FO-ILE	6 (10)		12 (20)		
TG > 400 mg/dL[b]	SO-ILE	0 (0)	> 0.99	1 (14)	0.58	
	SO, MCT, OO, FO-ILE	2 (3)		6 (11)		

Three times upper normal limit. TGL not available on all included patients.

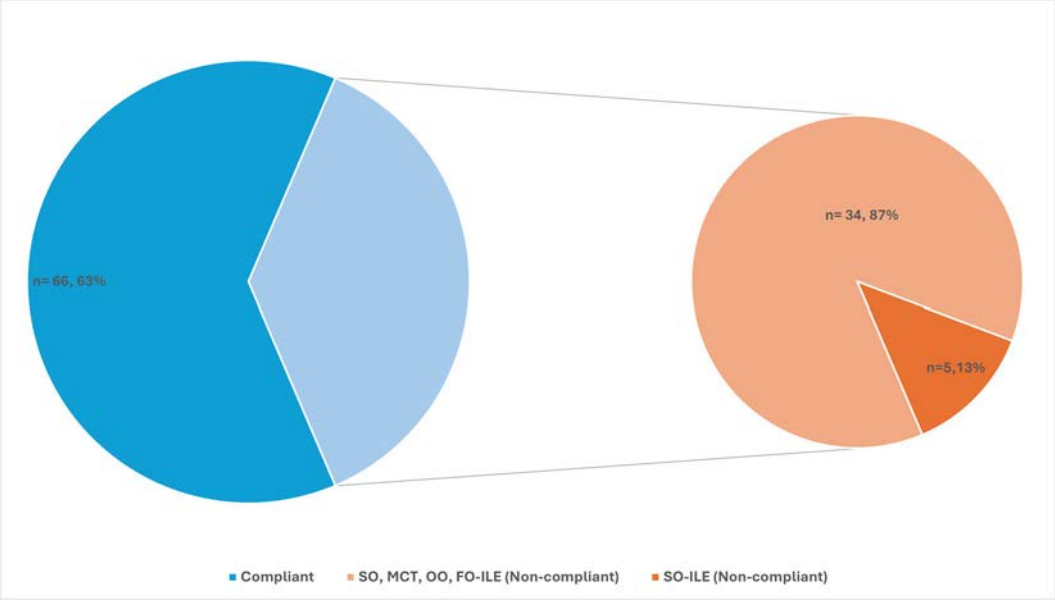

Figure 1. Compliance with institutional ILE guidelines

P8 - Risk of Hypertriglyceridemia Between Soy-Based & Mixed Oil-Based Intravenous Lipid Emulsions

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Background: Hypertriglyceridemia is a relatively common complication from total parenteral nutrition (TPN). Soybean oil-based lipid emulsions (SO-ILE) have historically been the only available lipid product, but newer mixed-oil based lipid emulsions (SO,MCT,OO,FO-ILE) are thought to have several potential safety benefits including reduced risk of parenteral nutrition-associated liver disease, anti-inflammatory effects, and reduced risk of hypertriglyceridemia. This study seeks to provide further evidence for the use of mixed oil-based lipid emulsions to reduce the risk of hypertriglyceridemia.

Methods: This study was a retrospective chart review of adult patients who were admitted to BayCare St. Joseph's Hospital between January 2022 and August 2024. Patients were included if they received parenteral nutrition for at least seven days, received soy-based (Intralipid) or mixed oil-based (SMOFlipid) intravenous lipid emulsions (ILEs), and had serum triglyceride (TG) levels collected at baseline and repeated on either day 7, 8, 9, or 10.

Results: A total of 142 patients were included in the study. The mean change in TG from baseline was 12.0 mg/dL in the soybean-based ILE group and -10.9 mg/dL in the mixed oil-based ILE group. The difference in the primary outcome between the two groups was 22.9 mg/dL (95% CI 2.1, 43.7), with patients receiving soybean-based ILE more likely to experience an increase in their TG level and patients receiving mixed oil-based ILE more likely to experience a decrease in TG level.

Conclusion: In adult patients receiving parenteral nutrition, those who received mixed-oil based intravenous lipid emulsions had less increase in their triglyceride levels from baseline to day 7-10 compared to those who received soy-based intravenous lipid emulsions. Overall, the mixed-oil group had a decrease in their serum triglyceride level, while the soy-based group had an increase in their level. There was no difference seen in the length of hospital stay or mortality between the two groups.

Table 1. Baseline characteristics

Variable	*SO-ILE* (N=77)	*SO,MCT,OO,FO-ILE* (N=65)	P-value
Age – *years* ± *SD*	66.1 ± 17.0	65.0 ± 17.3	0.707
Female – *no. (%)*	49 (63.6%)	35 (53.8%)	0.237
Race/Ethnicity			
White – *no. (%)*	35 (45.5%)	33 (50.8%)	
Black – *no. (%)*	17 (22.1%)	16 (24.6%)	0.558
Hispanic – *no. (%)*	23 (29.9%)	13 (20.0%)	
Other – *no. (%)*	2 (2.6%)	3 (4.6%)	
TPN duration – *days* ± *SD*	15.1 ± 8.9	15.5 ± 7.2	0.795
Baseline TG – *mg/dL* ± *SD*	114.8 ± 42.5	126.6 ± 73.9	0.237
Day of repeat TG – *days* ± *SD*	7.4 ± 0.8	7.5 ± 0.8	0.433
Chronic liver disease – *no. (%)*	2 (2.6%)	5 (7.7%)	0.247
Chronic kidney disease (CrCl <45) – *no. (%)*	11 (14.3%)	10 (15.4%)	0.854
Concomitant lipid-lowering medications – *no. (%)*	13 (16.9%)	11 (16.9%)	0.995
High-intensity statin – *no. (%)*	7 (9.1%)	6 (9.2%)	0.977
Low-intensity statin – *no. (%)*	7 (9.1%)	6 (9.2%)	0.977
Fibrate – *no. (%)*	0 (0%)	1 (1.5%)	0.458

Abbreviations: SD = standard deviation; no. = number; TPN = total parenteral nutrition; TG = triglycerides.

Table 2. Clinical outcomes

Outcome	*SO-ILE* (N=77)	*SO,MCT,OO,FO-ILE* (N=65)	Difference (95% CI)	P-value
Change in TG – *mg/dL* ± *SD*	12.0 ± 65.3	-10.9 ± 58.8	22.9 (2.1, 43.7)	**0.031**
TG on day 7-10 – *mg/dl* ± *SD*	126.8 ± 62.2	112.3 ± 53.2	14.47 (-4.92, 33.81)	0.142
Length of stay – *days* ± *SD*	24.4 ± 15.6	24.0 ± 12.2	0.43 (-4.28, 5.13)	0.857
Death – *no. (%)*	1 (1.3%)	1 (1.5%)		1

Abbreviations: SD = standard deviation; no. = number; TG = triglycerides.

P9 - Improving Use of Impactful Parental Nutrition in Hospitalized Patients

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Financial Support: None Reported.

Background: Parenteral nutrition (PN) is used for patients that cannot be fed orally or enterally for a prolonged period. The American Society of Parenteral and Enteral Nutrition (ASPEN) recommends that PN should only be started if the anticipated duration of therapy is greater to or equal to seven days in patients that oral and enteral nutrition is insufficient or contraindicated. Although PN can be necessary and lifesaving in some patients, it comes with potential risks including metabolic abnormalities (hyperglycemia, electrolyte abnormalities), infection, and venous complications. Short-term use of PN (< 5 days) can be futile, increase cost, and expose patients to the risks mentioned above. The aim was to evaluate the use of short-term PN therapy and to assess if implementation of a PN protocol would reduce short-term PN use.

Methods: Data was collected from electronic medical records retrospectively from January-March 2024, and January-March 2025. On November 19, 2024, the PN decision tree (Figure 1) was developed based on ASPEN criteria for PN and patient's malnutrition status and was distributed to the Nutrition Support Team (NST) and a protocol was implemented to improve communication between NST and PN consulting providers via closer follow up and standardized documentation of PN indication. The initial data collected included PN indication, consulting medical team, total days on PN, vascular access, and presence of malnutrition. Patients on home TPN were excluded. Patients were divided by PN duration into groups, less than five days or equal to or greater than five days, and data from both quarters was compared. A Chi-square test of independence and two-portion Z-Test were used to assess statistical analysis; a significance level of 0.05 was used.

Results: From January-March 2024, 36% of hospitalized patients (n=92, 33 on short-term PN) had PN therapy discontinued in less than 5 days. In the short-term PN group, 48.5% were surgical cases, 36.5% were under the medicine team management, 12% were medical ICU, and 3% had other primary teams. The main indications for PN initiation were ileus or GI obstruction, followed by inability to obtain or maintain enteral access. 36% had PN infused via central access. 60% had been diagnosed with malnutrition. After implementation of the protocol and decision tree, short-term PN use reduced from 36% in the 2024 group to 24% in the 2025 group (n = 74, 18 on short-term PN) (Figure 2). Although not statistically significant (p = 0.1), the decrease in short-term PN use is clinically relevant.

Conclusion: By standardizing documentation of PN indication, implementing a visual decision tree for initiation of PN, and following PN cases more closely, a decrease in short-term PN use was observed. Although not statistically significant, clinical improvement still provided benefit to patients by optimizing nutrition delivery through other means when indicated and reducing PN associated risks to patients.

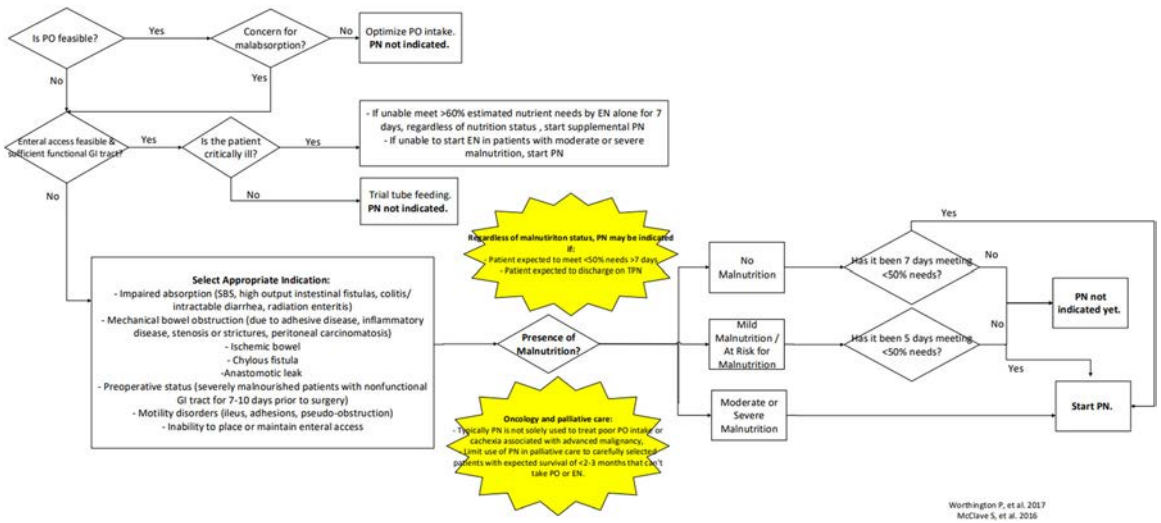

Figure 1. PN decision tree

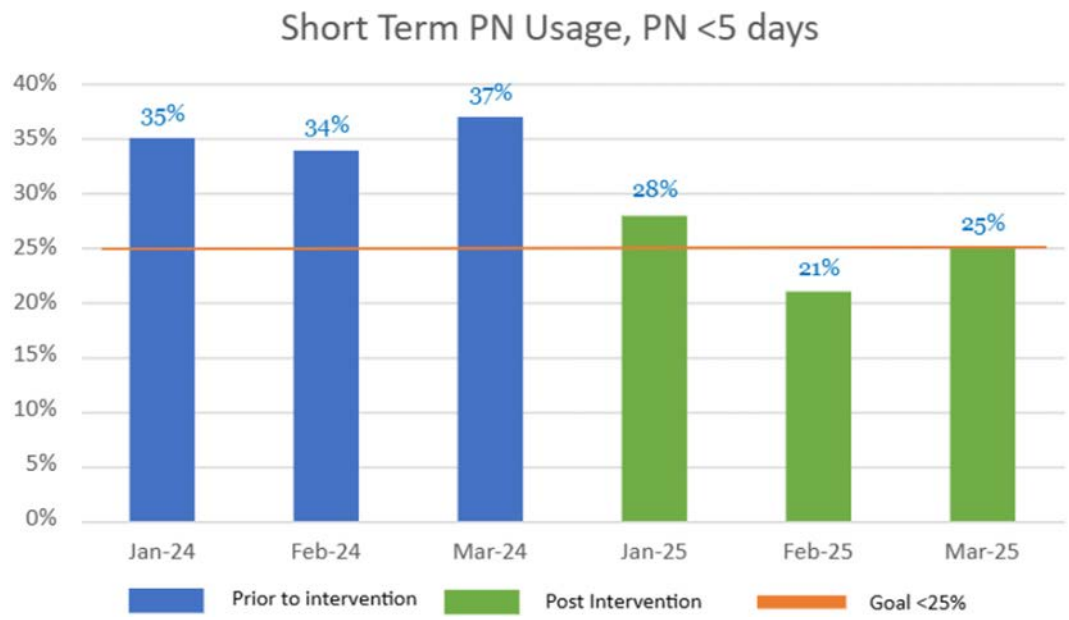

Figure 2. PN usage from January-March 2024 and 2025

P10 - Long-Term Treatment With Once-Weekly Apraglutide Reduces Parenteral Support Volume and Increases Clinical Responder Rates in Patients With Short Bowel Syndrome and Intestinal Failure

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Financial Support: None Reported.

Background: Patients with short bowel syndrome and intestinal failure are dependent on parenteral support (PS) to meet nutritional and/or fluid requirements. Apraglutide (APRA), a long-acting glucagon-like peptide-2 (GLP-2) analog administered subcutaneously once-weekly, stimulates intestinal adaptation and has been shown to reduce PS requirements in the open-label, phase 2 metabolic balance study STARS Nutrition (NCT04964986) and the phase 3, randomized, double-blind STARS study (NCT04627025). STARS Extend (NCT05018286) is an open-label, long-term extension (LTE) trial designed to evaluate the long-term safety of APRA and determine whether treatment effects are maintained in the long term.

Methods: Patients who completed STARS Nutrition or STARS without meeting stopping criteria could enroll in STARS Extend, either switching to APRA for those previously on placebo (PBO) or continuing to receive APRA (APRA/APRA group). APRA was given at a dose of 3.5 mg if patient ≥50 kg or 1.4 mg if < 50 kg, for up to 208 weeks. The primary objective was to assess long-term safety and tolerability; secondary endpoints included changes from baseline (defined as start of APRA treatment in weekly PS volume and proportion of clinical responders (≥20% reduction) and high responders (≥40% reduction) at Weeks 52, 104, 152, and 208.

Results: As of January 2025, 166 patients were analyzed (APRA/APRA, n=119; PBO/APRA, n=47). BASELINE demographics and disease characteristics were generally balanced across groups (Table 1). Reductions in weekly PS volume from baseline were similar in both groups (-36.1% vs. -39.1% at Week 52 for APRA/APRA vs. PBO/APRA), with small variations in urine volume, fluid intake and body weight (Table 2). The proportion of clinical responders was high in both groups (67.9% vs. 68.4% for APRA/APRA and PBO/APRA at Week 52), with rates of 44.3% vs. 50.0% for clinical high responders (Table 2). APRA was well tolerated with long-term use; discontinuation of APRA

due to adverse events (AEs) occurred in 6.7% (8/119) of patients in the APRA/APRA group and 2.1% (1/47) of those in the PBO/APRA group. No AEs led to dose reduction, and study discontinuation due to AEs occurred in 1 patient in each group.

Conclusion: Long-term treatment with once-weekly APRA resulted in sustained reductions in relative percentage change in weekly PS volume from baseline of 48% at Week 104, and high clinical responder rates. APRA was well tolerated throughout the treatment period.

Table 1. Patient demographics and disease characteristics

Parameter	APRA/APRA (n=119)	PBO/APRA (n=47)	All APRA (N=166)
Age (years; mean [SD])	50.7 (14.5)	53.7 (16.3)	51.6 (15.0)
Sex (n, %)			
Male	46 (38.7)	25 (53.2)	71 (42.8)
Race (n, %)			
White	103 (86.6)	39 (83.0)	142 (85.5)
Asian	12 (10.1)	6 (12.8)	18 (10.8)
Other	2 (1.6)	0 (0.0)	2 (1.2)
Region (n, %)			
US	21 (17.6)	7 (14.9)	28 (16.9)
EU + UK	84 (70.6)	34 (72.3)	118 (71.1)
ROW	14 (11.8)	6 (12.8)	20 (12.0)
Weight category (n, %)			
<50 kg	16 (13.4)	2 (4.3)	18 (10.8)
≥50 kg	103 (86.6)	45 (95.7)	148 (89.2)
BMI category (n, %)			
<18.5 kg/m2	16 (13.4)	4 (8.5)	20 (12.0)
≥18.5 and <25 kg/m2	78 (65.5)	33 (70.2)	111 (66.9)
≥25 and <30 kg/m2	18 (15.1)	10 (21.3)	28 (16.9)
≥30 kg/m2	7 (5.9)	0 (0.0)	7 (4.2)
Disease characteristics			
Causes of SBS (n, %)			
Inflammatory bowel disease	33 (27.7)	16 (34.0)	49 (29.5)
Mesenteric ischemia	35 (29.4)	10 (21.3)	45 (27.1)
Injury from trauma	6 (5.0)	5 (10.6)	11 (6.6)
Intestinal malformation	4 (3.4)	1 (2.1)	5 (3.0)
Other*	41 (34.5)	15 (31.9)	56 (33.7)
Length of remnant small bowel Cm; mean [SD]	81.1 (55.3)	92.0 (54.5)	84.2 (55.1)
Time from SBS diagnosis Months; mean [SD]	104.8 (101.8)	93.5 (98.3)	101.6 (100.7)
Time from last intestinal resection Months; mean [SD]	96.4 (95.1)	90.3 (98.7)	94.7 (95.9)
Time from PS initiation Months; mean [SD]	86.0 (80.2)	93.2 (101.4)	88.0 (86.5)
Actual weekly PS volume L; mean [SD]	12.9 (7.6)	11.1 (7.2)	12.4 (7.5)
Actual days per week on PS Days; mean [SD]	5.8 (1.5)	5.3 (2.1)	5.7 (1.7)

*'Other' includes surgical complications, injury from trauma, volvulus, ileus, intestinal malformation, adhesion, motility, radiation enteritis, cancer, necrotizing enterocolitis, and other.

APRA/APRA = apraglutide/apraglutide group; BMI = body mass index; CIC = colon-in-continuity; PBO/APRA = placebo/apraglutide group; PS = parenteral support; ROW = rest of world; SBS = short bowel syndrome; SD = standard deviation.

Table 2. Changes from baseline in actual weekly parenteral support volume, urine volume, fluid intake, and body weight by visit* and proportion of clinical responders/high responders with long-term apraglutide treatment (full analysis set)*

Endpoint	APRA/APRA (N=119)	PBO/APRA (N=47)
Relative changes in actual weekly PS volume		
Relative % change from baseline in actual PS weekly volume at Week 52, LSM (SD)	-36.1 (38.4)	-39.1 (44.6)
Relative % change from baseline in actual PS weekly volume at Week 104, LSM (SD)	-47.8 (41.2)	-48.4 (44.1)
Changes in urine volume		
Relative % change from baseline in urine volume at Week 52, LSM (SD)	9.8 (32.7)	9.1 (39.1)
Relative % change from baseline in urine volume at Week 104, LSM (SD)	9.8 (27.5)	3.0 (50.4)
Changes in fluid intake		
Relative % change from baseline in fluid intake at Week 52, LSM (SD)	2.5 (21.7)	11.2 (26.5)
Relative % change from baseline in fluid intake at Week 104, LSM (SD)	6.9 (32.1)	31.5 (36.7)
Changes in body weight		
Relative % change from baseline in body weight at Week 52, LSM (SD)	0.2 (5.9)	1.4 (6.4)
Relative % change from baseline in body weight at Week 104, LSM (SD)	-1.0 (8.4)	-2.6 (6.8)
Proportion of clinical responders/high responders†		
Clinical responders (≥20% PS reduction from baseline)		
Clinical responders at Week 52, n/N (%)	72/106 (67.9)	26/38 (68.4)
Clinical responders at Week 104, n/N (%)	56/74 (75.7)	7/10 (70.0)
Clinical high responders (≥40% PS reduction from baseline)		
Clinical high responders at Week 52, n/N (%)	47/106 (44.3)	19/38 (50.0)
Clinical high responders at Week 104, n/N (%)	42/74 (56.8)	6/10 (60.0)

*Patient numbers at Week 104 in the PBO arm are too small to draw any meaningful conclusions and are only presented for completeness. †Proportion of patients per total number of patients analyzed at each timepoint. APRA/APRA = apraglutide/apraglutide group; CIC = colon-in-continuity; LSM = least square mean; PBO/APRA = placebo/apraglutide group; PS = parenteral support; SD = standard deviation.

P11 - Long-Term Treatment With Once-Weekly Apraglutide Reduces Parenteral Support Dependency and Allows to Reach Enteral Autonomy in Some Patients With Short Bowel Syndrome and Intestinal Failure

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Vlaams-Brabant; [6]Ironwood Pharmaceuticals, Inc., Basel, Basel-Landschaft; [7]Ironwood Pharmaceuticals, Inc., Boston, Massachusetts; [8]Hôpital Beaujon, Clichy, Ile-de-France; [9]Icahn School of Medicine at Mount Sinai, New York, New York

Financial Support: None Reported.

Background: Reducing parenteral support (PS) dependency (fewer days on PS per week) is a key treatment goal in patients with short bowel syndrome and intestinal failure, with achieving enteral autonomy (PS independence) being the ultimate goal. The long-acting glucagon-like peptide-2 (GLP-2) analog apraglutide (APRA) administered subcutaneously once weekly showed efficacy in reducing PS needs in phase 2 STARS Nutrition and phase 3 STARS trials. STARS Extend (NCT05018286), an open-label, long-term extension (LTE) study, aims to assess the long-term safety and tolerability of APRA, and whether treatment effects are maintained in the long term.

Methods: Eligible patients who completed STARS or STARS Nutrition could opt to continue APRA (APRA/APRA) at dose of 3.5 mg if patient ≥50 kg or 1.4 mg if < 50 kg, or switch from placebo (PBO/APRA) for up to 208 weeks in STARS Extend. The primary objective was long-term safety and tolerability; secondary endpoints included changes in PS frequency reaching enteral autonomy at Weeks 52, 104, 152, and 208. Baseline was start of APRA treatment.

Results: As of January 2025, 166 patients were analyzed (APRA/APRA: 119; PBO/APRA: 47). Baseline demographics and disease characteristics were generally balanced across groups. At Week 52, ≥1 day/week off PS was achieved by 49.1% and 55.3% of patients in the APRA/APRA and PBO/APRA groups (Table 1), with small variations in urine volume, fluid intake and body weight (Table 2). Similar results were observed at Week 104 (55.4% vs. 50.0%), and for ≥2, ≥3, and ≥4 days/week off PS. 35 patients reached enteral autonomy at least once (24 [20.2%] in APRA/APRA and 11 [23.4%] in PBO/APRA). Of those, 83.3% (20/24) and 90.9% (10/11) maintained continuous EA through last follow-up. Among those achieving enteral autonomy, 24/24 (100%) and 10/11 (90.9%), and 20/24 (83.3%) and 8/11 (72.7%) maintained it for ≥3 and ≥6 months, respectively, in APRA/APRA and PBO/APRA. Body weight at enteral autonomy did not vary from baseline (68.24 kg vs. 67.09 kg overall). APRA was well tolerated, with most adverse events being Grade 1/2.

Conclusion: Long-term treatment with once-weekly APRA resulted in continued reductions in PS dependency. It led to sustained enteral autonomy, a critical milestone in potentially reducing burden of care and improving QoL, highlighting the potential for ongoing clinical benefit with long-term therapy.

Table 1. Reductions in days per week on parenteral support from baseline by visit (full analysis set)*

Endpoint†	APRA/APRA (N=119)	PBO/APRA (N=47)
Reduction of ≥1 day/week		
At Week 52, n (%)	52/106 (49.1)	21/38 (55.3)
At Week 104, n (%)	41/74 (55.4)	5/10 (50.0)
Reduction of ≥2 days/week		
At Week 52, n (%)	38/106 (35.8)	14/38 (36.8)
At Week 104, n (%)	37/74 (50.0)	5/10 (50.0)
Reduction of ≥3 days/week		
At Week 52, n (%)	29/105 (27.6)	11/35 (31.4)
At Week 104, n (%)	30/74 (40.5)	4/10 (40.0)
Reduction of ≥4 days/week		
At Week 52, n (%)	15/93 (16.1)	5/30 (16.7)
At Week 104, n (%)	18/63 (28.6)	3/9 (33.3)

*Patient numbers at Week 104 in the PBO arm are too small to draw any meaningful conclusions and are only presented for completeness. †Proportion of patients per total number of patients analyzed at each timepoint. APRA/APRA = apraglutide/apraglutide group; PBO/APRA = placebo/apraglutide group.

Table 2. Changes from baseline in urine volume, fluid intake, and body weight by visit (full analysis set)*

Endpoint	APRA/APRA (N=119)	PBO/APRA (N=47)
Changes in urine volume		
Relative % change from baseline in urine volume at Week 52, LSM (SD)	9.8 (32.7)	9.1 (39.1)
Relative % change from baseline in urine volume at Week 104, LSM (SD)	9.8 (27.5)	3.0 (50.4)
Changes in fluid intake		
Relative % change from baseline in fluid intake at Week 52, LSM (SD)	2.5 (21.7)	11.2 (26.5)
Relative % change from baseline in fluid intake at Week 104, LSM (SD)	6.9 (32.1)	31.5 (36.7)
Changes in body weight		
Relative % change from baseline in body weight at Week 52, LSM (SD)	0.2 (5.9)	1.4 (6.4)
Relative % change from baseline in body weight at Week 104, LSM (SD)	-1.0 (8.4)	-2.6 (6.8)

*Patient numbers at Week 104 in the PBO arm are too small to draw any meaningful conclusions and are only presented for completeness. APRA/APRA = apraglutide/apraglutide group; LSM = least square mean; PBO/APRA = placebo/apraglutide group; SD = standard deviation.

P12 - Characterizing Adult Home Parenteral Nutrition Patients With Ehlers-Danlos Syndrome and Postural Orthostatic Tachycardia Syndrome: A Descriptive Study

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Financial Support: None Reported.

Background: Home parenteral nutrition (HPN) is a life-sustaining therapy for patients with intestinal failure. Ehlers-Danlos Syndrome (EDS) and Postural Orthostatic Tachycardia Syndrome (POTS) are increasingly recognized as underlying conditions contributing to nutritional compromise due to symptoms such as gastrointestinal dysmotility and intolerance to enteral nutrition (EN). These complicated patients benefit from close monitoring by a multidisciplinary comprehensive care team. While nutrition support is often necessary for these patients, including escalation to HPN, there is limited data characterizing their clinical profiles and nutrition support requirements. The purpose of this study was to describe the demographic, clinical, and nutritional characteristics of a sample of adult patients with EDS, POTS, or both, who receive HPN, and to explore their exposure to EN and concurrent therapies.

Methods: This retrospective, descriptive study analyzed data from nutrition assessments completed by the Registered Dietitian (RD), Certified Nutrition Support Clinician (CNSC) on adult patients with a diagnosis of EDS or POTS receiving HPN through a national home infusion provider over a 6-month period between October 1, 2024, and March 31, 2025.

Results: Two hundred and eighteen patients with a diagnosis of EDS or POTS received an RD, CNSC HPN assessment during the study period. Patient demographics are described in Table 1. The median BMI was 24 kg/m^2. All patients had central venous access (45% tunneled subclavian, 31% peripherally inserted central catheter, 22% port, 1% internal jugular). In addition to PN, 56% received intravenous (IV) fluid, 27% IV diphenhydramine, and 6% IV immunoglobulins. Fourteen percent of patients were able to initiate HPN in the home setting, and 15% were able to wean from HPN during the study period. Additional HPN characteristics are detailed in Table 2. Intravenous lipid emulsion (ILE) provision included: 51% of patients receiving the four-oil mixed lipid emulsion containing soybean, medium-chain triglyceride, olive, and soybean oil; 17% the two-oil mixed lipid emulsion containing olive and soybean oil; and 17% the pure soybean oil emulsion. Sixteen percent of patients were receiving HPN with no ILE. Other components missing from HPN orders included 7.3% multiple trace element product, 5.6% phosphate, 2.7% multiple vitamin product, and 1.4%

calcium. Parenteral fluid requirements by diagnosis are described in Figure 1, AND EN exposure and tolerance in Figure 2. Patients with EDS, POTS, and gastroparesis (GP) were most likely to have failed a trial of EN, and patients with EDS only were most likely to have no EN exposure.

Conclusion: This large observational study reported on a group of 218 patients with EDS and/or POTS who were dependent on HPN. Consistent with known epidemiology, the majority of the studied patients were young adult females. While not the intent of the original study, we found that 68% of the patients had a GP diagnosis, and given the significant nutrition support implications, this diagnosis was included with more detailed data review as noted in Table 2, Figure 1, AND Figure 2. Previous studies have demonstrated that patients with EDS and POTS follow a progressive trajectory from EN to HPN with limited data regarding weaning. Notably, 15% of the study population was able to wean off HPN, highlighting the potential for recovery or stabilization in this population when working with a comprehensive care team that includes the RD, CNSC. Further prospective studies are needed to better understand the optimal nutrition support therapy for this patient population.

Table 1. Demographics

Age Group	Female	Male	Non-Binary
18-24	55	3	4
25-34	88	3	0
35-44	39	1	0
45-54	15	2	0
55-64	5	0	0
65+	3	0	0

Table 2. Parenteral nutrition characteristics

	Energy (kcal/kg)	Protein (g/kg)	ILE (g/kg)	PN Fluid (mL/kg)	PN + IV Fluid (mL/kg)	PN Hours (per day)	PN Duration (months)
All Patients	22.9	1.3	0.5	28.9	38.0	14.9	22.6
EDS Only	22.7	1.4	0.4	28.2	33.2	13.1	16.6
POTS Only	23.0	1.3	0.6	30.5	44.5	14.1	19.0
EDS+POTS	20.9	1.2	0.4	26.3	35.6	14.4	17.3
EDS+POTS+GP	23.5	1.3	0.5	29.2	38.1	15.2	24.8

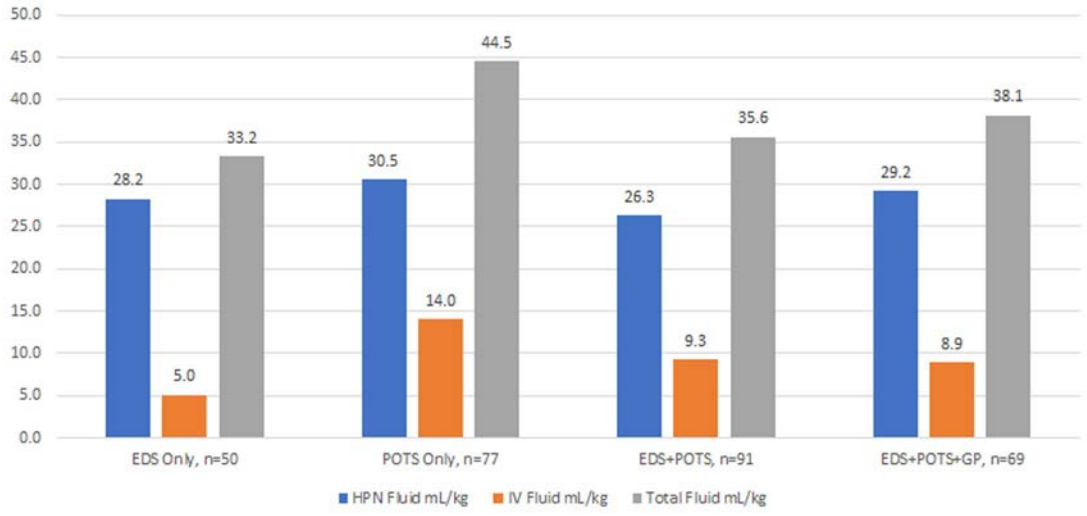

Figure 1. Parenteral fluid requirements

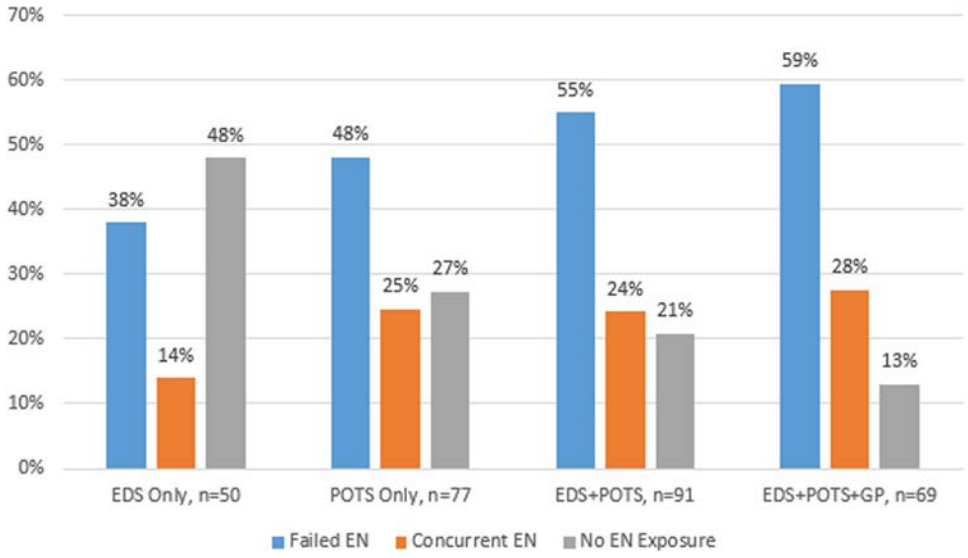

Figure 2. Enteral nutrition exposure prevalence

P13 - Changes in Registered Dietitian Nutritionists' Comfort and Confidence in Parenteral Nutrition Management Before and After Education Intervention

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Background: In our institution, parenteral nutrition (PN) can be managed by the multidisciplinary Nutrition Support Service (NSS) if PN is requested by a medical or surgical service or pharmacists and dietitians (RDNs) if ordered by a surgical service. From October 2024 to April 2025, our institution was faced with a dextrose shortage. In order to ensure conservation of resources and appropriate use of PN, NSS was asked to manage all PN. After the shortage ended, PN education was requested by RDN staff as we transitioned back to previous management protocol.

Methods: NSS RDNs developed a four-part education series for RDN staff. Series topics were PN Workflow, Assessment, Macronutrients, Micronutrients/Electrolytes, and NSS decision making case studies. Dietitians were surveyed before and after receiving education to assess their experiences with and comfort in managing various aspects of PN. The survey was anonymous, and respondents were asked to rate their comfort with PN management on a Likert scale.

Results: Pre-education survey was completed by 18 RDNs; 11 (61.1%) had 0-5 years of experience, 2 (11.1%) had 6-10 years of experience, and 5 (27.8%) had greater than 10 years of experience; post survey was completed by 16 RDNs, 11 (68.8%) had 0-5 years of experience and 5 (31.3%) had greater than 10 years of experience. There were 4 respondents with advanced certification in nutrition support in both the pre and post survey responses. After the completion of the PN education series, respondents reported increased confidence in all areas of PN management surveyed with only one respondent reporting disagreement in confidence for designing a PN therapy plan (Refer to Table 1 and Table 2). Respondents were more likely to have decreased confidence in the selection of appropriate catheter access for PN, management of catheter related complications, and evaluation of catheter tip location for PN use post education series.

Conclusion: RDN staff self-reported increased confidence and comfort in all aspects of PN management after the completion of a four-part PN education series. This highlights the benefit of ongoing education in key aspects of PN provision. Additional research is necessary to further delineate the clinical impact of this education.

Table 1. Confidence in developing PN plans

I am confident in	Performing a clinical review of PN orders for appropriateness		Calculating caloric and protein requirements for patients receiving PN		Designing and recommending a PN therapy plan for patients who will be initiated to receive PN	
	Pre N=18	Post N=16	Pre N=18	Post N=16	Pre N=18	Post N=16
Strongly agree	6 (33.3%)	6 (37.5%)	6 (33.3%)	13(81.3%)	4 (22.2%)	7 (43.8%)
Agree	4 (22.2%)	9 (59.3%)	5 (27.8%)	2 (12.5%)	6 (33.3%)	6 (37.5%)
Neutral	2 (11.1%)	1 (6.3%)	5 (27.8%)	1 (6.3%)	3 (16.7%)	2 (12.5%)
Disagree	5 (27.8%)	0	1 (5.6%)	0	4 (22.2%)	1 (6.3%)
Strongly disagree	1 (5.6%)	0	1 (5.6%)	0	1 (5.6%)	0

Table 2. Confidence in modifying and monitoring PN plans

I am confident in	Monitoring patients who receive PN		Identifying potential complications related to PN therapy		Recommending modifications to PN orders based on laboratory and clinical data in the electronic medical record.	
	Pre N=18	Post N=16	Pre N=18	Post N=16	Pre N=18	Post N=16
Strongly agree	5 (27.8%)	6 (37.5%)	4 (22.2%)	6 (37.5%)	4 (22.2%)	7 (43.8%)
Agree	6 (33.3%)	8 (50%)	4 (22.2%)	5 (31.3%)	4 (22.2%)	8 (50%)
Neutral	2 (11.1%)	2 (12.5%)	4 (22.2%)	5 (31.3%)	5 (27.8%)	1 (6.3%)
Disagree	4 (22.2%)	0	4 (22.2%)	0	3 (16.7%)	0
Strongly disagree	1 (5.6%)	0	2 (11.1%)	0	2 (11.1%)	0

P14 - Hurricane Helene's Aftermath: Observations and Interventions to Home Parenteral Nutrition Orders During an IV Product Shortage

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Financial Support: None Reported.

Background: Parenteral nutrition (PN) is a life-sustaining therapy comprised of amino acids, dextrose, lipids, electrolytes, vitamins, minerals, and sterile water, designed to support patients with a non-functioning gastrointestinal tract. Since the mid-1980s, periodic shortages of PN components have disrupted patient care and required additional individualized multidisciplinary intervention. In September 2024 Hurricane Helene severely damaged a major US manufacturer of PN components, creating a prolonged nationwide shortage of multiple ingredients, including sterile water, dextrose, and sodium chloride. Home PN patients were directly impacted, necessitating adjustments in prescribed regimens. This retrospective chart review describes clinical and operational strategies implemented by a home infusion nutrition support team (NST) during the recent intravenous (IV) product shortage. Interventions are presented to inform future responses to supply chain disruptions affecting PN therapy in the home setting.

Methods: A retrospective review of adult patients receiving home PN through a national home infusion provider was queried in its electronic medical record from October 1, 2024, through March 31, 2025. Exclusion criteria included patients younger than 18 years of age, patients not managed by the internal NST, and patients without order changes related to the current shortage. Deidentified data were recorded in a standardized collection tool. Variables collected included PN indication, age, sex, recommended PN regimen modifications related to the shortage, and adjustments to laboratory monitoring frequency.

Results: A total of 863 patients met inclusion criteria during the study period (Table 1), with 1011 recommended PN order changes and 2314 individual shortage-related intervention recommendations documented. The most common recommended interventions included: decreased dextrose (n = 637, 63.0%), increased lipid dosing (n = 412, 40.8%), use of a less concentrated amino acid product (n=270, 26.7%), decreased sodium chloride (NaCl) content (n = 247, 24.4%), reduced total volume (n = 179, 17.7%), increased amino acid dose (n=171, 16.9%), decreased days per week of PN administration (n = 154, 15.2%), and increased days per week of lipid administration (n = 102, 10.1%). Premixed PN formulations were used in 84 cases (8.3%), and intravenous fluid (IVF) volume was reduced in 58 instances (5.7%) (Figure 2). Only 10 patients (1.2%) required increased laboratory monitoring due to these regimen modifications.

Conclusion: The IV product shortage following Hurricane Helene significantly impacted home PN prescribing, highlighting the critical role of NST clinicians in managing therapy during supply disruptions. This study also describes a strategy for the management of a multi-component PN shortage including sterile water, dextrose, and sodium chloride. The reported approach enabled effective conservation of limited resources while maintaining continuity of care. Future research should evaluate the economic and clinical outcomes associated with such shortages on home PN patients.

Table 1. Demographic information

Age	Mean	Range
	53.5	18-90
Sex	Male	Female
	343	668

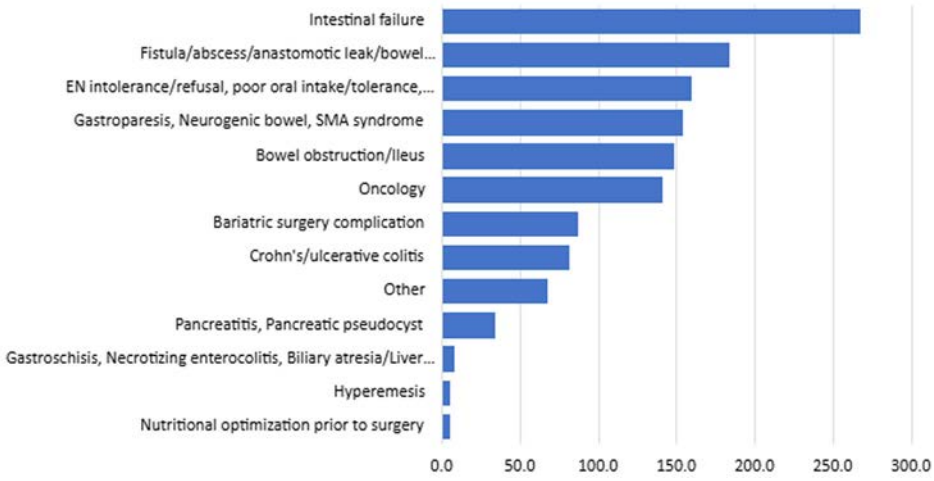

Figure 1. PN diagnoses

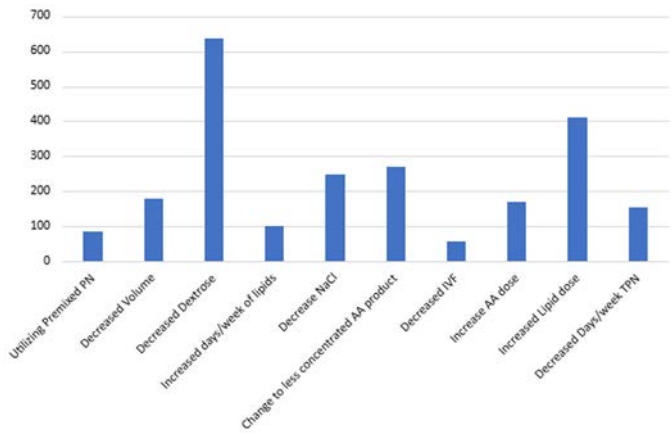

Figure 2. PN shortage interventions

P15 - Safe Transition From Facility to Home: An Observational Study of Parenteral Volume Increases in Adult Intestinal Failure

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Financial Support: None Reported.

Background: Parenteral nutrition (PN) patients can successfully transition from a facility to the home when evaluated and managed by an experienced nutrition support team (NST). Patients with intestinal failure (IF) may be at higher risk for dehydration due to elevated fluid needs related to high output ostomies, fistulas, venting gastrostomies, or diarrhea. Ensuring these patients have adequate fluid provision is essential to prevent dehydration and hospital readmissions. A NST that provides individualized care can evaluate patients as they transition home to ensure fluid needs are met with a combination of PN and intravenous fluids (IVF). The purpose of this study was to determine the proportion of IF PN patients that required volume increases during the transition of care (TOC) process and increase awareness of the need to adjust infusions between facility and home to help ensure safe and optimized regimens.

Methods: This retrospective review included adult IF PN patients transitioned from a facility to a national home infusion provider over the course of 3 months from March 1 to May 31, 2025. Inclusion criteria required patients to be ≥ 18 years old, receiving home PN for ≥ 2 weeks, and managed by the NST at TOC. Deidentified data were collected using a standardized tool, including: PN volume or IVF increases at TOC, PN indication and related diagnoses, use of other nutrition sources, and readmissions within 2 weeks post-transition.

Results: In total, 402 patients were included in this study (Table 1). Volume increases in PN, IVF, or both occurred in 57 patients (14.2%) at TOC (Figure 1). For those with volume increases, the most common primary medical diagnoses were oncology diagnoses (33) and surgical complications (10). Forty-one (71.9%) patients had one or more of the following: fistula, ostomy, and venting gastrostomy (Figure 2). Few patients (1.8%) had EN orders and 3 (5.3%) had IVF orders prior to review by the NST. Twenty-five (43.9%) were NPO or PO for comfort only. Of 41 patients (71.9%) with PN volume increases, adjustments from discharge orders ranged from 150 to 1,180 mL/bag with an average increase of 391 mL/bag (Figure 3). Hospitalizations within 2 weeks occurred for 47 patients (11.7%) of the total group. This represented 5 patients (1.2%) with volume increases at TOC and 42 without (10.5%). Those with bowel obstructions related to oncology diagnoses were most likely to be admitted (46.8%). Notably, patients who received IVF in addition to PN—either prescribed at discharge or added during TOC—had lower readmission rates (2.1%).

Conclusion: The care of IF patients on home PN is complex and requires close oversight by a qualified NST. The TOC is a vital period to evaluate PN regimens to optimize patient care and prevent readmissions. This study demonstrated that timely volume adjustments—whether through PN or IVF—correlated with reduced hospital readmissions. Future studies should explore other patient populations at high risk for dehydration, quantify volume and type of output, and evaluate barriers to volume changes at TOC. A robust clinical review of all home PN patients at TOC is essential for safe and optimized long-term PN.

Table 1. Demographics

	BMI Average (kg/m2)	BMI Range (kg/m2)	Age Average (Years)	Age Range (Years)	Female, N (%)	Male, N (%)
Patients with Volume Changes	24.4	13.4-41	62.5	29-91	29 (50.9%)	28 (49.1%)
Patients without Volume Changes	23.9	13.5-65.2	58.9	18-101	223 (64.6%)	122 (35.3%)
All Patients	24	13.4-65.2	59.5	18-101	252 (62.7%)	150 (37.3%)

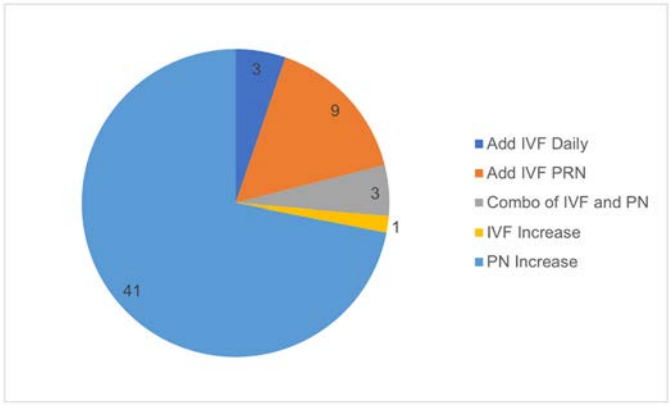

Figure 1. Type of volume increase at transition of care

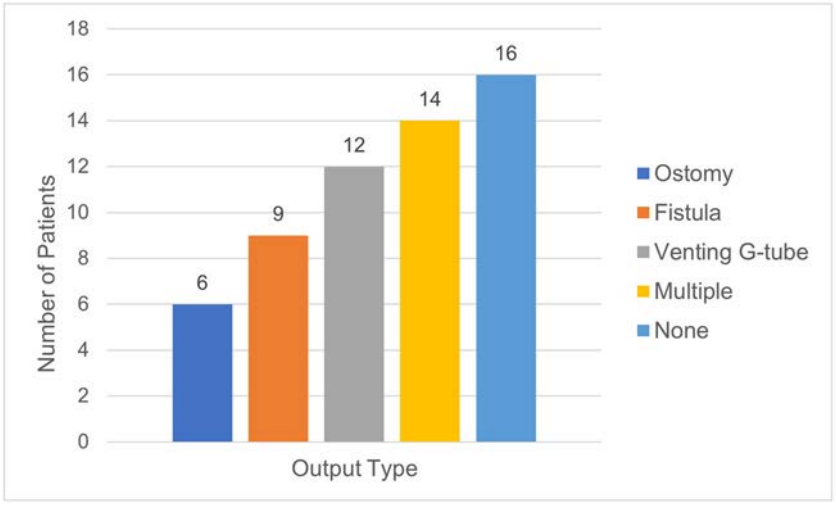

Figure 2. Output type for patients with volume increases in PN, IVF or both

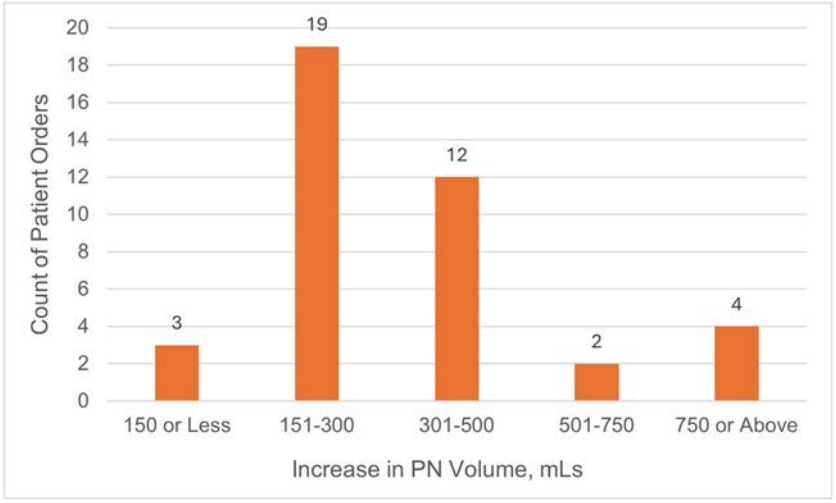

Figure 3. Detail of PN volume increases

P16 - Adverse Reaction to Parenteral Nutrition: A Case Report

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Financial Support: None Reported.

Background: Parenteral Nutrition (PN) is composed of dextrose, amino acids, fat emulsion, electrolytes, multivitamins and trace elements. The Institute of Safe Medication Practices (ISMP) classify PN as a high alert medication due to its complexity and risk of harm. Adverse or allergic reactions to (PN) are uncommon. Reactions can range from pruritus to life-threatening anaphylaxis. Typically, when reactions occur, they are from fat emulsions or multivitamins. Case: 19-year-old female with a past medical history of perforated gangrenous appendicitis, s/p laparoscopic appendectomy 8/2022, gallbladder dyskinesia s/p laparoscopic cholecystectomy 5/2023, and ovarian cysts presents to the emergency room with abdominal pain, distension and episodic nausea, vomiting and diarrhea. The patient had no known allergies. Computed tomography scan was done and indicated acute on chronic inflammatory bowel disease changes with concern for abscess. In addition, a stricture of the distal third ileal loop and pelvis with severe inflammation with proximal dilation. A naso-gastric tube (NGT) was placed and consultation was placed for PN. PN was delayed in starting as the patient needed Interventional Radiology for central venous catheter placement. PN consult was then cancelled, NGT was discontinued and an oral diet with oral nutrition supplements was started. The patient initially tolerated the oral diet, but did not tolerate standard hospital oral nutrition supplements. Her abdominal pain recurred, PN consult was placed and her oral diet was downgraded to 'as tolerated'. Once the central line was placed, PN started. Shortly after PN started, the patient experienced shooting back pain, shortness of breath and angioedema. Symptoms resolved with 10-15 minutes of stopping the PN. We suspected that the patient likely had a reaction to the fat emulsion (80% soybean oil, 20% olive oil). PN was re-started without fat emulsion. Shortly after PN started, the patient had a similar reaction, which resolved once PN was stopped. Following extensive discussion with the surgery team regarding PN reaction, it was decided to try PN again without fat emulsion, multivitamins, trace elements and calcium gluconate. PN was started with a slow taper over 2 hours. The patient experienced fatigue, nausea, achiness and soreness. Once PN was stopped, symptoms resolved within a hour. An initial workup for serum sickness related to the amino acids or latent urea cycle disorder was done, but was found to be negative. PN was held and plant based oral nutrition supplements were ordered, which were not tolerated. Ultimately, the patient underwent an exploratory laparotomy, decompressive enterotomy with loop ileostomy. She restarted an oral diet and was discharged home. Discussion: This patient experienced an adverse or hypersensitivity reaction to PN three times. She also experienced intolerance to oral nutrition supplements. It is unclear if her intolerance to the oral supplements is related to the supplements or the abdominal issues the patient was having throughout her stay. She was able to tolerate a regular diet prior to surgery. After surgery, her diet was progressed from clear liquids, full liquids and then a low fiber diet with no problems. The most common adverse reaction to parenteral nutrition components is to the fat emulsion, followed by multivitamins, amino acids and unknown components. Typically, removing the fat emulsion or multivitamins will resolve the reaction. Next steps would be to have the patient be worked up by an allergist to determine the offending component of the PN.

Methods: None Reported.

Results: None Reported.

Conclusion: None Reported.

P17 - Rd-Led Parenteral Nutrition Order-Writing Leads to Increased Usage and Decreased Errors

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Encore Poster

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Previous Publication: Alfano, J., & Batista, K. (2025). Registered dietitian-led parenteral nutrition order-writing leads to increased usage and decreased errors. Journal of the Academy of Nutrition and Dietetics, 125(10), A15. https://www.jandonline.org/article/S2212-2672(25)00277-1/fulltext.

Financial Support: None Reported.

Background: Order-writing privileges for Registered Dietitians (RD) are not granted in New York State without a provider co-signature. Parenteral Nutrition (PN) is sometimes prescribed/recommended by other professions besides RDs due to this barrier. However, RDs are considered the nutrition support experts and should be involved in writing/recommending all nutrition-related prescriptions. Peterson et al. (2020) found only 14% of RDs could order and verify PN orders across the United States, while 28% could order with provider co-signature. Additionally, RD involvement significantly decreased PN order-writing errors (Peterson et al., 2020). A community hospital in New York implemented RD-led PN order-writing privileges in 2021. RD collaboration on PN-orders began in 2017 and providers placed the PN orders from 2018 to 2021, relying on RD written recommendations in the EMR. In October 2021 to present, only PN-trained RDs write and place PN orders in the EMR with a provider co-signer.

Methods: A retrospective chart review was conducted of all patients on PN admitted to this community hospital in 2017, 2018, and 2021 by O'Connor & Futerman (2022). This chart review was repeated for all patients on PN in 2024 to further investigate the effects of RD-led PN order-writing. Primary outcome measures included number of patients on PN and amount/reasoning for PN order-writing errors.

Results: In 2017 and 2018, prior to RD-collaboration, an error rate of 211% (114 errors in 54 total PN orders) and 84% (26 in 31 PN orders) occurred, respectively. In October 2021, three RDs began solely writing PN orders with an error rate decrease of 91% and increased 74% increased usage of PN (215 total orders from November 2021 to February 2022). In 2024, a total of four RDs were writing and ordering PN, with a total of 1094 PN orders, showing a 408% increase in PN usage. The error rate also further decreased to 2.4% (26 errors in 1094 PN orders) during 2024, which were mostly transcription-related errors.

Conclusion: RD-led PN order writing overtime has significantly reduced PN order writing errors and positively impacted identification of patients requiring PN and increased usage.

P18 - Weaning Medicare Patients From HPN: Can Supporting Documentation Prevent Financial Recoupment?

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Financial Support: None Reported.

Background: Patients dependent on home parenteral nutrition (HPN) may experience improvements in medical conditions over time, reducing reliance on infusions. Parenteral solutions may decrease as enteral and/or oral tolerance increases. However, when Medicare Part B covers HPN, the prescription must meet reasonable and necessary criteria outlined in the Local Coverage Determination (LCD) and other applicable Medicare statutory and regulatory documents (1,2). If any components fall out of the range considered reasonable and necessary, the treating practitioner must document medical necessity for intake outside this range. Additionally, the medical record must substantiate nutrients provided and/or frequency of HPN infusions in a specified time period. Despite thorough documentation, payment is not guaranteed, and claims may be denied and/or funds recouped. Providing HPN that does not meet Medicare requirements poses financial risk for both the infusion company and beneficiary.

Methods: Medicare beneficiaries, all of whom received HPN from a single, national home infusion provider, were included in the review. For all 35 recipients, HPN was weaned between January 2022 and March 2025. Working closely with revenue cycle management (RCM) specialists, nutrition support clinicians identified 11 claims that were audited during the HPN wean. Electronic Medical Records (EMR) for those 11 claims were further examined to determine if audits were for clinical documentation and if records supported the weaning process, preventing recoupment of funds.

Results: Of the 35 beneficiaries reviewed, 11 claims received an in-depth analysis since audits occurred during the HPN wean (Table 1). Of these 11 claims, 4 were audited specifically for clinical documentation. Of these 4 claims, the EMR showed documentation supporting the wean for 3 of them. None of these 4 claims had any funds recouped.

Conclusion: When a patient is ready to wean from HPN, a stepwise approach is typically employed to ensure maintenance of weight and strength commensurate with the patient's general condition. Abruptly stopping HPN can lead to unnecessary setbacks and unstable medical status. Unfortunately, Medicare Part B coverage poses a unique scenario, potentially forcing prescribers and suppliers to prioritize either a wean that is clinically conservative or one that carries low financial risk. In this examination of a small population, no reimbursement payments were recouped due to lack of clinical documentation. Obtaining supporting evidence from the treating practitioner during the weaning process allows beneficiaries to transition off HPN safely while reducing financial risk for the home infusion company and beneficiary. Although the sample size was small, larger surveys would likely further validate the importance of essential documentation when nutrients fall outside of reasonable and necessary requirements. To encourage safe weaning practices, the Centers for Medicare and Medicaid Services should include guidance in the

LCD for the gradual reduction of HPN. In addition, collaboration between clinicians and RCM specialists during audits is helpful to ensure the appropriate documentation is provided to the auditing entity.

Table 1. Criteria for claim review

Criteria
HPN weaned sometime between January 2022 & March 2025
Chart audited
Weaning during audited DOS
Audited for clinical documentation

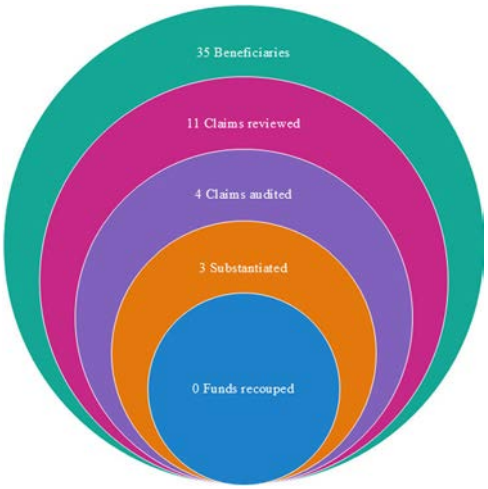

Figure 1. Audits during HPN wean

P19 - Incidence of Peripheral Parenteral Nutrition Infiltration and Risk Factors Analysis

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Financial Support: None Reported.

Background: Peripheral parenteral nutrition (PPN) plays a unique role in intravenous nutrition support for patients with gastric intestinal failure. The ease of initiation, reduced cost and complications associated with central PN therapy, as well as patient satisfaction are some advantages of PPN. Disadvantages of PPN via peripheral intravenous line (PIV) include risk of infiltration, phlebitis, mechanical failure, etc. Systemic study of the incidence of PPN PIV complications is not well reported, let alone the exploration of the associated risk factors. This project examined the incidence of PPN PIV infiltration and identified potential risk factors.

Methods: We performed a retrospective chart review of custom PPN therapy complications in our institution from calendar year 2021. Data include patient demographics (Table 1), PPN formula and administration, and PPN PIV line information. The study enrolled 416 patients with 448 admissions, receiving 1665 PPN bags via 941 PIVs; 184 admissions used only one PIV for PPN infusion, while the remaining 264 admissions used two or more PIVs for PPN infusion. To ensure that all test subjects are independent in the study cohort, only 1st PPN PIV line (n = 448) is

included in statistical analysis. Continuous outcomes were summarized with mean (± SD), and categorical outcomes with frequency (%). Generalized linear models with generalized estimating equations (GEE) were used for the PIV line between-group comparisons. Kaplan-Meier estimates were applied to describe the distributions of time to infiltrations, and the comparisons were made using Mantel-Cox log-rank test. A p value < 0.05 was considered as significant.

Results: The overall incidence of infiltration among all 914 PPN PIV lines is 251/941 PIVs (27%). For the 448 cases of 1st PPN PIVs lines, the infiltration incidence is 131/448 PIVs (29%) and median PPN duration to PIV Infiltration is 84.5 hours. On GEE analysis, PPN characteristics did not contribute to significant infiltration risk, including infusion rate, osmolarity, Amino acid%, Dextrose%, Lipid%, potassium (mEq/L), energy (Kcals/kg), and protein (gm/kg). PIV factors including line status, whether shared line with shelf-stable PPN at initiation, insertion site, line orientation (left vs. right or anterior vs. posterior, inserted by vascular access nurse (IVRN) vs. non-IVRN, number of line attempts, and gauge size of needles, show that antecubital vein (p value = 0.013 vs. hand, 0.007 vs. forearm) and needle gauges (#18) are associated with significantly lower infiltration incidence (p value = 0.008 vs. #22) (Table 2). Time to event analysis with Kaplan-Meier curve on PPN duration to PIV infiltration further confirms that PPN provided by antecubital PIV lasts longer than other commonly used sites such as forearm, hand and upper arm (p value = 0.031, Figure 1). Meanwhile, needle gauge #18 shows significant improvement in PPN duration to infiltration compared to needles with smaller bore (#20 and #22) (p value = 0.002, Figure 2).

Conclusion: PPN is an important short term nutrition support modality for patients without central access. The PPN PIV infiltration incidence is 27%. Major risk factors are insertion sites and gauge or bore size needles used.

Table 1. Patient demographics

Per Patients (MRN)	N= 416
Gender Female	197 (47%)
Age, years	62.6 ± 15.5
BMI, kg/m^2	25.1 ± 3.5
Per Admission (CSN)	N=448
Service	
Medicine	81 (18.1%)
Oncology	128 (28.6%)
Surgery	239 (53.3%)
Disposition	
Post-Hospital facility	125 (27.9%)
Expired	34 (7.6%)
Home	285 (63.6%)
Other Hospital	4 (0.9%)
Charlson Comorbidity Index (median [IQR])	3 [2,4]
LOS (median [IQR])	13 [9, 22]
Malnutrition Code	
E43	129 (28.8%)
E44	50 (11.2%)
E46	156 (34.8%)
N/A	113 (25.2%)
PN Indication	
Inability to maintain or achieve enteral access	87 (13.4%)
Impaired absorption or loss of nutrients	60 (19.4%)
Mechanical bowel obstruction	98 (21.9%)
Motility disorder	135 (30.1%)
Need to restrict oral/enteral intake	68 (15.2%)
Home PN patients	27 (6%)

Table 2. PPN- and PIV-related factors on PPN infiltration risk

PPN factors on PIV infiltration risk			
N=448	Mean ± STD	OR (95% CI)	p value
PPN (mOsm/L)	853.9 ± 48.5	0.999 (0.994, 1.004)	0.788
Rate (ml/hr)	83.1 ± 20.6	1.000 (0.987, 1.013)	0.955
Dex%	5.7 ± 0.9	1.169 (0.824, 1.657)	0.382
Lipid%	1.7 ± 0.8	1.398 (0.872, 2.243)	0.165
K (mEq/L)	26.7 ± 11.2	1.017 (0.997, 1.038)	0.101
Energy (kcals/kg)	16.0 ± 4.0	0.910 (0.800, 1.035)	0.150
Protein (gm/kg)	1.2 ± 0.2	3.710 (0.737, 18.682)	0.112
PIV factors on PPN infiltration risk			
	Infiltration (%)	OR (95% CI)	p value
Shelf-stable PPN shared with custom PPN Line at initiation No (n=390) Yes (n=58)	 116 (29.7%) 15 (25.9%)	 1.214 (0.648, 2.274)	 0.546 vs Yes
Line Status New (n= 340) Used (n=108)	 101 (29.7%) 30 (27.8%)	 1.099 (0.681, 1.773)	 0.700 vs Used
Insertion Site Forearm (n=281) Hand (n=91) Arm (upper) (n=16) Antecubital (AC) (n=59)	 89 (31.7%)* 29 (31.9%)* 5 (31.3%) 8 (13.6%)	 2.955 (1.344, 6.496) 2.982 (1.273, 6.983) 2.898 (0.795, 10.563)	 0.007 vs AC 0.012 vs AC 0.107 vs AC
Orientation Left (n=207) Right (n=240)	 64 (30.9%) 67 (27.9%)	 1.156 (0.774, 1.726)	 0.480 vs Right
Orientation + Anterior (n=157) Posterior (n=161) +(missing data=130)	 55 (35.0%) 50 (31.1%)	 1.197 (0.750, 1.911)	 0.451 vs Posterior
Insert by IVRN (n=246) Non-IVRN (n=202)	 81 (32.9%) 50 (24.8%)	 1.492 (0.988, 2.254)	 0.057 vs non-IVRN
Number of attempts At least twice (n=35) Once(n=354) +(missing data = 59)	 11 (31.4%) 108 (30.5%)	 1.044 (0.493, 2.212)	 0.911 vs Once
Needle gauge #22 (n=202) #20 (n=166) #18 (n=57)	 70 (34.7%)* 45 (27.1%) 9 (15.8%)	 2.828 (1.309, 6.113) 1.983 (0.899, 4.375)	 0.008 vs #18 0.090 vs # 18

* p value < 0.05

Overall Comparisons

	Chi-Square	df	Sig.
Log Rank (Mantel-Cox)	8.865	3	.031

Test of equality of survival distributions for the different levels of Insertion Site-Hand/Forearm/AC/arm-2.

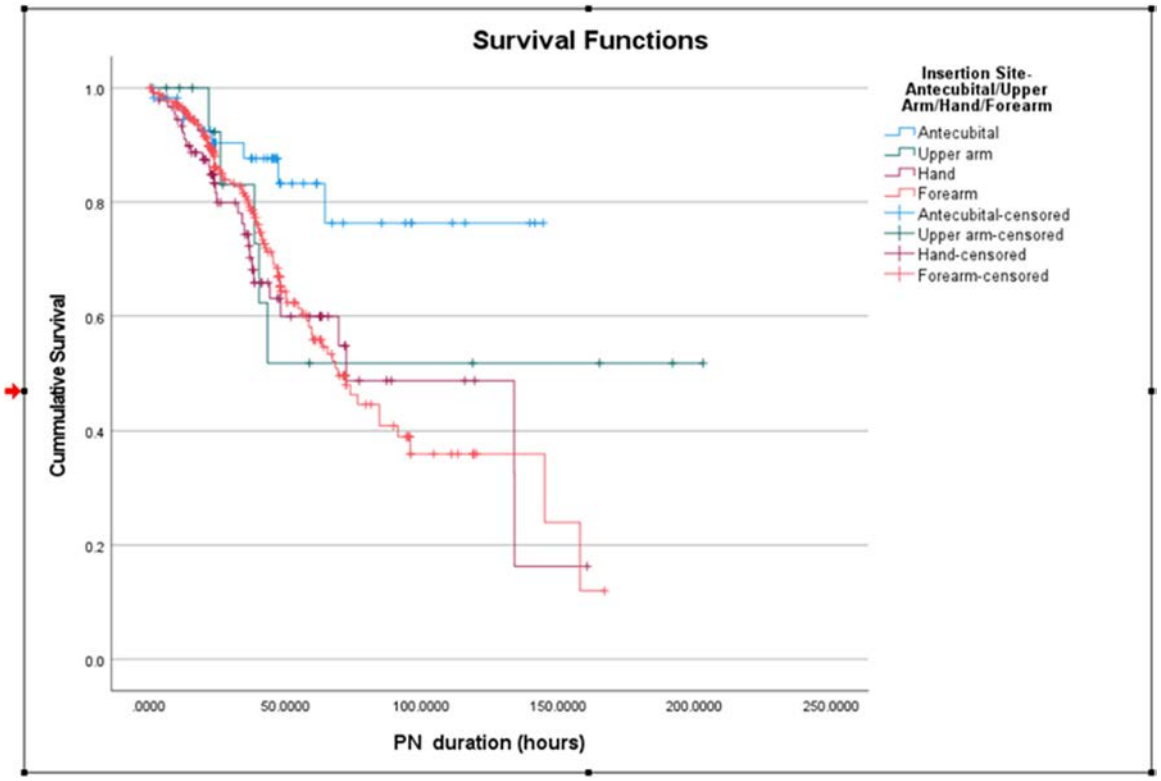

Figure 1. PPN PIV infiltration time to event analysis with Kaplan-Meier curve: impact of insertion sites

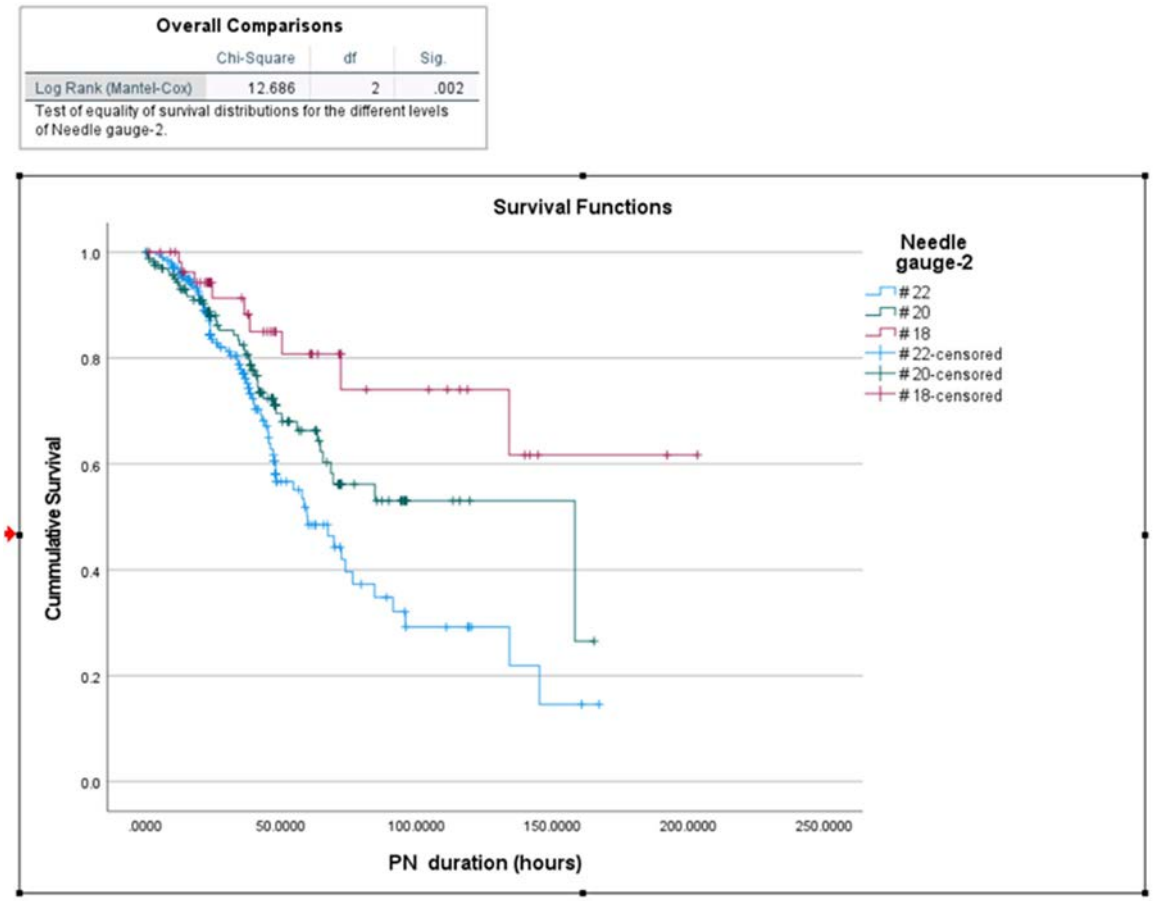

Figure 2. PPN PIV infiltration time to event analysis with Kaplan-Meier curve: impact of needle gauges

P20 - A Retrospective Case Series: The Impact of Combination Fish Oil-Based Lipid Emulsions on Adult Home Parenteral Nutrition Patients to Mitigate Liver Dysfunction

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Financial Support: None Reported.

Background: Injectable lipid emulsions (ILEs) are an essential component of parenteral nutrition (PN), providing calories and essential fatty acids. Traditional soybean oil-based ILEs, high in omega-6 fatty acids, have been associated with PN-associated liver disease (PNALD). Newer 4-oil-based ILE offer a more balanced omega-6 to omega-3 fatty acid ratio, which may reduce the risk of inflammation and has been linked to hepatoprotection. Fish oil (FO)-based ILE, approved only for pediatric PN-associated cholestasis, has shown potential benefits in adults, although the evidence is limited.

Methods: This retrospective chart review examined patients receiving home parenteral nutrition (HPN), managed by the Emory University Hospital Nutrition Support Team from March 2022 to October 2024. The study evaluated changes in liver enzymes (e.g., total bilirubin, alanine aminotransferase, aspartate aminotransferase, alkaline phosphatase) before and after transitioning from exclusive 4-oil-based ILE in PN to a combination of 4-oil-based ILE in PN and FO-based ILE (administered separately). Data collection included patient demographics, medical and surgical histories, liver function test results, and medication records obtained from the Emory Healthcare electronic medical record system.

Results: Five female patients were included, with an average age of 46 years and a body mass index of 33 kg/m2 at the time of transition to combination ILE therapy (Table 1). The primary indication for HPN was short bowel syndrome, and patients had received HPN for an average of 2 years before transitioning to combination therapy due to persistent elevation of liver enzymes. The average 4-oil-based ILE dose

was 0.964 g/kg/day once a week in PN. FO-based ILE was administered as a separate infusion at an average dose of 0.934 g/kg/day, three to five days per week (median, 4 days/week). The mean duration of combination therapy was 12 months. Two patients died within one month due to acute liver disease progressing to multiorgan failure. Shortly after adding FO-based ILE, four patients demonstrated a decrease in total bilirubin. After six months, three patients had normalized their total bilirubin, with an average 72% reduction from baseline. These three patients also had normalized alanine transaminase and aspartate aminotransferase, although alkaline phosphatase remained elevated. No adverse events were reported. By the end of the observation period, two patients remained on combination therapy, while the third had to transition back to exclusive 4-oil-based ILE due to insurance coverage.

Conclusion: Although this case series included only five patients, the observed improvements in liver function markers in adults who received both 4-oil-based and fish oil-based ILE reinforce the promising potential of this approach for those requiring chronic HPN with elevated liver enzymes. Larger prospective studies are needed to confirm the safety, efficacy, and long-term effects of this approach in adult patients requiring home parenteral nutrition.

Table 1. Patient demographics and comorbidities

Characteristics	N = 5, %
Age, average (range)	56 (29-72)
Female, n (%)	5 (100%)
Race, n (%)	Caucasian, 5 (100%)
Body mass index (kg/m^2):	Normal 18.5-24.9: 2 (40%) Obese ≥ 30: 3 (60%)
Indications for HPN, n(%)	Short bowel syndrome: 5 (100%)
Duration of HPN prior to transition (year), average (range)	2 (0-4)
Duration of HPN post transition (month), average (range)	6 (1-20)
Mortality, n(%)	2 (40%)

HPN = Home parenteral nutrition.

Table 2. Home parenteral nutrition characteristics

Patient	PN Calorie (Kcal/kg)	4-oil-ILE (g/kg 1day/week)	Fish oil-ILE (g/kg, days/week)	Dextrose (g/day)	Amino Acids (g/kg/day)
1	28.9	0.94	0.94, 4	200	1.7
2	23.8	0.85	0.85, 4	160	1.5
3	32.5	1.23	0.87, 4	260	1.6
4	26.4	0.99	0.84, 3	198	1.5
5	25.2	0.81	0.81, 5	200	1.5

PN = parenteral nutrition; ILE = intravenous lipid emulsion.

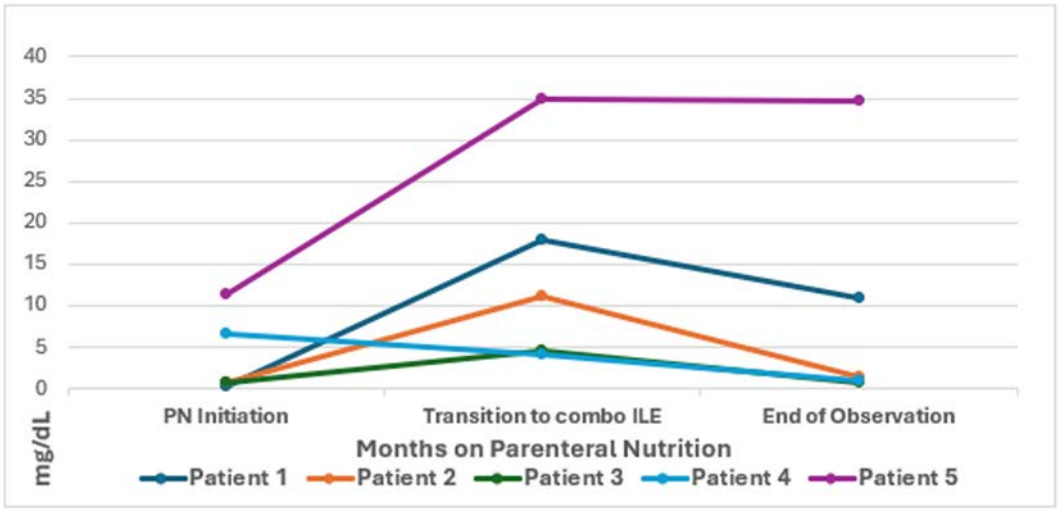

Figure 1. Progression of Total bilirubin before and after the transition

PN = parenteral nutrition; ILE = Intravenous lipid emulsion.

P21 - A Retrospective Descriptive Analysis of Adverse Events Associated With Intradialytic Parenteral Nutrition

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Financial Support: Baxter Healthcare Corporation.

Background: IDPN is a unique form of PN available only to patients on hemodialysis (HD) as the therapy leverages the existing dialysis access site for infusion. Since research on IDPN is limited there have been few reports about its safety. A recent retrospective analysis of IDPN patients reported a 7.6% incidence of adverse events (AE) without analysis of causality.[1] More detailed information is required regarding AEs associated with IDPN. We present preliminary findings of AEs attributed to IDPN therapy reported during treatment in 1961 patients.

Methods: A database of 1961 IDPN patients was used to analyze the incidence and type of AEs during IDPN infusion. Adequate data for analysis were available in 1734 patients. Of the remaining patients, AEs were reported in 120 (6.9%). Patients with AEs were stratified into 3 groups based on time of occurrence measured from the start of care (SOC) for IDPN: Group 1 was Early AE – ≤45 days from IDPN initiation; Group 2 was Late AE – >45 days after IDPN initiation and >30 days prior to discontinuation (d/c); and Group 3 was AE D/C – AE occurs ≤30 days within IDPN d/c.

Results: Demographics are summarized in Table 1; results are summarized in Table 2. AEs were reported in 120 patients (6.9%) while receiving IDPN. Patients had 1,2, or 3 different types of AEs or symptoms which are presented in Table 2. A majority (98 patients) had 1 type, while 14 had 2 types, and 8 had 3 types. Of the 120 patients, 20 were in Group 1 -Early AE, 59 were in Group 2 -Late AE, and 41 were in Group 3 - AE D/C. During the first 45 days of treatment IDPN therapy is titrated to goal rate which permitted patients to adjust to the infusion, none of the Early AEs required discontinuation (D/C) of IDPN indicating the AEs were either well tolerated or were resolved. AEs in Group 2 ng Groups 3, >45 days after IDPN initiation, may be more indicative of a change in patient tolerance to IDPN or to dialysis in general. A total of 33 patients reported discontinuing IDPN therapy due to intolerance, and all fell into Group 2 the Late AE, n = 10, or into Group 3 AE D/C, n = 23. Average time on IDPN therapy was comparable among groups at 340.08, 394.72, and 358.75 days for Group 1 Early AE, Group2 Late AE, and Group3 AE D/C respectively.

Conclusion: AEs attributed to IDPN therapy occur only in a small percentage of IDPN patients. In our cohort of 120 patients with AEs out of 1734 patients studied, 83.34% of events occurred >45 days after IDPN initiation and there may be more indicative of an overall change in patient health as compared to AEs caused by IDPN therapy itself which is rare. Early AE which are more likely to be associated with IDPN therapy itself occurred only in 20 patients and none discontinued IDPN therapy. This indicates that their AEs were well tolerated or resolved. Further causality analysis of AEs during IDPN therapy is warranted.

Table 1. Demographics

	Group 1: Early AE (n)	%	Group 2: Late AE (n)	%	Group 3: AE D/C (n)	%
N	20	16.67%	59	49.17%	41	34.17%
AGE Avg	70.25	-	71.98	-	69	-
Age Min-Max	44, 90	-	35, 96	-	41, 89	-
Sex Female	13	65.00%	30	50.85%	25	60.98%
Sex Male	7	35.00%	29	49.15%	16	39.02%
Race						
Black or African American	7	35.00%	15	25.42%	17	41.46%
White	6	30.00%	16	27.12%	12	29.27%
Unstated	7	35.00%	28	47.46%	12	29.27%
Dialysis Vintage (years)	3.42	-	4.58	-	3.3	-
Avg BMI	25.42	-	25.66	-	26.83	-
Diabetes (Y)	14	70.00%	43	72.88%	31	75.61%
IDDM	5	25.00%	19	32.20%	7	17.07%
NIDDM	9	45.00%	24	40.68%	24	58.54%
Anemia	14	70.00%	41	69.49%	30	73.17%
Gastroesophageal reflux disease	3	15.00%	8	13.56%	4	9.76%
Hypertension	15	75.00%	53	89.83%	33	80.49%
Residual Kidney Function	0	0.00%	3	5.08%	4	9.76%

Table 2. Results

	Group 1: Early AE (n)	%	Group 2: Late AE (n)	%	Group 3: AE D/C (n)	%
N	20	16.67%	59	49.17%	41	34.17%
Received LIPIDS (n)	2	10.00%	12	20.34%	2	4.88%
Therapy Hold (Y)	20	100.00%	54	91.53%	15	36.59%
Average time on therapy (days)	340.08*	-	394.72**	-	358.75	-
D/C due to reported AE	0	-	10	16.95%	23	56%
Avg time from SOC to AE (days)	16.35	-	257.11	-	352.8	-
Avg time from AE to DC	121.2	-	169.52	-	5.95	-
Type of AE						
N/V	13	65.00%	34	57.63%	14	34.15%
Diarrhea	3	15.00%	9	15.25%	7	17.07%
Cramps	2	10.00%	3	5.08%	0	0.00%
Bloating	0	0.00%	3	5.08%	2	4.88%
Other GI Upset	1	5.00%	10	16.95%	5	12.20%
Headache	0	0.00%	1	1.69%	0	0.00%
Rash/Hives	1	5.00%	0	0.00%	0	0.00%
Fluid Overload	0	0.00%	2	3.39%	8	19.51%
Itching	0	0.00%	1	1.69%	0	0.00%
Unspecified	4	20.00%	13	22.03%	14	34.15%

*n = 13, 7 patients without d/c dates. **n = 44, 15 patients without d/c dates.

P22 - Patient Safety During Critical Intravenous Solutions Shortage: A Home Infusion Provider's Collaborative Strategy

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Financial Support: None Reported.

Background: Over the past 20 years, management of product shortages has been an essential component of patient care to those requiring intravenous (IV) nutrition support. While multiple factors contribute to medication shortages, weather-related events have been impactful over the past decade. In September 2024, Hurricane Helene caused extensive damage across central North Carolina, including the largest manufacturer of IV solutions in the U.S. This disruption led to nationwide critical shortages of many sterile hydration solutions, concentrated bulk carbohydrate solutions, and sterile water (SW) for injection. The reduced supply affected hospitals, clinics and home infusion (table 1). It also impacted patients reliant on life sustaining IV therapies including parenteral nutrition (PN). The purpose of this abstract is to describe a national home infusion organization's strategy and response plan to ensure patient safety and continued access to care during this crisis.

Methods: Due to the large-scale impact and substantial recovery time, a multidisciplinary and multifaceted action plan was developed, adopted and implemented (Figure 1). An ongoing assessment was conducted based on allocation changes from the manufacturer and availability of temporarily authorized imported products. Nutrition support clinicians reviewed all IV hydration orders for conservation. PN orders were assessed for preservation of SW and Dextrose 70% (D70), adjusting per clinical assessment and product availability (table 2). Custom compounded PN was adjusted to commercially available multi-chamber bag parenteral nutrition (MCB-PN) where clinically appropriate. MCB-PN was implemented as a base solution for custom compounding, using off-label resources for stability and compatibility. When clinically feasible, MCB-PN was also provided directly to patients with education on bag activation. Glucose 50% (G50) became available as an alternative carbohydrate source for PN. Implementation of this temporarily authorized imported product required comprehensive pharmacy preparation and multidisciplinary training. This included integration of the product into PN automated compounding devices, collaborative educational sessions with the manufacturer, and clinician education through a mandatory training module, competency assessments and resource materials. The implementation of G50 required numerous safety measures. The product was added to the organization's PN order form with the capability to calculate grams to calories, percent final concentration and dextrose equivalent for 3:1 stability and Medicare documentation. Sterile compounding strategies were implemented to avoid wastage. Also, the organization followed ASPEN, NHIA, ISMP and manufacturer guidance while partnering closely with supply chain. Therapy changes required patient education and communication with prescribers.

Results: Orders were successfully adjusted and patients maintained appropriate therapy under collaborative clinical team monitoring. As the shortage resolved and product supply recovered, patients returned to their custom compounded PN and hydration regimens as per ongoing assessment and ASPEN's standard shortages guidance. Safety considerations continued during transition back to pre-shortage products, such as 3:1 stability precautions when adjusting from G50 back to U.S. D70.

Conclusion: Goals of patient safety and access to therapy during this critical shortage were achieved by the adherence to industry guidelines and ongoing collaboration between stakeholders including supply chain, pharmacy, nursing, nutrition, operations and the manufacturer. Communication with patients and prescribers remained constant, keeping all informed as the shortage evolved and eventually resolved.

Table 1. Home infusion intravenous (IV) solutions and therapies impacted

IV solutions in critical shortage	Home infusion therapies impacted
• Sterile water • 0.45% and 0.9% sodium chloride • 5%, 10% and 70% dextrose • Lactated Ringers solution	• Hydration • Parenteral nutrition • Immunoglobulin • Biologics

Table 2. Adjustments to conserve intravenous (IV) solutions

Acute sterile compounding	Parenteral nutrition (PN)*	Hydration*	Immunoglobulin*
• Planned compounding to avoid waste • Maximized IV push to use smallest amount of solution possible • Used alternate solutions to conserve 0.9% NaCl • Used SWFI vials for drug reconstitution as possible to conserve SWFI bags for PN compounding • Used proprietary bag/vial systems to avoid use of small volume bags of other sterile IV solutions • For alternate diluents, ensured BUD of CSP or device rate were updated in dispensing system	**Pediatrics and adults with minimal to no enteral absorption**: • Prioritized to continue custom PN • Assessed for alternative to custom PN (MCB-PN) • Implemented temporary authorized imported product – glucose 50% **Adults with some enteral absorption capacity:** • Reduced or weaned PN (PO or EN transition)	• Patients assessed for reducing IV hydration volume or transitioned to oral hydration • Educated patients on oral rehydration solutions • Used commercially available large volume electrolyte solutions to avoid using plain NaCl bags in compounded hydration • Changed small volume Mg^{2+} containing hydration orders from compounded solutions to premixed small volume bags	If oral hydration feasible: • Trial oral hydration protocol per industry standard • If unsuccessful resumed IV hydration with best available solution If oral hydration unfeasible: • Continued IV hydration as pre-medication • Obtained order for best available IV hydration solution **Biologics** • Selected best available compatible diluent for product to conserve small volume bags **Anaphylaxis kits** • Followed alternate process to ensure NaCl 500 mL bag not wasted
* Adjustments per clinician assessment and appropriateness. Sterile water for injection (SWFI), beyond use date (BUD), compounded sterile preparation (CSP), multi-chamber bag PN (MCB-PN)			

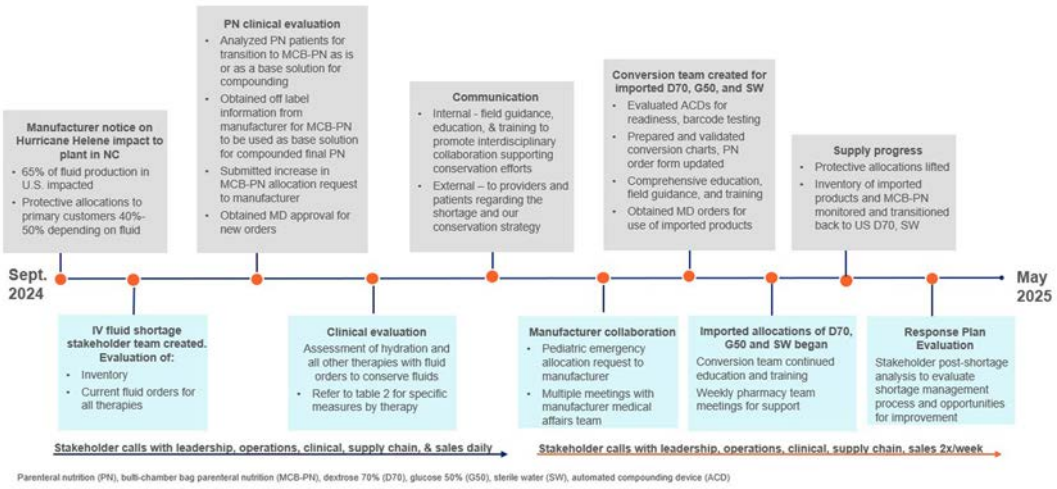

Figure 1. Intravenous (IV) fluid shortage chronology

P23 - Home Parenteral Nutrition Composition and Malnutrition in Pots Patients: Sodium and Fluid Provision Challenges

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Financial Support: None Reported.

Background: Over the past two decades, the prevalence of Postural Orthostatic Tachycardia Syndrome (POTS) has increased significantly—from 1.6 to 10 per 100,000 individuals—disproportionately affecting women between the ages of 15 and 25.1 Nutrition and hydration management in this population can be complex; while treatment for disorders of gut-brain interaction is often symptom-driven, a stepwise approach is generally recommended when nutrition support therapy becomes necessary.1 Although guidance is based on expert opinion, non-pharmacologic interventions remain central to care, including increasing vascular tone through elevated sodium intake up to 10 g/day and fluid intake between 2–3 L/day.[1,2]While

home parenteral nutrition (HPN) may be indicated when oral or enteral intake is inadequate, there is limited data describing the prevalence of malnutrition in this population or evaluating current HPN prescriptions compared to recommended sodium and fluid targets for POTS management. The objective of this study was to assess the prevalence of malnutrition and evaluate composition of HPN prescriptions in patients with POTS, focusing on how sodium and fluid provision aligns with current non-pharmacologic management recommendations.

Methods: A cross-sectional retrospective analysis was conducted of patients with an ICD-10 diagnosis code of G90.A, Postural Orthostatic Tachycardia Syndrome receiving HPN between January and June 2025. Fifteen patients were randomly selected for inclusion. Data collected include most recent PN prescription, height, dosing weight, body mass index (BMI), total volume of intravenous (IV) fluids, and malnutrition diagnosis (ICD-10) codes. Average daily caloric intake was calculated over a seven-day week, due to variance in number of days PN was prescribed across the group.

Results: Sixty percent of POTS patients on HPN had a documented malnutrition diagnosis, with severe malnutrition being the most common (33%), followed by moderate (13%), and mild or unspecified (7%); 40% had no malnutrition diagnosis. Intake ranged from 20–35 kcal/kg dosing weight/day: 28kcal/kg/day for those with severe malnutrition, and 22 kcal/kg/day for those without a malnutrition diagnosis. Actual body weight was used for dosing unless BMI indicated obesity, in which case ideal body weight was used. Mean sodium provision was 129.1 mEq/day, well below the recommended 434.8 mEq/day, with a range of 0–453.1 mEq/day. Mean fluid intake was 1.7 L/day, also below the recommended 3 L/day, with a range of 1–3.5 L/day.

Conclusion: 60% of the cohort had ICD-10-coded malnutrition at the time of HPN transition. Notably, patients with severe malnutrition received only 28 kcal/kg, and those with moderate malnutrition received 2 kcal/kg less than those with mild malnutrition. Data obtained suggests current HPN prescriptions may be insufficient to promote meaningful weight gain and nutritional rehabilitation in this subgroup. Beyond caloric adequacy, fluid and sodium analysis revealed many HPN prescriptions did not meet recommended targets to support intravascular volume expansion. These findings raise questions about consistent implementation of best practices in meeting both nutritional and hemodynamic needs. Given the small sample size, further research is warranted to assess malnutrition prevalence and whether HPN prescriptions meet current energy, sodium, and fluid recommendations in POTS patients.

Table 1. Daily prescribed versus recommended sodium and fluid volume

	Recommended Daily Volume	Mean Volume/day (range)
Sodium (mEq/day)	434.8	129.1 (0-453.1)
Fluid Intake (L/day)	3	1.7 (1-3.5)

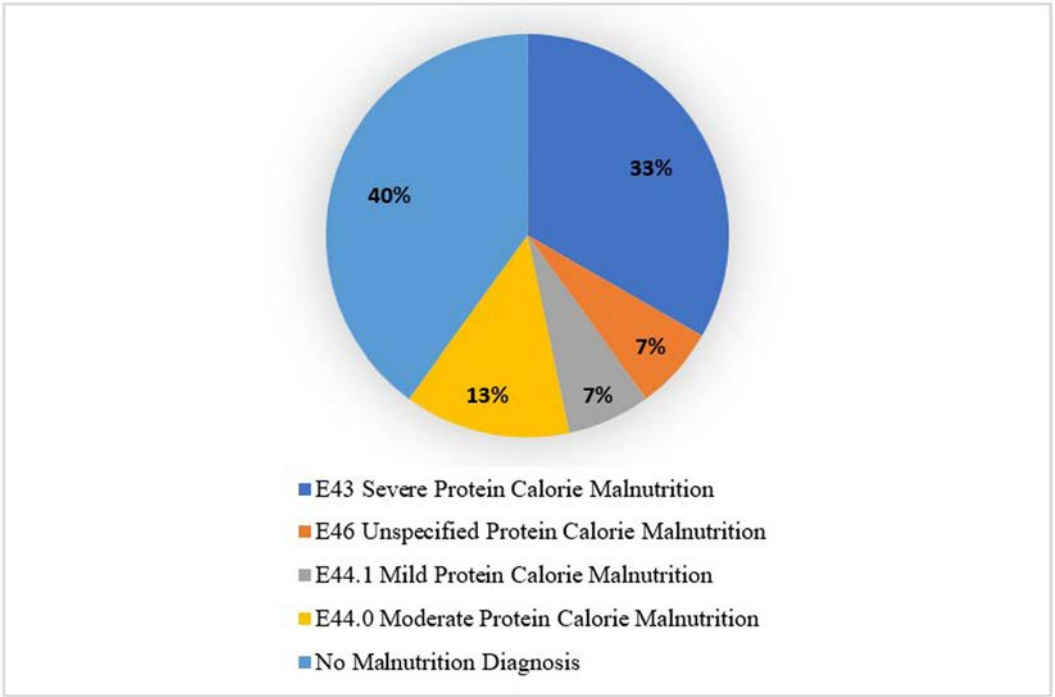

Figure 1. Malnutrition status among POTS patients on HPN

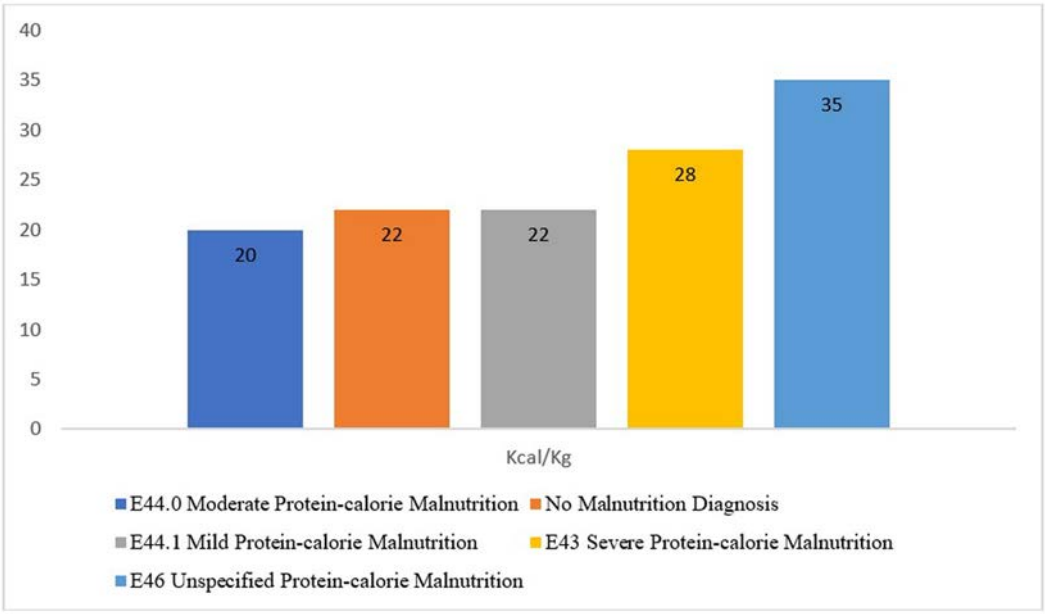

Figure 2. Daily calories from HPN with corresponding malnutrition diagnosis codes

P24 - Little People, Big Dollars: A Cost Analysis of Pediatric Versus Adult Home Parenteral Nutrition in Short Bowel Syndrome

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Financial Support: None Reported.

Background: Rising cost of home parenteral nutrition (HPN) has been documented by the National Home Infusion Association (NHIA), while reimbursement is declining.[1] A recent survey of HPN consumers by the American Society for Parenteral and Enteral Nutrition (ASPEN) indicated 32% of respondents had concerns of losing insurance coverage for HPN. 29% indicated they had switched home infusion providers in the last two years because their provider left the market.[3] While the impact and drivers of HPN cost and reimbursement has been explored in the adult population, there is limited published data in pediatrics and isolated to those with Short Bowel Syndrome (SBS) who are HPN dependent for month to years. The objective of this study was to compare the cost of HPN for adult and pediatric consumers with SBS and identify top cost drivers for each group.

Methods: A cross-sectional retrospective review of current HPN consumers in Texas and Oklahoma with a primary diagnosis of ICD-10 code K90.82, SBS was completed. Nine randomly selected adult and nine pediatric consumers' data was collected for the last HPN shipment of June 2025 and included: demographics, HPN therapy days, HPN prescription, payer type, and cost of goods for formula and supplies. Number of "touches" were quantified, defined as telephonic communication with patient, caregiver, or managing prescriber; or clinical work such as lab review, assessment, or prescription change. Differences between groups in age, HPN therapy days, cost/mL, and touches/month were analyzed using a paired t-test. The highest cost/mL adult and pediatric prescriptions were identified, and cost of each component was quantified as a percent of the total cost. Frequencies of additives were quantified.

Results: Cost/mL was significantly higher in the pediatric group. Touches/month were used as a proxy measure for time spent on patient management, and were higher in the pediatric group, but did not reach significance. The top three cost drivers in the highest cost/mL pediatric prescription were L-cysteine, multivitamin, and supplies. Multi-trace elements, amino acids, and multivitamin were top adult costs.

Conclusion: HPN cost was significantly higher in the pediatric group, with non-standard additives and individual trace elements were prescribed more frequently than in adults. Higher supply cost may have been due to larger quantities and/or more specialized items ordered. With nearly one third of HPN consumers in a recent ASPEN survey reporting that they switched providers in the previous two years due to their pharmacy leaving the market[2] and reimbursement in decline[1], higher costs should raise concern for access to HPN in the pediatric community. This analysis reflects one pharmacy's experience, and the small sample size from two states is a limitation. Larger scale research is needed to understand current cost and reimbursement of HPN. Studies of cost-efficacy of HPN in the U.S. would also provide evidence to support access to therapy.

Table 1. Adult and pediatric characteristics, HPN cost, and touches/month

	Adult Mean	**Pediatric** Mean
Age in years (range)	56.1 (26-74)*	1.14 (0.23-2.59)
HPN therapy days	597*	130
Cost/mL PN$^{\alpha}$	$0.05*	$0.26
Touches/month	8.3	10.7

*Statistically significant difference between groups, p = 0.05. αCost includes only formula & supplies.

Table 2. Highest cost prescription: pediatric versus adult comparison

	Pediatric		Adult	
	Amount/Day	% of total cost	Amount/Day	% of total cost
Multivitamin, pediatric (mL)	5	8.6%		
Multivitamin, adult (mL)			10	11.3%
Lipid; SO, MCT, OO, FO-ILE (g)	12	1.7%		
Lipid; SO-ILE (g)				
Amino Acid, pediatric 10% (g)	13.5	4.0%		
Amino Acid, 15% (g)			125	20.4%
Dextrose, 70% (g)	52	0.2%	75	0.7%
Sterile water (mL)	123.55	0.4%	153.69	0.9%
Potassium acetate			30	3.4%
Sodium acetate (mEq)	3.6	0.1%	95	5.6%
Magnesium sulfate (mEq)	3.09	0.1%	4	0.4%
Sodium chloride (mEq)	40.52	1.0%	90	4.7%
Calcium gluconate (mEq)	11.7	4.2%	9.3	6.9%
Potassium phosphate (mMol)	5.01	1.0%	15	4.9%
Multi-trace elements (mL)	0.2	3.3%	1	31.6%
Zinc sulfate (mg)	1	0.8%		
Copper chloride (mg)	0.1	0.2%		
L-cysteine (mg)	500	54.3%		
Levocarnitine (mg)	160	3.6%		
Folic acid (mg)	1			0.7%
Supplies		18.6%		8.6%

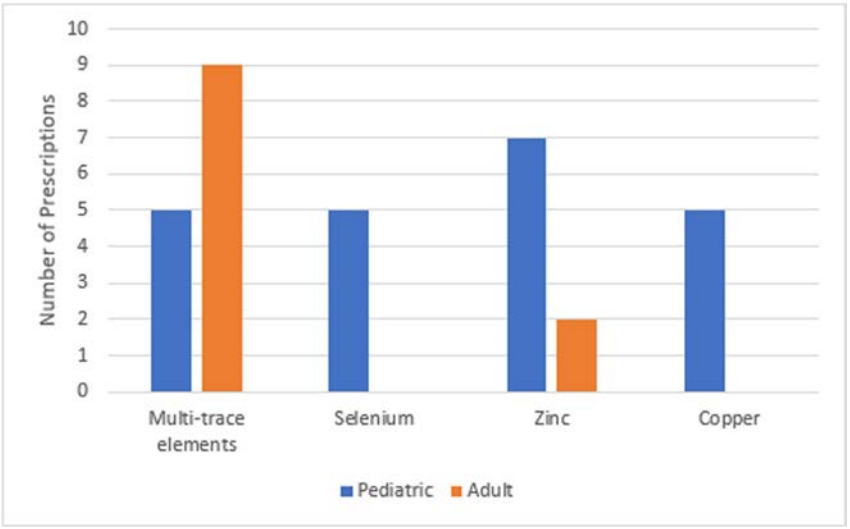

Figure 1. Trace element use

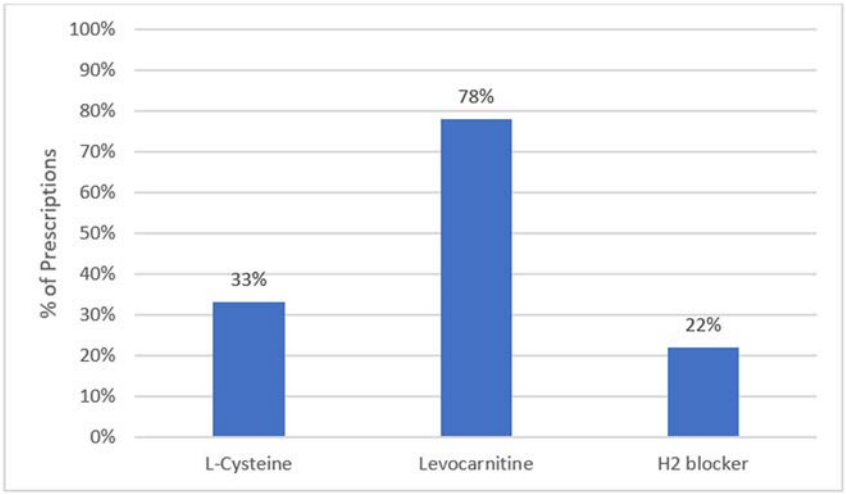

Figure 2. Pediatric non-standard additive use

P25 - Quality of Life in Home Parenteral Nutrition: Patient Survey Following Transition to a New Infusion Pump

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Financial Support: None Reported.

Background: The use of Home Parenteral Nutrition (HPN) has been increasing as a therapeutic option for patients with chronic diseases who are unable to absorb or utilize nutrients effectively through the enteral route. Providing HPN can be an effective way to reduce hospital stay by providing therapy at home and poses effects on a patient's overall quality of life (QOL). The World Health Organization defines QOL as "an individual's perception of their position in life in the context of culture and value systems in which they live and in relation to their goals, expectations, and standard, and concerns" (Orley, 1994). A 2023 observational study found that HPN commonly impacted QOL due to feelings of dependency (n = 49, 79%), traveling/leaving home (n = 37, 53%), attending cultural and social events (n= 25, 36%) and sleep (n= 22, 31%) (Schonenberer et. al, 2023). A new generation of ambulatory infusion pump has recently been introduced for use in the HPN setting, replacing a

widely used legacy model. The updated pump includes enhancements which were marketed to improve ease of use and reduce the frequency of alarms, potentially impacting patient experience and quality of life. This study aimed to determine the effects on patient reported improvements in QOL due to improved pump technology.

Methods: A survey utilizing Microsoft forms document was used as a comparative method between the legacy pump and the new pump to rate eight areas affecting QOL: ease of use, mobility/independence, sleep quality, social participation, treatment burden, overall satisfaction, confidence/self-care, and device reliability. Patients (or caregivers) completed the survey by rating each category on a 5-point Likert scale from strongly disagree (1) to strongly agree (5).

Results: A total of 15 patients utilized the new pump while receiving HPN. A total of 8 patient surveys were completed and included in the analysis. Exclusions included patients on hospice (n = 1), deceased (n = 1), declined participation (n = 1), never used the legacy pump (n = 1), or did not respond (n = 3). Participants rated their experience with the updated pump compared to the legacy pump across eight quality of life indicators using a 5-point Likert scale. (see Table 1).

Conclusion: Findings from this small patient-reported survey suggest that the new infusion pump may offer improvements in ease of use, treatment burden, and overall satisfaction for patients on home parenteral nutrition. Most participants also reported increased confidence in managing their therapy and fewer technical issues. While results were mixed in areas such as mobility, sleep, and social participation, the neutral responses may reflect individual variability in disease burden or adaptation to therapy rather than device-specific limitations. These results highlight the importance of user-centered design in HPN delivery systems and support continued evaluation of technology's impact on patient quality of life. Larger studies are warranted to validate these findings.

Table 1.

	EASE OF USE	MOBILITY/ INDEPENDENCE	SLEEP QUALITY	SOCIAL PARTICIPATION	TREATMENT BURDEN	OVERALL SATISFACTION	CONFIDENCE/ SELF CARE	DEVICE RELIABILITY
	I find the new pump easier to set up and operate compared to my previous pump.	The new pump has allowed me to move around my home or go outside more freely than the legacy pump.	My sleep has been less disturbed with the new pump compared to the legacy pump	The new pump has made it easier for me to participate in social or family activities.	The time or effort required for my parenteral nutrition has improved with the new pump compared to the legacy pump.	Overall, I am more satisfied with the new pump than I was with the legacy pump.	I feel more confident managing my parenteral nutrition with the new pump.	I have experienced fewer technical problems or alarms with the new pump.
Strongly Agree (1)	37.5% n=3	12.5% n=1	12.5% n=1	12.5% n=1	25% n=2	37.5% n=3	50% n=4	50% n=4
Agree (2)	25% n=2	0% n=0	25% n=2	12.5% n=1	25% n=2	25% n=2	25% n=2	25% n=2
Neither Agree or Disagree (3)	25% n=2	75% n=6	25% n=2	75% n=6	37.5% n=3	12.5% n=1	12.5% n=1	0% n=0
Disagree (4)	0% n=0	12.5% n=1	12.5% n=1	0% n=0	12.5% n=1	12.5% n=1	12.5% n=1	12.5% n=1
Strongly Disagree (5)	12.5% n=1	0% n=0	25% n=0	0% n=0	0% n=0	12.5% n=1	0% n=0	12.5% n=1

International Poster of Distinction Award

P26 - Home Parenteral Nutrition in Czech Republic: The Comprehensive Data Based on Analysis of the National Registry

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Financial Support: Takeda scientific research grant.

Background: Statistically processed analysis of data of patients on home parenteral nutrition (HPN) according to reports from nutritional care centres in Czech Republic (EU): Prevalence, incidence, diagnoses, syndromes, performance, weaning, and complications.

Methods: National registry data was collected prospectively using a standardised online form based on the OASIS model and analysed in epidemiology, demographics, underlying syndromes, diagnoses, and complications using the competing-risks regression (Fine and Gray) model or presented as median or mean with 95% CI ($p < 0.05$ as significant).

Results: The total number of patients in the registry is 2324: adults 2214 (95.3%), paediatric 110 (4.7%). The number of 1-year visits is 5454. The incidence rate of HPN is 1.98 per 100.000 inhabitants (population 10.5 mil.). Lifetime dependency is expected in 20.9% patients, potential weaning in 29.7%, and 24.2% patients are palliative. Out of 2324 records representing more than 1.5 million catheter days, short bowel syndrome was present in 787 patients (36.9%), intestinal obstruction in 565, (24.3%), malabsorption in 328 (13.8%), and the rest of 649 patients (28.1%) is split among fistulas, dysphagia, anorexia, or unspecified diagnoses. The majority of SBS were type I (56.4 %) and II (17.3%). Mean length of residual intestine was 90.8 cm with longer remnants in type I SBS. Dominant indications for HPN were malignancies (45.5%), non-malignant surgical conditions (13.1%), Crohn disease (11.5%), and mesenteric occlusion (6.7%). Mobility for a substantial part of the day was reported from 77.8% HPN patients, economic activity and independence from 323 (28.2 %) out of 1142 economically potent patients. A tunnelled catheter was primarily used in 46.9%, PICC in 27.1%, and IV port in 16.9% patients. Premixed bags were used in 69.1%,and pharmacy-prepared admixtures in 25.7% patients. A total of 63.0% patients were administered one bag per day / seven days a week. The sepsis rate per 1000 catheter days decreased from 0.84 in 2013 to 0.17 in 2024. The catheter occlusion rate decreased from 0.152 to 0.07 per 1000 catheter days, and thrombotic complications ratio from 0.16 to 0.04. Metabolic bone disease is present in 15.9 % patients, prevalence of fibrosis in 22.3%, and steatosis in 47.6% patients. In the first 12 months, 28 % patients achieve intestinal autonomy, increasing to 45 % after 5 years. Patient survival rate is 62% in the first year, 45% after 5 years, and 35% at the 10-years mark. Treatment with Teduglutide was indicated in 39 patients (30 adults, 9 paediatric) up to date with reduction of the daily HPN volume to 60.3% on average.

Conclusion: The statistic data shows an increasing prevalence of HPN, namely in the palliative patients group. Majority of patients is expected to terminate HPN within the first year. Risk of CRS decreased significantly in the past five years and remains low, while catheter occlusion and thrombotic complications have a stable trend. Teduglutide significantly reduced the required IV volume. The sharing of national data can improve understanding of this rare condition and facilitate the development of international guidelines.

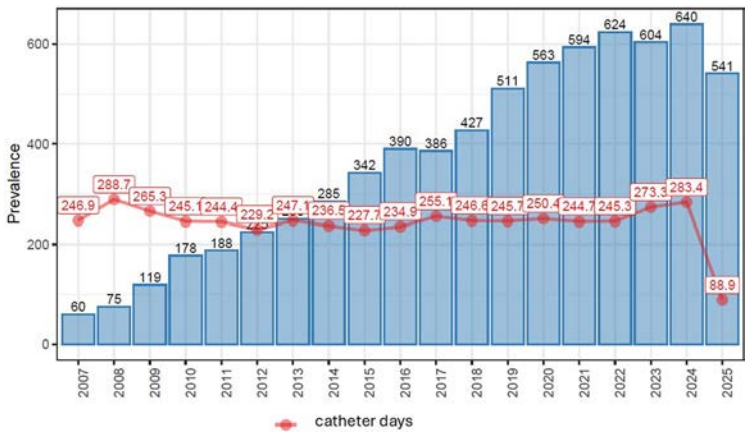

Figure 1. Prevalence of HPN/years

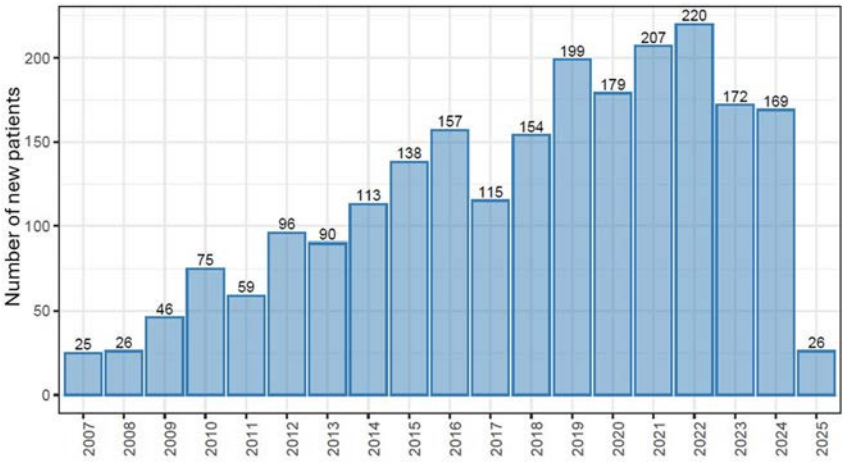

Figure 2. Number of new patients/year

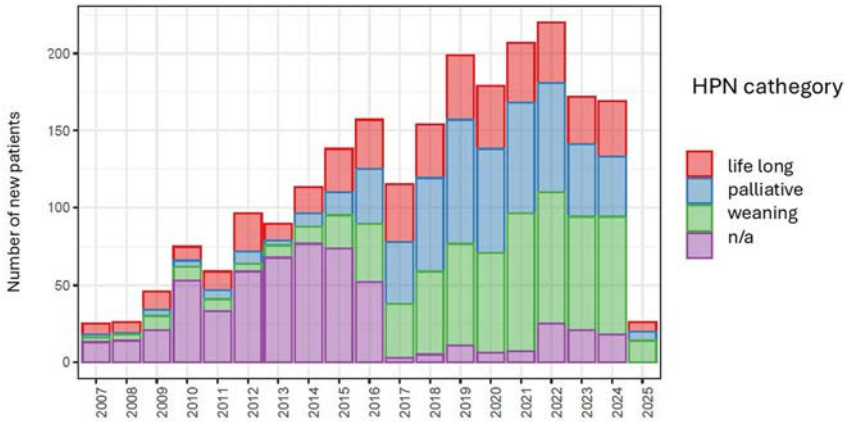

Figure 3. HPN indication cathegory

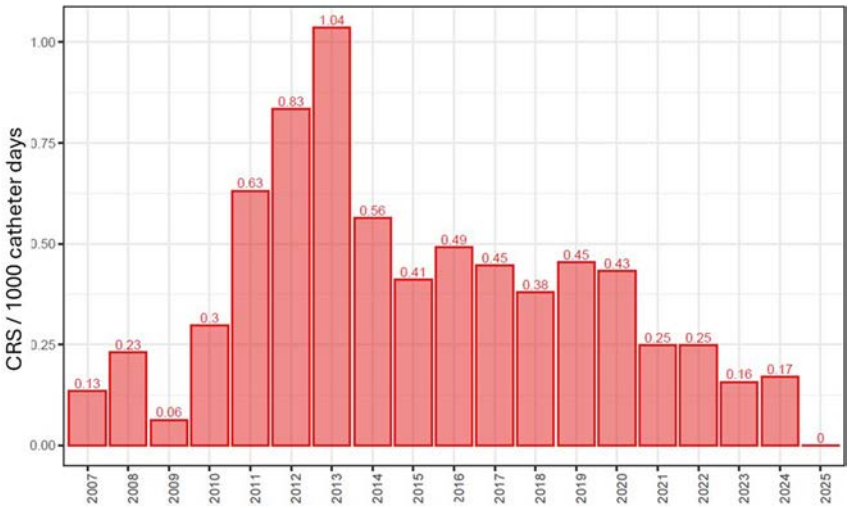

Figure 4. Catheter-related sepsis

P27 - Safe Administration of Soy Oil-Based Intravenous Lipid Emulsion to a Patient With a Soy Allergy: A Case Study Presentation

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Financial Support: None Reported.

Background: Intravenous lipid emulsions (ILEs), an important component of parenteral nutrition (PN), contain egg, soy, and fish derivatives, and are traditionally excluded for patients with allergies to these foods. However, providing long-term lipid-free PN presents several risks, including essential fatty acid deficiency (EFAD), inability to meet calorie goals, and high dextrose PN formulations, which can increase incidence of hyperglycemia and parenteral nutrition-associated liver disease (PNALD). Despite soy, egg and fish being among the most common allergies, a paucity of data exists on whether ILEs can be provided to patients with these specific food allergies. Clinicians, then, must weigh risk and benefit for each individual patient. Because most IgE-mediated food allergies are a reaction to a protein, and ILEs contain scant protein, soy oil-based ILE (SO-ILE) are considered low risk for severe allergic reaction. Additionally, SO-ILEs are composed of highly purified soybean oil, and soybean oil proteins have been shown to have low antigenicity. Therefore, the theoretical risk of a severe allergic reaction to SO-ILE in a patient with a soy allergy is low. Methods: In this case, a patient with documented allergies to soy and fish is safely given a test dose of SO-ILE, and ultimately discharged on SO-ILE-containing PN after gaining 2.5 kg. Results: A patient with inflammatory bowel disease (IBD) and severe protein calorie malnutrition (PCM) was admitted to the hospital to receive a central line and begin PN. The patient had documented allergies to soy (intermediate - hives) and fish/shellfish (severe - anaphylaxis). Due to prolonged poor PO intake, weight loss, and an exceedingly restrictive diet, the patient was at high risk for EFAD. Additionally, the patient had lost so much weight, it was unlikely she would gain weight as quickly on a lipid-free PN as compared to a lipid-containing PN. The case was discussed with the pharmacy team, who reported hesitancy in administering ILE to this patient, due to the ILE product package insert noting soy hypersensitivity as a contraindication for use, and the pharmacy team not having experience administering SO-ILE to a patient with a documented soy allergy. The case was discussed with the hospitalist, who agreed a test dose could be administered in a controlled environment, with careful observation. The dietitian reviewed available evidence online, then collaborated with the pharmacy manager, hospitalist, nurse, and charge nurse to develop a procedure. An initial test dose of 20 ml/hr of 20% SO-ILE was provided, over the course of 2 hours. The nurse observed the patient for signs of allergic reaction, and had diphenhydramine and epinephrine on call. After 2 hours, the patient exhibited no signs of an allergic reaction. The following day, the dietitian wrote a central parenteral nutrition (CPN) order containing 20 g of 20% SO-ILE, which the patient tolerated without signs or symptoms of allergic reaction. After 11 days of treatment and monitoring, the patient was discharged to a skilled nursing facility on CPN containing 35 g ILE. Additionally, the patient gained 2.5 kg while in the hospital on CPN. Conclusion: Severe reactions to the soy component of SO-ILE are exceedingly rare, even in patients with allergies to soy. Clinicians should be aware that though ILE package inserts state known hypersensitivity to ingredients or excipients in ILE is a contraindication, this does not preclude their use in patients with food allergies to soy.

Methods: None Reported.

Results: None Reported.

Conclusion: None Reported.

P28 - Regional Disparities and Determinants of Home Parenteral Nutrition Growth in Poland: A Longitudinal Nationwide Analysis (2010–2020)

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[1]Medical University of Gdańsk, Gdansk, Pomorskie; [2]Medical University of Gdańsk, Gdańsk, Pomorskie; [3]Maria Sklodowska-Curie National Research Institute of Oncology, Kraków, Malopolskie

Financial Support: None Reported.

Background: The national uptake of Home Parenteral Nutrition (HPN) in Poland is markedly increasing. However, striking disparities suggest uneven access and adoption across voivodeships. Understanding the drivers of this divergence may inform health system strategies in other universal-access settings.

Methods: We conducted a retrospective, panel analysis of HPN use across all 16 Polish voivodeships between 2010 and 2020. The primary outcome was the slope of HPN growth per 10,000 residents modelled using linear regression. Regions were classified into tertiles based on the HPN growth (fast, moderate, slow). Contextual predictors—demographic, oncological, and infrastructure-related—were standardized (z-scores) and summarized into composite indices: the oncological burden index included standardized and crude values of cancer mortality, cumulative risk, and the inverse of cancer death percentage; the infrastructure index averaged hospital beds and the number of hospitals per capita. Predictor effects were evaluated through regressions and temporal specifications (baseline, mean, and change values).

Results: The national HPN rate rose from 0.18 to 0.58 per 10,000 (β = 0.043/year; p < 0.001), with periods of acceleration followed by a pre-pandemic plateau. Inequality increased: the coefficient of variation rose from 42% to 64% (p = 0.015) and the Theil index doubled, with only three of 16 regions accounting for 57% of the national growth. HPN growth correlated positively with ageing (r = 0.994), income (r = 0.977), and number of practicing physicians (r = 0.926), and negatively with urbanization (r = −0.926), hospital beds (r = −0.325), bed-days (r = −0.301), and number of hospitals (r = −0.240) -all p < 0.001. However, these national trends differed markedly at the regional level. Comparisons across of three tertiles of regions ranked by HPN growth revealed that fast-growing regions had a lower number of practicing physicians per 10,000 residents (19.7 vs. 23.8/10k; p < 0.001) and higher urbanization (61.6% vs. 57.8%; p = 0.022). Regression analysis confirmed that the number of practicing physicians was consistently the strongest inverse predictor of HPN growth (β = −0.074; R^2 = 0.138; p < 0.001). This association was even stronger when the reduction in physician numbers over time was the predictor (β_change = −0.459; p < 0.001). Hospital infrastructure variables—such as hospital beds per capita (β ≈ −0.125, p = 0.008), reduction in hospitalization days (p = 0.002), and an infrastructure index (β = −0.113, p = 0.020) were negative predictors of HPN growth. A slower rate of income growth (β = −0.0019, p < 0.001), and increasing urbanization (β = +0.134, p < 0.001) were significantly associated with HPN growth. Ageing population and oncological burden showed no significant associations with HPN growth.

Conclusion: Regions with faster HPN growth had fewer physicians, better hospital capacity, slower income gains, and increasing urbanization. Contrary to expectations, neither population ageing nor oncological burden were associated with HPN growth. These findings may support international comparisons and guide policy in similar health systems, while still requiring cautious interpretation due to typical epidemiological limitations. However, growing regional disparities in HPN growth are alarming and demand deeper understanding, further research, and systemic solutions.

P29 - Use of a Patient-Reported Outcome Tool to Quantify Meaningful Change in Parenteral Support in SBS Patients With Chronic Intestinal Failure

Palle Bekker Jeppesen, MD, PhD[1]; Thor S S Nielsen, MSc[2]; Mark Berner Hansen, MD[2]; Bruno Gallo Santacruz, PharmD[2]; David Mercer, MD, PhD, FRCS(C), FACS[3]

[1]Rigshospitalet and University of Copenhagen, Denmark, Copenhagen, Hovedstaden; [2]Zealand Pharma A/S, Soeborg, Hovedstaden; [3]University of Nebraska Medical Center, Omaha, Nebraska

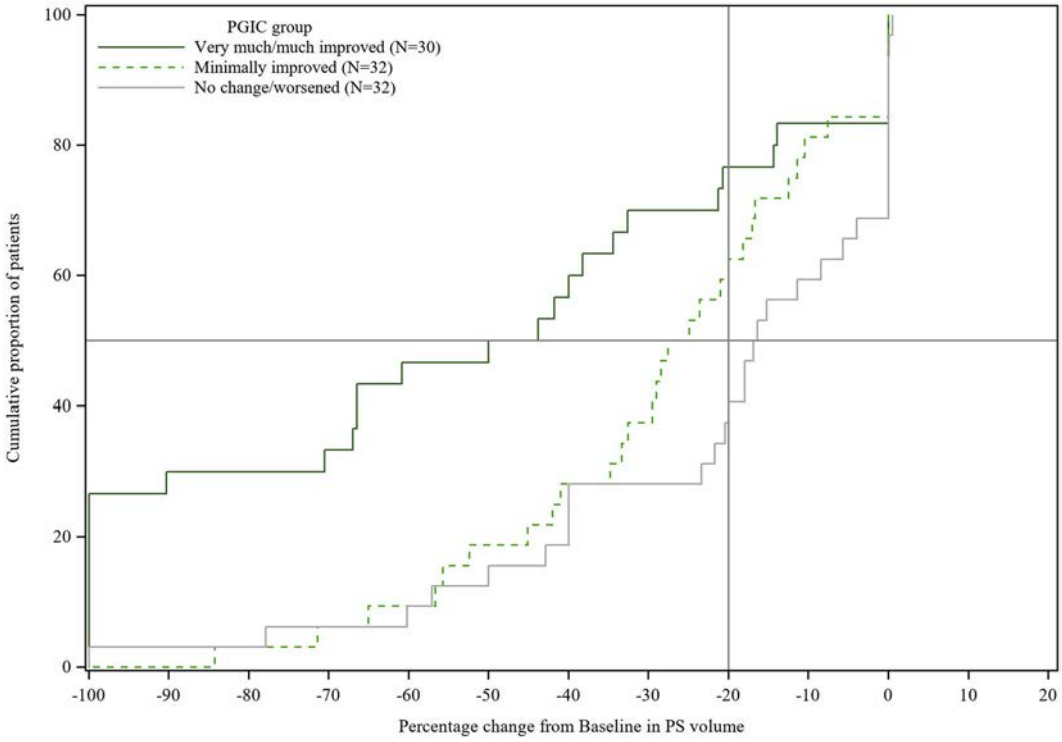
Financial Support: Zealand Pharma A/S.

Background: Patients with short bowel syndrome and chronic intestinal failure (SBS-IF) require long-term parenteral support (PS). The administration of PS is associated with the risk of complications such as sepsis and poses a considerable burden to the patients and related caregivers. Reductions in PS volume are expected to lead to improvements in quality of life (QoL) for patients. A 20% reduction in weekly PS volume needs is generally accepted as a metric of meaningful treatment response in both clinical trials, clinical practice, and by regulators. However, the specific threshold of PS volume reduction that would be required to be perceived as clinically meaningful to patients with SBS-IF has not been previously quantified.

Methods: The 106 SBS-IF patients that participated in the EASE SBS-1 phase 3 trial were randomized to receive glepaglutide (an intestinal pro-absorptive long-acting GLP-2 analogue) or placebo for 24 weeks. Change in weekly PS volume needs from baseline to week 24 was the primary endpoint of the trial as previously reported (Jeppesen PB et al. Gastroenterology 2025). Patients also completed the 7-point Patient Global Impression of Change (PGIC) scale at weeks 4, 12, 20 and 24 in order to assess within-patient change in health-related quality of life since the start of treatment. Based on separate evaluations, it was inferred that minimal improvements in the PGIC score are considered meaningful to SBS patients. An anchor-based analysis between PGIC and percentage PS volume change from baseline to week 24 was performed. The analysis involved visual inspection of plots (e.g. empirical cumulative distribution function eCDF, probability density function PDF) depicting PS volume change by PGIC category. Spearman rank-order and Kendall's tau-b correlation coefficients were calculated.

Results: The PGIC score at week 24 and percentage change in PS volume from baseline to week 24 showed moderate correlation within the PGIC groups (Spearman rank-order coefficient = 0.349 and Kendall's tau-b coefficient = 0.282). Nevertheless, large reductions in PS volume were more frequent for patients reporting improvement on PGIC versus those that didn't. Figure 1 shows the eCDF plot by PGIC category, where the adjacent categories with no or few respondents have been collapsed. In the quantitative analysis, a majority (~70%) of patients reporting improvement (PGIC categories "minimally improved", "much improved" and "very much improved") were classified as clinical responders at week 24, meaning they achieved a PS volume reduction of at least 20% from baseline. The remaining ~30% of responders reported "no change" or "worsened" status in the PGIC tool.

Conclusion: This was the first quantitative analysis of what constitutes a meaningful change in PS volume for SBS-IF patients by anchoring patient feedback through the PGIC scale with an objective clinical measure of percentage of volume reduction at week 24. Achieving at least a 20% reduction in weekly PS volume was found to be generally meaningful to the patients, thus validating this threshold used across several previous clinical trials. PGIC score and PS volume percent change from baseline were shown to be moderately correlated after 24 weeks of treatment.



Abbreviations: N: number of complete pairs in Full Analysis Set; PGIC: patient global impression of change scale; PS: parenteral support.
Notes: Patients with large PS volume worsenings (percentage change from Baseline >20%) are not displayed for visual purposes.

Figure 1. Empirical cumulative distribution function plot of PS volume (L per week) percentage change from baseline to week 24 by collapsed PGIC response categories

P30 - Aligning Parenteral Nutrition Use at an Academic Medical Center With Best Practices: A Quality Improvement Project

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Financial Support: None Reported.

Background: Parenteral nutrition (PN) is a risk-prone, lifesaving, and life-preserving therapy. Considered a high-alert medication by the Institute for Safe Medication Practices, PN is a resource-heavy form of nutrition support with significant risk. Appropriate indications and timing for initiating PN are well-described. The goal of this quality improvement project was to better align our PN process at University of North Carolina

(UNC) Hospitals with published best practices. The aims were to reduce inappropriate PN initiation and to reduce delays in PN initiation among those with an appropriate indication.

Methods: As part of the UNC Quality Improvement Scholars Program and a hospital initiative to improve PN care, the adult PN workflow was reviewed to identify opportunities for improvement. UNC Hospitals is a public, academic medical center with more than 1,000 beds. Process flow diagrams and gap analyses identified the needs for formal PN consultation for new starts, additional PN pharmacist, dietitian, and clinician support, nutrition support awareness, enteral access services, and earlier NPO/clear liquid diet screening. Between 1/14/25 and 8/2/25, a formal PN consult service was implemented. We created a workflow for PN consult prior to placement of central lines. We also embedded decision support into a modified PN order. Adoption of the new process was supported by increased pharmacist, dietitians, and clinician full-time equivalent (FTE) support. Complex enteral access services were created. A nutrition awareness campaign was launched. All adult patient dietitians were taught to identify individuals in need of nutrition support, and a screening system was implemented for patients with NPO or clear liquid diet orders for 5 or more days. Data for every new adult PN order at UNC Hospitals was entered into a REDCap data collection form. Outcomes collected included PN indication and appropriateness, and whether PN timing was delayed or correct. Delayed timing was captured in number of days. Among PN requests that were declined, we collected data on central venous access avoided. The project was determined to by the UNC Office of Human Research Ethics to be exempt from IRB approval (Study #: 24-2500).

Results: Between 1/14/25 and 8/2/25, 442 consults to initiate PN were placed at UNC Hospitals. Mean age was 58 years (SD16), 55% were women, 59% were White and 27% Black. A quarter (28%) of patients were in an intensive care unit. Home PN patients accounted for 18% of consults. The most common appropriate indications were ileus (27%), obstruction (27%), naso-enteric nutrition support not tolerated or contraindicated (16%), and short bowel syndrome (8%). Over the course of the project, there was a decrease in inappropriate PN initiation. In the first few months of the project as many as 15% of new starts were inappropriate. In the last 6 weeks of data collection (6/23/25 - 8/2/25), no patient was inappropriately started on PN. Among patients with an appropriate indication, the percentage of patients with a delayed PN start improved from 21% per week 1/14/25-3/23/25 to 12% per week 3/30/25-8/2/25. When a PN start was inappropriately delayed, the duration of the delay decreased from 0.81 days to 0.42 days per patient. A total of 27 central lines were avoided during the project.

Conclusion: In the first 7 months of a quality improvement project, our team implemented a structured, multidisciplinary approach that transformed PN use and safety at our institution. Inappropriate PN initiation was reduced, unnecessary central line placements were avoided, and delays in appropriate PN starts significantly improved. These outcomes demonstrate how identifying and addressing institutional gaps can drive meaningful, measurable improvements in patient care.

P31 - Video Education Correlates With Fewer CRBSI Episodes in First-Time Patients on Home Parenteral Nutrition

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[1]University of Chicago, Chicago, Illinois; [2]The University of Chicago Medicine, Chicago, Illinois; [3]Loyola University Medical Center, Chicago, Illinois

Financial Support: None Reported.

Background: Home parenteral nutrition (HPN) improves the nutritional status, quality of life and course of the underlying disease for patients in whom enteral nutrition is infeasible or insufficient.[1] However, parenteral nutrition is associated with a higher risk for catheter related blood-stream infections (CRBSI) compared to other chronic infusion needs.[2] Patient engagement and education programs have been shown to reduce CRBSI risk in HPN.[3-4] We developed an educational video addressing the aseptic techniques to safely handle central catheters for patients new to HPN. Our primary aim is to assess the effect of the video training supplementation at discharge on the rate of CRBSI over 12 months. Our secondary aims are to assess the patient's comfort level when handling catheters.

Methods: This is a prospective, single-center, randomized study. Patients being discharged to home with parenteral nutrition were screened for participation if they have not received HPN in the past 5 years and were expected to require parenteral nutrition for at least 3 months. They were randomized to the intervention group where the education video was provided via a secure platform (PatientIQ, Chicago, IL), or the control group with standard written instructions via the same platform. The educational video consists of an animated 15 min video divided into 5 sections dedicated to catheter care, connection and disconnection. On Week 1 and Week 12, the subjects were asked to complete a five-item questionnaire about their level of confidence and well-being in Likert scale. Clinical data including hospital admissions and blood culture results were collected over 12 months.

Results: Forty-seven discharged patients were screened and a total of 29 adult patients were enrolled in the study between February 2024 and June 2025. The median age was 51 years (interquartile range: 41– 61). Nineteen (66%) patients were women, and the majority were White (n = 22, 76%). The indications of HPN were post-operative prolonged ileus (n=9, 31%), malignant bowel obstruction (n=8, 28%), inflammatory bowel disease (n = 4, 14%) and enterocutaneous fistula (n = 3, 10%). Fourteen (48%) had tunneled catheters and 12 (41%) peripherally inserted central catheters. Most of the catheters were single lumen (76%). There was statistically significant difference in the age (p = 0.03) and sex of the subjects (p = 0.002) between the intervention and control groups. The survey period and the clinical follow up are both ongoing. Nineteen patients (65%) completed the Week 1 survey, of which 5 patients (17%) so far have completed the Week 12 survey. There was more frequent engagement with the education video format in the intervention group, but patients in the control group reported a higher sense of well-being, in terms of higher satisfaction with their mental health (p = 0.02) and less anxiety (p = 0.09) at Week 1. In contrast, there were significantly higher incidences of fever in the control group (p < 0.01) and a trend of increased bacteremia and CRBSI episodes in the control group (p = 0.18) over a median 32 weeks of follow-up.

Conclusion: This is an ongoing randomized study to evaluate the effect of an education video on the competency, well-being and clinical outcome in patients new to HPN. The interim analysis demonstrated more engagement with the education video format, but better mental well-being with the traditional format. However, the education video was associated with fewer episodes of fever and CRBSI, indicating potential benefit of its incorporation into standard of care.

Table 1. Overview of survey participation and results

During 12-month follow up	**Intervention Group n = 15**	**Control Group n = 14**	**p value**
Week 1 – survey completed (n, %)	10 (67)	9 (64)	0.74
Week 12 – survey completed (n, %)	2 (13)	3 (21)	0.40
Week 1 survey results	**n = 10**	**n = 9**	
Used education material more than once (n, %)	8 (80)	6 (67)	0.32
Comfort level with PN (n, %)	3 (30)	4 (44)	0.30
Found material helpful (n, %)	8 (80)	5 (56)	0.09
Satisfied with overall health (n, %)	3 (30)	4 (44)	0.30
Satisfied with energy level (n, %)	2 (20)	1 (11)	0.32
Satisfied with independence (n, %)	4 (40)	2 (22)	0.14
Satisfied with mental health (n, %)	2 (20)	5 (56)	**0.02**
Coping well with anxiety over PN complications (n, %)	1 (10)	3 (33)	0.09
Will continue to use (n, %)	3 (30)	6 (67)	**<0.01**

Table 2. Clinical outcome during the 12-month follow-up period, which is ongoing

During 12-month follow up,	Intervention Group n = 15	Control Group n = 14	p value
All hospitalizations (n, %)	9 (60)	11 (79)	0.07
PN related hospitalizations (n, %)	5 (33)	6 (43)	0.41
Fever (n, %)	3 (20)	8 (57)	**<0.01**
Bacteremia (n, %)	3 (20)	5 (36)	0.18
Confirmed CRBSI (n, %)	3 (20)	5 (36)	0.18
Weaned off PN (n, %)	10 (67)	7 (50)	0.17

P32 - Role of Home Parenteral Nutrition in Patients With Cancer

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Background: Cancer is the leading cause of death among individuals younger than 85 years in the United States, with an estimated 2,041,910 new cancer cases and 618,120 deaths projected in 2025. Despite therapeutic advances, malnutrition remains a prevalent and under-recognized complication, affecting 20–70% of patients with cancer and contributing to 10–20% of cancer-related deaths. Malnutrition arises from both tumor burden and anticancer therapies, leading to reduced oral intake, gastrointestinal dysfunction, and metabolic alterations that compromise treatment tolerance and outcomes. Many patients are unable to meet nutritional needs through oral or enteral routes. In such cases, HPN provides a means to preserve nutritional status, potentially enhancing quality of life and treatment continuation. Although HPN has been used clinically for nearly six decades, longitudinal oncologic outcome data remain limited. The aim of this study was to evaluate the impact of HPN on survival in patients with cancer.

Methods: We retrospectively analyzed 263 adults with cancer who initiated HPN at Mayo Clinic between 2015 and 2025. Demographic, oncologic, and nutritional data were abstracted from medical records, including body weight, body mass index (BMI), serum albumin, hemoglobin, and performance status (ECOG/KPS). Longitudinal changes in nutritional markers were assessed, and Kaplan–Meier survival analyses were performed to evaluate overall outcomes in relation to HPN utilization.

Results: The mean patient age was 56.6 years, with a slight female predominance (53.2%). Nearly half (48.7%) had stage IV disease, and 79.5% presented with metastatic cancer. The most common cancer types were colorectal (18.3%), pancreatic (13.6%), ovarian (11.4%), gastric (10.3%), and sarcoma (5.3%). Prior to HPN initiation, 88.2% had received chemotherapy or targeted therapy. HPN use was associated with modest but clinically meaningful improvements in nutritional measures. On average, patients preserved and slightly increased body weight (67.7 to 68.8 kg) and BMI (22.95 to 23.73 kg/m²). Albumin levels rose from 3.15 to 3.29 g/dL, and hemoglobin improved from 9.69 to 9.97 g/dL, highlighting the potential of HPN to stabilize nutritional status even in the setting of active cancer. Survival analysis revealed that 99 patients (38%) lived beyond

1 year on HPN, 58 (22%) beyond 2 years, 35 (13%) beyond 3 years, 26 (10%) beyond 4 years, and 21 (8%) beyond 5 years (Figure 1). Patients with higher ECOG scores at HPN initiation (≥3) demonstrated significantly poorer survival outcomes (Figure 2).

Conclusion: HPN provided measurable stabilization in weight, BMI, albumin, and hemoglobin among patients with advanced cancer. A substantial proportion of patients achieved extended survival despite advanced disease and metastatic burden, with nearly 40% living beyond 1 year and a subset surviving over 5 years. These findings suggest that HPN, may contribute to improved resilience and treatment tolerance. The observed prognostic significance of ECOG performance status at initiation further emphasizes its clinical utility in guiding patient selection and counseling. Prospective studies are needed to refine patient selection, optimize timing of initiation, and evaluate the broader impact of HPN on survival, and patient-reported outcomes.

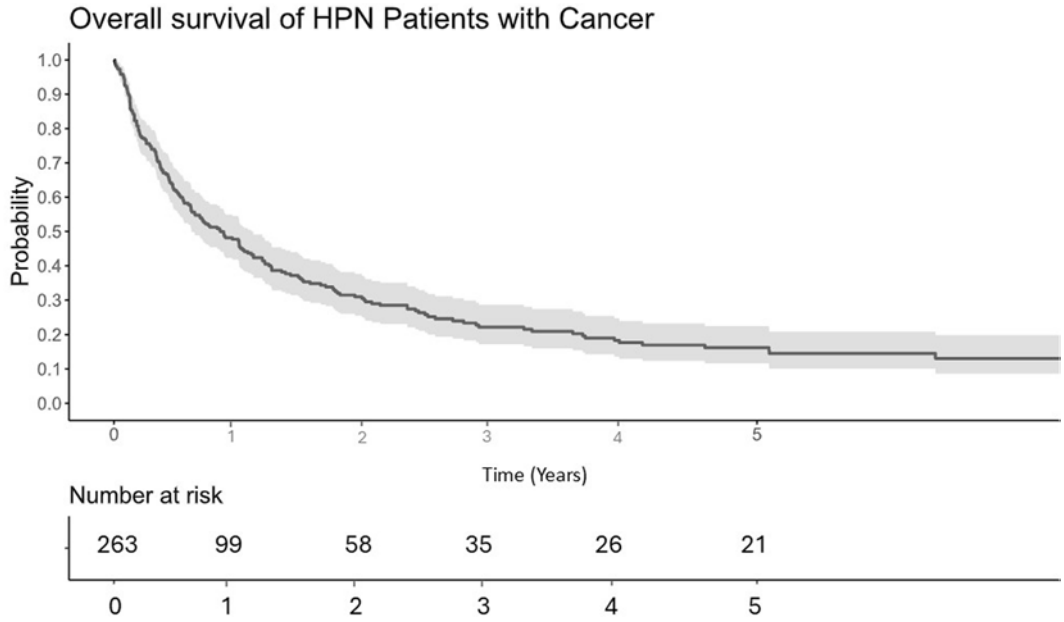

Figure 1. Overall survival of patients with cancer on home parenteral nutrition

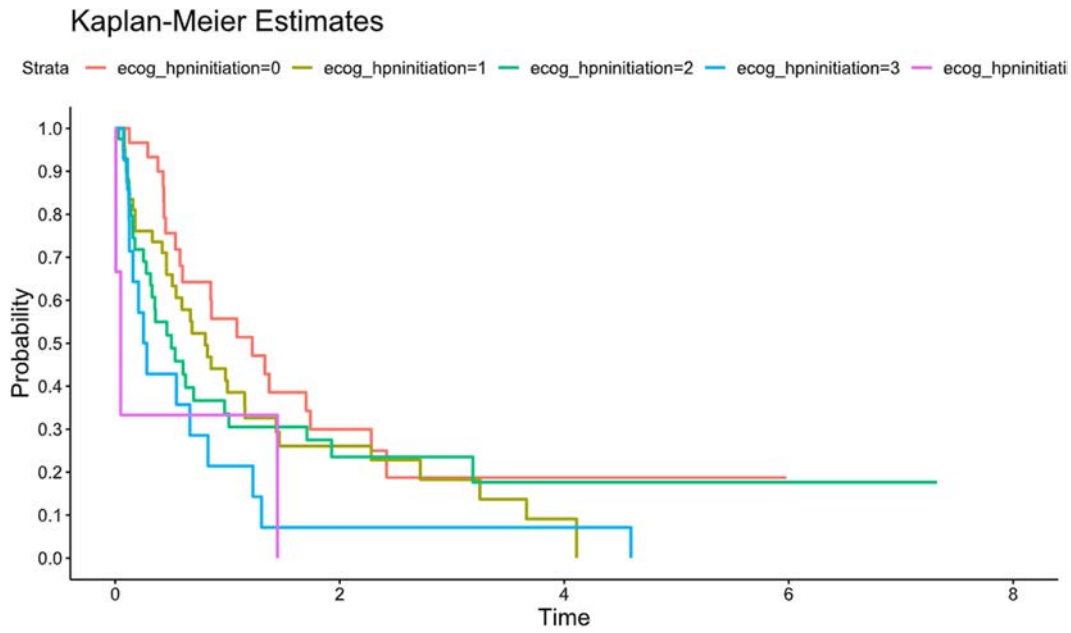

Figure 2. Survival of patients with cancer on home parenteral nutrition based on their ECOG performance score

P33 - Home Infusion Patient Advisory Council: Engaging the Parenteral Nutrition Patient/Caregiver to Improve Patient-Centered Care

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Financial Support: None Reported.

Background: Home Parenteral Nutrition (HPN) is a complex, life-sustaining therapy that significantly impacts a patient and caregivers' quality of life. In the home setting, navigating care, managing supplies, addressing side effects, and coordinating with healthcare providers are just the surface level challenges faced. Long-term HPN therapy gives patients and caregivers unique insight into gaps within home infusion care, positioning them as valuable partners in efforts to improve quality, safety, and outcomes. In other areas of healthcare, Patient Advisory Councils (PAC) prove to enhance communication, identify unmet needs, and guide service improvements through ongoing, structured input from patients and caregivers. PACs are generally not utilized in the home infusion industry, limiting the opportunity for patients and caregivers to provide feedback in a systemic way, ultimately limiting the potential to improve quality, safety, and outcomes. This survey aimed to assess whether patients on HPN and their caregivers see value in the creation of a PAC within their home infusion provider organization.

Methods: A 7-question survey was created using an online software tool to capture responses from patients and caregivers managing HPN. The target audience for the survey responses encompassed patients and caregivers managing HPN. The survey link was active for a 3-week period in July 2025 and distributed to targeted groups via email and social media platforms to those that offer support to the HPN community.

Results: A 3-week, 7-question survey distributed via email and social media received 159 responses (Table 1). The majority or 97% (Figure 1) are current HPN patients/caregivers, with 81% (Figure 1) having been on HPN for over a year, indicating long-term therapy. Over half or 52% (Table 1) of the survey population only has used one infusion company. While most respondents reported general satisfaction, 23% (Table 1) reported neutral to negative experiences. Only 5% (Figure 2) indicated their infusion pharmacy currently has a PAC. However, 54% (Figure 3) believe a PAC would improve care and satisfaction, and 56% (Figure 4) expressed interest in participation.

Conclusion: PACs have the potential to improve patient-centered care, support quality improvement initiatives, and foster effective communication and trust ultimately promoting better outcomes and increased patient satisfaction. Survey results confirm long term HPN patients and caregivers see value in implementing a PAC model within the home infusion industry. Although most respondents expressed general satisfaction with their current service providers, nearly 25% acknowledged room for improvement. Moreover, over half of those surveyed believe this structured, patient-inclusive approach would enhance overall care. Notably, 56% indicated they would be interested in joining a PAC if given the opportunity. Limitations of the study are: It was only distributed via select social media platforms and known email distribution recipients; users outside these platforms were not captured. The implementation of a PAC pilot program could be beneficial in helping determine if this structured method of incorporating patient feedback does in fact lead to improved quality, safety, outcomes, and satisfaction.

Table 1. Home infusion patient advisory council (PAC): engaging the parenteral nutrition patient/caregiver to improve patient-centered care

Survey Question	Results%
Are you, or someone you care for, on Parenteral Nutrition?	
Yes	96.9%
No	3.1%
How long have you or the person you care for been on Parenteral Nutrition Support?	
3years+	60.3%
1-3 years	21.1%
6months-1year	10.9%
1-6months	7.7%
Throughout your journey, how many infusion pharmacies have you used?	
1	52.0%
2	26.0%
3	11.0%
4	5.8%
5	4.6%
7	0.7%
How satisfied are you with the care you are currently receiving from your home infusion pharmacy?	
Very satisfied	43.0%
Satisfied	34.6%
Neutral	13.5%
Very dissatisfied	5.1%
Dissatisfied	3.9%
Does your infusion pharmacy have a Patient Advisory Council?	
I don't know	68.6%
No	26.8%
Yes	4.6%
If they do not have an Advisory Council, do you think having one would improve patient care and satisfaction	
Yes	54.1%
Maybe	41.2%
No	4.7%
If you were offered the opportunity, would you want to participate in a Patient/Family Advisory Council?	
Yes	55.6%
Maybe	34.6%
No	9.8%

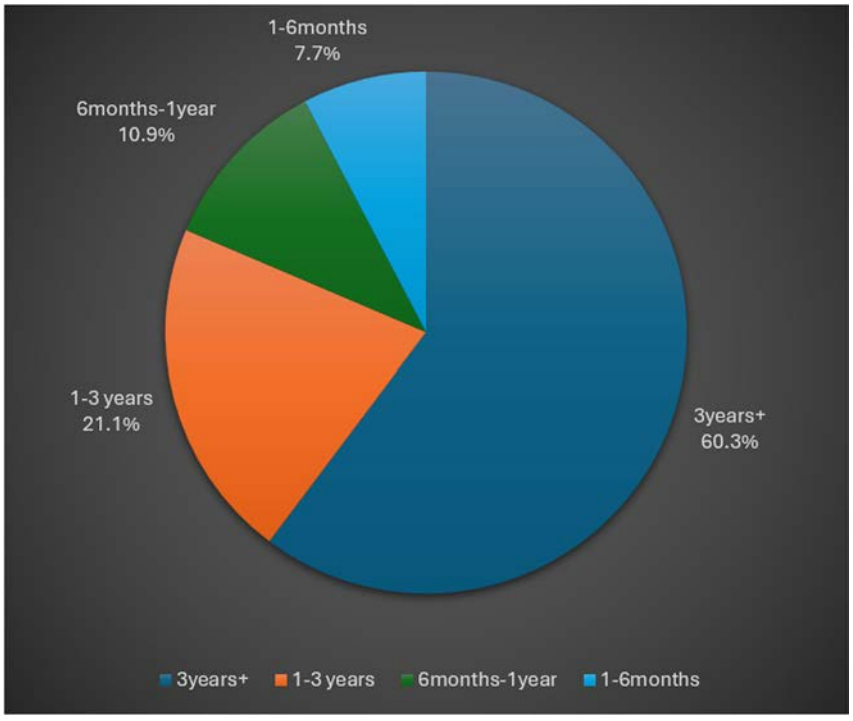

Figure 1. How long have you or the person you care for been on parenteral nutrition support?

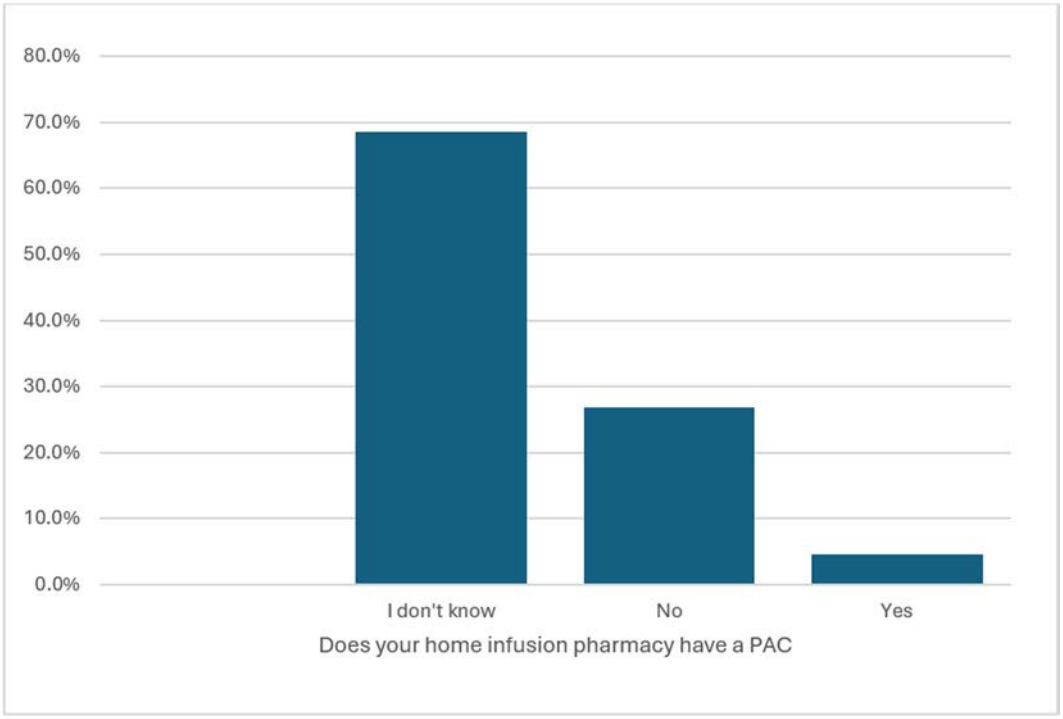

Figure 2. Does your infusion pharmacy have a patient advisory council?

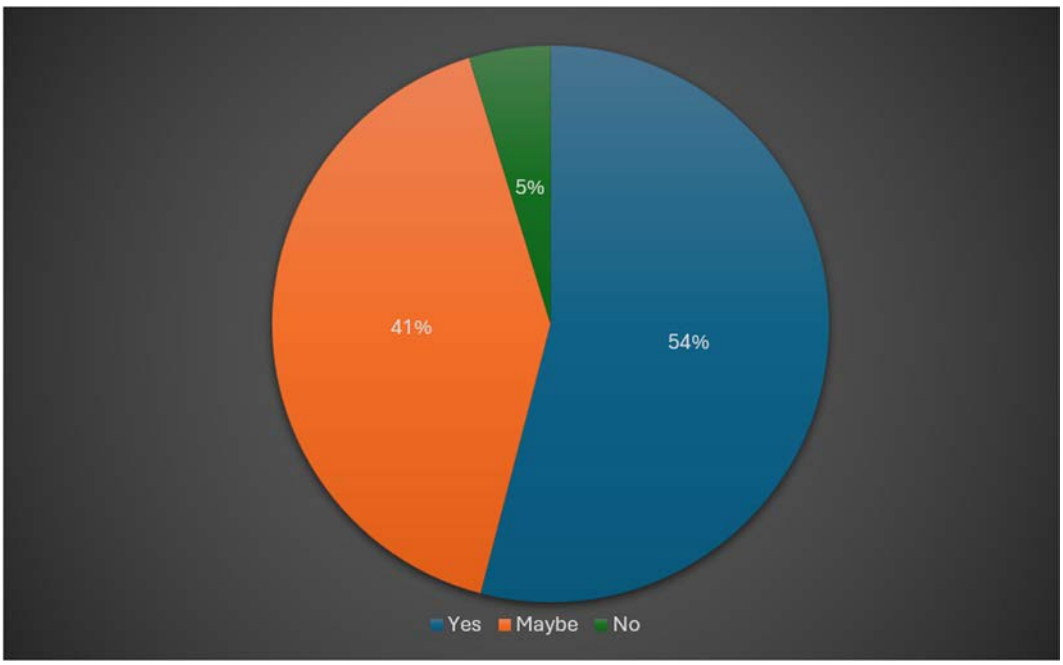

Figure 3. If they do not have an advisory council, do you think having one would improve patient care and satisfaction?

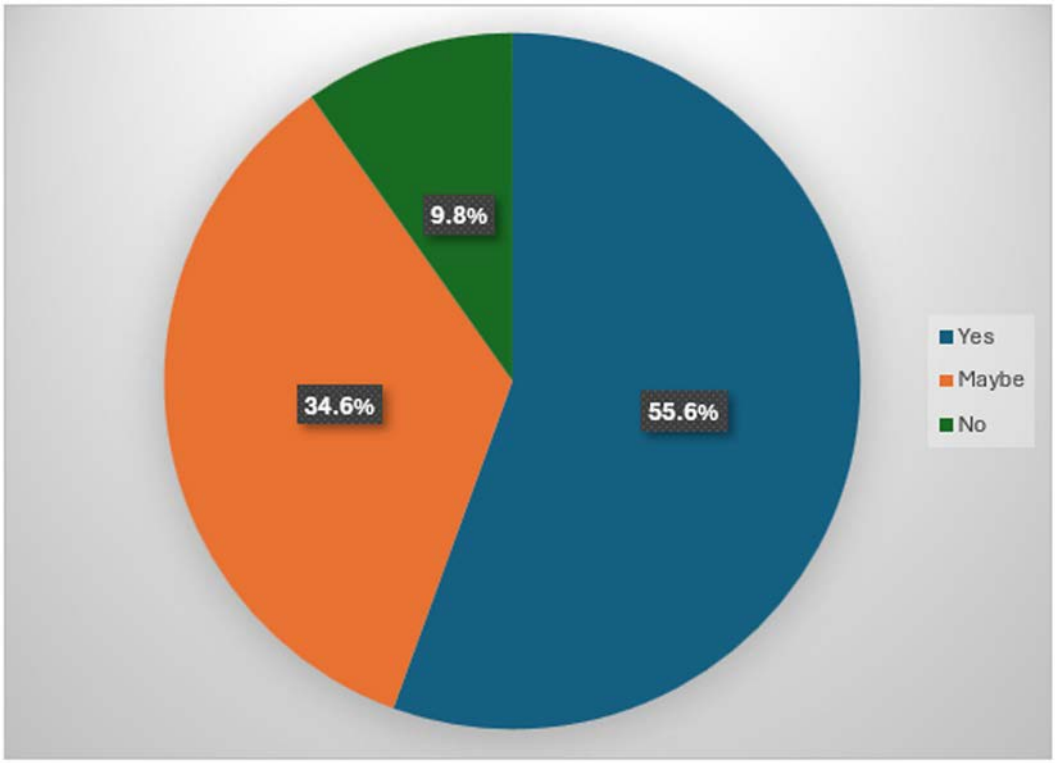

Figure 4. If you were offered the opportunity, would you want to participate in a patient/family advisory council?

P34 - Effects of Personalized Parenteral Nutrition on Critically Ill Patients: A Systematic Review and Meta-Analysis

Othman Mohammed Gatar[1]; Atheer Arishi[2]; Maryam Sultan[3]; Mohanned Gatar[1]
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Financial Support: None Reported.

Background: The global burden of disease and injury has created a dual burden of malnutrition, including both undernutrition and overnutrition (1). Oral feeding is preferred, but conditions such as dysphagia or reduced consciousness require enteral nutrition (EN). When EN is not tolerated, Parenteral Nutrition (PN) delivers nutrients intravenously, particularly for patients with intestinal failure or bowel ischemia (2,3). Total Parenteral Nutrition (TPN), exclusive intravenous feeding, demands strict monitoring to prevent metabolic complications (4,5). Long-term use, including home TPN (HPN), requires specialized teams (6). Over five decades, PN formulas have advanced, reducing side effects and enabling use in pediatric and adult patients (2). In critically ill adults, PN helps prevent malnutrition (7), preserve organ function (8), regulate glucose (9), and reduce complications (10). Personalized Parenteral Nutrition (PPN) tailors therapy to patient needs (11), minimizing risks of liver dysfunction (12), renal impairment (9), and immune compromise (13). Monitoring glucose is essential, as hyperglycemia increases infection risk and delays healing (14). This review evaluates the effects of personalized PN in critically ill adults.

Methods: Articles published from January 2020 to April 2024 were retrieved from PubMed, Google Scholar, and NIH. Using the PICO framework, the focus was critically ill adults receiving PN, with outcomes including length of stay (LOS), metabolic parameters, and mortality. From 3535 articles, 235 were eligible after screening. Two independent reviewers applied inclusion criteria and assessed quality with QUADAS-2. Data were grouped into three themes: “Parenteral Nutrition,” “Impact on Critically Ill Adults,” and “Effectiveness.” A meta-analysis was performed within 95% CI. The PRISMA Flow Chart summarized the process. This protocol was not registered, as studies were manually selected and analyzed in real time.

Results: 1. Blood Glucose Levels

Meta-analysis: 7 studies, pooled HR = 0.93 (95% CI: 0.44–2.08, p=0.87). No significant effect. Heterogeneity: High (I^2 = 93%). Risk factors: longer TPN duration (HR = 1.103, p=0.002) and surgical indications (HR = 3.12, p=0.018). Conclusion: Glycemic control protocols are essential.

2. Hospital Length of Stay (LOS)

Meta-analysis: 5 studies, pooled HR = 0.81 (95% CI: 0.23–2.85, p=0.74). No significant difference. Heterogeneity: Very high (I^2 = 100%). Evidence suggests ω-3 fatty acid–enriched PN and 4-OLE may reduce LOS.

Conclusion: PN plays a vital role in supporting critically ill patients but carries significant challenges. Individualization is critical to balance benefits and risks. While PN can reduce infections and possibly shorten hospitalization, risks include hyperglycemia, liver dysfunction, and potential mortality increases. This meta-analysis underscores the importance of personalized PN strategies, including tailored formulations, careful glucose monitoring, and timing adjustments. More research is required to develop standardized protocols and optimize outcomes for critically ill adults.

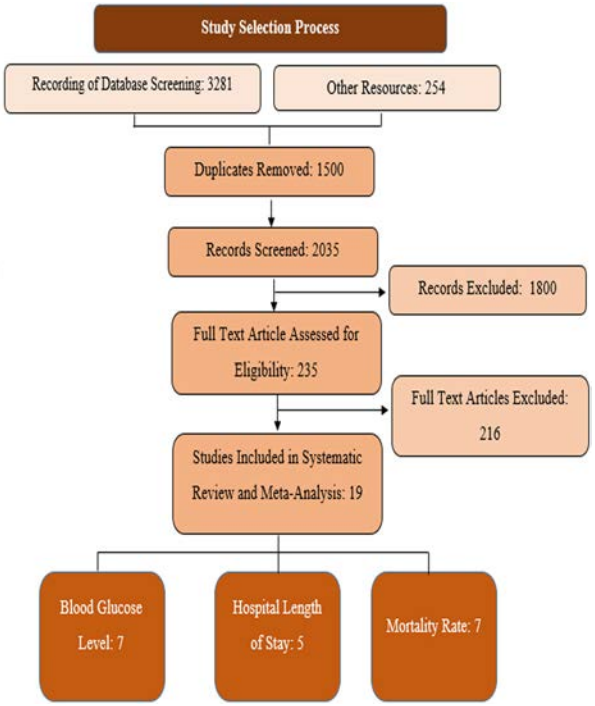

Figure 1. Prisma flow chart

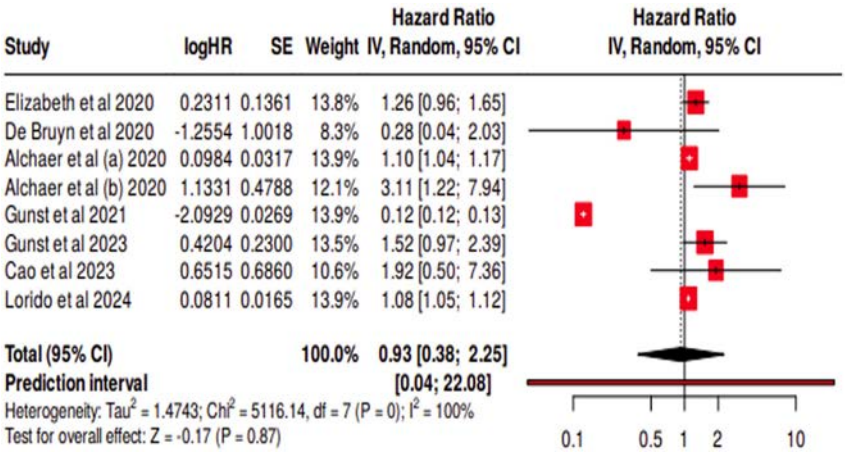

Figure 2. Forest plot

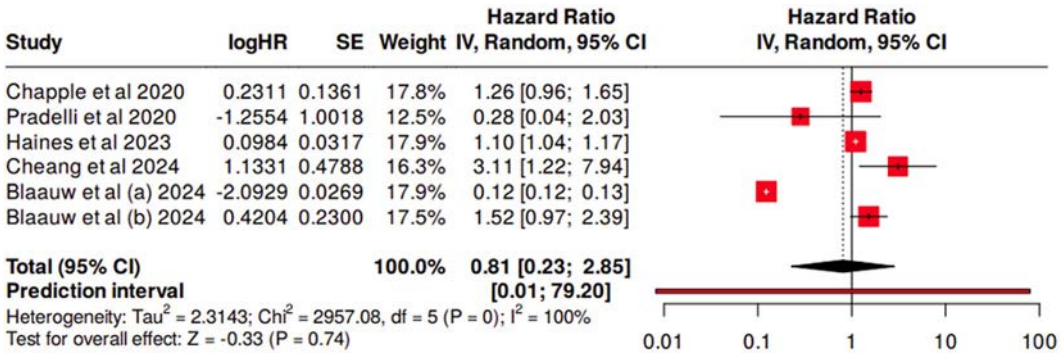

Figure 3. Forest plot

P35 - Experiences With Electrolyte Augmentation of Multi-Chamber Bag Parenteral Nutrition

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[1]Clement J. Zablocki VA Medical Center, Thiensville, Wisconsin

Financial Support: None Reported.

Background: Parenteral nutrition (PN) can be provided as a compounded solution or as a standard, commercially available multi-chamber bag (MCB-PN). Nationwide fluid shortages affecting supplies required for hospital-compounded PN led the Clement J. Zablocki VA Medical Center to increase its use of MCB-PN. A coinciding increase in the time required to reach "goal" nutrition and the frequency of potassium, magnesium, and phosphate abnormalities were observed (unpublished), prompting the medical center's Nutrition Support Team and pharmacy to begin augmenting the electrolyte content of MCB-PN.

Methods: A retrospective review of patients receiving MCB-PN for at least three days within the Clement J. Zablocki VA Medical Center between October 2023 and June 2025 was conducted to determine the change in time to reach "goal" and incidence of electrolyte abnormalities following MCB-PN electrolyte augmentation as a quality improvement project. Patients receiving PN between October 1, 2023, and June 30, 2024, prior to MCB-PN electrolyte augmentation were compared with patients receiving PN between October 1, 2024, and June 30, 2025, after MCB-PN electrolyte augmentation was implemented. Patients receiving PN between July 1, 2024, and September 30, 2024, were excluded as a washout period surrounding implementation. PN indication, malnutrition status and severity, body mass index (BMI), duration of PN therapy, time to achieve "goal" nutrition (> 90% of estimated energy and protein needs via PN), and morning serum potassium, magnesium, and phosphate between PN-day 0 and PN-day 5 were collected. Mild, moderate, and severe refeeding syndrome were defined as 10-19.9%, 20-29.9%, and > 30% decrease in serum potassium, magnesium, or phosphate, respectively, within 5 days of starting PN. Electrolyte abnormalities were defined as potassium < 3.5 mmol/L, magnesium < 1.6 mg/dL, and phosphate < 2.3 mg/dL. Categorical variables were analyzed using chi-square or Fisher's exact tests and continuous variables were analyzed using one-way analysis of variance.

Results: The pre-intervention group included 19 patients and the post-intervention group included 18 patients. Baseline characteristics are shown in Table 1. No differences in indication, malnutrition status, BMI, or PN-day 0 electrolyte abnormalities were identified between groups. A lower proportion of post-intervention patients were diagnosed with severe malnutrition than pre-intervention patients [2 vs. 6 patients (p = 0.02)]. Outcomes of interest are shown in Table 2. Patients in the post-intervention group trended towards a shorter time to achieve "goal" nutrition [2.9 ± 2.5 days vs. 4.6 ± 2.6 days (p = 0.07)] and towards a greater proportion of patients achieving "goal" within 3 days [9 vs. 5 patients (p = 0.09), Figure 1]. No differences in the incidence of electrolyte abnormalities on PN-days 1-5 [9 vs. 10 patients (p = 0.25), Figure 2], REFEEDING syndrome incidence [14 vs. 11 patients (p = 0.12)], or refeeding syndrome severity [mild, 6 vs. 3 patients; moderate, 3 vs. 5 patients; severe, 5 vs. 3 patients (p = 0.44)] were identified.

Conclusion: Implementation of MCB-PN electrolyte augmentation was associated with a trend towards shorter time to achieve "goal" nutrition and no change in the incidence of electrolyte abnormalities or refeeding syndrome. These results may have been affected by a small sample size and a higher prevalence of severe malnutrition among pre-intervention patients. These findings may be better defined and generalized through a research project.

Table 1. Baseline characteristics

Variable	Pre-intervention (n = 19)	Post-intervention (n = 18)	p-value
PN indication			0.76
Failed enteral trial	3 (15.8)	3 (16.2)	
Prolonged ileus	5 (26.3)	5 (27.8)	
Bowel obstruction	8 (42.1)	5 (27.8)	
Inability to obtain enteral access	3 (15.8)	5 (27.8)	
Malnutrition	7 (36.8)	9 (50.0)	0.19
Malnutrition Severity			0.02
Moderate	1 (5.3)	7 (38.9)	
Severe	6 (31.6)	2 (11.1)	
BMI (kg/m^2)	26.7 ± 5.2	26.6 ± 6.7	0.97
BMI < 18.5 kg/m^2	1 (5.3)	1 (5.6)	0.51
Electrolyte abnormalities*	6 (31.6)	8 (44.4)	0.19
Hypokalemia*	3 (15.8)	4 (22.2)	0.29
Hypomagnesemia*	1 (5.3)	3 (16.7)	0.23
Hypophosphatemia*	5 (26.3)	4 (22.2)	0.29

Abbreviations: BMI = body mass index; PN = parenteral nutrition. Categorical variables presented as n (%) and continuous variables presented as mean ± SD.

* Electrolyte abnormalities defined as either hypokalemia (serum potassium < 3.5 mmol/L), hypomagnesemia (serum magnesium < 1.6 mg/dL), or hypophosphatemia (serum phosphate < 2.3 mg/dL) on PN-day 0.

Table 2. Parenteral Nutrition Therapy Outcomes and Adverse Events

Variable	Pre-intervention (n = 19)	Post-intervention (n = 18)	p-value
Duration of therapy (days)	14.6 ± 16.2	6.1 ± 4.0	0.16
Time to "goal" (days)	4.6 ± 2.6	2.9 ± 2.5	0.07
"Goal" in ≤ 3 days *	5 (26.3)	9 (50.0)	0.09
Refeeding syndrome †	11 (57.9)	14 (77.8)	0.12
Refeeding syndrome severity †			0.44
Mild	3 (15.8)	6 (33.3)	
Moderate	5 (26.3)	3 (16.7)	
Severe	3 (15.8)	5 (27.8)	
Electrolyte abnormalities ‡	10 (52.6)	9 (50.0)	0.25
Hypokalemia ‡	5 (26.3)	7 (38.9)	0.20
Hypomagnesemia ‡	2 (10.5)	1 (5.6)	0.40
Hypophosphatemia ‡	5 (26.3)	4 (22.2)	0.29

Categorical variables presented as n (%) and continuous variables presented as mean ± SD. * "Goal" defined as >90% of energy and protein needs via parenteral nutrition.

† Mild, moderate, and severe refeeding syndrome are defined as 10-19.9%, 20-29.9%, and >30% decrease in serum potassium, magnesium, or phosphate, respectively, within 5 days of starting PN.

‡ Electrolyte abnormalities include patients with at least one incidence of either hypokalemia (serum potassium < 3.5 mmol/L), hypomagnesemia (serum magnesium < 1.6 mg/dL), or hypophosphatemia (serum phosphate < 2.3 mg/dL) within 5 days of starting PN.

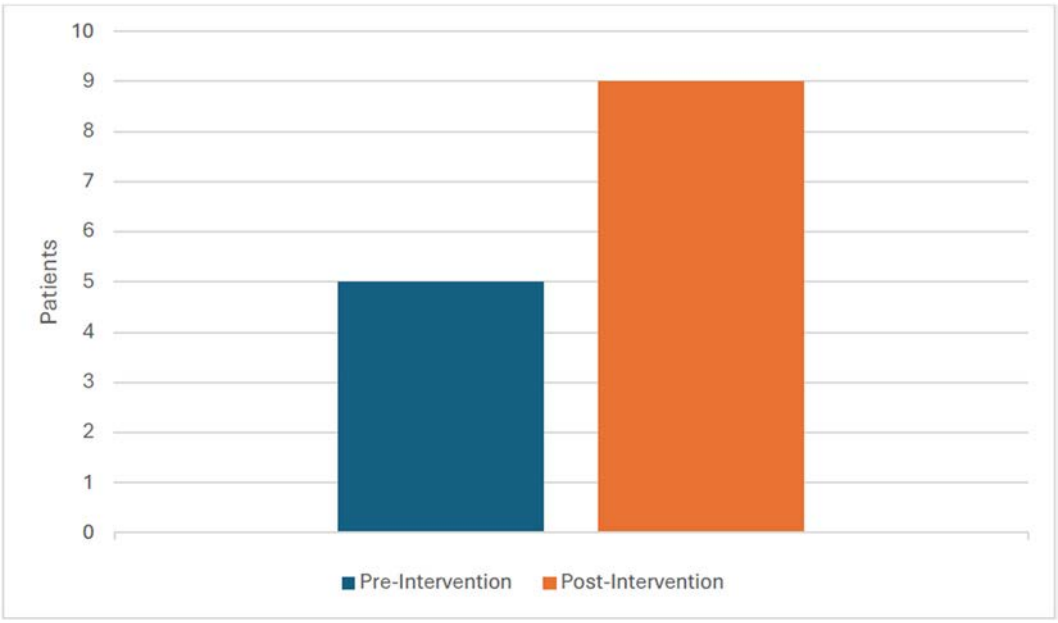

Figure 1. Patients achieving "goal" within 3 days

"Goal" defined as providing >90% of energy and protein needs via PN.

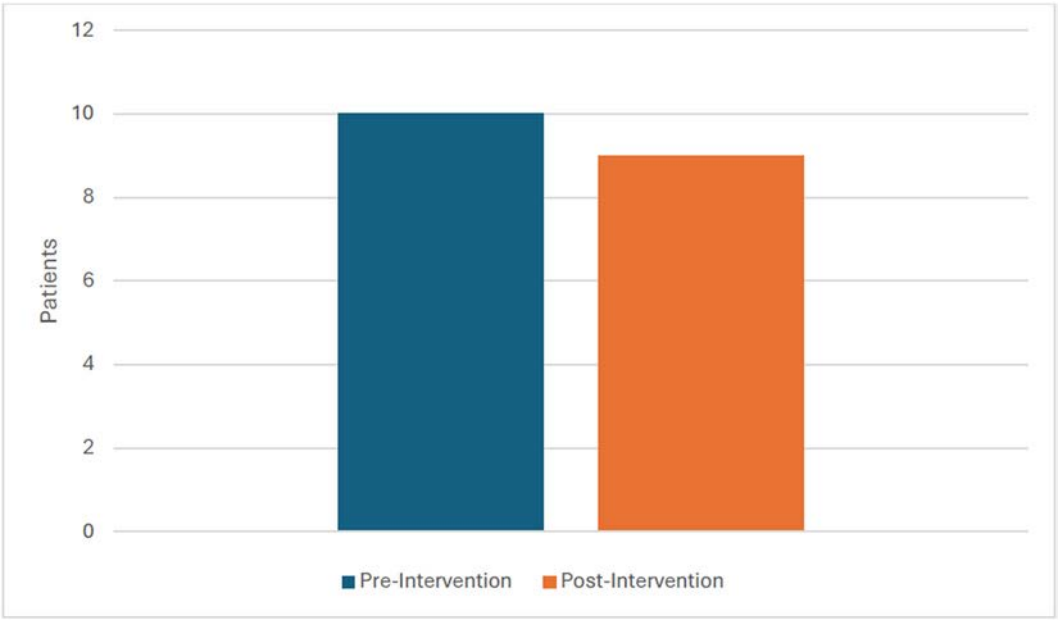

Figure 2. Electrolyte abnormalities

Electrolyte abnormalities defined as at least one incidence of either hypokalemia (serum potassium < 3.5 mmol/L), hypomagnesemia (serum magnesium < 1.6 mg/dL), or hypophosphatemia (serum phosphate < 2.3 mg/dL) within 5 days of starting PN.

P36 - Multi-Chamber Bag Parenteral Nutrition as Substitute for Custom Compounding: Clinical and Operational Feasibility in a Complex Patient Population

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[1]UW Health, Madison, Wisconsin

Financial Support: None Reported.

Background: Commercially available multi-chamber bag (MCB) parenteral nutrition (PN) has a clear role in providing access to PN in settings where custom compounding is not possible. MCB-PN requires bag activation and several additives before use, but these products can nonetheless be faster and cheaper than custom compounded PN from the perspective of central pharmacy.[1] However, the composition of available MCB-PN products is not always safe or optimal for complex patients.[2] Furthermore, the size, variety, and complex naming schemes for MCB-PN products can make inventory management difficult and error-prone. In an academic medical center with long-established custom compounding infrastructure in place, it is thus uncertain whether MCB-PN has a role for routine use. The purpose of this study was to evaluate the clinical appropriateness and operational feasibility of implementing MCB-PN for select patients to alleviate the compounding workload in central pharmacy.

Methods: PN orders were collected from the second Tuesday of each of four months to ensure separation of the samples and avoid bias related to the day of the week. All adult and adolescent PN orders prepared on those days were included. A proposed MCB-PN substitution was created for each order by calculating the volume of MCB-PN needed to provide equal calories, using the product with the most similar dextrose-to-amino acids ratio. The volume of MCB-PN was capped at 2 L and any lipid injectable emulsion (ILE) was ignored. Fluid boluses and supplemental electrolytes were allowed. The final delivered dose of each PN component was compared. Using a predetermined set of acceptance criteria (Table 1), each proposed MCB-PN substitution was tested against the original PN order for clinical comparability and operational complexity.

Results: A total of 64 PN orders were included. Of these, only one order could be converted to an MCB-PN regimen that met all acceptance criteria (1.6%), with a median of three failed criteria per PN order (Figure 1). The most common reasons for failure were excessive potassium, excessive volume, excessive phosphate, and an excessive number of separate infusions required. The estimated time savings within central pharmacy was negligible: 10 minutes on only one of the four days studied.

Conclusion: In an academic medical center currently providing only custom compounded PN, the benefits of switching some patients to MCB-PN are likely not worth the risk of maintaining multiple ordering, compounding, and administration workflows and a more complex formulary. To substantially increase MCB-PN utilization to achieve meaningful time savings in the studied population, the time saved in central pharmacy would merely be translated to additional work for nursing and the nutrition support team. The rates of electrolyte abnormalities and fluid overload would also potentially increase.

Table 1. Acceptance criteria used to evaluate MCB-PN regimen against custom compounded PN order

Parameter	Acceptance Criteria
Potassium	No more than 15 mEq excess
Additional infusions required (fluids and/or electrolytes)	No more than two additional infusions
Volume	No more than 250 mL excess
Phosphate	No more than 7.5 mmol excess
Amino acids	Within 10 grams
Dextrose	Within 20 grams
Multivitamin and trace elements	At least 80% of dose delivered
Sodium	Within 100 mEq
Calcium	No more than 5 mEq excess
Magnesium	No more than 4 mEq excess
Chloride	Within 100 mEq
Acetate	Within 100 mEq

MCB-PN = multi-chamber bag parenteral nutrition.

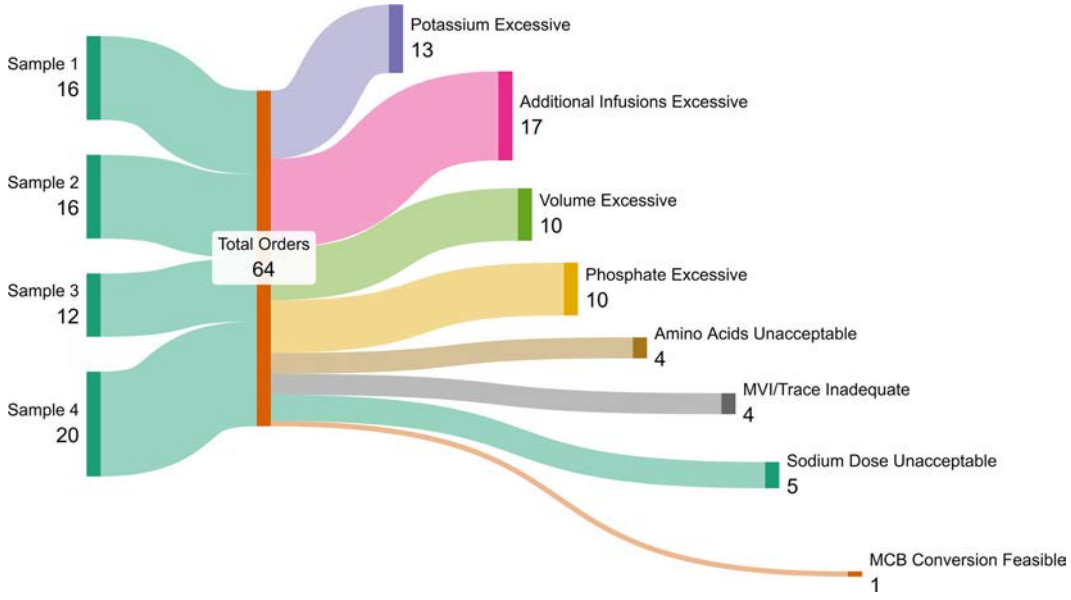

Figure 1. Sankey diagram of proposed MCB-PN conversions

MCB-PN = multi-chamber bag parenteral nutrition.

Poster of Distinction Award

P37 - Parenteral Nutrition in Perioperative Lung Transplant: Description of Use and Incidence of Adverse Outcomes

Ciana Scalia, RD, CNSC, CCTD, CDCES, CDN[1]; Nadine Glowzenski, MS, RD, CDN[1]; Jennifer Cholewka, RD, CNSC, CDCES, CDN[1]; Daniel Laskey, MD[1]; Jeffrey Mechanick, MD[1]; Harish Seethamraju, MD[1]; Scott Scheinin, MD[1]

[1]Mount Sinai Hospital, New York, New York

Financial Support: None Reported.

Background: Advanced respiratory failure and lung transplantation (Ltx) confers significant metabolic stress including increases in energy and protein demand. It is well established that accumulation of an energy deficit is associated with adverse outcomes, and that enteral nutrition (EN) alone often falls short in meeting nutritional needs, including in the cardiac surgery ICU settings. Parenteral Nutrition (PN) represents an avenue for reliable nutrition delivery and comprehensive metabolic optimization in the high nutrition risk population where EN falls short. However, PN remains largely avoided in transplant recipients for fear of adverse outcomes associated with its use, namely blood stream infection (BSI) and thrombotic complications. While large, randomized trials have found PN to be safe in the general ICU setting, there is limited data evaluating its role in the lung transplant population specifically. To our knowledge, this is the first study to date to report on details of use and safety outcomes related to PN therapy in peri-operative lung transplant recipients.

Methods: We conducted a retrospective, single-center cohort study for all patients who received a lung allograft at Mount Sinai Hospital between March 1, 2022 and May 31, 2025. Data was manually extracted via electronic medical record and descriptive analysis of all variables was performed using Statistical Package for the Social Sciences (SPSS) and Microsoft Excel. Continuous numerical variables were reported as mean and standard deviation (SD). Categorical variables were reported as n and percentage of sample.

Results: 75 patients qualified for inclusion, of which 16 received PN during their index admission. All PN recipients were at high nutritional risk (NRS-2002 score > 4) with a concurrent indication of either inadequate GI function (8/16, 50%), inaccessible GI tract

(5/16, 31%), prolonged inadequate nutrition provision on EN (2/16, 13%), or optimization of severe malnutrition prior to transplant (1/16, 6%). 56% (9/16) received PN exclusively via central access, 25% (4/16) a combination of central and peripheral access, and 19% (3/16) exclusively via peripheral access. Mean duration of PN was 21 days (SD 28). The majority of patients who received PN were critically ill at time of PN start (14/16, 88%). Compared to those who did not, the patients who received PN had shorter mean time to successful ventilator liberation (3.9 vs. 5.1 days), ICU length of stay (9.3 vs. 13.4 days), and hospital length of stay (16.8 vs. 21.8 days). Incidence of BSI during PN therapy was 6% (1/16) compared to 19% (11/59) of non-PN recipients. Incidence of thrombus during PN therapy was 25% (4/16) compared to 27% (16/59) of non-PN group. Full results including sample demographics and outcomes are provided in Table 1 and Table 2 respectively.

Conclusion: Parenteral Nutrition was safe for use in this sample of Ltx recipients when indicated by impaired GI function, high nutrition risk, and/or inadequate nutrition provision via enteral route alone. Due to the small sample size precluding powered statistical analysis and inherent limitations of the descriptive study design, further research should continue to be conducted.

Table 1. Demographics

	Total Sample		No PN		PN	
N	75		59		16	
Metric Type	Mean or N	SD or %	Mean or N	SD or %	Mean or N	SD or %
Age	58.2	11.6	59.0	11.2	55.3	12.8
Sex						
M	48	64%	39	66%	9	56%
F	27	36%	20	34%	7	44%
BMI	26.1	4.7	26.8	4.5	23.5	5.0
Listing Diagnosis Category						
Restrictive	52	69%	40	68%	12	75%
Obstructive	7	9%	6	10%	1	6%
Mixed Restrictive/obstructive	15	20%	12	20%	3	19%
Pulmonary veno-occlusive	1	1%	1	2%	0	0%
Graft type						
Single Lung	51	68%	39	66%	12	75%
Double Lung	21	28%	17	29%	4	25%
Lung + Liver	2	3%	2	3%	0	0%
Lung + Kidney	1	1%	1	2%	0	0%
Malnutrition Diagnosis prior to transplant	20	27%	14	24%	6	38%
Unintentional weight loss leading up to transplant	25	33%	20	14%	5	31%
New malnutrition diagnosis during post-transplant course	10	13%	6	10%	4	25%

Categorical variables reported as n and %. Continuous numeric variables reported as mean and SD.

Table 2. Characteristics of PN use and outcomes

	Total		No PN		PN	
Timing of PN start relative to transplant (post-op days)					20.7	46.8
Duration of PN (days)					21	28
PN type						
PPN only					3	19%
TPN only					9	56%
PPN and TPN					4	25%
Location on PN start						
ICU					14	88%
Floor					2	13%
SOFA score at PN start					6	4.5
Serum albumin at PN start					2.5	0.6
Nutrition Risk Category at time of PN start (per NRS-2002 score)						
Low risk (≤2)					0	0%
Moderate risk (3)					0	0%
High risk (≥4)					16	100%
Indication for PN						
GI dysfunction / bridge to GI recovery					8	50%
Prolonged underfeeding on EN					2	13%
Inaccesible GI					5	31%
Pre-transplant optimization of severe malnutrition					1	6%
Volume (mL/day)					1063	334
Calories						
Total (kcal/day)					902	274
Weight based (kcal/kg)					13.2	4
Amino acids						
Total (grams/day)					71	17
Weight based (grams/kg)					1.1	0.3
PN dextrose (grams/day)					130	47
PN lipid (grams/day)					18	15
Time to successful ventilator liberation (days)	5.0	15.1	5.1	16.1	3.9	4.1
ICU length of stay (days)	12.8	20.0	13.4	21.3	9.3	4.1
Hospital length of stay (days)	21.2	21.0	21.8	22.4	16.8	3.5
Incidence of BSI	17	23%	11	19%	6	38%
Bacteremia	13	17.3%	8	73%	5	83%
Fungemia	1	6%	1	9%	0	0%
BSI during PN	--	--	--	--	1	6%
Thrombus	22	29%	16	27%	6	38%
During PN	--	--	--	--	4	25%

Categorical variables reported as n and %. Continuous numeric variables reported as mean and SD.

P38 - Optimizing Dextrose Provision in Parenteral Nutrition: Effects of a Targeted Educational Intervention on Prescribing Practices

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Financial Support: Funding for study incentives was provided through the Moore-Khourie Award student grant from the Department of Nutrition and Food Sciences at Texas Woman's University (TWU).

Background: Parenteral nutrition (PN) prescribing practices, particularly for dextrose, vary widely due to limited recommendations from society guidelines. Literature supports conservative dextrose targets (< 4 g/kg/day; glucose infusion rate (GIR) < 2.8 mg/kg/min) to reduce risk of infection, hyperglycemia, liver dysfunction, and mortality. However, applications in clinical practice are inconsistent and underexplored. This study aimed to assess current PN macronutrient prescribing practices across simulated clinical scenarios before and after a video-based educational intervention and to evaluate clinician attitudes and barriers to reducing dextrose in PN.

Methods: A survey consisting of 8 simulated clinical scenarios was developed and validated to assess recommendations for calories, dextrose, protein, and lipids in PN. The survey was pilot tested with content and lay experts to ensure clarity and test-retest reliability. After completing

Survey 1, participants viewed a 30-minute educational video based on society guidelines and a literature review, then Survey 2 was administered 15 days later to measure changes in responses. Outcomes included changes in calorie, protein, dextrose, lipid recommendations, GIRs, and nonprotein calorie distribution. Attitudes and barriers were assessed via Likert scale and open-ended comments. Non-parametric tests and thematic analysis were used.

Results: Clinicians (n = 226) completed Survey 1. After the educational video, 170 respondents (75.2%) completed a follow-up Survey 2. The average time between Survey 1 and Survey 2 was 22.2 ± 11.5 days. In Survey 1, clinicians prescribed >4 g/kg/day of dextrose in 6 of the 8 clinical scenarios. After the intervention, all scenarios showed significant decrease in dextrose prescriptions below the target threshold < 4 g/kg/day ($p < .001$, $r \geq .75$). Protein and lipid dosing also increased significantly ($p < .001$). Positive attitudes toward dextrose reduction were significantly correlated with greater dextrose reduction ($r = -.32$, $p < .001$). Thematic analysis indicated strong engagement, intention to apply the content in clinical practice, and occasional concerns regarding the strength of supporting evidence and resistance to change.

Conclusion: A targeted educational intervention changed macronutrient prescribing patterns in PN, particularly by reducing dextrose to levels more closely aligned with evidence-based outcomes including infection, mortality, and liver enzyme tests. Findings support the use of a focused, guideline-informed education to promote more consistent and metabolically favorable PN practices across clinical settings.

Table 1. Differences in calorie and macronutrient totals between surveys 1 and 2

	Survey 1 (n = 226)	Survey 2 (n = 170)	p-value	Z	r
Question 1					
Calories (kcal/kg)	29.3 ± 4.8	27.5 ± 3.2	<0.001	-4.13	0.32
Protein (g/kg)	1.4 ± 0.3	1.6 ± 0.3	<0.001	-6.99	0.54
Dextrose (g/kg)	4.7 ± 1.1	3.2 ± 1	<0.001	-9.75	0.75
GIR (mg/kg/min)	3.3 ± 0.7	2.2 ± 0.7	<0.001	-9.77	0.75
OO-SO ILE (g/kg)	0.78 ± 0.2	1 ± 0.2	<0.001	-8.56	0.66
Question 2					
Calories (kcal/kg)	35.4 ± 5	30.8 ± 4.5	<0.001	-8.04	0.62
Protein (g/kg)	1.8 ± 0.3	2 ± 0.4	<0.001	-3.78	0.29
Dextrose (g/kg)	5.6 ± 1.3	3.5 ± 1.3	<0.001	-10.28	0.79
GIR (mg/kg/min)	3.9 ± 0.9	2.4 ± 0.9	<0.001	-10.28	0.79
SO-MCT-OO-FO ILE (g/kg)	0.9 ± 0.3	1.1 ± 0.3	<0.001	-6.39	0.49
Question 3					
Calories (kcal/kg)	29.3 ± 3.6	26.8 ± 3.4	<0.001	-7.23	0.55
Protein (g/kg)	1.5 ± 0.3	1.9 ± 0.4	<0.001	-8.60	0.66
Dextrose (g/kg)	4.9 ± 0.9	3.2 ± 1.1	<0.001	-10.45	0.80
GIR (mg/kg/min)	3.4 ± 0.6	2.2 ± 0.7	<0.001	-10.45	0.80
SO-ILE (g/kg)	0.66 ± 0.2	0.83 ± 0.3	<0.001	-6.41	0.49
Question 4					
Calories (kcal/kg)	13.9 ± 2.1	12.7 ± 1.7	<0.001	-6.18	0.47
Calories (kcal/kg IBW)	25.1 ± 3.8	23 ± 3.1	<0.001	-6.18	0.47
Protein (g/kg IBW)	1.7 ± 0.4	2.1 ± 0.4	<0.001	-8.35	0.64
Dextrose (g/kg IBW)	3.6 ± 1	2.2 ± 0.9	<0.001	-10.57	0.81
GIR (mg/kg/min IBW)	2.5 ± 0.7	1.6 ± 0.6	<0.001	-10.56	0.81
SO-ILE (g/kg)	0.6 ± 0.2	0.7 ± 0.3	<0.001	-5.08	0.39
Question 5					
Calories (kcal/kg)	23.2 ± 3.1	20.8 ± 3.4	<0.001	-6.90	0.53
Protein (g/kg)	1.5 ± 0.2	1.7 ± 0.3	<0.001	-6.66	0.51
Dextrose (g/kg)	3.7 ± 0.8	2.3 ± 0.9	<0.001	-10.40	0.80
GIR (mg/kg/min)	2.6 ± 0.5	1.6 ± 0.6	<0.001	-10.40	0.80
SO-ILE (g/kg)	0.45 ± 0.2	0.64 ± 0.3	<0.001	-7.78	0.60
Question 6					
Calories (kcal/kg)	29.1 ± 5.4	23.5 ± 4.9	<0.001	-8.82	0.68
Protein (g/kg)	1.18 ± 0.25	1.25 ± 0.3	0.005	-2.78	0.21
Dextrose (g/kg)	5.4 ± 1.4	3.2 ± 1.3	<0.001	-10.38	0.80
GIR (mg/kg/min)	3.7 ± 1	2.2 ± 0.9	<0.001	-10.38	0.80
SO-ILE (g/kg)	0.6 ± 0.3	0.76 ± 0.3	<0.001	-5.05	0.39
Question 7					
Calories (kcal/kg)	36.5 ± 5.9	30.2 ± 5	<0.001	-8.86	0.68
Protein (g/kg)	1.75 ± 0.3	1.83 ± 0.4	0.007	-2.72	0.21
Dextrose (g/kg)	5.8 ± 1.5	3.5 ± 1.3	<0.001	-10.60	0.81
GIR (mg/kg/min)	4 ± 1	2.4 ± 0.9	<0.001	-10.60	0.81
OO-SO ILE (g/kg)	0.98 ± 0.3	1.1 ± 0.3	<0.001	-5.16	0.40
Question 8					
Calories (kcal/kg)	26.6 ± 4.3	24.5 ± 3	<0.001	-6.45	0.50
Protein (g/kg)	1.5 ± 0.3	1.7 ± 0.3	<0.001	-4.52	0.35
Dextrose (g/kg)	4.1 ± 1	2.5 ± 0.9	<0.001	-10.49	0.81
GIR (mg/kg/min)	2.9 ± 0.7	1.7 ± 0.6	<0.001	-10.49	0.81
SO-MCT-OO-FO ILE (g/kg)	0.64 ± 0.25	0.9 ± 0.2	<0.001	-9.26	0.71

GIR, = glucose infusion rate based on 24 hours; OO-SO ILE = intravenous lipid emulsion composed of soybean oil (20%) and olive oil (80%); SO-MCT-OO-FO ILE = intravenous lipid emulsion composed of soybean oil (30%), medium-chain triglycerides (30%), olive oil (25%), and fish oil (15%); SO-ILE = soybean oil-based intravenous lipid emulsion (100% soybean oil); IBW = ideal body weight.

Table 2. Thematic analysis: coded categories and frequencies

Theme	Definition	Example quotes	Count
Positive reception, enthusiasm	Comments expressing appreciation, engagement, or excitement about the intervention.	*"Loved it! Thanks for this opportunity to learn."* *"This was an excellent activity that really challenged my understanding of PN."* *"Great way to get this much needed info out to clinicians."*	12
Practice change intentions	Participants indicating intent to change practice or reported already applying insights.	*"I will definitely be implementing this into my practice."*	8
Evidence critique	Comments questioning the strength of evidence or requesting more supporting literature.	*"Only a few studies… were cited. I would want to review the literature more."*	6
Survey format	Suggestions or critiques related to the survey format or content	*"8 case studies was very time consuming."*	3
Equity concerns	Mentions of representation, perspectives, or omission of populations like pediatrics.	*"Other perspectives would have helped to give a better view of the argument."*	3
Uncertainty, resistance	Comments indicating hesitation, disagreement, or difficulty adopting recommendations.	*"I did struggle with my past practices. There are many nuances … but overall, the information was helpful."* *"I think empirically giving most patients 40% of calories from fat would be met with a LOT of resistance from my CNSC RDs."*	5
Recommendation for further research	Comments calling for future study, trials, or stronger data to support changes.	*"This would more reasonably support a future study development."*	4

PN = parenteral nutrition; CNSC = certified nutrition support clinician; RD = registered dietitian.

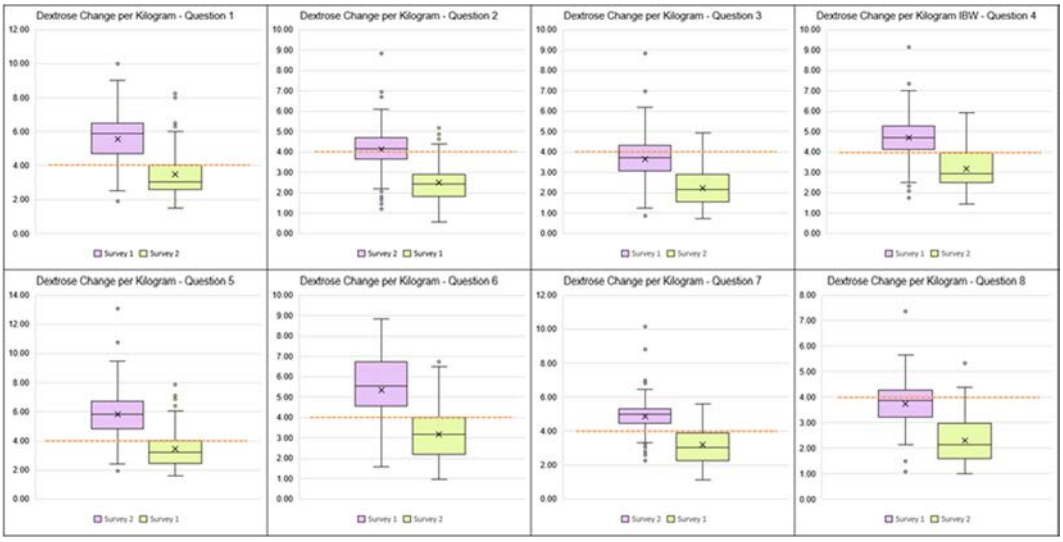

Figure 1. Dextrose changes per kilogram between surveys

Figure 1 presents box plots comparing clinician-reported dextrose recommendations (g/kg/day) between Survey 1 (pre-intervention) and Survey 2 (post-intervention) across 8 simulated PN scenarios. Each box displays the median, interquartile range, and outliers. Orange threshold lines designate a 4 g/kg/day reference point.

IBW = ideal body weight.

Enteral Nutrition Therapy

P39 - Evaluation of a New Early Feeding Protocol After Percutaneous Image-Guided Gastrostomy Tube Placement in Inpatients

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Encore Poster

Previous Presentation: MedStar Symposium, May 2025, Bethesda, MD.

Financial Support: None Reported.

Background: Despite current gastroenterology clinical practice guidelines demonstrating safety and efficacy of early feeding (≤ 4 hours) after percutaneous endoscopic gastrostomy (PEG) placement, many interventional radiologists continue to have patients fast for 12-24 hours after percutaneous image-guided gastrostomy placement to prevent complications. The purpose of this study is to retrospectively evaluate the safety and efficacy of a new early feeding protocol (≤ 4 hours) in inpatients who underwent uncomplicated percutaneous image-guided tube placement compared to the prior standard of delaying feeding at least 12 hours.

Methods: A retrospective, single-center study at an academic institution analyzed 196 inpatients who underwent percutaneous image-guided gastrostomy tube placement between July 2021 and July 2024. The early feeding group (n= 96) received enteral nutrition within 4.3 ± 2.3 hours postoperatively, while the delayed feeding group (n = 100) initiated feeding at 28.6 ± 18.2 hours. Data were collected on patient demographics, complications, time of feeding initiation, and time to discharge. Statistical analyses, including Wilcoxon rank sum tests for continuous variables and chi-square/Fisher exact tests for categorical variables, were performed using SAS 9.4 software.

Results: There were no statistically significant differences in complication rates between the early and delayed feeding groups. No patients in the early feeding group exhibited signs of peritonitis, tube dislodgement, or bleeding, while one patient in the delayed feeding group experienced post-procedural hemorrhage requiring embolization (P = 1.00). Furthermore, one patient in the delayed group experienced refeeding syndrome while another in the early feeding group had tube feeding intolerance requiring conversion to a gastrojejunostomy tube, but neither were related to initial placement. The average time from gastrostomy tube placement to discharge was 10.0 ± 13.6 days in the early feeding group and 10.8 ± 12.0 days in the standard group (P = 0.413).

Conclusion: Early feeding following uncomplicated percutaneous image-guided gastrostomy tube placement is safe and effective, with no increased risk of complications compared to delayed feeding. In addition, early feeding may mitigate cumulative nutrition deficit and may facilitate earlier discharge. Further prospective studies are warranted to validate these findings and optimize nutrition strategies.

Table 1. Complications

Complications	Early Feeding n (%)	Control n (%)	P value
Total Complications after Gastrostomy placement	0 (0)	2 (2.0)	0.4976
Bleeding requiring transfusion or embolization	0 (0)	1 (1.0)	1
Peritonitis	0 (0)	0 (0)	1
Tube dislodgement	0 (0)	0 (0)	1
Re-intervention	0 (0)	1 (1.0)	1
Clinical Evidence of Complication after Tube Feeds Started	1 (1.0)	1 (1.0)	1

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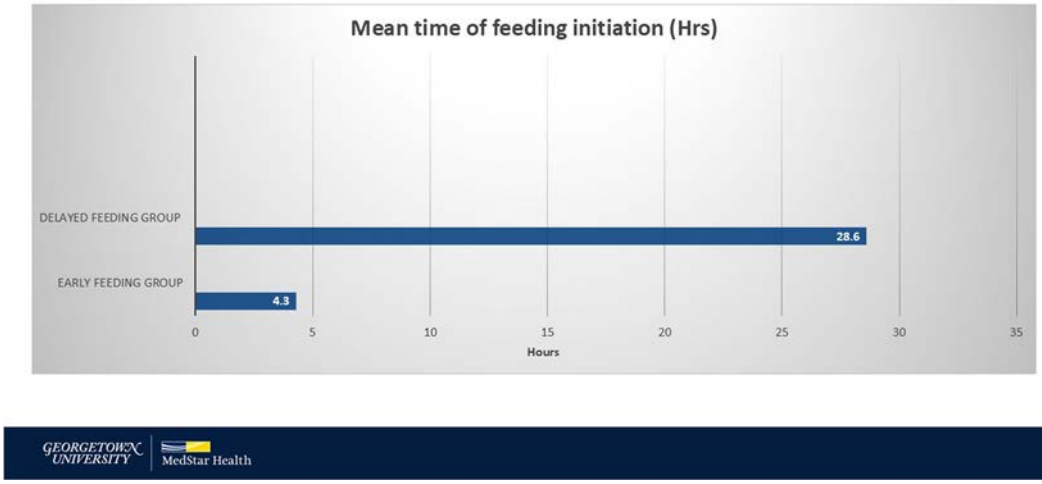

Figure 1. Time from placement to initiation of tube feeding

P40 - Improving the Volume-Based Feeding Process in Intensive Care Units

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Encore Poster

Previous Presentation: The Food and Nutrition Conference and Expo, October 2025, Nashville, TN.
Previous Publication: Improving the Volume-based Feeding Process in Intensive Care Units, Bolender, K. et al., Journal of the Academy of Nutrition and Dietetics, Volume 125, Issue 10, A13.

Financial Support: None Reported.

Background: It is estimated that as many as 69% of patients experience deterioration of their nutrition status during hospitalization. Research supports that providing adequate energy and protein to patients in Intensive Care Units (ICUs) is associated with better outcomes including improved prognosis, reduced length of ICU stay, lower infection risk, and lower mortality. However, frequent interruptions - such as fasting for procedures or diagnostic testing - often result in underfeeding, compromising nutrition support for ICU patients. Volume based feeding (VBF) is designed to optimize enteral nutrition delivery by accounting for interruptions in feeding. Instead of setting a feeding rate per hour, VBF involves prescribing a total daily volume of nutrition. Volume based feeding was implemented in the ICUs at Torrance Memorial Medical Center in 2021, however, anticipated improvements in nutrient delivery were not fully realized as evidenced by only 62% of critically ill patients on VBF meeting feeding goals at baseline. This highlighted the need for improvement to the VBF process.

Methods: The lean healthcare framework was employed, this methodology focuses on improving efficiency, reducing waste, and enhancing quality of care in healthcare settings. Lean principles were applied to minimize waste related to extra-processing, waiting, motion, and defects. The Plan, Do, Check, Act (PDCA) cycle was utilized to implement and evaluate the effectiveness of selected countermeasures. Countermeasures included standardized nurse training, enhanced VBF communication during ICU rounds, and increased dietitian involvement in multidisciplinary committee meetings. Data collection of % critically ill patients meeting daily VBF feeding goals began in 2021, countermeasures were introduced in 2023, and tracking of VBF goal attainment is ongoing.

Results: Following the implementation of the outlined countermeasures, the percentage of critically ill patients on VBF who met within 20% of their total feeding goal volume increased by 19% within 30 days. Although this percentage decreased to 13% at 60 days, by 90 days, the target of an 18% increase in the percentage of patients on VBF meeting within 20% of their total feeding goal volume was achieved, and this improvement was sustained throughout the remainder of 2023. Data collection for VBF continued into 2024, showing a further increase in the percentage of patients meeting within 20% of their total feeding goal volume. From 2021 to 2024, the average annual percentage of patients

meeting within 20% of their total feeding goal volume increased from 62% to 86%. This result not only exceeds the established target but also highlights the sustained effectiveness of the implemented countermeasures.

Conclusion: Volume-based feeding is a safe and effective strategy for enhancing the delivery of enteral nutrition to critically ill patients to better meet their nutritional requirements compared to traditional rate-based approaches. However, challenges in the proper implementation of VBF can undermine its effectiveness, highlighting the need for ongoing process improvement to optimize the benefits of this feeding method. Implementing countermeasures including standardized training for nurses, increased daily communication with the medical team regarding VBF, and increased dietitian involvement in multidisciplinary critical care meetings to report on VBF helped to increase the percentage of critically ill patients meeting within 20% of total goal volume by more than 20% in 2023. The results suggest that evaluating and improving the VBF process through targeted interventions can significantly enhance its implementation, thereby optimizing enteral nutrition support and improving clinical outcomes for critically ill patients.

Table 1. Volume-based feeding goal attainment of critically ill patients 30-120 days

Dashboard Metric	Baseline	Target	30D	60D	90D	120D
Critically ill patients on VBF meeting within 20% of total feeding goal volume	2701	--	170	171	157	149
Total number of critically ill patients on VBF	4369	--	210	229	197	183
% Critically ill patients on VBF meeting within 20% of total feeding goal volume	62%	↑18%	81%	75%	80%	81%

Abbreviations: VBF = volume-based feeding; D = days.

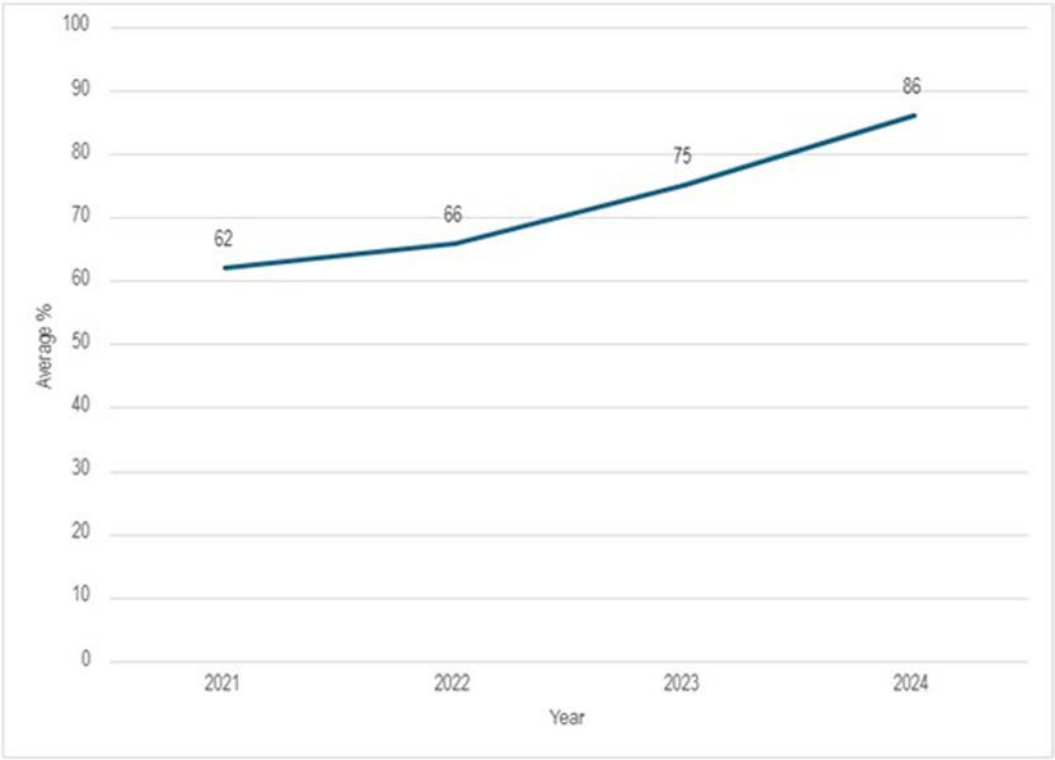

Figure 1. Average % of critically ill patients meeting volume-based feeding goal by year

P41 - Preventing Tube Feeding Errors With the Use of Barcode Medication Administration (BCMA) Technology

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Encore Poster

Previous Presentation: The Food and Nutrition Conference and Expo, October 2025, Nashville, TN.

Previous Publication: Rodriguez-Brindicci D. Preventing tube feeding errors with the use of barcode medication administration (BCMA) technology. J Acad Nutr Diet. 2025;125(10):A52.

Financial Support: None Reported.

Background: Enteral nutrition (EN) therapy involves a series of steps encompassing tube feeding prescription, dispensing, labeling, administration, and monitoring, all of which are susceptible to human error. Errors related to EN can put patients at risk through inadvertent provision of incorrect nutrition therapies. Nine tube feeding errors were reported at Torrance Memorial Medical Center from 2018-2021. Barcode Medication Administration (BCMA) is a technology that aims to improve safety and prevent errors in medication administration through use of barcodes. Research supports BCMA as an effective intervention to improve safety related to medications. However, this technology has not been commonly employed with tube feeding. This project aimed to reduce EN administration errors by integrating BCMA technology into the tube feeding process.

Methods: The lean healthcare framework was employed, this methodology focuses on improving efficiency, reducing waste, and enhancing quality of care in healthcare settings. Lean principles were applied to minimize waste related to defects, overproduction, extra-processing, transportation, and motion. The Plan, Do, Check, Act (PDCA) cycle was utilized to implement and evaluate the effectiveness of the selected countermeasure. Root cause analysis identified several gaps: absence of standardized delivery and verification processes, involvement of two departments (pharmacy and nutrition), and inconsistent formula storage locations. The selected countermeasure was the application of BMCA technology to the enteral feeding process. A multidisciplinary team of nursing, informatics, pharmacy, and clinical nutrition staff collaborated to implement BCMA for EN in 2021.

Results: Following BCMA implementation, reported tube feeding errors decreased from nine during the 2018–2021 baseline period to two from 2022-2024. This equates to an average of 2.25 errors annually during the pre-intervention period and 0.66 errors annually post-intervention. This represents a 22% reduction in tube feeding errors from the pre- to post-intervention periods. This reduction, though based on a small sample size, represents a meaningful improvement in patient safety and has been sustained after BCMA was integrated into clinical practice in 2021. BCMA technology also facilitated the integration of food allergen screening for tube feeding formulas within the electronic health record, further enhancing patient safety. Sustained success has been supported by cross-disciplinary collaboration, but challenges remain, including barcode updates, formula shortages, and staff compliance.

Conclusion: The application of BCMA technology for EN administration reduced reported tube feeding errors, demonstrating its potential as an effective patient safety strategy. Automated screening for food allergens in tube feeding formulas is an added benefit that can positively impact patient safety. A key factor in the success of this project was the collaboration across disciplines, from nursing to informatics, pharmacy, and clinical nutrition. Working together to develop the BCMA process relating to tube feeding allowed for easier adoption. It also established a network of experts who can be consulted to troubleshoot future issues. Ongoing monitoring, continued staff training, policy updates, and multidisciplinary teamwork are essential to maintain and further improve outcomes. Expanding the use of BCMA to additional institutions could reduce EN-related errors on a broader scale.

Table 1. Reported tube feeding errors goal attainment by year

Dashboard Metric	Baseline	Target	2022	2023	2024
Reported tube feeding errors	9	0	0	1	1

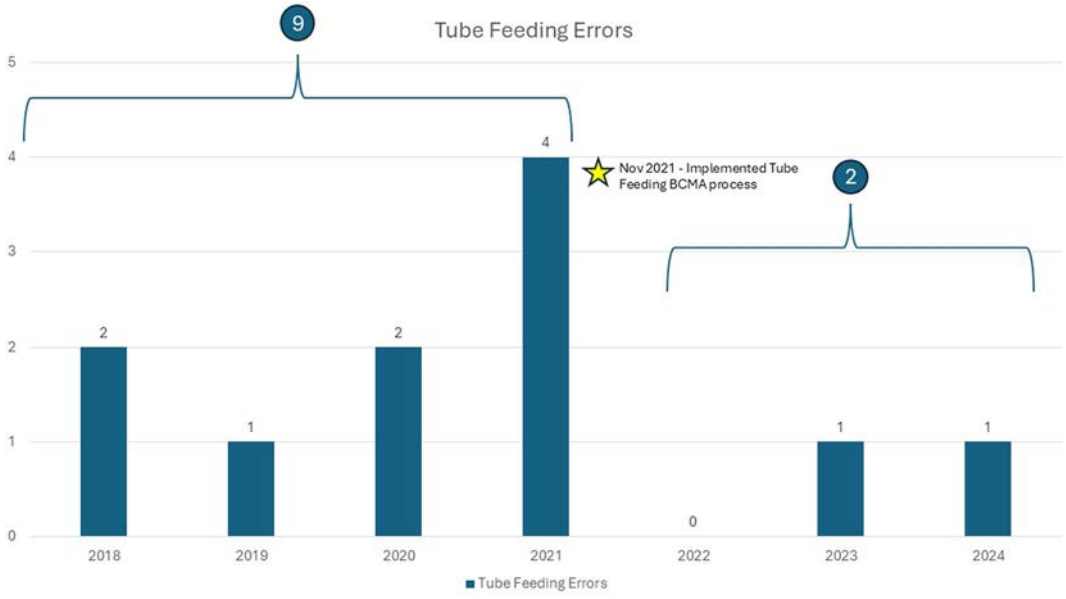

Figure 1. Reported tube feeding errors by year

Abbreviations: BCMA = Barcode Medication Administration.

P42 - Improving Enteral Nutrition Delivery in Critically Ill Surgical Patients Through a Standardized Perioperative Feeding Policy

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Financial Support: None Reported.

Background: Critically ill patients frequently experience suboptimal nutrition delivery due to prolonged nil per os (NPO) status surrounding surgical procedures. Nationally, only 50% to 70% of prescribed enteral nutrition is delivered, despite evidence indicating that ≥ 80% of caloric and protein goals is associated with improved clinical outcomes. Institutional practices that include routine NPO orders often interrupt enteral feeding and contribute to nutritional deficits. A standardized perioperative feeding policy was implemented to reduce unnecessary fasting and enhance enteral nutrition delivery.

Methods: A standardized perioperative NPO policy was developed at an academic medical center to guide enteral feeding management in surgical intensive care unit (ICU) patients. Education efforts were executed through nursing bulletins, monthly lectures to medical residents, and during interdisciplinary team rounds. The policy specified feed cessation and resumption times based on surgery type, airway status, and feeding tube location. For abdominal surgery, pre-pyloric feeds were discontinued 6 to 8 hours prior to the procedure, while post-pyloric feeds could continue at the surgical attending's discretion. For non-abdominal procedures, patients with cuffed or uncuffed airways had pre-pyloric feeds stopped 6 to 8 hours before surgery, while post-pyloric feeds continued up to operating room transfer unless otherwise specified. Feeds were

resumed postoperatively based on surgery type and multidisciplinary discussion. Enteral nutrition delivery data were extracted from the electronic medical record for patients admitted to hepatology and gastrointestinal surgical ICUs. Inclusion criteria included patients who were receiving tube feeds at goal rate. Average tube feed delivery before and after the policy implementation were then compared.

Results: A total of 244 patients were evaluated prior to policy implementation and 196 patients were evaluated within the first two months after implementation. Average enteral nutrition delivery increased from 68% to 74% of prescribed volume following policy adoption. This improvement was associated with reduced preoperative fasting and earlier postoperative feeding resumption.

Conclusion: Implementation of a standardized perioperative enteral feeding policy improved nutrition delivery in critically ill surgical patients above national averages. These findings support institutional strategies aimed at minimizing avoidable fasting and aligning clinical practice with evidence-based nutrition delivery goals.

P43 - Blenderized Enteral Nutrition in the Adult ICU: A Pilot Study on Feasibility and Safety in a Community Hospital Setting

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Financial Support: Rush Copley Mission and Vision Fund; Liquid Hope® formula donation by Functional Formularies®; Sodexo Healthcare.

Background: Current standards of practice in intensive care units (ICUs) favor the use of ready-to-hang, semi-synthetic, commercially prepared enteral nutrition (EN) formulas due to their availability, ease of administration, and lower risk of contamination. Recently, commercially produced blenderized tube feeding (BTF) formulas—composed of whole food ingredients—have emerged as an alternative, with growing adoption in pediatric care across both inpatient and outpatient settings. However, limited evidence exists regarding their use in adult hospitalized populations, particularly in the ICU, where BTF may offer potential benefits such as enhanced gastrointestinal tolerance and support for the gut microbiome. Implementing BTF in a community ICU setting presents unique challenges, including a heterogenous patient population, reliance on closed EN delivery systems, and frequent use of temporary feeding tubes with small diameters (8-10 French) and long lengths (43-55 inches), which may increase the risk of tube occlusion. This pilot study aimed to assess the feasibility and safety of administering a commercially available BTF formula in the ICU of a 210-bed community hospital.

Methods: A prospective pilot study was conducted in a single-center, mixed medical-neurological ICU. Study eligibility criteria are outlined in Table 1. Eligible participants received Liquid Hope®, a commercially prepared, whole-food, plant-based BTF formula. Registered dietitians and nursing staff were trained to administer the BTF using the Kangaroo™ ePump with a feed/flush pump set. The BTF feeding protocol is detailed in Figure 1. The study was approved by the Institutional Review Board of Rush Copley Medical Center. Written informed consent was obtained from all participants or their legal surrogate.

Results: Nine patients were enrolled in this pilot feasibility study. Subject characteristics and outcome data are summarized in Table 2. No participants experienced EN device occlusion, device replacement, aspiration, vomiting, or symptoms of bacterial contamination. Stool output was predominantly normal and soft; a few episodes of loose or liquid stool were recorded in patients receiving lactulose and/or antibiotics. Feedback from nursing staff, gathered informally during weekly rounds, was mostly favorable and included observations of reduced patient pallor, frequent requests for BTF, and normal stool consistency. Although nurses reported increased EN setup time, this did not lead to complaints or refusals to administer BTF. Some noted formula thickening as it neared expiration.

Conclusion: This small pilot study suggests that commercially prepared, whole-food, plant-based BTF formulas may be a feasible and safe alternative to standard EN in select ICU patients. Observed benefits such as adequate tolerance and favorable staff perceptions support further exploration of BTF in critical care. However, implementation challenges such as increased nursing time, higher cost of BTF formulas, formula shelf-life, and limited availability after ICU discharge must be considered. BTF may not be appropriate for patients already established on and tolerating a different home EN formula. Larger, multi-center studies are needed to confirm these preliminary findings and clarify which patient populations may benefit most from BTF in the ICU setting.

Table 1. Study eligibility criteria

Inclusion Criteria
Adult intensive care patients requiring EN for more than 48 hours
Serum potassium level within normal range
EN device with gastric termination of tube
Approval for study inclusion from attending medical team
Exclusion Criteria
Nut allergy
Recent acute surgical interventions
Very poor prognosis/imminent death

Abbreviations: EN = enteral nutrition.

Table 2. Subject characteristics and outcomes of receiving blenderized enteral nutrition

Study Characteristics (n = 9)	
Age (years)	61.2±13.4
BMI (kg/m^2)	37.7±17.7
Diagnosis (n)	
Respiratory Failure, Infection	1
Respiratory Failure, Other	2
Neurologic	5
Cardiac	1
Ventilator (# days)	32
Antibiotics (# days)	37
EN Device (n)	
Orogastric	6
Small-bore NGT	3
Study Outcomes	
Feasibility (n)	
Enteral Tube Occlusion	0
Enteral Tube Replacement	0
GI Tolerance	
Stool Type (n)	
Loose/liquid	5
Soft	15
Mixed	1
Vomiting	0
Abdominal Distention (# days)	8
Bowel regimen (# days)	11
Safety	
EN Formula Contamination	0
Aspiration of EN Formula	0
Qualitative Feedback from Nursing Staff	
• Increased EN set-up time was required • Stool output was normal in consistency and color • Patients with less pallor; appeared healthier • BTF formula viscosity changed as it neared expiration (became thicker) • In favor of BTF formula/Frequent requests for BTF formula	

Abbreviations: BMI = body mass index, kg = kilograms; m = meter; NGT = nasogastric tube; EN = enteral nutrition; BTF = blenderized tube feeding. Age and BMI data expressed as mean ± standard deviation. Ventilator, antibiotics, abdominal distention, and use of a bowel regimen reported in number of days out of 42 days of tube feeding. Stool Type reported in number out of 21 stool occurrences.

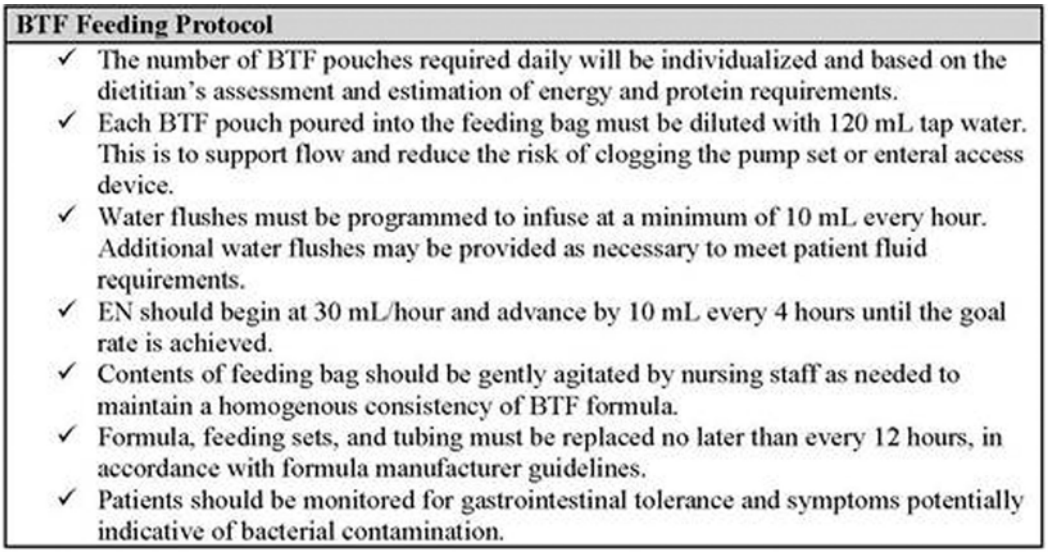

Figure 1. Blenderized tube feeding protocol

Abbreviations: BTF = blenderized tube feeding; mL = milliliters; EN = enteral nutrition.

P44 - Barcode Scanning for Enteral Nutrition: A Growing Imperative for Patient Safety

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Financial Support: None Reported.

Background: Hospitals often use barcode scanning to reduce human error. While human milk scanning is longstanding, its use for other enteral nutrition (EN) products has varied. Since 2022, publication of eight new papers and two practice guidelines mark a shifting trend. For Patient Safety Week 2025, ASPEN urged hospitals to adopt EN product scanning for safety and lot recording through a Clinical Practice Tool. The Institute for Safe Medication Practices (ISMP) similarly encouraged the implementation of EN scanning for tracking and error prevention. Understanding the risks associated with EN administration and the benefits of barcode scanning in reducing risk is vital for hospitals. This analysis summarizes recent research aligning with ASPEN guidelines.

Methods: We reviewed EN barcode scanning publications since 2022 covering all patient ages:
two publications on EN error rates, showing scanning need, five publications detailing barcode scanning implementation and outcomes, and two publications presenting time study data (scanning vs. manual processes).

Results: These studies collectively highlight EN therapy's error potential and barcode scanning's significant benefits, notably in error reduction, efficiency, and documentation. Manual processes for EN provision consistently showed high error rates: Schwarz et al. found a 26% EN error rate (including 5% of formulas not matching the provider order) and recommended barcode scanning as a mitigation strategy. Citty's review of 691 EN errors found that 26% occurred during dispensing and 31% during administration, areas which could utilize EN scanning to prevent the error. EN barcode scanning demonstrably improved patient safety, efficiency, and documentation: Error Prevention (Figure 1): Steele and Bixby found scanning prevented use of wrong expressed human milk (EHM) 1226 times and expired EHM 2103 times over 7 years. Scanning prevented 480 wrong product uses in facility-prepared feedings over 2.5 years and enabled patient care follow up and a swift response to an unannounced U.S. Food and Drug Administration site visit during a formula recall. Steele and Albert found scanning ready-to-feed (RTF) formulas for patients ages 1-18 years prevented EN errors from occurring 2.9% of the time (an average of 48 errors prevented monthly). Alessi et al noted that scanning infant RTF formulas prevented errors from occurring with 1.1% of formula feedings (an average of 3.5 errors prevented daily). Steele and Alessi observed greater risk of error with feedings prepared bedside likely due to more distractions. Scanning during fortified EHM preparation prevented errors in 4% of nurse-prepared feedings and 0.5% for technician-prepared feedings. Use of dedicated technicians reduced near-misses by 87%, consistent with Oza-

Frank's earlier observation of an 86% reduction when technicians were utilized over bedside nurses. Time Savings: Steele and Smith found barcode scanning yielded a 33% time savings for human milk and 50% for formula in verification/documentation tasks vs. manual processes (Figure 2). Steele and Bixby further supported this, reporting a 50% time savings for order updates and manual calculations. Improved Documentation: Chew et al observed EN documentation dramatically improved from 60% (pre-scanning) to 100% (post-scanning).

Conclusion: Recent EN barcode scanning research across all patient ages aligns with earlier human milk studies: scanning prevents errors and boosts efficiency. The dynamic bedside environment increases error risk, making EN scanning even more crucial there. Improved documentation provides clearer records, enhancing patient care. This review strongly supports recent ASPEN and ISMP recommendations for widespread EN scanning adoption in hospitals.

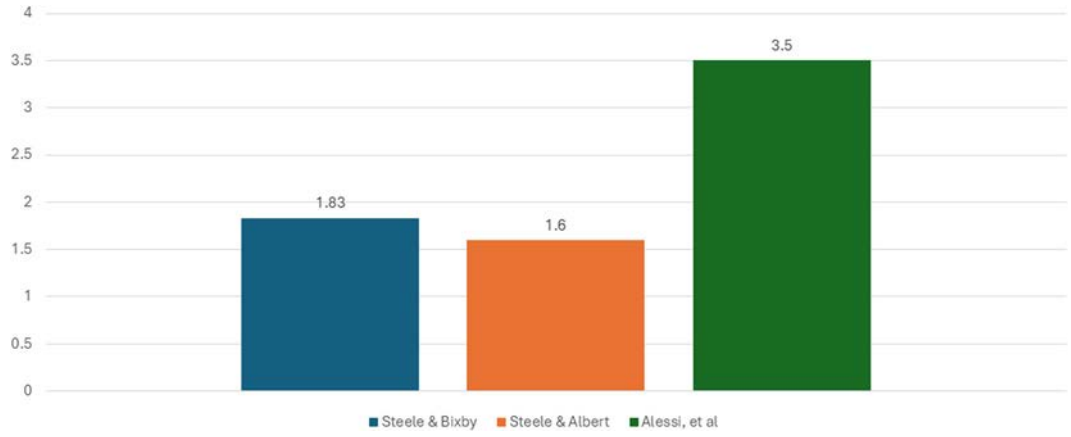

Figure 1. Average number of enteral nutrition errors prevented per day through use of barcode scanning

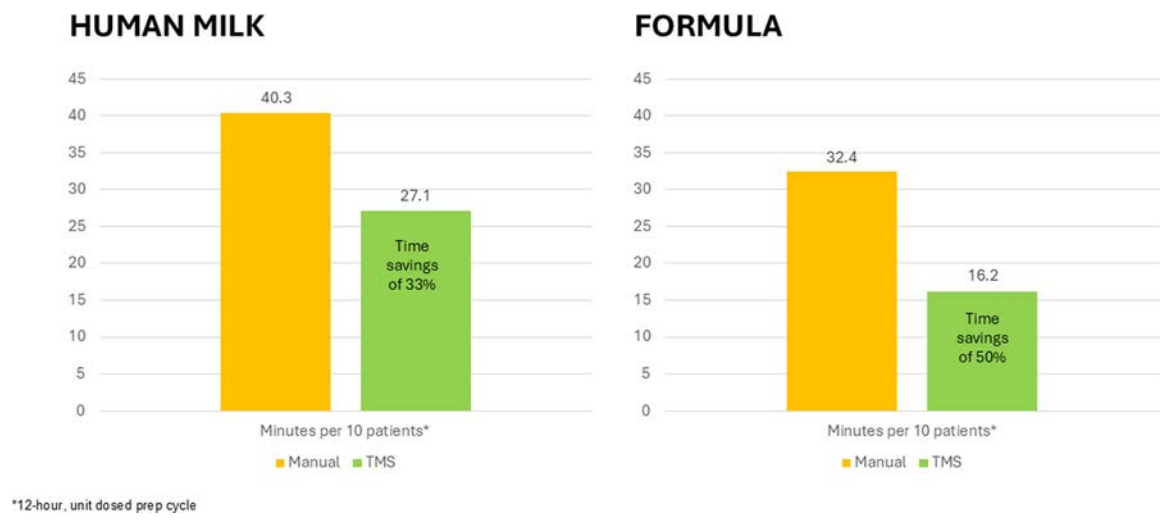

Figure 2. Minutes required for manual verification and documentation tasks vs barcode scanning

P45 - Fitting the Future: Gastrojejunostomy (GJ) Tube Lengths for Pediatric Patients

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Encore Poster

Previous Presentation: North American Society of Pediatric Gastroenterology, Hepatology and Nutrition (NASPGHAN), November 2025, Chicago, IL.
Previous Publication: Hager M; Alexander E; Steien D, et al. Fitting the Future: Gastrojejunostomy (GJ) Tube Lengths for Pediatric Patients. Journal of Pediatric Gastroenterology and Nutrition. 2025;6(suppl 2).

Financial Support: None Reported.

Background: Gastrojejunostomy tubes (GJ) provide nutrition to children who are intolerant of gastric feedings. When a new GJ is placed or replaced, the size of the GJ tube must be decided. This includes the jejunal limb (J-limb) length. Available J-limb lengths include: 10 cm, 15 cm, 22 cm, 30 cm, and 45 cm. Although GJ tubes are commonly used in pediatrics, there are no guidelines for choosing the J-limb length. It has been hypothesized that J-limb lengths that are too short or too long may increase the risk of complications, such as coiling, clogging, breakage, malfunction, or dislodgement. In addition, most GJ placements in children require sedation and radiation, creating additional risks and increasing healthcare utilization and costs.

Methods: This was a retrospective study completed at Mayo Clinic Children's in children ages 0-19 years old who underwent GJ placement or replacement from 2018 to 2024. Demographic data, anthropometric data, J-limb length and reason for GJ placement or replacement were recorded. Linear regression models were performed to determine the relationship between J-limb length and patients' heights and weights. T-tests were performed for each J-limb length to evaluate the occurrence of complications based on patients' heights and weights. T-tests were also performed to compare anthropometrics of individuals who experienced GJ complications versus those who did not, for each J-limb length.

Results: 96 patients, ages 6 months to 19 years of age had 367 GJ tubes placed. GJ tubes were placed by 3 divisions: interventional radiology, pediatric surgery, and pediatric gastroenterology. 62 (17%) were initial GJ placements and 305 (83%) were replacements. Of the 305 replacements, 193 (63%) were scheduled while 109 (36%) were done related to complications. It was found that children's heights and weights correlated to the chosen J-limb length ($R2 = 0.9586$, $R2 = 0.9983$). The 30 cm J-limb length was the most commonly used (158, 43%). Children who experienced complications with the 30 cm J-limb had lower heights, compared to those who did not have complications ($p = 0.096$).

Conclusion: J-limb lengths impact GJ complications rates in pediatric patients. Children's heights and/or weights should likely be used to help determine the J-limb length when GJ tubes are needed. Creating standard guidelines for choosing the J-limb length, for each individual child, would streamline care practices. Undoubtedly, this would improve efficiency and consistency among medical providers. It would also likely decrease GJ tube complication rates, which would improve patient satisfaction, reduce healthcare costs, and utilization.

P46 - Adequate of Rate-Based Feeding (RBF) in Medical Intensive Care Unit (ICU) - A Retrospective Quality Improvement (QI) Study

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Financial Support: None Reported.

Background: Critically ill patients in the intensive care unit (ICU) are at high risk for malnutrition due to hypermetabolism and frequent feeding interruptions when receiving rate-based feeding (RBF). Current guidelines recommend initiating enteral nutrition within 24–48 hours of ICU admission and achieving ≥ 80% of energy and protein goals within the first week, yet many patients fail to meet these targets under RBF protocols. This study aimed to evaluate the adequacy of RBF–delivered enteral intake in a single-center medical ICU and to identify patient characteristics associated with meeting prescribed goals.

Methods: In this retrospective quality improvement study, medical records of adult ICU patients who received enteral nutrition for at least five consecutive days between January 1 and December 31, 2023, were reviewed. Actual daily enteral volume (mL/day) and protein intake (g/day) beginning 48 hours after feeding initiation were compared to dietitian-prescribed goals to calculate the percentage of target delivered. Patients were stratified into those receiving ≥80% versus < 80% of prescribed intake. Demographic (age, sex, body mass index), clinical (ICU length of stay, days ventilated, malnutrition diagnosis), and timing variables (tube feeding initiation within 48 hours) were compared between groups.

Results: Of 100 patients meeting inclusion criteria, 19 (19%) achieved ≥ 80% of prescribed enteral intake and 81 (81%) received < 80%. There were no significant differences between intake groups in age (mean age 65 vs. 63 years, p = 0.541), body mass index (mean 25.6 vs. 26.8 kg/m², p = 0.53), ICU length of stay (median 13.9 vs. 14.5 days, p = 0.745), or days ventilated (median 4.5 each, p = 0.86). All patients in the ≥ 80 % group initiated feeding within 48 hours compared with 73 % of the < 80 % group (p = 0.024). Since most patients fell into < 80% intake group, we further divided the data into categories of ≥ 80% and ≥ 60% to examine for trends. No statistically significant differences were observed between the ≥ 80% and ≥ 60% groups in age (mean 65 years each, p = 0.87), body mass index (mean 25.6 vs. 25.4 kg/m², p = 0.81), ICU length of stay (median 13.9 vs. 13.8 days, p = 0.83), or days ventilated (median 4.5 vs. 4.4 days, p = 0.64). All patients in the ≥ 80% group received tube feeding within 48 hours, compared to 95% in the ≥ 60% group (p = 0.30). Feeding interruptions were most commonly due to procedures, hemodynamic instability, and imaging. Overall, 81% of patients failed to reach the goal of ≥ 80% intake under the RBF protocol.

Conclusion: Under the current RBF protocol, most medical ICU patients did not meet recommended enteral nutrition targets. Early initiation of tube feeding and frequent interruptions contributed to caloric and protein deficits, potentially prolonging ICU stay and increasing risk of malnutrition-related complications. Implementation of a volume-based feeding protocol should be considered to improve nutrient delivery and align with guideline-driven goals. Prospective studies are warranted to evaluate volume-based feeding's impact on clinical outcomes.

P47 - Strengthening RDN Practice in EN/PN: Results of a Six-Session Applied Course

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Financial Support: None Reported.

Background: Nutrition support is a core competency for Registered Dietitian Nutritionists (RDNs), yet reported barriers such as: limited training, variable privileges, and skill decay can impede expert level practice. We developed and evaluated a 6-session Applied Nutrition Support Course to strengthen practical competencies in enteral (EN) and parenteral (PN) nutrition among clinically practicing RDNs in a multi-hospital system.

Methods: This pre-post evaluation included all enrollees (n = 86) with completer analyses for participants with paired pre- and post-tests (n=59). Sessions (60–90 minutes) emphasized mid-level overviews, clinical decision-making, individualized plans, and care transitions and were approved by CDR for 8 CPEUs. Outcomes were knowledge (multiple-choice test) and self-reported comfort (5-level Likert). Subgroups: experience (< 5 vs. ≥ 5 years) and practice area (Acute Care vs. Other). Nonparametric tests were used: Wilcoxon signed-rank for paired change (rank-biserial r), Mann–Whitney for between-group differences in change (Cliff's δ, 95% CI), and Kruskal–Wallis with $\eta^2(H)$ for facility-type comparisons. Stuart–Maxwell tested marginal homogeneity for Likert shifts (two-sided α = 0.05). Analyses used R (v2025.05.1) with RStudio (v2025.05.1).

Results: The series was completed by 54 of 86 enrollees (62.8%). Among participants with paired tests (n = 59), knowledge improved in both experience strata: < 5 years 8.77 ± 2.60 → 13.23 ± 1.57 (Wilcoxon p < 0.001; r = 0.868) and ≥ 5 years 10.05±2.26 → 13.36 ± 1.59 (p < 0.001; r = 0.859), as demonstrated in Table 1. Improvement magnitudes did not differ by experience (W = 294, p = 0.222; Cliff's δ=0.215, 95% CI −0.135 to 0.517). Table 2 demonstrates change in test score by practice area. Acute Care increased 9.47 ± 2.44 → 13.42 ± 1.66 (+41.6%, p < 0.001); Other increased 9.12 ± 2.85 → 12.75 ± 0.89 (+39.7%, p = 0.036). Facility-type differences in pre, post, and Δ scores were non-significant (Kruskal–Wallis p = 0.397, 0.196, 0.478; $\eta^2(H)$ ≈ 0.00–0.03). Comfort shifted toward "Very comfortable" across EN/PN domains (Stuart–Maxwell p < 0.001 for each item).

Conclusion: A brief, structured course was associated with large knowledge gains (r ≈ 0.86) and marked improvements in comfort across settings, with no differential effects by experience or facility type. Despite the nonrandomized design and immediate post-testing, findings support scalability. Future work should assess retention and alternate delivery models.

Table 1. Change in test scores for participants who completed the full series by years of experience

Completed Series	Pretest Score	Post test Score	p-value	Effect Size
All Participants (n=44)	9.41 ± 2.49	13.30 ± 1.56	0.7492	0.861
<5 years' experience (n=22)	8.77 ± 2.60	13.23 ± 1.57	<0.001	0.868
≥5 years' Experience (n=22)	10.05 ± 2.26	13.36 ± 1.59	<0.001	0.859

Table 2. Change in test scores for participants who completed the full series by practice area

Practice area	N=42 (pairs)	Pretest Score (mean ± SD)	Post test Score (mean ± SD)	% Change in score	p-value (Wilcoxon)
Acute Care	36	9.47 ± 2.44	13.42 ± 1.66	41.6%	<0.001
Other*	8	9.12 ± 2.85	12.75 ± 0.89	39.7%	0.036

*Includes those working in Long term care, behavioral health, outpatient counseling.

P48 - Flow Characteristics of Elastomeric and Peristaltic Enteral Pumps Under Pressurized Conditions: Implications for Enteral Nutrition Intolerance

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Financial Support: None Reported.

Background: Enteral nutrition intolerance (ENI), characterized by symptoms such as nausea, vomiting, and high gastric residuals, is a prevalent complication among patients receiving tube feeding and is associated with suboptimal nutrient delivery and poorer clinical outcomes. Early market feedback indicates use of elastomeric pumps is associated with self-reported improvements in ENI symptoms, compared to previous delivery systems, while using the same nutritional formula. While formula composition and patient pathology are established contributors to ENI, the influence of enteral delivery system mechanics, particularly flow rate profiles and their response to intragastric pressure remains underexplored.

Methods: The aim of this study was to evaluate the flow profile of two enteral feeding devices under standard, controlled conditions (baseline), and under increasingly pressurized conditions. Mobility+®, a novel elastomeric enteral pump system, consists of a feeding pouch (reservoir for 500 mL formula) and one of four available giving-sets, all different lengths, which allows for enteral nutrition delivery at varying flow rates. Twelve elastomeric pumps, three from each of the four available giving set lengths, were tested to establish baseline flow rates and assess the impact of back pressure on flow performance. The second device studied, a commercially available peristaltic pump, was evaluated in six baseline trials, followed by six additional trials under pressurized conditions, all at a set flow rate of 400 mL/hr. All devices were operated according to manufacturers' instructions, using water as a standardized test fluid to control for viscosity effects. The water was collected in a reservoir placed on a balance that recorded pump output. For pressurized testing, each system was connected to a sealed reservoir to allow pressure build up during water delivery. Flow and pressure data were collected and compared to baseline measurements to determine the impact of back pressure on system. The flow rate data for the peristaltic pump was smoothed for clearer visual representation.

Results: The elastomeric pump delivered a continuous flow driven by elastomeric potential energy (Fig. 1), but flow rate declined as back pressure increased, stopping completely at around 2 PSI (Fig. 2). The smoothed baseline flow rate of the peristaltic pump is presented in

Figure 3. In contrast to the elastomeric pump flow under pressure, the peristaltic pump maintained a steady flow despite rising back pressure, sustaining flow at pressures of over 10 PSI (Fig. 4).

Conclusion: Both enteral delivery systems showed distinct mechanical responses to back pressure, with potential implications for feeding tolerance. The elastomeric pump's pressure-responsive flow reduction may be beneficial to patients with high sensitivity to gas or volume build-up in their digestive system. In contrast, the peristaltic pump maintained flow despite high back pressures, which may affect gastric wall tension and tolerance. These mechanical differences may help explain the higher self-reported tolerability of the elastomeric pump noted in market feedback, as its pressure-adaptive profile could contribute to improved comfort in patients prone to ENI symptoms. These findings suggest that delivery mechanics, not just formula composition, may influence ENI. Further clinical research is needed to assess how these differences impact patient outcomes in real-world settings.

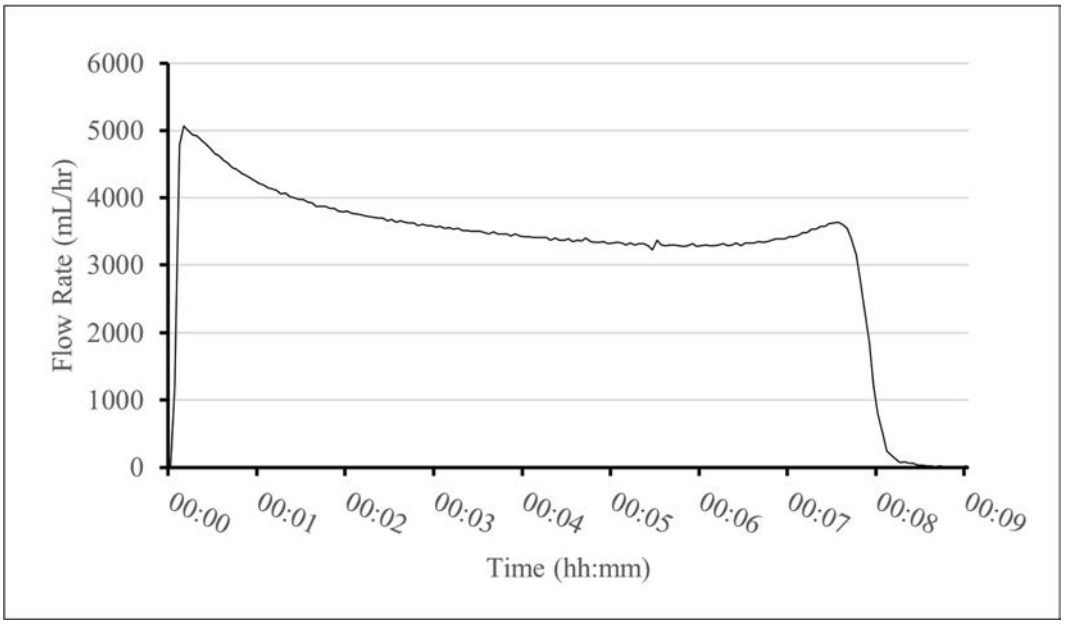

Figure 1. Flow rate profiles of the elastomeric pump under baseline conditions

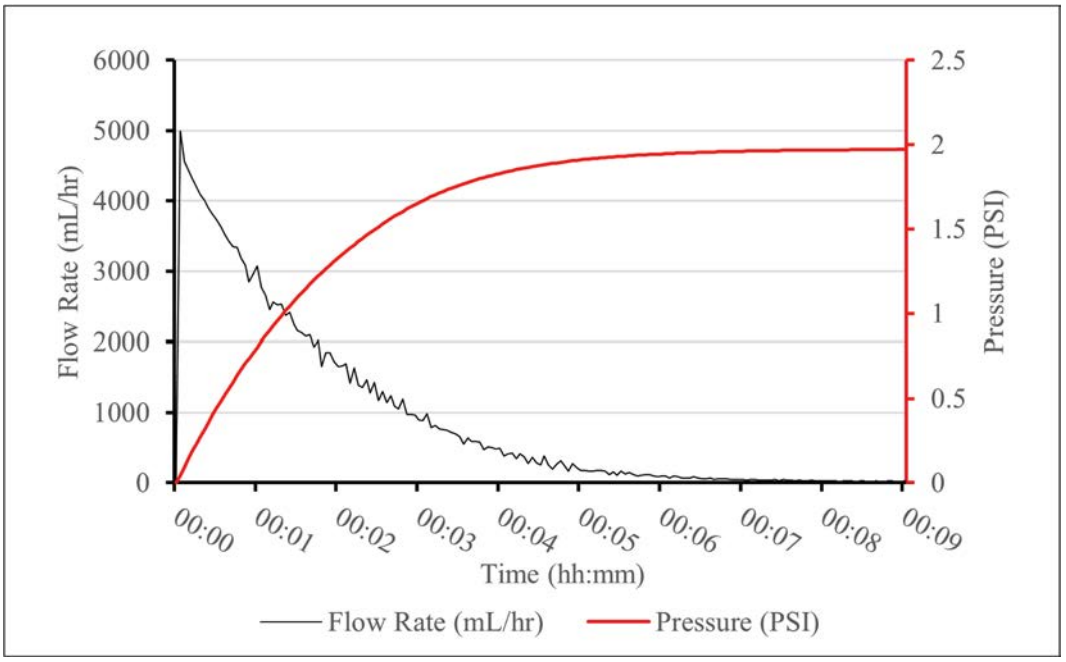

Figure 2. Flow rate profiles of the elastomeric pump under pressurized conditions

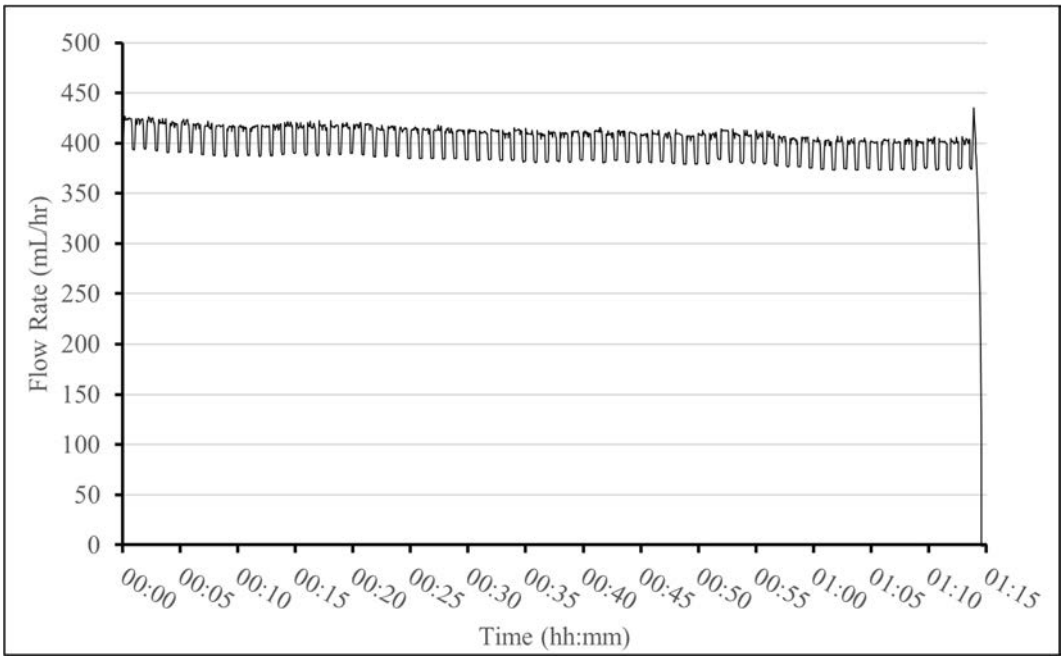

Figure 3. Smoothed flow rate of the peristaltic pump under baseline conditions

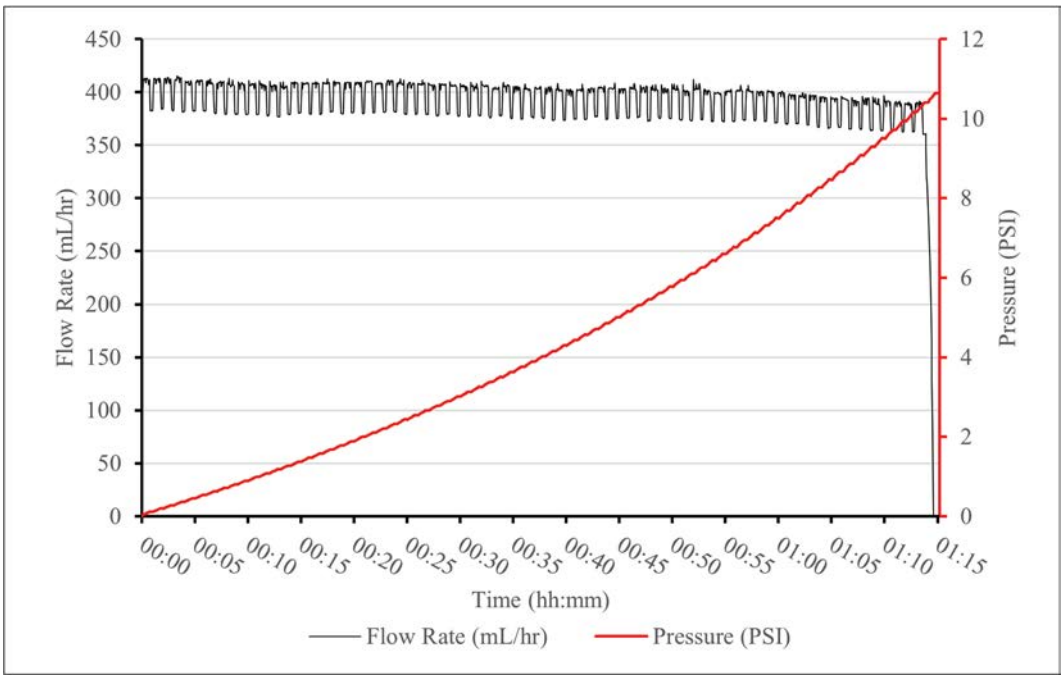

Figure 4. Smoothed flow rate of the peristaltic pump under pressurized conditions

P49 - Blended Meals for Tube Feeding: A Recipe for Improved Clinical and Caregiver Outcomes

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[1]The Resource Exchange, Colorado Springs, Colorado; [2]GI for Kids, PLLC, Knoxville, Tennessee; [3]Blended Tube Feeding (TM), Grandville, Michigan; [4]Sharon Weston Nutrition, Ipswich, Massachusetts; [5]Nutricia North America, White Plains, New York; [6]Nutricia North America, Rockville, Maryland

Financial Support: Research received funding from Nutricia North America.

Background: Interest in Blenderized Tube Feeding (BTF) is increasing. Patients or caregivers may opt for BTF to foster social inclusion, exercise control over food choices, or experience a nurturing approach to nutrition. Clinically, BTF is chosen to help decrease common gastrointestinal (GI) symptoms linked to intolerance of polymeric formulas, such as reflux, gagging, and retching. ASPEN is committed to enhancing quality of life and outcomes of patients reliant on nutrition care both across the United States and globally. Purpose of this study was to evaluate patient and caregiver experience using commercial blended meals (CBM) in tube-fed individuals over a period of one month. We assessed overall satisfaction with their feeding plan, impact on GI symptoms, quality of life, and satiety at baseline versus one month.

Methods: This prospective, single-arm, open-label study included 31 individuals aged 1 to 24 years who met inclusion and exclusion criteria. Inclusion criteria included tube-fed male and female adults and children. Participants were either tube fed BTF and/or other formula or not yet started. They had the ability to comply with the study protocol. Exclusion criteria included infants, pregnant women and individuals allergic to any of the study product ingredients. Participants were provided with CBM for a month and managed by Registered Dietitians (RDs). Baseline and 1-month surveys were completed by RDs and caregivers (or participants). Study products included a variety of eight CBM comprised of 100% real food made from simple ingredients (Real Food Blends, White Plains, NY). Ten participants were placed in Phase 1, which included two new calorically dense, high-protein meals (1.6 Cal/mL and 16-17g protein). Twenty-one participants were placed in Phase 2, which included a variety of up to six updated blenderized meals (1-3-1.4 Cal/mL and 8-14g protein). Patients' tube feeding plans varied, from relying entirely on BTF to supplementing their conventional formula with BTF.

Results: Thirty-four participants were recruited. Three patients dropped out. Overall sample size (N) for analysis was 31. The study had a limited sample size, but sufficient statistical measures and adjustments were made to ascertain significance. Effect sizes and confidence intervals were reported where applicable (see Tables 1 & 2). GI Symptoms at 1-month versus baseline were significantly reduced based on RD ($p = 0.022$) and Caregiver ($p = 0.039$) reports. Caregiver-reported hunger in patients significantly decreased at 1 month compared to baseline ($p = 0.0214$). Additionally, caregiver-reported quality of life ($p = 0.0006$) and satisfaction with the feeding plan ($p < 0.0001$) both showed significant improvement, alongside clinician-reported tolerance ($p < 0.0001$).

Conclusion: After incorporating a variety of commercial blended meals into their tube feeding regimen, patients experienced fewer gastrointestinal symptoms and reduced hunger, along with an improved quality of life compared to their baseline feeding plan. Caregivers also reported greater satisfaction with the updated feeding approach. The most notable improvements were observed in quality of life, clinician-reported tolerance, and caregiver satisfaction.

Table 1. Presence of GI symptoms (1) at baseline vs. 1 month

Caregiver Response		GI Symptoms Present- 1 month		
		No	**Yes**	**Total**
GI Symptoms Present- Baseline	**No**	2	2	**4**
	Yes	10	15	**25**
	Total	**12**	**17**	**29**
		McNemar's Exact p-value:		0.039
		Odds Ratio (CI)		5.0 (1.10-22.82)
Clinician Response		GI Symptoms Present- 1 month		
		No	**Yes**	**Total**
GI Symptoms Present- Baseline	**No**	5	2	**7**
	Yes	11	12	**23**
	Total	**16**	**14**	**30**
		McNemar's Exact p-value:		0.022
		Odds Ratio (CI)		7 (1.59-30.80)

GI Symptoms included gagging/retching, nausea & vomiting, bowel irregularity and reflux.

Table 2. Wilcoxon signed-rank test results for tolerance, satiety, QoL, satisfaction-all patients

Parameter	Baseline Median (IQR)	1 Month Median (IQR)	Test Stat* p-value	Effect size
Tolerance-Caregiver, n=31 [1]	4 (4-5)	5 (4.33-5)	71.5 0.0053	0.51, medium
Tolerance-Clinician, n=31 [1]	4 (3-5)	5 (5-5)	146 <0.0001	0.70, large
Satiety-Hunger, n=26 [2]	2 (1-3)	1 (1-2)	-48 0.0214	0.45, medium
Satiety-Fullness, n=26 [2]	4 (3-4)	4 (3-4)	30.5 0.1326	0.29, small to medium
QoL, n= 29 [3]	7 (6-8)	9 (8-9)	94 0.0006	0.64, medium-large
Satisfaction-Caregiver, n= 29 [4]	3 (3-4)	4 (4-5)	108.5 <0.0001	0.89, large

[1] Based on a 5-point scale where 1 = Not at all and 5 = Very well [2] Based on a 5-point scale where 1 = Not (much) at all and 5 = Extremely/An extreme amount [3] Based on a 9-point scale where 1 = Very poor and 9 = Very good [4] Based on a 5-point scale where 1 = Not at all satisfied and 5 = Extremely satisfied.

P50 - Fat Malabsorption in Tube-Fed Consumers: Prevalence, Symptom Burden, and Unmet Needs From a National Survey

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Financial Support: The study was supported by Alcresta Therapeutics.

Background: Fat malabsorption is a potential complication of tube feeding that can impair nutrient absorption, cause gastrointestinal (GI) intolerance, and negatively impact quality of life (QOL). However, its prevalence, symptom patterns, and recognition among tube-fed consumers remain unclear. Objective: Evaluate awareness, prevalence, symptom characteristics, testing, diagnosis, and management of fat malabsorption among tube-fed consumers or their caregivers.

Methods: An anonymous, cross-sectional online survey was conducted in April 2025 by a third-party contractor with study support from Alcresta Therapeutics, Inc. Participants were recruited in collaboration with The Oley Foundation, a patient advocacy and support nonprofit serving the home parenteral and enteral nutrition community. Oley does not endorse or promote any specific products or services. Participants were tube-fed consumers or their caregivers. The survey addressed age, feeding profile, symptom experience, prior testing/diagnosis, and interest in education. Descriptive statistics were applied. Participants received a $25 gift card.

Results: 201 respondents completed the survey; 66% were tube-fed consumers and 34% caregivers. Mean age of tube-fed consumers was 40 years (range 1–89). Most (58%) used tube feeding continuously. Medical conditions that commonly led to tube feeding included gastroparesis, cancer, swallowing disorders, and GI issues. Symptom burden was substantial—90% of tube-fed consumers reported ≥1 symptom of fat malabsorption while on tube feeding. The most common symptoms were loose stools/diarrhea (68%), stomach pain or cramping (66%), fatigue (62%), nausea (60%), unexplained weight loss (33%), and oily/greasy stools (32%). Among symptomatic tube-fed consumers, 49% experienced symptoms daily; 86% rated them moderate to extreme; 73% had symptoms for over a year; and 42% reported significant impact on QOL. Notably, 39% had not experienced these symptoms before starting a tube-feeding regimen. Knowledge and communication gaps were evident: about half of tube-fed consumers or caregivers were unfamiliar with fat malabsorption and its symptoms. Among those with symptoms, 88% had discussed them with a healthcare provider; however, 61% reported providers did not mention fat malabsorption or tube-feeding intolerance as possible causes. Seventy percent of respondents felt only somewhat supported or not supported at all by their healthcare provider in managing symptoms. Despite the high prevalence of symptoms amongst tube-fed consumers, 72% had not been tested for and 80% had not been diagnosed with fat malabsorption. Seventy-eight percent had not used a product or supplement to help with fat digestion or absorption. About half had not discussed fat malabsorption with their healthcare provider, and among those who had, 55% were dissatisfied with the information provided about treatment options.

Conclusion: Symptoms of fat malabsorption affect most tube-fed consumers, are often frequent and long-standing, and significantly impact QOL. Many tube-fed consumers did not have symptoms prior to tube feeding, suggesting a possible therapy-related cause. Despite this, fat malabsorption is rarely tested for or diagnosed, and most tube-fed consumers are unaware of management strategies. The combination of high symptom prevalence, prolonged duration, and low diagnostic rates highlights an urgent need for better recognition, routine assessment, and educational resources for tube-fed consumers and healthcare providers to optimize tube-feeding tolerance and nutritional outcomes.

P51 - Advancing Patient-Centered Care: Opportunities to Bridge Education and Practice in Home Enteral Nutrition

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Financial Support: None Reported.

Background: Ensuring patients and caregivers receive adequate education for initiation of home enteral nutrition (HEN) is critical for safety, adherence, and outcomes. The ASPEN Standards for Nutrition Support emphasize the role of registered dietitian nutritionists (RDNs) in this process. However, gaps may exist between what RDNs are trained to provide, their confidence levels in providing care, and the actual education patients and caregiver report receiving.

Methods: Surveys were distributed to three groups: (1) dietetic internship (DI) program directors, (2) acute care RDNs, and (3) patients and caregivers managing HEN. Survey questions assessed key competencies that aligned with ASPEN standards, including flushing of feeding tubes, medication administration, feeding schedules, and safe formula handling and storage. The survey measured: (1) whether these competencies were taught during dietetic internships, (2) RDN confidence, defined as self-reported knowledge and comfort level (moderate or higher) with specific enteral nutrition competencies, and (3) whether patients recalled receiving education at HEN initiation. Responses were analyzed to identify discrepancies among the three groups.

Results: Discrepancies were found between training, RDN confidence, and patient-reported education (see Table 1). While most DI programs covered topics such as flushing of feeding tubes (75%) and adjusting patients feeding schedules (70%), fewer taught medication administration (57%) or safe formula storage (45%). RDNs reported high confidence in areas like feeding schedules (97%), formula hang time (94%), and tube flushing (90%). However, patients and caregivers reported significantly lower rates of receiving education on the topics the RDNs were most confident in, 39% for safe formula handling and storage and only 25% for EN feeding schedules. This last category, despite being the area of the highest RDN confidence—was reported as the lowest in terms of patient education received. This suggests a disconnect between RDN confidence and patient-centered care and may lead to non-compliance in HEN in the home setting. This survey also investigated who provided the instruction to patients or caregivers. Most education came from nursing staff, not RDN's. The only exception was feeding schedule/lifestyle, which was primarily taught by RDN's, but again this was the competency that patient and caregivers reported as the least frequently taught.

Conclusion: Survey results highlight significant gaps between RDN's confidence in essential HEN skills and what patients and caregivers recall receiving instruction on during initiation of HEN. While RDNs report high confidence, particularly in lifestyle-related feeding education, patient feedback reveals this area is underserved. Additionally, the reliance on nursing staff for most education suggests a missed opportunity for RDN's to lead critical aspects of HEN teaching. Addressing these inconsistencies may improve patient outcomes and better align practice with ASPEN standards, and lead to more opportunities for the RDN's in the home nutrition support space.

Table 1. Teaching vs. confidence level vs. patient experience of essential enteral nutrition techniques

	Skills taught during dietetic internship	RDN Confidence levelwith skill	Patient received education	Discipline majority of patient education
Medication Administration	57%	57%	52%	Hospital RN
Care of enteral access device/site care	62%	60%	59%	Hospital RN
Flushing feeding tube	75%	90%	77%	Hospial RN
Formula hang time	75%	94%	39%	Hospital RN
Safe storage of formula	45%	76%	39%	Hospital RN
EN feeding schedule for home/lifestyle	70%	97%	25%	Hospital RDN

P52 - Impact of Practice Improvement on Enteral Nutrition Initiation Post-Gastrostomy Tube Placement at an Academic Medical Center

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Financial Support: None Reported.

Background: Literature and evidence-based guidelines support safe initiation of enteral nutrition (EN) within 4 hours post-gastrostomy tube placement, with no increase in complications and with enhanced delivery of nutrition. Despite this, common practice of delayed EN for 12 to more than 24 hours post-placement has persisted. Patients in need of long-term EN are already at higher nutrition risk and delays in adequate nutrition delivery can lead to further nutrition deficits. Such deficits may be associated with negative outcomes, including longer length of stay (LOS), increased readmission rates, and greater morbidity and mortality.

Methods: An opportunity was identified at an academic medical center to shorten the time frame from gastrostomy tube placement, both percutaneous and surgical, to EN initiation and to achievement of goal rate infusion. Two medical service lines with the highest volume of gastrostomy tube placements were identified. In Phase 1 of the intervention, physician leaders within these service lines were engaged to champion practice change, including creation of an order set and education. Target time to initiation was 8 hours post tube placement, and to goal rate was 36 hours post placement. Phase 2 of the intervention involved expanded outreach to engage providers in all service lines who place gastrostomy tubes, further monitoring, and more targeted outreach to dietitians and nurses. Exclusion criteria included nasoenteral, gastro-jejunostomy, and jejunostomy tube placements. Gastrostomy tube placements performed for venting, during lengthy surgeries, or for other high-complexity cases were excluded. Service line champions assisted with case reviews to determine inclusion.

Results: A total of 163 admissions were evaluated in the baseline group (March 2019-February 2020), while 196 were evaluated in Phase 1 (April 2022-March 2023) and 199 in Phase 2 (April 2023-March 2024). There were no significant differences in age, sex, race, or ethnicity among the groups (Table 1). The proportion of patients who began EN within 8 hours of gastrostomy tube placement was significantly higher in Phase 2 than baseline (69.3% vs. 6.1%; $p < 0.001$). The proportion of patients who reached their goal EN rate within 36 hours of gastrostomy tube placement was significantly higher in Phase 2 than baseline (54.3% vs. 16.0%; $p < 0.001$). The median LOS index (actual LOS divided by expected LOS as determined by external data modeling) was significantly lower in Phase 2 than baseline (0.8182 vs. 1.1799; $p = 0.001$). The proportion of patients who were readmitted within 30 days of discharge was significantly higher in Phase 2 than in baseline (11.7% vs. 8.5%; $p = 0.034$).

Conclusion: As anticipated, time to start EN and to goal rate post-tube placement were significantly improved in Phase 2 over baseline. Early EN was associated with reduced LOS. No significant differences in mortality were observed. Though readmission within 30 days was significantly higher in the Phase 2 group, it is unclear whether this is related to additional factors, such as higher acuity patients in this group, rather than a result of early EN. Further investigation is needed to determine the impact of change in practice to readmission rates.

Table 1. Characteristics of gastrostomy tube placement admissions during baseline and two phases of intervention

	Baseline (n=163)	Phase 1 (n=196)	Phase 2 (n=199)
Age, years	64.38 ± 6.46	55.00 ± 25.60	67.46 ± 16.76
Sex, male/female	45.4/54.6	38.8/61.2	40.2/59.8
Race			
Unknown/declined to state	3.1	2.6	1.5
Asian	12.9	10.7	16.6
Black	4.9	6.1	4.5
White	44.8	45.9	31.7
Other	34.4	34.7	45.7
Ethnicity			
Unknown	4.3	1.5	3.0
Hispanic origin	25.2	23.0	25.6
Non-Hispanic origin	70.6	75.5	71.4
EN started within 8 hours of placement	6.1	22.4	69.3
EN to goal rate within 36 hours of placement	16.0	25.0	54.3
Expired in hospital	6.1	5.6	5.5
Readmitted within 30 days	8.5	4.3	11.7

EN = enteral nutrition. Categorical variables are represented as percentage (%). Continuous variables are represented as mean ± standard deviation, or median (interquartile range).

P53 - Apples to Osmoles? Differences in Osmolality Reporting for Enteral Formulas and Implications for Clinical Interpretation

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Financial Support: Financial support provided by Nestle Health Science.

Background: Osmolality, the concentration of free particles in solution, is a commonly reported characteristic of enteral nutrition (EN), with typical values between 280-875 mOsm/kg H_2O. Components that increase osmolality include electrolytes, hydrolyzed proteins and carbohydrates, including from fruit and vegetable ingredients. Despite the perception that hypertonic EN (i.e., > 320 mOsm/kg H_2O) contributes to gastrointestinal (GI) intolerance symptoms, existing literature, GI physiology and clinical experience do not support that higher EN osmolality alone causes diarrhea. Nevertheless, clinicians often utilize reported osmolality as one criterion when choosing EN, particularly for patients transitioning to peptide formulas with previous intolerance to standard EN. However, use of different analytical methodologies and reporting practices may limit clinical relevance and utility of osmolality comparisons. Discrepancies between claimed and measured osmolality have been reported for other nutrition categories, including commercial oral rehydration solutions. This study aimed to compare osmolality of common pediatric and adult EN formulas using standard methodologies to assess variability across formulas with different ingredients, caloric densities, and manufacturers.

Methods: Nine commercially available pediatric and adult plant-based peptide-based (PBP) formulas were identified, including four with fruit and vegetable ingredients (FV-PBP, Compleat® Peptide formulas, Nestlé HealthCare Nutrition, US) and five without (W-PBP, Kate Farms® Peptide formulas, Kate Farms Inc, US). Measured osmolality was determined using vapor pressure osmometry. This technique is recommended for products with osmolality of 100-3,000 mOsm/kg H_2O and/or increased viscosity and has been adopted as an industry standard for medical foods in other countries. Samples were tested in triplicate with averages compared to osmolality values published on manufacturer websites. While not standard practice, samples diluted 1:1 with a 200 mOsm/kg H_2O NaCl solution were also measured to assess impact of formula dilution, based on prior reporting.

Results: Average measured osmolality was higher than manufacturer-reported osmolality for all formulas (Table 1). For FV-PBP, measured osmolality was 0.08-2.4% higher than reported for pediatric and 4-4.7% higher for adult formulas. For W-PBP, measured osmolality was 109-163% higher than reported for pediatric and 52-100% higher for adult formulas. Use of diluted osmolality increased variability vs. reported values for FV-PBP but decreased variability for W-PBP to 32-49.3% for pediatric and -1.8 to +9.8% for adult formulas. Differences in measured vs. published osmolality were greater for products with higher caloric density.

Conclusion: Notable differences were observed for W-PBP, with measured osmolality more than two times higher than published in three of five samples. Although minor discrepancies may be expected due to analytical variability, formula homogeneity, storage conditions, and changes that may occur over shelf-life, differences of 200 to > 400 mOsm/kg H_2O would not be expected. While formula dilution is not standard practice, use of diluted osmolality reduced variability vs. published values for W-PBP but did not fully explain the differences. For FV-PBP, measured average osmolality compared to published osmolality was within 5% for all formulas, suggesting good agreement between values. This analysis underscores the need for adoption of a standardized methodology to enable meaningful comparisons of osmolality values across EN formulas. Clinicians should be aware of these differences when evaluating, interpreting, and applying formula osmolality to clinical practice.

Table 1. Comparison of published osmolality to measured and diluted osmolality

		Published Osmolality (mOsm/kg H_2O)	Measured Osmolality (mOsm/kg H_2O), Average [range]	% Difference between Published and Average Osmolality	Diluted Osmolality (mOsm/kg H_2O), Average [range]	% Difference between Published and Diluted Osmolality
Pediatric Formulas	FV-PBP, Pediatric 1.0 (vegetable and fruit-medley)	480	484 [483-485]	+0.08%	329 [329-329]	-31%
	FV-PBP, Pediatric 1.5 (vegetable and fruit-medley)	720	737 [734-739]	+2.4%	422 [420-424]	-41.4%
	W-PBP, Pediatric 1.0 (strawberry)	280	584 [584-584]	+109%	371 [370-372]	+32%
	W-PBP, Pediatric 1.5 (vanilla)	290	763 [760-765]	+163%	433 [432-434]	+49.3%
Adult Formulas	FV-PBP 1.0 (vegetable and fruit medley)	450	468 [468-469]	+4%	323 [321-324]	-28.2%
	FV-PBP 1.5 (vegetable and fruit medley)	720	754 [753-756]	+4.7%	421 [419-422]	-42%
	W-PBP 1.0 (plain)	380	578 [577-579]	+52%	373 [372-375]	-1.8%
	W-PBP 1.0 (vanilla)	370	634 [633-636]	+71%	393 [383-394]	+6.2%
	W-PBP 1.5 (vanilla)	460	918 [917-919]	+100%	505 [503-507]	+9.8%

P54 - Nutritional Supplementation as an Adjunct Strategy in the Recovery of Complex Wounds: A Case Series

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Financial Support: None Reported.

Background: Venous ulcers and diabetic foot wounds pose significant challenges in the care of elderly patients due to their complexity and delayed healing. Specialized oral nutritional supplementation (ONS) has emerged as an effective adjunctive strategy to support tissue repair, providing essential nutrients that enhance cellular regeneration and modulate the inflammatory response. This study aims to describe a case series involving nutritional supplementation in the treatment of diabetic foot and venous ulcers.

Methods: Descriptive case series conducted in two outpatient clinics in Brazil, involving four patients: two with diabetic foot ulcers (cases 1 and 2) and two with chronic venous ulcers (cases 3 and 4) that was supplemented with 2 sachets/day of a powder specialized ONS for wound healing (CORRECTMax®, Prodiet Medical Nutrition) Containing 10 g of hydrolyzed collagen peptides, 3 g of L-arginine, 612 mg of vitamin A, 508 mg of vitamin C, 16 mg of vitamin E, 16 mg of zinc, and 30 mcg of selenium. Case 1: Male patient, 76 years old, diabetic, with a chronic left hallux ulcer due to post-amputation pressure. Despite appropriate footwear, healing was impaired for over a year due to poor glycemic control. Wound measured 1.4×0.4×0.2 cm, without epithelialization. Treatment included PHMB cleansing, weekly low-level laser therapy, phase-specific dressings, and specialized ONS. Case 2: Male, 49, diabetic, with a 56-day lower limb ulcer and partial foot amputation (2nd–5th toes) 41 days prior. Two interconnected wounds: 9×7 cm (lateral) and 3×2 cm (hallux). Treated with 0.9% saline cleansing, PHMB-impregnated gauze, silver hydrofiber dressings (changed every 2 days), and specialized ONS. Case 3: Female, 66, with a 40-year history of chronic venous ulcer on the lower left leg. Multiple failed treatments, including six vascular surgeries. Severe pain led to loss of daily function for 15 years. At admission: three wounds (largest 5×4.5×0.4 cm), pale tissue with slough, biofilm, and macerated periwound skin. Treatment included PHMB cleansing, careful mechanical debridement, Bag O_3 (60 mcg, 20 min, 3×/week), compressive therapy, and specialized ONS. Case 4: Female, 70, hypertensive, with an 8-year chronic venous ulcer on the left leg and family history. Two wounds: 6 cm^2 (tibia) and 24 cm^2 (medial malleolus), with slough, odor, and moderate pain. Initial treatment: Unna boot, photodynamic therapy (3 J/cm^2, every 4 days). After 28 days, reduced exudate and pain, slough in 50% of area. Specialized ONS was initiated.

Results: Case 1: Epithelialization began in the first week and was completed by week 7. Edema resolved and overall patient condition improved. Case 2: After 15 days, slough reduced significantly, with epithelial growth around the hallux and wound contraction. By day 18, the hallux wound was fully healed and the dorsal lesion reduced by 89%. Case 3: Weekly progress showed granulation tissue, biofilm elimination, and epithelialization. After 8 weeks, patient reported no pain, resumed daily activities, and two wounds were nearly healed; one was fully epithelialized. Case 4: After 10 days, slough reduced, epithelialization began, pain and exudate decreased, and wound areas reduced by 50% and 37.5%. Follow-up ended due to financial constraints. All cases showed marked clinical improvement following specialized ONS, with early epithelialization, pain reduction, and wound area contraction—even in patients with long-standing ulcers and complex comorbidities.

Conclusion: The specialized ONS, when integrated into individualized wound care, was associated with accelerated healing, early epithelialization, and symptom improvement, even in patients with chronic and treatment-resistant ulcers.

P55 - A Retrospective Review of Trends in Replacing Radiologically Placed Feeding Tubes

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Financial Support: None Reported.

Background: Radiologically placed gastrostomy feeding tubes are widely used to provide durable enteral nutrition in patients with chronic or malignant disease. Although effective, these tubes are subject to complications that often necessitate replacement. Prior literature has described tube dysfunction and infection, but data remain limited regarding specific trends in tube-related complications, especially accidental dislodgement (tube fell out), which can lead to urgent replacement, patient morbidity, and increased healthcare utilization. Moreover, the potential correlation between tube caliber and the risk of such non-routine events remains poorly defined. Clarifying these associations may help guide optimal tube selection and improve clinical outcomes.

Methods: This retrospective study evaluated patients who underwent radiologic feeding tube placement in 2024. Baseline demographic and clinical characteristics, tube size, and balloon inflation volume were recorded. Outcomes of interest included the number and type of replacements, classified as routine (standard exchange) or non-routine (urgent/emergent). Replacement patterns were further compared between 16 Fr and 18 Fr tubes to assess the influence of tube size on complications.

Results: This analysis included 230 patients. The mean age of the cohort was 64.9 years, with a mean BMI of 24.7 kg/m^2; 63.5% were male. The leading indication for tube placement was malignancy (69.6%), followed by neurodegenerative disorders (20%). At initial placement, 82.2% of patients received 16 Fr tubes and 16.1% received 18 Fr tubes. Balloon inflation most commonly involved 5 mL (75.7%). A total of 363 replacements were documented, with a median of 1 per patient (IQR: 0–2). Routine exchanges accounted for 70% (n=254), while non-routine accounted for 30% (n = 109). The most common reasons for non-routine replacements included tube dislodgement/fall-out, balloon rupture or leakage, tube occlusion, and malfunction of the internal retention mechanism. Notably, tube dislodgement was the single most frequent cause, raising concerns about tube stability in smaller calibers. Among 16 Fr tubes (n = 243 replacements), 38.2% were non-routine compared to 18.9% in 18 Fr tubes (n = 111 replacements). This difference was statistically significant (p = 0.001), suggesting larger bore tubes may reduce the risk of urgent complications, particularly accidental tube loss.

Conclusion: Radiologically placed feeding tubes frequently require replacement, with nearly one-third occurring under non-routine circumstances, most commonly due to dislodgement or balloon-related failure. While malignancy remains the predominant indication for placement, tube size plays a critical role in replacement trends. The significantly lower rate of non-routine events with 18 Fr tubes highlights the potential advantage of larger bore tubes in minimizing accidental tube loss and emergent interventions. These findings underscore the need for further prospective studies to define optimal tube selection strategies and reduce preventable complications in this vulnerable patient population.

Table 1. Baseline demographics and clinical characteristics

Table 1. Baseline Demographics and Clinical Characteristics

Variables n (%); mean ± SD; median (IQR: 25th,75th)	**n=230**
Age (at initial tube placement), year	64.9 ± 13.4
BMI (at initial tube placement), kg/m^2	24.7 ± 6.6
Gender	
• Male	146 (63.5)
• Female	84 (36.5)
Underlying disease process	
• Neuro-degenerative Disease	46 (20)
• Mucosal Disease	1 (0.4)
• Short Bowel Syndrome	1 (0.4)
• Congenital/Developmental delay	5 (2.2)
• Bariatric surgery related	3 (1.3)
• Functional disorder	11 (4.8)
• Malignancy related (nature of disease, chemo/radiation related)	160 (69.6)
• Trauma/ Injury	3 (1.3)
Initial placement tube size	
• 14 Fr.	4 (1.7)
• 16 Fr.	189 (82.2)
• 18 Fr.	37 (16.1)
Initial placement balloon inflation	
• < 5mL	2 (0.9)
• 5 mL	174 (75.7)
• > 5 -- = 10 mL	23 (10)
• 10 mL	30 (13)
• Unknown/Unspecified	1 (0.4)

Table 2. Tube outcomes

Variables n (%); mean ± SD; median (IQR: 25th,75th)	n=230
Number of replacements per patient	1 (0,2)
Total number of tube replacements in this cohort	363
Trends in tube replacements (n=363)	
• Routine (standard practice)	254 (70)
• Non-routine (urgent or emergent)	109 (30)
Trends in replacements by common Fr Sizes	
16 Fr	
• Total (n)	243
• Routine (standard practice)	155 (63.8)
• Non-routine (urgent or emergent)	88 (38.2)
18 Fr	
• Total (n)	111
• Routine (standard practice)	90 (81.8)
• Non-routine (urgent or emergent)	21 (18.9)
Difference in non-routine replacements between 16 and 18 Fr tubes, p-value	0.001

P56 - Case Observation: Role of Digestive Enzyme Cartridge With Enteral Nutrition in Pancreatic Adenocarcinoma Patient

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Financial Support: None Reported.

Background: Patient with pancreatic adenocarcinoma had a gastrojejunostomy (G-J) tube placed due to chronic severe malnutrition as evidenced by significant severe weight loss and severe atrophy of muscle and fat stores globally. Patient experienced symptoms of fat malabsorption including frequent loose stools tan in color, described as the same color of enteral nutrition (EN) formula, along with significant weight loss on high calorie, high protein EN regimen. Patient experienced five hospital admissions following placement of G-J tube for malnutrition, and cancer directed treatment halted due to poor nutritional status prior to the intervention outlined below. Peptide EN formulas contain hydrolyzed proteins and forms of easily digestible carbohydrates. Absorbable forms of fats such as fatty acids and monoglycerides are unstable and spoil quickly, thus a completely elemental formula with adequate fat content is currently unavailable. Oral pancreatic enzymes may be prescribed to help patients break down fats in formulas when fat malabsorption is present but are effective for only 45-60 minutes after ingestion. Patient was prescribed oral pancreatic enzymes every 3 hours during waking hours despite being on 16-hour cyclic EN regimen.

Methods: Durable medical equipment (DME) digestive enzyme cartridge containing immobilized lipase was attached to J port of the patient's G-J tube allowing 1.5 kcal/mL peptide EN formula to pass through the cartridge and break down fat present in the formula before entering patient's gastrointestinal tract. One cartridge may be used for up to 500 mL of EN formula. Patient continued oral pancreatic enzymes with meals eaten by mouth (PO) during waking hours along with daily 16-hour cyclic overnight EN.

Results: Following the initiation of digestive enzyme cartridge, patient had 24.1% weight increase as seen in Figure 1 along with improvement in frequency and consistency of stools as monitored by inpatient and outpatient Registered Dietitians. Patient lost access to digestive enzyme cartridge early June 2025 and weight began to decline below weight of digestive enzyme cartridge intervention.

Conclusion: Patient saw immediate improvement in bowel movement frequency and consistency with the use of DME digestive enzyme cartridge along with weight gain documented following just four days of use. Patient was able to start immunotherapy treatment following weight gain. Patient experienced denial of insurance coverage for external lipase cartridge early June 2025 and subsequently experienced two

hospital readmissions for excessive weight loss within two months, despite being on EN with oral pancreatic enzyme therapy. Case observation demonstrates potential beneficial use of DME digestive enzyme cartridge in patients who experience symptoms of fat malabsorption related to exocrine pancreatic insufficiency (EPI) who use EN with/without PO intake for weight gain and improved stooling. Limitations include only one patient being observed, patient on combination of PO and EN for nutrition during period of observation, patient self-reported stooling habits, and loss of access to cartridge following insurance denial. Further research is needed to explore potential benefits in patients with symptoms of fat malabsorption with EPI who utilize EN for nutrition.

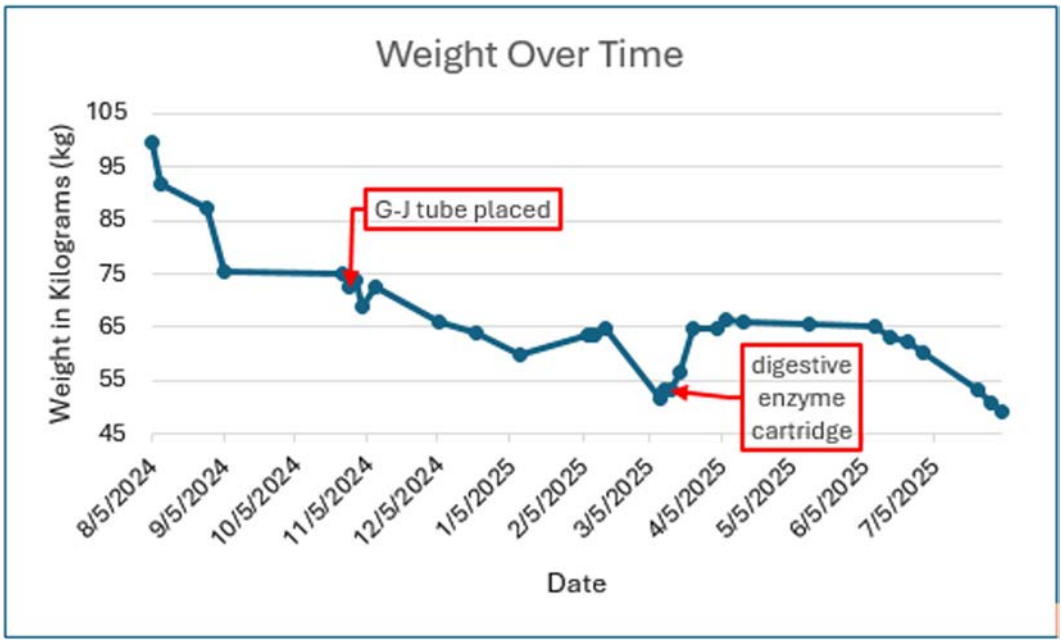

Figure 1. Patient weight over time

Placement of G-J tube 10/28/2024; initiation of digestive enzyme cartridge intervention initiated 3/11/25.

P58 - Gastrojejunostomy Tube Placement in a Patient With Large Ventral Hernia: A Surgical Solution to a Complex Nutritional Dilemma

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Financial Support: None Reported.

Background: The management of nutritional support in patients with large ventral hernias and ileostomies presents significant clinical challenges. Transitioning from long-term parenteral nutrition (PN) to enteral feeding may be complicated by anatomical factors, such as hernias, and mechanical issues with feeding tube placement. This case report highlights the complexity of managing a patient with a large ventral hernia and ileostomy, who experienced significant complications following GJ tube placement by interventional radiology.

Methods: We report the case of a 73-year-old female with morbid obesity (BMI 36), anorexia, chronic nausea, and a history of total colectomy with end-ileostomy. The patient had been on long-term home PN for 5 years due to difficulties with enteral access related to her ventral hernia and left-sided ileostomy. After recurrent central line infections and sepsis, a GJ tube was placed via interventional radiology in an attempt to transition the patient to enteral feeding. However, she developed severe abdominal pain and an inability to tolerate enteral nutrition, prompting transfer to our institution for further management.

Results: Post-GJ tube placement, the patient received elemental formula at 50 mL/hr with concurrent hydration. Despite initial attempts, she developed severe abdominal pain localized to the tube site and was unable to tolerate feedings above 30 mL/hr. Abdominal imaging revealed the GJ tube balloon positioned within the large ventral hernia, near a thin abdominal wall, contributing to the patient's symptoms (Figure 1 AND 2). A multidisciplinary decision was made to optimize nutrition with a combination of PN and enteral feeding while preparing for surgical intervention. The patient underwent a complex incarcerated ventral hernia repair, with relocation of the gastrostomy tube and insertion of absorbable mesh (Figure 2). Postoperatively, the patient tolerated long-term enteral feeding and was weaned off PN. She was discharged after a 40-day hospitalization.

Conclusion: This case underscores the challenges of managing enteral nutrition in patients with large ventral hernias and ileostomies, particularly when transitioning from long-term PN. Although initial GJ tube placement was deemed appropriate, complications arose due to the anatomical positioning of the tube within the hernia. Surgical intervention was required to resolve the issue and restore adequate enteral feeding. This case highlights the need for a multidisciplinary approach and individualized treatment strategies in managing complex nutritional needs in patients with significant abdominal pathology.

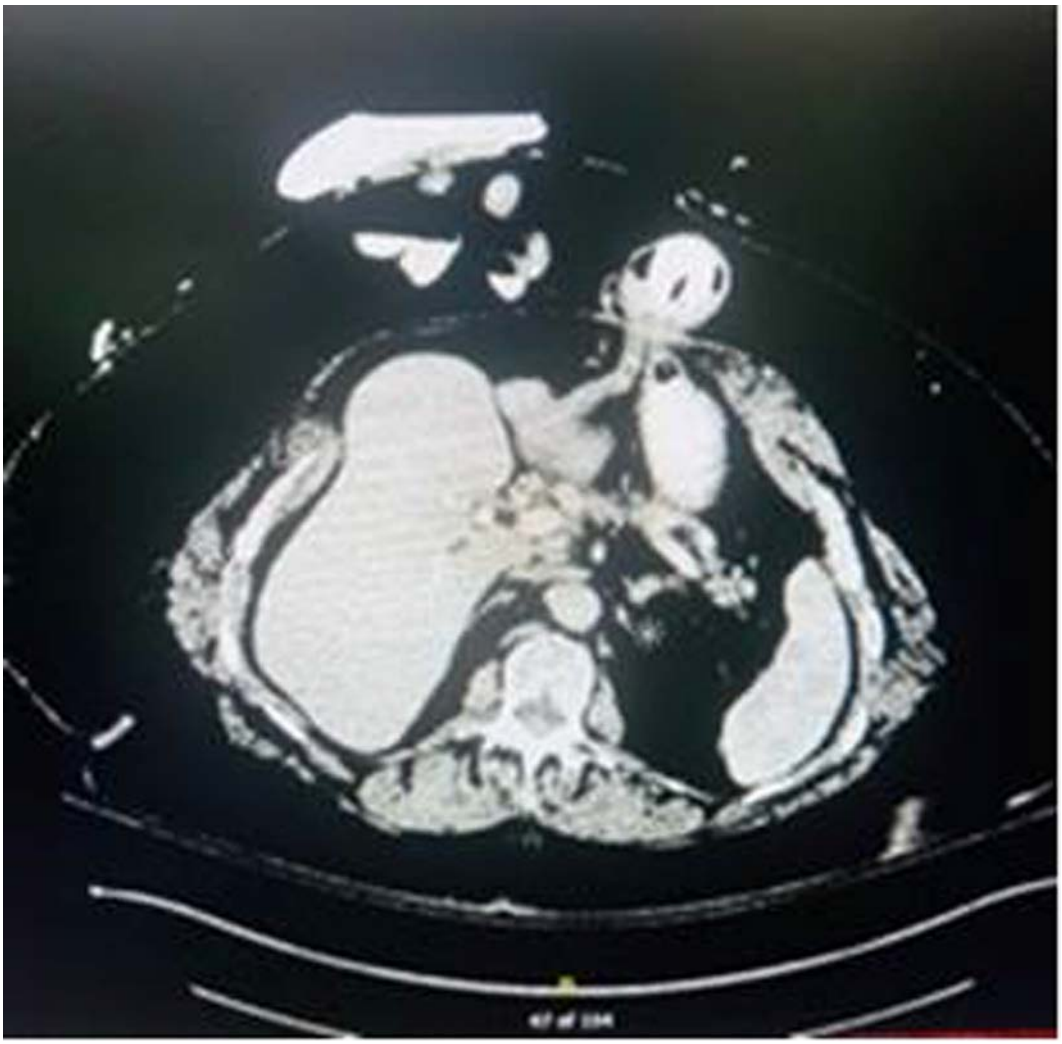

Figure 1. CT scan image showing a G-J tube with the balloon position inside the large ventral hernia

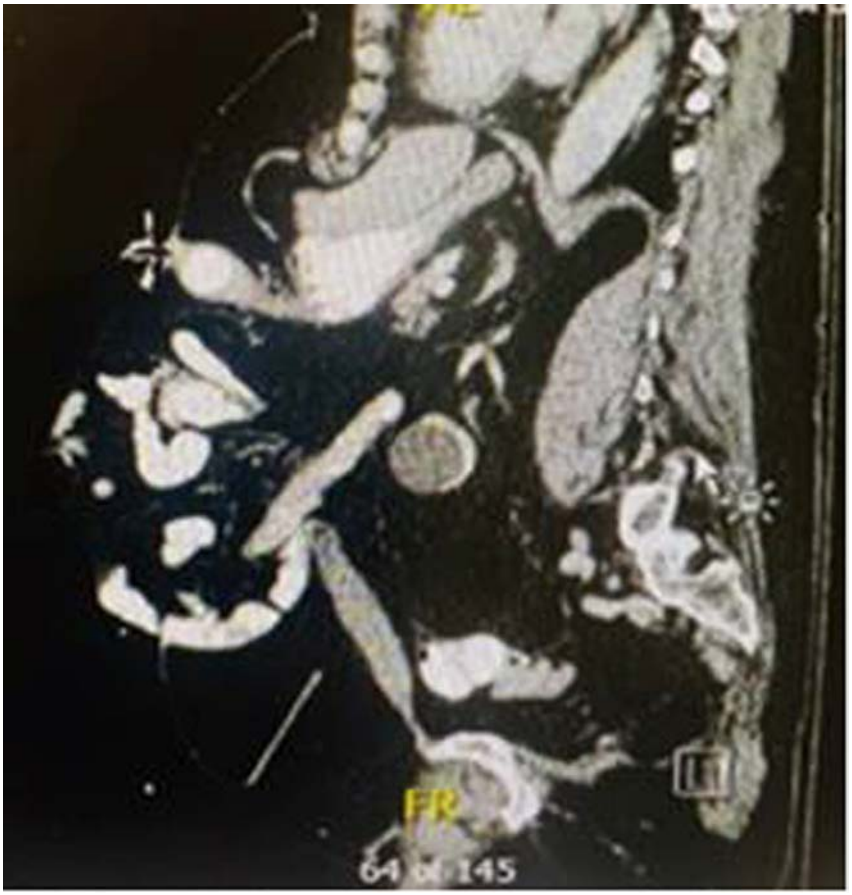

Figure 2. CT scan image showing a G-J tube with the balloon position inside the large ventral hernia

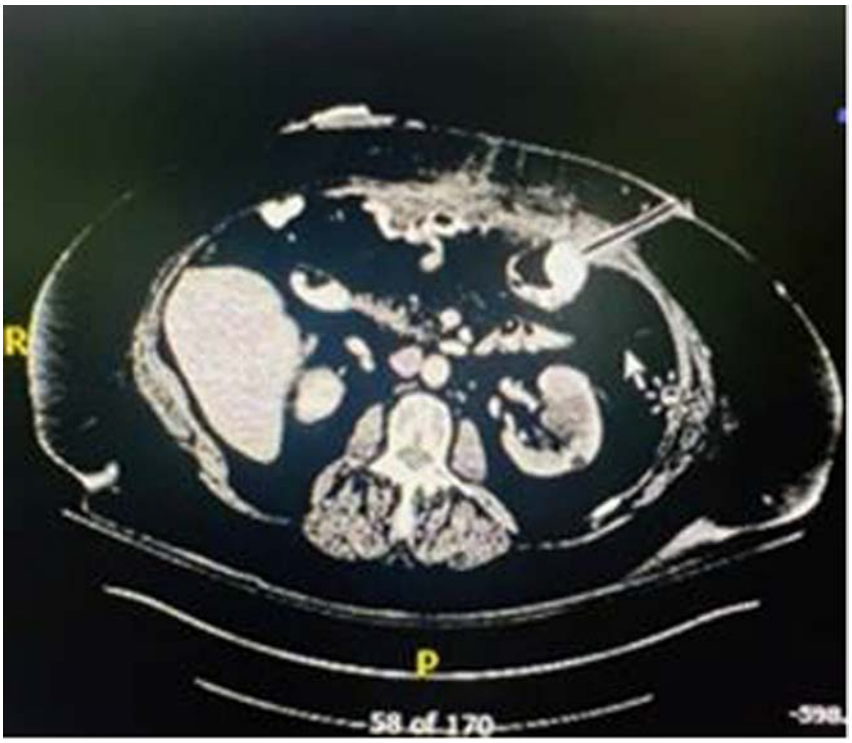

Figure 3. CT scan image with a new G-J tube position following a ventral hernia repair

Malnutrition and Nutrition Assessment

P59 - Malnutrition in Scleroderma: When the Gut Fails, Parenteral Support Becomes Essential: A Case Series

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Financial Support: None Reported.

Background: Systemic sclerosis (SS) is a rare, multisystem autoimmune disease characterized by progressive fibrosis and microvascular injury affecting the skin and internal organs. Gastrointestinal (GI) involvement is highly prevalent and often leads to significant dysmotility, nutrient malabsorption, and severe malnutrition. Despite this, standardized guidelines for nutrition support in SS are lacking, and home parenteral nutrition (HPN) is infrequently utilized or initiated late in the disease course.

Methods: We performed a retrospective review of adult patients with SS who required initiation of HPN at a tertiary academic center between 2022 and 2025. Data collected included patient demographics, disease characteristics, GI symptomatology, prior nutrition interventions, type and duration of PN, central venous access, nutrition-related complications, and clinical outcomes.

Results: Five female patients were identified (mean age 66.2 years, range 53–76). Four had longstanding SS (> 10 years), and all had concomitant interstitial lung disease. All patients exhibited extensive GI tract involvement, including gastroesophageal reflux (n=5), dysphagia (n = 5), chronic intestinal pseudo-obstruction (n = 4), and gastroparesis (n = 2). None had received prior formal nutrition counseling or enteral nutrition before initiation of PN. The mean duration of HPN was 25.6 months (range 0.25–65). Central venous access included peripherally inserted central catheters (n = 4) and tunneled catheters (n = 2). Central line–associated bloodstream infections were infrequent (n = 2). Micronutrient deficiencies were common. Three patients died during the follow-up period (Table 1).

Conclusion: This series illustrates the late recognition of severe malnutrition in patients with systemic sclerosis and the lack of early nutrition intervention, including absence of enteral nutrition trials. Profound GI dysmotility often precludes enteral strategies, making parenteral nutrition the only viable option. These findings underscore the need for earlier referral to nutrition support services and the establishment of evidence-based guidelines to address complex nutritional needs in this population.

Table 1. Characteristics of scleroderma patients with severe malnutrition who required parenteral nutrition

	Age	Sex	Duration of SS (Years)	Cardio-Pulmonary disease	GI involvement	Trial of TFs	BMI (Kg/m2)	Weight loss (lbs.) Within 6 months	Vitamin and mineral deficiencies	TPN duration (months)	TPN cycles	Type of central access	Line Infection	Alive
1	76	F	19	COPD PF CREST	Dysphagia Gastroparesis CIPO Ileostomy Volvulus	no	15.9	30	Iron	10	3x /w 12 hr.	PICC	-	Yes
2	72	F	4	PF COPD	Dysphagia CIPO Diarrhea	no	20.6	57	Vit A, Vit K Vit B6 Iron, Zn, Copper	34	4x/w 12 hr.	PICC	1	Yes
3	53	F	10	ILD COPD MAC	Dysphagia GERD	no	14.3	50	Vit D	19	7x/week 14 hr.	PICC	-	No
4	69	F	15	PHTN CAD	Dysphagia Gastroparesis Diarrhea CIPO Colostomy GI AVMs	no	18.5	20	Vit D, Vit B2 and B6 Iron, Zn, Copper	65	5x /w 12 hr.	PICC, Hickman	1	No
5	61	F	20	ILD	Dysphagia GERD CIPO	no	15.5	25	Vit A, Vit E Vit C Iron, Copper	1 week	daily	Hickman	-	No

CIPO = chronic intestinal pseudoobstruction; COPD = chronic obstructive pulmonary disease; PF = pulmonary fibrosis; ILD = interstitial lung disease; PHTN = pulmonary hypertension; CAD = coronary artery disease.

P61 - Wishlist to Workflow: Roadmap to Indirect Calorimetry Implementation

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Financial Support: IC Machine and disposables purchased after receiving the Morristown Medical Center Foundation Mini Grant and the Surgical ICU cost center was used to purchase additional disposables.

Background: Indirect calorimetry (IC) is the gold standard for accurately measuring energy expenditure, enabling real-time, personalized and goal-directed nutrition therapy. Although strongly recommended in clinical guidelines, its adoption remains limited due to challenges such as perceived complexity, cost, and lack of integration into existing workflows. This project highlights our ICU team's structured, step-by-step approach to successfully acquire and integrate IC into routine clinical practice, providing a practical roadmap for other critical care units seeking to implement this valuable tool.

Methods: The surgical ICU dietitian identified the need for IC through literature review, cost-benefit analysis, and evidence summarizing its role in optimizing nutrition and improving clinical outcomes in critically ill patients. Reference calls and testimonials from other facilities using the Q-NRG+ indirect calorimeter informed the decision-making process, ultimately leading to the selection of the device and a vendor demonstration for the interdisciplinary team. A mini grant proposal was submitted to the facility's grant foundation to obtain funding for the IC device. Following institutional approval and successful grant award, a multidisciplinary IC team including physicians, respiratory therapists, dietitians, ICU pharmacist, nursing, clinical engineering, and infection prevention nurses was formed, co-led by the surgical ICU dietitian and an ICU physician. The team developed a comprehensive IC policy and step-by-step protocols outlining indications and timing for IC measurements, procedures for conducting measurements, equipment cleaning and disinfection, and nutrition templates for documentation and interpretation of data. Nursing in-services, along with an educational session led by the ICU dietitian and respiratory therapist, provided the interdisciplinary team with further knowledge and clinical rationale to support the implementation of IC. Table 1 outlines the key steps from Wishlist to Workflow of IC Implementation. Figure 1 outlines the timelines from the initial conception phase through to the full implementation of IC assessments. A cloud-based IC folder (Figure 2) was created to centralize access to IC articles and other resources, manuals and IC documents. The IC documents folder houses the IC policy, protocols, quick guides, workflow, competency, and other documents (Figure 3).

Results: Within eight months of receiving the mini grant, the indirect calorimeter was purchased, and a comprehensive implementation package including electronic medical record (EMR) documentation templates for both mechanically ventilated and spontaneously breathing patients were developed. Eighteen interdisciplinary team members participated in vendor-led training on equipment use, patient preparation, test procedures, data interpretation, and clinical application. The project took approximately 20 months from conception to implementation (July 2023-March 2025). Challenges including unfamiliar technology, technical issues, scheduling, test coordination, and workflow integration were systematically addressed through strategic planning, leadership support, frequent communication, and the development and refinement of protocols and training resources. Future plans include extending training to other dietitians and respiratory therapists, launching quality improvement initiatives, and conducting research utilizing IC.

Conclusion: With interdisciplinary collaboration, leadership support, strategic planning, and persistence, IC can be more than a wishlist item; it can become a powerful bedside tool making precision nutrition not only possible but also practical. Our roadmap offers a practical and adaptable framework for other critical care units aiming to implement IC.

Table 1. Key steps from wishlist to workflow of IC implementation

Phase	Key Action Steps
Identification	• Identify clinical and operational needs for indirect calorimetry; conduct literature review.
Justification and Wishlist development	• Compile and summarize evidence; perform cost-benefit and return on investment (ROI) analysis, research available indirect calorimetry devices. • Contact vendors, gather testimonials, and conduct reference calls. • Organize an on-site vendor demonstration. Select a vendor based on system features, testimonials, staff feedback, price, and support services.
Advocacy	• Present findings to leadership and stakeholders for support.
Funding Acquisition	• Explore institutional budgets, clinical innovation grants, or philanthropy to support purchase. • Identify funding sources and cost center. For this project a mini-grant proposal was submitted to secure funding and surgical ICU was identified as the cost center for purchase of disposables, repairs and maintenance.
Procurement	• Secure funding, ensure regulatory compliance , obtain administrative approval, and clinical engineering clearance for device evaluation. • Co-ordinate purchase with sourcing and finance.
Preparation	• Establish an interdisciplinary Indirect Calorimetry (IC) team led by IC Champions (In our case an ICU physician and a dietitian) that includes respiratory therapists, dietitians, physicians, nursing managers, nursing educators, pharmacists, bedside nurses, clinical engineers, and infection prevention staff to develop policies, protocols, workflows, cleaning and disinfection procedures, competency documents for dietitians and respiratory therapists. • Collaborate, store, and share all documents with key team members (in our case we used a cloud-based platform for storing and sharing IC resources). • Determine the designated storage area for the device, accessories and disposables. • Prepare comprehensive documentation of nutrition related information and interpretation of IC assessments for integration into the electronic medical record (EMR).
Training and Education	• Plan, coordinate and execute vendor-led training, offer in-service sessions for nursing staff, and conduct educational programs for interdisciplinary staff to enhance understanding and support the implementation of IC.
Pilot Testing	• Perform initial assessments on select patients; conduct debriefs, and refine workflow based on feedback.
Implementation and Sustainability	• Embed IC into routine clinical workflows and evaluate long-term impact.
Next steps: Training extension, Monitoring and Expansion	• Extend training program to encompass additional nutrition and respiratory staff. • Systematically review outcomes, collect utilization data, and perform quality improvement analysis. • Expand application to additional ICUs or populations to facilitate research and support ongoing quality improvement (QI) activities.

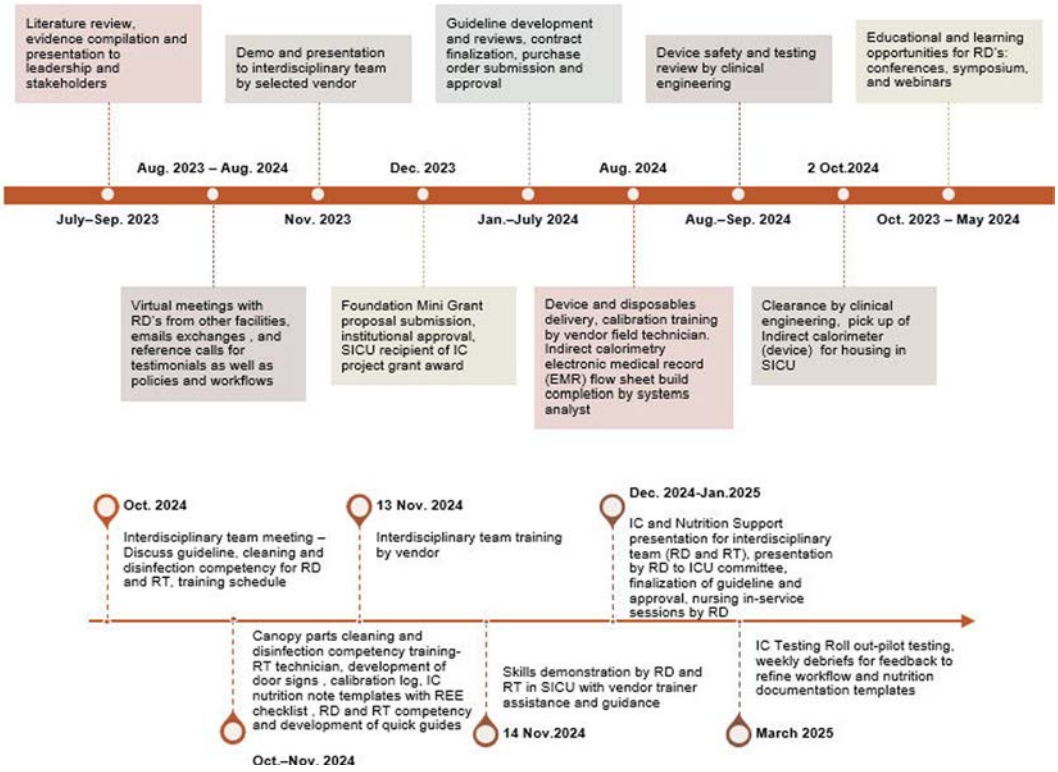

Figure 1. Timelines from initial conception to full implementation of indirect calorimetry assessments

IC = Indirect Calorimetry; ICU = Intensive Care Unit; RD = Registered dietitian; REE = Resting Energy Expenditure; RT = Respiratory therapist; SICU = Surgical Intensive Care Unit.

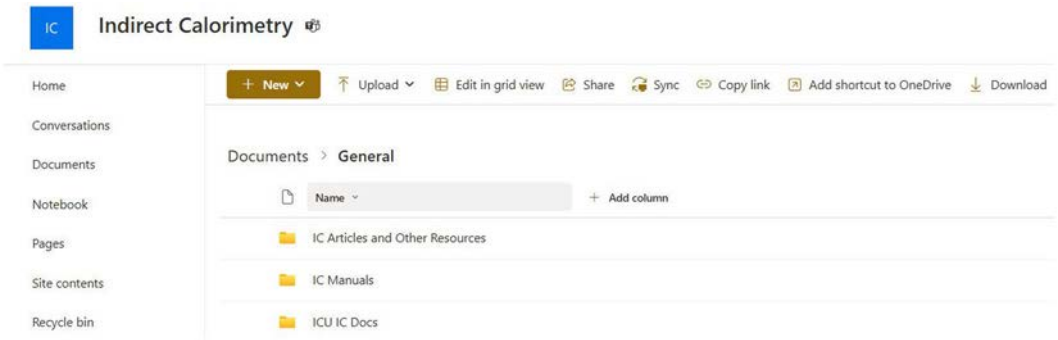

Figure 2. Screen capture of IC articles and other resources, manuals, and IC documents

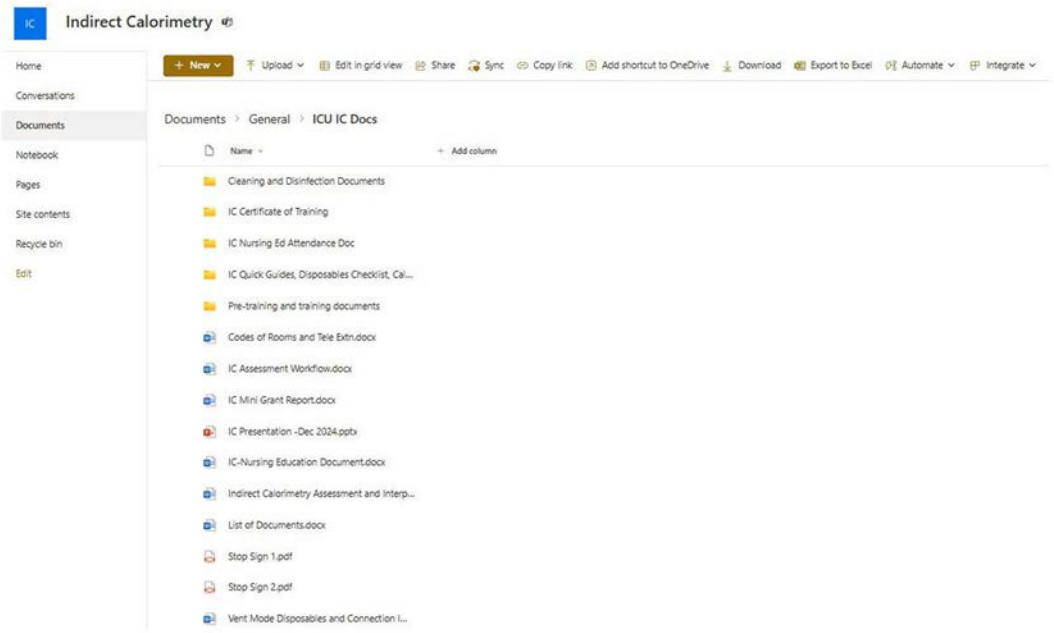

Figure 3. Screen capture of IC documents folder

P62 - Nutrition Scanner: A Vision-Language AI Framework for Automated Nutritional and Dietary Assessment in Pregnant Women in Resource-Limited Settings

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[1]Asian Institute of Gastroenterology, Hyderabad, Telangana; [2]AIG Hospitals, Hyderabad, Telangana; [3]CDiTH, IIIT Hyderabad, Hyderabad, Telangana

Financial Support: None Reported.

Background: In resource-limited healthcare and community settings, the scarcity of trained dietitians often results in delayed recognition of micro- and macronutrient imbalances during pregnancy. In India, a significant proportion of women fail to meet recommended dietary guidelines both preconceptionally and during gestation, increasing the risk of adverse maternal and neonatal outcomes. Iron deficiency anemia (IDA) remains a major nutritional concern, affecting 30–60% of pregnancies globally and up to 75% in the third trimester. Additionally, nutritional transitions such as the progression from enteral to oral feeding also complicate timely dietary assessment and intervention. To address these gaps, we developed Nutrition Scanner (NS), a vision-language AI framework designed to automatically estimate nutrient intake and identify dietary inadequacies from smartphone-captured images of meals. This study aimed to assess the technical performance and clinical potential of NS for automated dietary assessment in pregnant women, specifically focusing on its accuracy in food identification, portion size estimation, and nutrient analysis compared to commercial tools.

Methods: The NS framework comprises two stages. In Stage 1, a curated dataset of 251 standardized food plate images representing 45 common hospital-prepared Indian dishes was annotated and segmented using two deep learning models, DeepLabv3and SegFormer. These models were evaluated on both pixel- and dish-level segmentation metrics. Portion size and nutrient estimation were then performed using two Vision-Language Models (VLMs): ChatGPT-4o and Gemini 1.5 Flash, using few-shot prompting. Nutrient computation was grounded in a validated Indian food composition database curated by clinical nutrition experts. Model outputs were benchmarked against two widely used Indian commercial food recognition apps. In Stage 2 (ongoing), the tool is being field-tested using layperson-captured meal images to evaluate accuracy in non-standardized conditions. Performance metrics include image processing time, usability, and interpretability, measured through structured feedback.

Results: SegFormer outperformed DeepLabv3 in segmentation, achieving a dish-level F1 score > 97% and a pixel-level F1 score > 94%. In contrast, commercial apps demonstrated dish-level F1 scores of only 41% and 38%. For weight estimation, ChatGPT-4o significantly

outperformed Gemini 1.5 Flash with a mean absolute error (MAE) of 8.7 g vs. 43.6 g, respectively. Nutrient estimation MAEs for ChatGPT-4o were 82.4 kcal (energy), 13.6 g (carbohydrates), 6.7 g (protein), and 3.0 g (fat), outperforming commercial models which had energy MAEs of 135.1 and 286.8 kcal.

Conclusion: The Nutrition Scanner demonstrates high accuracy and reliability in AI-based dietary assessment using food image analysis. Its ability to analyze complex Indian meal patterns and outperform commercial models highlights its potential in clinical nutrition workflows, particularly where access to dietitians is limited. It offers a scalable solution for digital dietary surveillance and public health interventions targeting maternal undernutrition and anemia in pregnancy. The project's current phase involves real-world validation using meal images captured by laypersons under non-standardized conditions. Performance is being evaluated under varied lighting, camera angles, overlapping food items, and partial occlusions. Shadow-removal algorithms are being integrated to improve consistency. The vision-language model (VLM) is also being refined with chain-of-thought prompting to enhance nutrient estimation, interpretability, and contextual reasoning in resource-constrained clinical and community environments.

Table 1. Pixel level performance comparison: DeepLab V3 vs. Segformer

Dish Name	Deeplab V3				Segformer			
	IoU	Precision	Recall	F1	IoU	Precision	Recall	F1
Beetroot Poriyal	99.77	99.87	99.90	99.89	98.49	100.00	98.94	99.47
Capsicum Green Peas	99.49	100.00	99.49	99.74	98.90	100.00	98.90	99.45
Ladiesfinger Curry	98.34	100.00	98.34	99.16	98.89	100.00	98.89	99.44
Dosakay Dal	77.61	100.00	77.61	87.39	98.01	100.00	98.01	99.00
Jaipuri Sabji	99.01	100.00	99.01	99.50	99.01	100.00	99.01	99.50
Lobiya Masala	99.13	100.00	99.13	99.56	99.23	100.00	99.23	99.61
Pongal	98.25	100.00	98.25	99.12	92.44	93.03	99.31	96.07
Pumpkin Gravy	98.92	100.00	98.92	99.46	99.45	100.00	99.45	99.72
Rajma Masala	98.85	100.00	98.85	99.42	99.52	100.00	99.52	99.76
Tomato Dal	98.12	100.00	98.12	99.05	99.45	100.00	99.45	99.72
Turai Moong	95.96	97.83	98.04	97.93	98.76	100.00	98.76	99.38
Turai Tomato	98.70	100.00	98.70	99.35	99.49	100.00	99.49	99.74
beerakay curry	98.63	100.00	98.63	99.31	98.49	100.00	98.49	99.24
cabbage poriyal	99.56	100.00	99.56	99.78	98.42	100.00	98.42	99.20
capsicum gravy	98.69	100.00	98.69	99.34	98.20	100.00	98.20	99.09
chana masala	99.31	100.00	99.31	99.65	98.74	100.00	98.74	99.37
chapathi	98.32	99.89	98.43	99.15	98.15	99.45	98.68	99.06
chow-chow	97.69	100.00	97.69	98.83	97.83	99.95	97.88	98.90
chutney	92.54	93.11	99.34	96.12	94.70	98.52	96.06	97.27
curd rice	97.99	99.61	98.37	98.99	97.99	99.80	98.17	98.98
dal	97.85	100.00	97.85	98.91	99.10	100.00	99.10	99.55
dal tadka	98.52	100.00	98.52	99.25	98.86	99.99	98.87	99.43
daliya	99.91	100.00	99.91	99.95	99.24	99.99	99.24	99.61
daliya upma	44.94	51.64	77.57	62.00	54.03	54.89	97.16	70.15
donda curry	97.54	100.00	97.54	98.75	98.29	100.00	98.29	99.14
dosakaya gravy	98.50	100.00	98.50	99.24	98.75	100.00	98.75	99.37
egg white	93.63	99.85	93.76	96.71	96.61	99.79	96.80	98.27
idly	95.54	99.99	95.55	97.72	98.15	99.35	98.78	99.06
khichdi	98.52	99.89	98.62	99.25	98.81	99.97	98.83	99.40
ladies finger gravy	99.00	100.00	99.00	99.50	98.79	99.98	98.81	99.39
methi dal	98.98	100.00	98.98	99.49	99.40	100.00	99.40	99.70
mixed veg poriyal	98.66	100.00	98.66	99.33	97.13	100.00	97.13	98.54
palak soya curry	96.80	99.81	96.98	98.37	95.16	100.00	95.16	97.52
paneer gravy	98.73	100.00	98.73	99.36	98.72	100.00	98.72	99.36
poha	94.08	95.79	98.14	96.95	87.84	100.00	87.84	93.53
pumpkin masala	98.84	100.00	98.84	99.42	98.00	100.00	98.00	98.99
raw banana dry	98.47	100.00	98.47	99.23	97.30	100.00	97.30	98.63
rice	97.44	99.99	97.45	98.70	97.51	99.40	98.09	98.74
sambar	88.76	99.10	89.48	94.04	98.02	99.78	98.24	99.00
snakeguard curry	99.31	100.00	99.31	99.65	99.07	100.00	99.07	99.53
soya gravy	99.24	99.91	99.33	99.62	98.06	99.87	98.17	99.01
thotakura pappu	98.84	100.00	98.84	99.42	98.64	100.00	98.64	99.32
upma	54.16	86.61	59.11	70.27	50.29	100.00	50.29	66.92
uttapam	59.12	59.15	99.93	74.31	60.69	60.83	99.61	75.53
Average Values	**92.23**	**95.16**	**94.30**	**94.44**	**92.90**	**95.65**	**94.97**	**94.88**

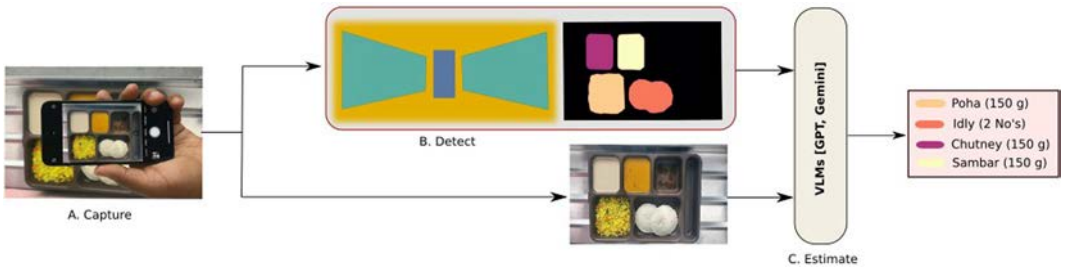

Figure 1. Nutrition scanner process

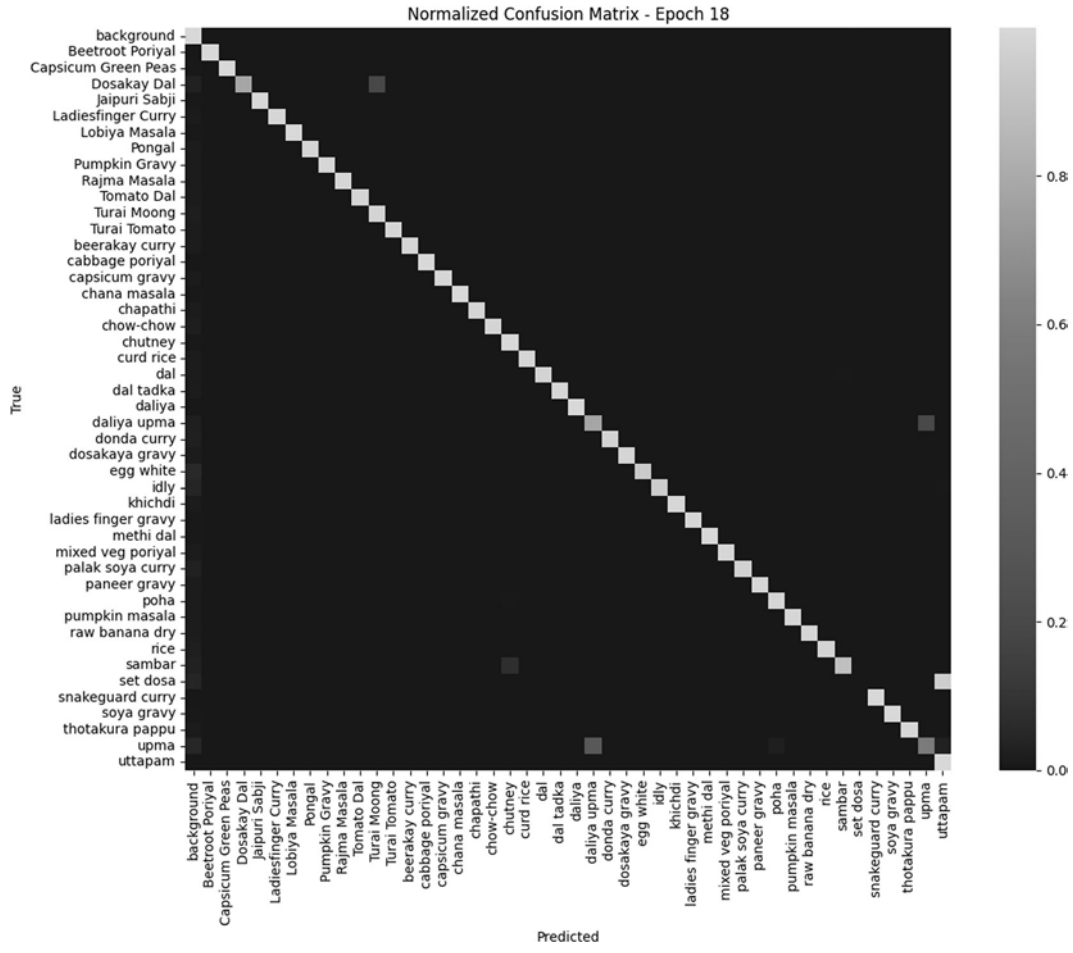

Figure 2. Confusion matrix graph

P63 - Improving Malnutrition Identification and Documentation by Adult Registered Dietitians (RDS) at Northwestern Memorial Hospital (NMH)

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Financial Support: None Reported.

Background: In fiscal year 2024, RD identification and documentation of patients with malnutrition averaged 27%, which is below the national average and NMH goal of 30%. The purpose of this project was to improve NMH RD identification and documentation of malnutrition to > 30%.

This was done through implementation of electronic medical records (EMR) changes and creation of an NMH specific malnutrition competency to improve RD skills in identifying and documenting malnutrition.

Methods: Through survey results and EMR audits, we determined the root causes to be hesitance to Nutrition Focused Physical Exam (NFPE) completion, unclear timeline of NFPE repetition, improper performance of NFPE and confusion surrounding specific patient scenarios. We also identified that the malnutrition button in the EMR did not align with the RD workflow and therefore worked with IT to have this button relocated.

Results: Average of 31.4% of NMH patients were identified and documented as having malnutrition by RD post intervention from Jan 2025-May 2025. Missed EMR malnutrition documentation decreased from 5% pre-intervention to 1.9% post-intervention. Dietitian staff scored an average of 97% on malnutrition competency, which included a quiz and skills-based NFPE observation.

Conclusion: Educating staff to improve confidence and competence in malnutrition identification is crucial. Additionally, aligning EMR documentation with RD workflow to accurately capture these patients is imperative and reduces odds of human error. Creating a malnutrition committee to continue education, complete staff observations and audit EMRs will allow for continued improvements over time.

P64 - Improving Malnutrition Coding Rate: A Multidisciplinary Approach

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Encore Poster
Previous Presentation: Texas Academy Annual Conference and Exhibition, 2025; Commission on Dietetics Registration Virtual Quality Symposium, 2025.
Previous Publication: Journal of the Academy of Nutrition and Dietetics (JAND) Supplement, September 2025 Issue.

Financial Support: None Reported.

Background: Research shows that malnourished patients have longer hospital stays, higher readmission rates, increased medical costs and mortality. Malnutrition is a top 20 hospital risk-adjusted diagnosis. Accurate documentation of malnutrition by Registered Dietitian Nutritionists (RDNs), physicians, and nurses plays a pivotal role in improving patient care, reducing hospital stays and readmissions, and enhancing hospital reimbursement. This initiative aimed to streamline collaboration among RDNs, nurses, and physicians to improve malnutrition identification, optimize patient outcomes, and establish a comprehensive strategy for effective teamwork. The project also targeted malnutrition coding and documentation by enhancing physician recognition of malnutrition severity through the partnership and support of RDNs.

Methods: The Plan-Do-Check-Act (PDCA) methodology guided the project. A Malnutrition Multidisciplinary Taskforce was established to address barriers, define performance indicators, and develop a control plan for malnutrition screening, diagnosis, and treatment. Feedback from clinical nutrition leaders, medical coders, nurses, and physicians was collected and a high-level process map was developed to clarify the workflow for identifying and diagnosing patients with malnutrition. Interventions included educating physicians on completing malnutrition notes, creating a malnutrition performance report to track compliance, and implementing a daily email listing of newly diagnosed malnourished patients. Additional innovations included above the bed sign, a virtual oral intake reference guide, meal tray identification, and a magnet for flagging malnourished patients during Multidisciplinary Discharge Readiness Rounds (MDDRs).

Results: Project outcomes included RDNs increased malnutrition assessment compliance by 63% from baseline, malnutrition coding rate increased by 50% from baseline, and compliance of physician signing malnutrition notes improved by 52% from baseline. Currently, the campus's malnutrition coding rate is performing at the top quartile of 79th percentile (Vizient Inc.), exceeding the system target by 105%.

Conclusion: This initiative enhanced communication, compliance, and documentation, improving overall care for malnourished patients. This project was also adopted as a system-wide best practice and integrated into performance metrics, leading to improved malnutrition management and documentation.

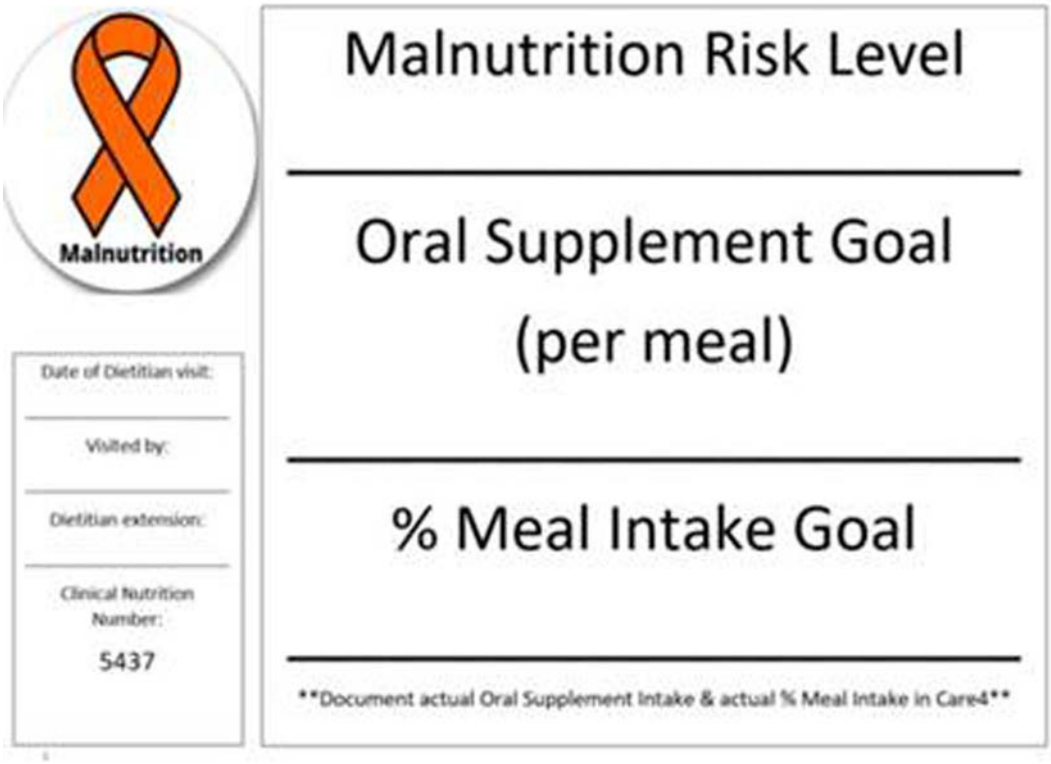

Figure 1. Above the bed sign

The sign provides awareness to nursing team that the patient is malnourished and provides patient's oral intake goals.

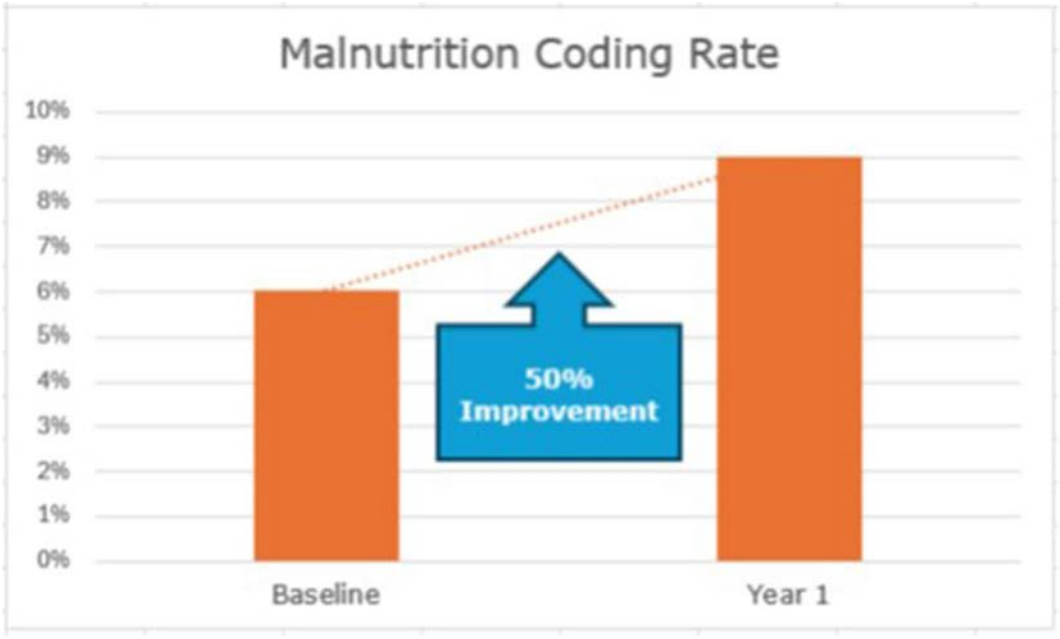

Figure 2. Malnutrition coding rate results

The malnutrition coding rate increased by 50% from baseline to post-intervention.

Figure 3. Compliance of physician signing malnutrition note

Compliance of physician signing malnutrition note increased by 52% from baseline to post-intervention.

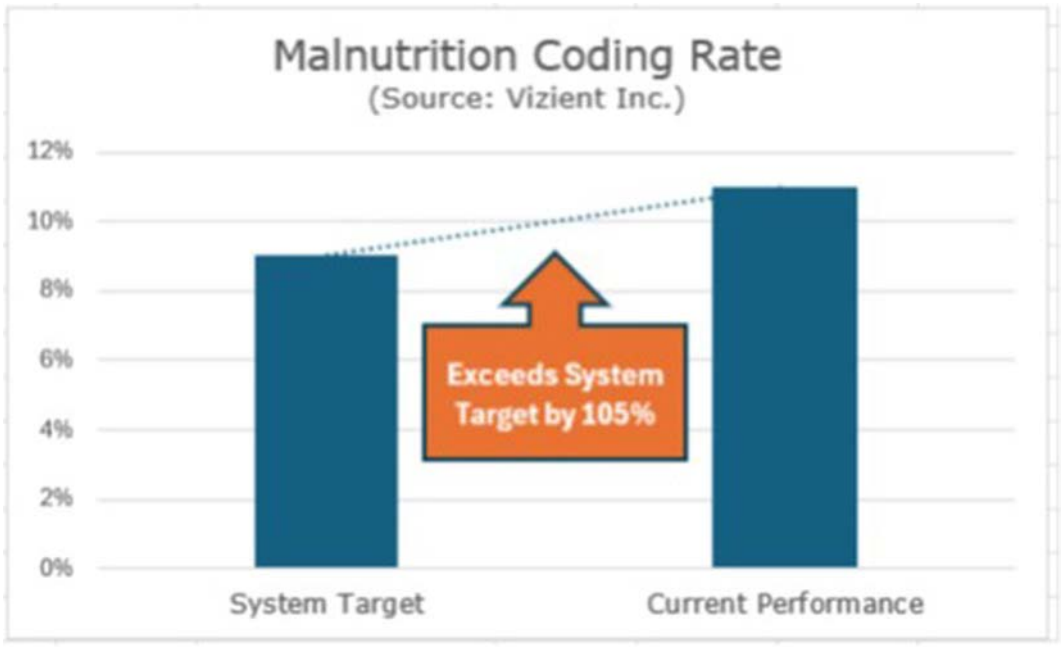

Figure 4. Current malnutrition coding rate

Currently, the campus is performing at the top quartile of 79th percentile (Vizient Inc.), exceeding the system target by 105%.

P65 - Impact of the Prognostic Nutritional Index on Postoperative Outcomes in Patients Undergoing Heart Surgery

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Financial Support: None Reported.

Background: Malnutrition is associated with adverse outcomes in patients undergoing cardiac surgery. The prognostic nutritional index (PNI) is a validated tool for assessing nutritional status in cardiovascular diseases. This study aims to evaluate the prognostic value of PNI in heart surgery patients, including mortality rate, length of hospital and ICU stays, and infection rate, while investigating correlations with demographic and clinical characteristics.

Methods: A retrospective cross-sectional study was conducted in King Fahad Armed Forces Hospital in Jeddah, Saudi Arabia. Data from electronic medical records of patients undergoing heart surgery between 2019 and 2021 were retrospectively reviewed. The study involved patients with valvular heart disease, including those requiring concomitant procedures. Statistical analysis was conducted using t-tests, logistic regression, and Kaplan-Meier survival curve analysis.

Results: This study included 264 individuals with a mean age of 56.48 ± 12.11 years. The prevalence of low PNI was 50.80% and high PNI was 49.20%. No significant differences in PNI levels were found between individuals with various clinical conditions, except for target vessel revascularization. The mortality rate was slightly higher in the low PNI group, but not statistically significant. Significant differences in laboratory findings were observed between high and low PNI groups. Individuals with low PNI had longer hospital stays.

Conclusion: Lower PNI levels consistently correlate with longer hospital stays and higher morbidity and mortality rates, suggesting the potential importance of PNI and other nutritional markers in assessing risk and predicting outcomes in cardiac surgery patients.

P66 - Enhancing Muscle Mass in Pancreatic Adenocarcinoma Through Nutrition Support: A Prehabilitation Case Report Utilizing Computed Tomography

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Encore Poster
Previous Presentation: American Society for Nutrition, May-June 2025, Orlando, FL.
Previous Publication: Bode, A., Bury, C., Garcia Luis, M., Russell, L., (2025). Enhancing Muscle Mass in Pancreatic Adenocarcinoma Through Nutrition Support: A Prehabilitation Case Report Utilizing Computed Tomography. Current Developments in Nutrition., Volume 9, Supplement 2, 106152. https://doi.org/10.1016/j.cdnut.2025.106152.

Financial Support: Morrison Cleveland Clinic Research Collaborative.

Background: Pancreatic adenocarcinoma leads to significant nutritional challenges due to altered digestion and appetite, making nutrition support crucial to avoid severe malnutrition. As the disease progresses, individuals often experience muscle wasting and decreased physical performance, necessitating nutrition assessment and intervention. The use of CT by registered dietitians has provided quantitative evaluation of body tissues to monitor outcomes.

Methods: Here we present a case of a 70-year-old female with stage IIA pancreatic adenocarcinoma complicated by small-bowel perforation with Whipple and end ileostomy with subsequent weight loss leading to parenteral nutritional (PN) support. She had limited oral intake due to high ostomy output and abdominal pain. Multiple CT scans were completed, which were used to assess body composition. The CT scans revealed significant muscle loss and worsening body composition (29.6% decrease) from her baseline to when PN was initiated. PN as her main

source of nutrition at the time led to improvement of her skeletal muscle mass (44.3% increase) as measured by an artificial intelligence program, Voronoi Data Analysis Facilitation Suite, Version 3.9.1. Of note she did not develop any infectious complications from PN. Upon withdrawal of nutrition support, she experienced a decrease in her muscle mass, but not as severe (11.4% decrease).

Results: This case highlights the dynamic nature of skeletal muscle mass changes in response to targeted nutritional and physical interventions. The initial decline in muscle mass followed by a significant increase during the nutrition intervention period, and subsequent decrease post-intervention, provide valuable insights into the effectiveness and limitations of such approaches in managing muscle mass. Finally, the worsening of muscle mass post withdrawal of nutritional support suggests the need for ongoing monitoring and nutritional assessment.

Conclusion: Assessing body composition accurately through the course of disease can provide a more comprehensive assessment of nutritional status. Understanding the changes in body composition can aid in the development of personalized nutrition strategies for maintaining and improving muscle mass in similar clinical scenarios.

P67 - Relationship of Malnutrition With Length of Stay and Postoperative Infections in Patients With Lung Resection: A Prospective Cohort Study

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Financial Support: None Reported.

Background: Malnutrition is a key independent risk factor for poor postoperative outcomes. It increases the likelihood of complications such as infections, prolonged hospital stays, impaired wound healing, and higher mortality. In thoracic surgeries, the infection risk is notably elevated and malnutrition is prevalent in 70% of patients. The aim of this study is to analyze the association between malnutrition, as measured by 7-point Subjective Global Assessment, and the length of stay and postoperative infection risk in patients undergoing lung resections.

Methods: This is a prospective cohort of patients from a single-center tertiary-level hospital in Mexico City between August 2023 and December 2024. Adults > 18 years old, programmed to lung resection (pneumonectomy, lobectomy or bilobectomy) were included. Patients with a pacemaker or pregnancy were excluded. Nutritional assessment was performed by clinical nutrition staff before surgery. To assess malnutrition, the seven-point Subjective Global Assessment (7p-SGA) tool was used, categorizing patients as malnourished (scores 1 to 5) or normal nutrition status (NNS) (scores 6–7). Body composition was assessed using multi-frequency bioelectrical impedance analysis. Muscle function was assessed by handgrip strength (HGS) using a digital hand dynamometer. Length of stay (LOS) (in days) and postoperative infection rates were considered as clinical outcomes. Multivariate linear and logistic regressions analysis were performed to assess the association between malnutrition and outcomes.

Results: A total of 118 patients have been admitted for lung resection during study period. A total of 64 patients were included. Lobectomy was the most frequent surgery (91%), and the most prevalent etiology for lung resection was infections (44%). Malnutrition was diagnosed in 59.3% Significant differences were observed between groups for body composition parameters. Patients with malnutrition had a significantly longer LOS (7 days [IQR 5–11])—in comparison to 5 days [IQR 3–8] in the NNS group (p = 0.02) (Table 1). Moreover, malnourished patients with infectious disease had a longer LOS—8.5 [7 to 16] days—compared to the NNS group 4.5 [3 to 6] days (p = 0.002). Post-operative infection was diagnosed in 21.8% of patients. In the multivariable linear regression analysis adjusted for age, sex, and SOFA score, lung resection for infectious disease was associated with an increase of β 6.7 (95% CI: 2.2 to 11.3 days, p = 0.005) in LOS among malnourished patients. Similar, malnutrition patients undergoing lung resection by cancer diagnosis had a longer LOS of β 2.9 (95% CI: 0.2 to 5.6 days, p = 0.03). A higher risk for develop post-operative infections (OR 7.21, 95IC% 1.5, 33.8) (p = 0.01) was observed in malnutrition group.

Conclusion: Preoperative malnutrition affects over one-third of patients and is linked to adverse clinical outcomes. This study found that, even when muscle mass and strength appeared normal on average, malnourished patients undergoing lung resection for infectious disease had longer hospital stays and a higher risk of postoperative infections.

Table 1. Differences in clinical outcomes between malnourished and normal nutritional status patients by primary diagnosis

	Infections (n=28)			Benign tumor (n=12)			Cancer (n=24)	
	NNS	Malnutrition		NNS	Malnutrition		NNS	Malnutrition
	(n=10)	(n=18)	p value	(n=8)	(n=4)	p value	(n=8)	(n=16)
Age (years)	49 ± 18.2	58 ± 15.5	0.17	44.6 ± 11	51 ± 11.5	0.37	58.3 ± 10.4	54.8 ± 13.3
BMI (kg/m^2)	27 ± 5.0	22.9 ± 4.9	**0.04**	26.3 ± 4.9	21.9 ± 3.0	0.14	27.8 ± 4.5	24.8 ± 4.7
<18.5 kg/m^2	0	3 (17%)	0.19	0	1 (25%)	0.35	0	1 (6%)
18.5-24.9 kg/m^2	5 (50%)	9 (50%)		3 (37%)	2 (50%)		2 (26%)	7 (44%)
25-29.9 kg/m^2	1 (10%)	4 (22%)		3 (37%)	1 (25%)		3 (37%)	5 (31%)
>30 kg/m^2	4 (40%)	2 (11%)		2 (26%)	0		3 (37%)	3 (19%)
FFM (kg)	19.07 ± 2.5	16.6 ± 1.83	**0.006**	18.05 ± 3.12	17.68 ± 1.66	0.83	18.68 ± 1.93	18.25 ± 2.31
FFMI (kg/m²)	51.6 ± 11	43.3 ± 8.2	**0.03**	44.9 ± 9.7	49.4 ± 7.6	0.44	49.9 ± 9.8	48.6 ± 8.5
HGS (kg)	23.8 ± 6.9	22.1 ± 10.1	0.46	24.5 ± 7.6	28.8 ± 9.5	0.57	28.5 ± 10.3	22.9 ± 8.7
SOFA	2 (1-2)	2 (1-2)	0.72	1 (1-2)	1 (0.5-1)	0.08	1 (1-3)	1.5 (1-2)
Type of resection								
Lobectomy	10 (100%)	15 (83%)		6 (76)	4 (100%)		7 (87%)	16 (100%)
Bilobectomy	0	3 (17%)	0.17	1 (12%)	0	0.54	1 (13%)	0
Pneumonectomy	0	0		1 (12%)	0		0	0
Post-operative infections (%)	3 (30%)	8 (44%)	0.45	2 (25%)	0%	0.27	0%	1 (6%)
Length of stay (days)	4.5 (3-6)	8.5 (7-16)	**0.002**	6.5 (4-15)	3.5 (3-4.5)	0.17	3.5 (3-6.5)	7 (4.5-9)

NNS: normal nutrition status; BMI: body mass index, FFM: fat-free mass; FFMI: fat-free mass index, HGS: handgrip strength, SOFA: Sequential Organ Failure Assessment

HGS was evaluated in 54 patients.

P68 - Nutritional Diagnosis in Patients Admitted With Cardiovascular Disease: A Cross-Sectional Study Using Multiple Assessment Tools

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Financial Support: Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP), Brazil, Process nº 2023/01435-2.

Background: Patients diagnosed as overweight or obese by some indicators may often be at nutritional risk or malnourished by other methods, especially those with cardiovascular disease. In routine hospital nutritional care, discrepancies in the nutritional diagnosis of these patients can occur. This study investigated the relationship between various nutritional screening tools, anthropometry, and muscle strength in patients admitted with cardiovascular disease.

Methods: This was a cross-sectional study conducted with adult patients admitted for cardiovascular disease to the surgical wards of a university hospital. The Institution's Ethics Committee approved the study. The Global Leadership Initiative on Malnutrition (GLIM) criteria, the Nutritional Risk Screening (NRS-2002) and Subjective Global Assessment (SGA) nutritional screening instruments, handgrip strength (HGS) (assessed with a Jamar dynamometer), and anthropometric indicators (body weight, body mass index (BMI), mid-upper arm circumference (AC), triceps skinfold thickness (TSF), mid-upper arm muscle circumference (AMC), calf circumference (CC), and weight loss) were investigated. All nutritional variables were compared. Statistical analysis used the chi-square, Fisher's exact, and Mann-Whitney tests, with a significance level of $p < 0.05$.

Results: A total of 69 patients were evaluated, with a mean age of 61.33±12.76 years. Among them, 66.7% (n = 46) were male and 33.3% (n = 23) were female. When comparing the variables with the GLIM criterion, statistically significant associations were observed with BMI (p = 0.0015), AC (p = 0.0091), TSF (p = 0.0094), CC (p = 0.0004), recent weight loss (p = 0.0001), SGA (p = 0.0013) and NRS (p =< 0.0001). When comparing the variables in relation to the NRS, there was a statistical association between BMI (p = 0.0036), AC (p = 0.0253), CC (p = 0.0322), recent weight loss (p < .0001), GLIM criterion (p < 0.0001) and SGA (p = 0.0042). When comparing the variables with SGA, there was a statistical association between BMI (p = 0.0278), AC (p = 0.0121), TSF (p = 0.0030), CC (p = 0.0327), recent weight loss (p = 0.0090), GLIM criteria

(p = 0.0013), and NRS (p = 0.0042). Regarding HGS, significant associations were observed with AC (p = 0.0169) and CC (p = 0.0172). Patients classified as malnourished by SGA were the oldest and those with the most recent weight loss, although all anthropometric indicators were within the normal range. Similarly, individuals identified as at nutritional risk by NRS-2002 and malnourished according to the GLIM criteria also had anthropometric indicators within the normal range.

Conclusion: Nutritional status showed a significant association across different assessment instruments, and the combined use of several tools can contribute to a more accurate nutritional diagnosis and help prevent adverse clinical outcomes. The combined use of multiple instruments is recommended for screening for malnutrition, including in overweight or obese patients, especially those with cardiovascular disease.

P69 - Screening for Malnutrition, Avoidant Restrictive Food Intake Disorder and Food Insecurity in Veterans With Inflammatory Bowel Disease

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[1]Oregon Health & Sciences University, Portland, Oregon; [2]Portland VA Medical Center, Portland, Oregon

Financial Support: None Reported.

Background: Twenty to eighty percent of people diagnosed with inflammatory bowel disease (IBD) are malnourished. Malnutrition can lead to many adverse health effects and eventually, death. In patients with IBD, malnutrition increases occurrences of flares while decreasing the response to biologics intended to treat flares; increases infection rates; and reduces overall quality of life. Additionally, longer hospital stays and higher healthcare costs are associated with malnutrition in IBD, making it imperative to screen for malnutrition in this population. Malnutrition is a primary concern in patients with IBD; other factors can impact nutritional status, including avoidant restrictive food intake disorder (ARFID) and food insecurity. Research has found that 49-90% of patients with IBD alter their diet to relieve GI symptoms, avoid symptoms, and control inflammation. At times, these diet alterations can be overly restrictive, and 12-21% of patients with IBD develop ARFID, which significantly increases the risk of malnutrition. Patients may also restrict their intake involuntarily due to food insecurity. A study in 2021 concluded that of the 3.1 million adults living in the US with IBD, 14% were found to be food insecure, and 19% of this population routinely ran out of food before they could afford more. Patients with IBD had 69% higher odds of experiencing food insecurity compared to patients without IBD.

Methods: A quality improvement (QI) project was conducted through the GI clinic at the Portland VA Medical Center to examine the prevalence of malnutrition and associated nutrition risk factors, including ARFID, and food insecurity among Veterans with IBD seen outpatient gastrointestinal (GI) clinic. A chart review of each identified patient was performed to collect data on anthropometric and biochemical data, and the presence of a nutrition consult pertaining to their IBD diagnosis. Upon completion of the chart review, the GI clinic dietitian sent nutrition screening questionnaires to the IBD patients. The questionnaires included: The Nine Item Avoidant/Restrictive Food Intake Disorder Screen, Hunger Vital Sign, and SaskIBD Nutrition Risk Tool. After the 4-week collection period was completed, data analysis was performed using the statistical analysis software SPSS. Variables were analyzed based on subgroups including ARFID positive screens, positive malnutrition screening, previous visit with a registered dietitian, and previous visits with the GI clinic dietitian.

Results: Of the 104 patients identified as eligible to participate in this project, 75 were contacted and 34 (45.3%) responded. Among the survey responses, 47% (n = 16) screened high risk for malnutrition, 17.6% (n = 6) screened at risk for ARFID, and 12% (n = 4) screened positive for food insecurity. 43.5% (n = 44) of the total survey response population had a nutrition consultation with a registered dietitian, but only 19% (n = 19) of patients received a consultation from the GI-specialized dietitian.

Conclusion: Through the implementation of consistent screenings and regular consultations with the GI clinic RD, the nutrition status of patients with IBD may be improved, which can help to improve patient quality of life, improve response to biologics for more effective treatment, while also reducing occurrences of flares and infection rates, effectively reducing long-term hospital costs.

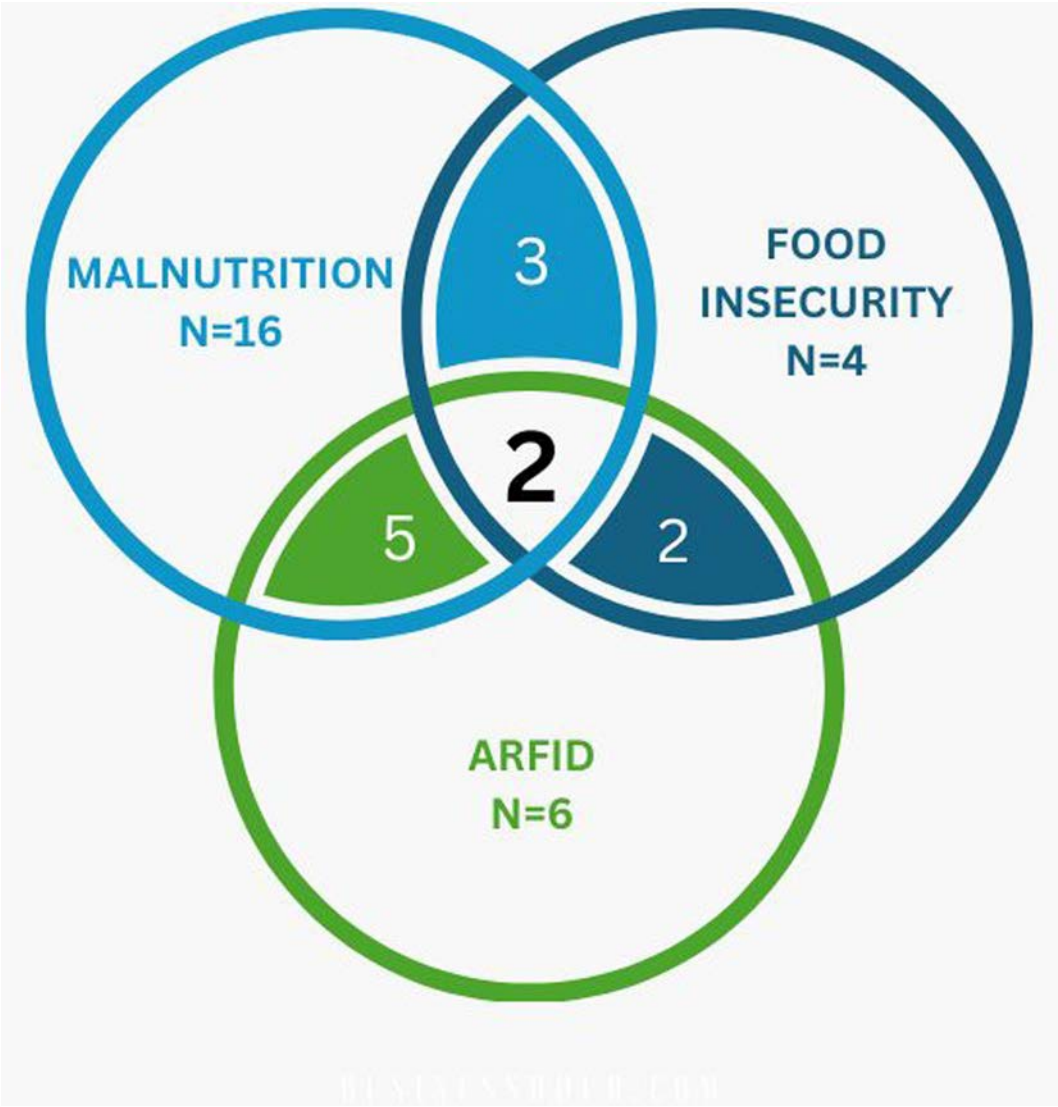

Figure 1. Intersectionality between malnutrition, ARFID, and food insecurity

P70 - Estimating Nutrition Needs and Implementing Nutrition Support in Adults With Cerebral Palsy: A Case Series

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Financial Support: None Reported.

Background: Cerebral Palsy (CP) is a neurological condition that can present as issues with muscle tone, posture, and/or movement, due to damage to the brain during fetal development. It is typical for this disorder to also have gastrointestinal (GI) involvement with inability to receive adequate nutrition orally due to functional limitations. While there are references to guide clinicians in estimating nutrition needs for pediatric patients with CP, there is a gap in available data for the adult population. The primary aim of this case series is to provide characteristics of CP patients with varying degrees of protein calorie malnutrition who initially presented with low BMI or acute electrolyte abnormalities, signifying potential inadequacies in home nutrition regimens. The secondary aim is to provide estimation of needs used during hospitalization and recommended at discharge. From 06/24/2025-07/22/2025, 4 patients with CP were admitted to the hospital and required nutrition assessment and implementation of nutrition support (enterally or parenterally). Patients were female, mean age was 30.75 years (21-41). All experienced GI tract dysfunction (2 delayed gastric emptying, 1 recurrent small bowel obstruction and chronic constipation, 1 high ostomy output). Regarding nutritional status: 2 were not malnourished and 2

were severely malnourished, with a BMI of less than 12.5. As there are no widely available references for estimation of needs in this population, pediatric formulas were utilized and compared to standard adult estimations, then implemented based on patients' nutritional status and estimated demands. The ranges for calories were 25-66 kcal/kg, protein from 1.3-2.7 gm/kg, and fluid from 42-77 ml/kg. All required nutrition support: 3 enterally, 1 parenterally. Due to 3 patients being admitted for major electrolyte abnormalities (1 severe hypernatremia Na > 180, 2 hyponatremia Na 106-125 with 2 requiring intensive care), adjustments to their prior nutrition regimens were required (see Table 1). These patients also required medical management of serum sodium and close monitoring of volume status. Parenteral nutrition was initiated in one case due to partial small bowel obstruction; surgery was postponed due to the need for nutritional optimization. Prior to discharge, 3 patients had an increase in weight and BMI during their admission, and 1 patient remained stable. All patients' electrolytes were corrected and stabilized prior to discharge. See Table 2 for all comparisons. In conclusion, all CP patients improved in weight, BMI, and electrolyte stability prior discharge. However, there are no established reference points in recent data to estimate calorie, protein, and fluid needs for adults with CP, which results in large variability in estimated nutritional needs as shown in Table 2 and regimens in Table 1. Recent reviews recommend trial and error methods with close monitoring of nutritional status and electrolytes. The use of indirect calorimetry in this population may be an important tool to better understand their energy needs. It is understandable that patients with CP are complex and may have significant variances in nutritional needs based on functionality and comorbid conditions; however, there is a gap in the literature on management of nutrition and hydration status of adult CP patients.

Methods: None Reported.

Results: None Reported.

Conclusion: None Reported.

Table 1.

	Nutrition regimen prior to admission	Nutrition regimen during admission and recommended at discharge
1	Enteral Nutrition • Formula characteristics: 2.0kcal/ml formula, fiber free • Regimen: 1440 kcal, 61gm protein, 738ml water per day with flushes* *Social history indicated that patient may not have been receiving all of tube feed regimen	Enteral Nutrition • Formula characteristics: 2.0kcal/ml formula, fiber free • Regimen: 1200 kcal, 50gm protein, 1405 water per day with flushes
2	Enteral Nutrition • Formula characteristics: 1kcal/ml, fiber-free, elemental formula + table salt • Regimen: 1540 kcal, 77gm protein, 2674ml water per day with flushes, 34500mg Na additional	Enteral Nutrition • Formula characteristics: 1kcal/ml, fiber-free, elemental formula + table salt • Regimen: 1540 kcal, 77gm protein, 2674ml water per day with flushes, 4650mg Na additional
3	Enteral Nutrition • Formula characteristics: 1.5kcal/ml, vegan peptide-based formula • Regimen: 1260kcal, 62gm protein, 1788ml water per day	Enteral Nutrition • Formula characteristics: 1.5kcal/ml, vegan peptide-based formula • Regimen: 1410 kcal, 62gm protein, 2088ml water per day with rehydration solution flushes
4	Oral diet • Estimating <75% of needs prior to admission given GI issues	Parenteral Nutrition • 1302 kcal, 60gm protein, 1600ml water

Nutrition regimens prior to admission and recommended changes.

Table 2. Characteristics of CP patients who require nutrition assessment and implementation of nutrition support

	Age	Chronic conditions other than CP	GI involvement	Functional status	Admission diagnoses	Major electrolyte abnormalities at admit	Electrolytes prior to discharge	Current malnutrition diagnosis	BMI at admission (kg/m2)	BMI at discharge (kg/m2)	Length of hospital stay (days)	Mode of nutrition	Est kcal/kg	Est protein/ kg	Est fluid needs ml/kg	Referenced formulas for estimation of needs
1	33	Scoliosis, severe PCM, recurrent bacteremia	Delayed gastric emptying	Bedbound, contracted, nonverbal	Hypernatremia, initially admitted to ICU	Na >180 Cl 137 BUN 83 Mg 3.8 Lactate 3.4	Na 149 Cl 113 BUN 11 Mg 2.4 Lactate 0.5	Severe PCM	12.21	13.59	4	Enteral via GJ tube	66	2.7	77	•11kcal/cm (patient measured using Chumlea equation) •2.0-2.5gm/kg protein •fluid: 1000ml/kg + 50ml/kg for each kg above 10kg
2	41	Focal epilepsy, SIADH, recurrent UTI	Generalized intestinal dysmotility, extensive colorectal surgeries involving partial colectomy and small bowel resection resulting in ileostomy, high output	Able to walk, contracted, nonverbal	Hyponatremia	Na 123 Cl 82 BUN 27	Na 133 Cl 99 BUN 12	No malnutrition identified	23	23	4	Enteral via G tube	25	1.3	42	•25kcal/kg •1.2-1.5gm/kg protein •fluid: 1000ml/kg + 20ml/kg for each kg above 20kg
3	21	Partial deletion of chromosome 3P11, suspected mitochondrial disorder, Dandy-Walker syndrome, epilepsy, respiratory failure trach dependent	Delayed Gastric Emptying	Bedbound, nonverbal	Metabolic encephalopathy, initially admitted to ICU	Na 106 Cl 78 BUN 40 Lactate 2.3	Na 135 Cl 99 BUN 10 Lactate 1.6	No malnutrition identified	21.81	23.9	13	Enteral via GJ tube	26	1.3	42	•11kcal/cm (patient measured using Chumlea equation) •1.2-1.5 kcal/kg protein, •fluid: 1000ml/kg + 20ml/kg for each kg above 20kg
4	28	Lennox-Gestaut syndrome	Chronic constipation, recurrent small bowel obstruction	Able to walk occasionally, mostly bedbound contracted, nonverbal	Small bowel obstruction	No major electrolyte abnormalities	Stable	Severe PCM	11.59	13.6	14	Parenteral via PICC line	54	2.5	67	•11kcal/cm (patient measured using Chumlea equation) •2-2.5gm/kg •fluid: 1000ml/kg + 20ml/kg for each kg above 20kg

CP = Cerebral Palsy; PCM = Protein Calorie Malnutrition; SIADH = Syndrome of Inappropriate Antidiuretic Hormone Secretion; UTI = Urinary Tract Infection.

P71 - Using Mid-Upper Arm Circumference Z-Score (MUACz) Tapes in a Climate and Health Randomized Control Trial Identifies and Improves Malnutrition Risk Status

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[1]Public Health Institute, Sacramento, California; [2]University of Bonn, Heidelberg, Baden-Wurttemberg; [3]Abbott Nutrition, Columbus, Ohio; [4]Abbott Nutrition, Chicago, Illinois

Financial Support: The ALIMUS RCT in Kenya was funded by the German Research Foundation (DFG) within the DFG Research Unit "Climate change and health in sub-Saharan Africa" (Reference: D10041684). The MUACz tapes used in the ALIMUS RCT were donated by the Abbott Center for Malnutrition Solutions, Abbott Laboratories, IL, USA. The MUACz tape study of nutrition screening, training, and focus group interviews was financially supported by Abbott, IL, USA (Reference: HA63).

Background: As part of the ALIMUS community-based randomized control trial (RCT), MUAC z-score (MUACz) tape screenings utilizing the updated and validated pediatric MUAC growth curves incorporating age- and gender-specific data (z-scores) were conducted. Study aimed to understand the impact of an integrated home garden and nutrition counseling intervention implemented as a climate change adaptation strategy to improve child health in Kenya. This sub-study aimed to investigate the feasibility of leveraging Community Health Volunteers (CHVs) to identify malnutrition risk using the MUACz tape and understand experiences and lessons learned as part of the ALIMUS RCT.

Methods: This mixed-methods sub-study in ALIMUS evaluated the feasibility of MUACz tape use among children 6-24 months of age from five areas in Siaya County of southwestern Kenya. Focus Group Discussions were used to explore the experiences of CHVs and MoH staff, who used the MUAC z-score tape for the nutrition screening. Fifteen CHVs were trained on the use of MUAC z-score tapes, then deployed the tapes to assess the nutritional status of children from households participating in ALIMUS. CHVs conducted home-based MUACz tape screenings four times over a year. Children with moderate to severe undernutrition were referred to health facilities for treatment. Aggregate data on successful MUACz tape screenings and nutritional status were recorded and analyzed in R with $\alpha = 0.05$. This abstract reports on quantitative data only.

Results: 544/617 children participated in at least one screening with ≥ 85% retention across four timepoints over 1 year. Majority were boys (n = 289/544) with average age of 15 (± 5.09) months. Overall, at baseline, 18.1% (n = 98/540) of children had malnutrition risk (undernutrition: 13.7%, n = 74/540; overnutrition: 4.4%, n = 24/540). At the end of the study, 14.0% (n = 73/523) had malnutrition risk (undernutrition: 6.9%, n = 36/523; overnutrition: 7.1% n = 37/523; $p < 0.001$). Of the children experiencing malnutrition at baseline (undernutrition: 14.1%, n = 71/

502; overnutrition: 4.6%, n = 23/502) who were also screened at the final timepoint, at least a third improved their nutrition status (improved undernutrition: 64.8%, n = 46/71; improved overnutrition: 39.1%, n = 9/23) ($p < 0.001$).

Conclusion: Findings demonstrate that integration of regular MUACz risk screening within a community-based RCT among non-healthcare professional CHVs is feasible and recognition of malnutrition risk helps improve nutrition risk status. Incorporating regular screenings for malnutrition risk in community health clinics and/or home-based programs may bring more awareness to malnutrition with the hope of establishing nutrition-focused interventions that could support optimized nutrition status and overall health improvements.

P72 - A Third of Adults as Young as Early Forties May be at Nutritional Risk: Findings From Global Handgrip Strength Study Using a Digital Tool

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Sharn AR, Varadarajan K, Rao GV, Minguet Oses M, Rodolfo Dimaano Jr J. A Third of Pacific Asian Adults Experience Nutritional Risk based on Handgrip Strength Assessments. Parenteral and Enteral Nutrition Society of Asia (PENSA) October 2025, Suntec, Singapore.

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P73 - Malnutrition Status, Dysphagia Incidence, and Feeding Route of Patients With Subdural Hematoma in an Acute Care Setting

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Background: Subdural hematoma (SDH) is a common neurological condition encountered in acute care settings that is considered a subtype of traumatic brain injury. Malnutrition can be common in patients with SDH, often caused by a combination of advanced age, pre-existing comorbidities, impaired functional status and decreased level of consciousness. Dysphagia can be neurogenic in origin resulting from the disruption of sensorimotor swallowing pathways, limiting oral intake and predisposing patients to aspiration and malnutrition, which is linked to longer hospital stay, increased readmission rate, poorer outcomes and higher healthcare costs. Despite significant clinical complications, the nutritional implications of subdural hematoma, particularly regarding malnutrition, prevalence of dysphagia, and feeding methods, are not well-studied.

Methods: This is a single-center, retrospective cohort study of patients admitted with SDH. Patients were evaluated on presence of, and/or changes in, malnutrition status, malnutrition-related enteral feeding duration, and incidence of dysphagia/improvement of dysphagia over the course of admission.

Results: This study included 101 patients who experienced SDH between 2018 and 2023. Of these, 39% were female (n = 39) and 61% were male (n = 62) (Table 1). Dysphagia was documented in 24.7% (n = 25) patients. The mean GCS score on admission among the sample size was 11.3 ± 4.5. Mechanical ventilation was required in 27.7% of patients (n = 28), for a median duration of 2 (1,7.5) days. Around half of the participants, specifically 51.54% (n = 52), underwent neurosurgical intervention. Regarding the length of hospital stay, the

majority, 62.4% (n = 63), required ICU care, and 54.5% (n = 55) were admitted or transferred to the progressive care unit. The median length of stay for those in the ICU was 3 (1,5) days and 4 (1,8) days for those in PCU (Table 2). Of the study cohort, 42% (n = 42) were readmitted at least once within the subsequent year. Regarding nutrition outcomes, 63% (n = 64) were not assessed for malnutrition, while 24% (n = 24) were noted to have no malnutrition, 8% (n = 8) were identified as moderately malnourished, and 5% (n = 5) as severely malnourished at the first nutrition assessment. One in three patients, 33.6% (n = 34), were fed orally or enterally on the day of admission, while close to half 45.5% (n = 46) were fed on the second day of admission, and 8.9% (n = 9) fed within the first 48 hrs. of admission. Remaining patients, 12% (n = 12), were kept NPO for at least 3 days. No patients in this cohort required PN, while 27.7%(n = 28) received enteral nutrition (EN), with 64.3% (n = 18) receiving it for less than 2 weeks for a mean of 7.2 ± 3.4 days, 35.7% (n = 10) patients receiving EN for more than 2 weeks, and 7.9%, required HEN. Only 11% (n = 11) reported enteral feeding intolerance, with diarrhea being the most common symptom in 54.5% (n = 6), followed by constipation in 18.1% (n =2). Additionally, 27% (n = 26) received oral nutrition supplements during admission.

Conclusion: Overall, this study reveals inconsistencies in nutritional assessment and feeding practices. Nutritional assessment revealed that malnutrition was under-recognized, with close to two thirds of patients not assessed during their hospital stay. Early feeding was achieved in most cases and EN was well tolerated when used. Our findings emphasize the need for systematic nutrition screening, timely initiation of feeding, and proactive nutritional support management to optimize recovery outcomes in SDH patients, with early interdisciplinary involvement—encompassing neurology, dietetics, and speech-language pathology—playing a key role in ensuring timely assessment, guiding feeding route decisions, and mitigating adverse outcomes.

Table 1. Baseline demographics and clinical characteristics

Variables **n (%)** **Mean ± SD** **Median (IQR: 25th, 75th)**	**n=101**
Age, year	66 ± 20
Gender	
▪ **Male**	62 (61.3)
▪ **Female**	39 (38.6)
BMI at admission, kg/m^2	27.9 ± 12.9
Smoking:	
▪ History of smoking	38 (38)
▪ Current Smoking	15 (15)
▪ **Smoking years**	26.5 (8.4, 47.5)
Co-morbidities	
▪ **Hypertension**	55 (54.5)
▪ **Diabetes mellitus**	15 (14.9)
▪ Chronic **kidney disease**	29 (28.7)
▪ Heart disease/**Heart failure**	24 (24)
Diagnosis of dysphagia	25 (24.7)

Table 2. Hospitalization data

Variables n (%) Mean ± SD Median (IQR: 25th, 75th)	n=101
ICU admission	63 (62.4)
Mechanical ventilator	28 (27.7)
PCU admission	55 (54.5)
Inpatient care ▪ Length of ICU stay, days ▪ Length of PCU stay, days	 3 (1,5) 4 (1,8)
Surgical intervention	52 (51.4)

P74 - Micronutrient Deficiency in Patients Receiving Continuous Renal Replacement Therapy: A Retrospective Review of an Adult Inpatient Cohort

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Financial Support: None Reported.

Background: Acutely ill patients with renal failure receiving continuous renal replacement therapy (CRRT) are at heightened risk for malnutrition and micronutrient deficiencies due to the combined effects of metabolic stress, inflammation, impaired nutrient intake, and dialysis-related nutrient losses. Malnutrition in this population is strongly associated with adverse outcomes, including increased morbidity, prolonged hospitalization, and higher mortality. Despite recognition of the importance of nutritional support, there remain gaps in the systematic assessment and provision of tailored interventions, particularly with respect to micronutrient monitoring and supplementation. Understanding the baseline nutritional characteristics and clinical interventions in this population is essential to improve outcomes.

Methods: A single-center retrospective cohort study was carried out to examine clinical practices in evaluating micronutrient deficiencies in adult inpatient population receiving CRRT. We included patients who received CRRT between June 1st, and December 31st, 2024.

Results: A total of 107 patients were included in the analysis (57.9% male; mean age 62 ± 15.2 years, and mean BMI at admission 30.8 ± 9.2). All patients received CRRT indicated for renal insufficiency with 41.1% presenting with acute kidney injury and 58.9% with chronic kidney disease (CKD) with or without acute-on-chronic injury. Among those with CKD (n = 63), the majority were classified as stage IIIa (28.6%) or IIIb (25.4%), while 22.2% were in stage V. Most patients required ICU interventions: 90.6% received mechanical ventilation, 17.7% required extracorporeal membrane oxygenation (ECMO), and 43.9% underwent intermittent hemodialysis after CRRT (Table 1). Nutritional care was broadly initiated, with a registered dietitian consulted for 97.2% of patients during admission; however, only 16.8% had nutrition support services directly involved. Malnutrition was identified in 42.3% of patients, of which 65.2% were classified as moderate and 34.8% as severe. Etiologies of malnutrition were attributed to chronic illness in 50.0% of cases, acute illness in 30.4%, and unspecified causes in 19.6%. The majority of patients (75.7%) received enteral nutrition, while 45.8% maintained some degree of oral intake and 14.6% required parenteral nutrition. A small proportion (1.9%) who died shortly after admission received no nutrition support, remaining NPO until death. Oral nutrition supplements were prescribed in 55.1% of patients, and 42.9% received dialysis-specific multivitamin supplementation. The median length of hospitalization was 19 days (11,36). Mortality during hospitalization was high at 48.6%, with an additional 0.9% mortality within 90 days after discharge. Assessment of micronutrient status revealed substantial gaps in monitoring and supplementation. Testing rates varied widely, with the most frequently assessed nutrients being zinc (62.8%), iron (53.7%), and ferritin (55.4%). Deficiency prevalence was high among those tested: 70.8% for vitamin A, 63.2% for 25-hydroxy vitamin D, 64.6% for iron, 53.8% for Vitamin C and 45.2% for zinc. Despite the high prevalence of deficiencies,

supplementation was limited. Iron supplementation was most common, prescribed to 55.1% of patients, while all other micronutrients were supplemented in fewer than 6% of cases (Table 2).

Conclusion: These findings underscore the vulnerability of critically ill patients with renal insufficiency to nutritional compromise and highlight important gaps in nutrition care delivery. Systematic screening for malnutrition, routine assessment of micronutrient status, and evidence-based supplementation strategies may represent critical opportunities to optimize clinical outcomes and reduce mortality in this high-risk population.

Table 1. Baseline Demographics, clinical characteristics, and nutrition support

Variables n (%); mean ± SD; median (IQR: 25th, 75th)	**n=107**
Age, year	62 ± 15.2
Gender	
• Female	45 (42.1)
• Male	62 (57.9)
Weight at admission, kg	87.1 ± 27.2
BMI at admission, kg/m^2	30.8 ± 9.2
Renal insufficiency	
• Acute kidney injury	44 (41.1)
• Chronic kidney disease	63 (58.9)
CKD Stage (n=63)	
• Stage I	1 (1.6)
• Stage II	5 (7.9)
• Stage IIIa	18 (28.6)
• Stage IIIb	16 (25.4)
• Stage IV	9 (14.3)
• Stage V	14 (22.2)
Critical care interventions	
• Mechanical ventilation	97 (90.6)
• ECMO	19 (17.7)
Intermittent hemodialysis	47 (43.9)
RD Consulted during admission	104 (97.2)
Nutrition support service consultant/involved	18 (16.8)
Malnutrition prevalence	46 (42.3)
Malnutrition severity (n=46)	
• Moderate	30 (65.2)
• Severe	16 (34.8)
Etiology of malnutrition (n=46)	
• Acute illness	14 (30.4)
• Chronic illness	23 (50)
• Unspecified	9 (19.6)
Nutrition support/therapy	
• Oral intake	49 (45.8)
• Enteral nutrition	81 (75.7)
• Parenteral nutrition	19 (14.6)
• No nutrition support provided (NPO from admission to death)	2 (1.9)
Oral nutrition supplements prescribed	59 (55.1)
Multivitamins	
• **Dialysis specific multivitamin supplement**	46 (42.9)
Hospitalization	
• Length of hospitalization, days	19 (11,36)
• Mortality hospitalization	52 (48.6)
• Mortality 90-day (after discharge)	1 (0.9)

Table 2. Micronutrients assessment and supplementation

Micronutrient n (%)	Normal reference range (adult)	Checked (%) n=107	Deficiency (% of checked)	Supplementati n=107
Ascorbic Acid	0.4-2.0 mg/dL	13 (10.7)	7 (53.8)	1 (0.9)
Vitamin B12	180-914 ng/L	37 (30.6)	1(2.7)	0
Folate	=4.0 mcg/L	31 (25.6)	1(3.2)	6 (5.6)
Vitamin B6 (pyridoxal 5-phosphate)	5-50 mcg/L	0	—	0
Vitamin E	5.5-17.0 mg/L	22 (18.2)	8 (36.4)	0
Vitamin A	32.5-78.0 mcg/dL	24 (19.8)	17 (70.8)	1 (0.9)
25-hydroxy Vitamin D	20-50 ng/mL (optimum levels)	22 (18.2)	24 (63.2)	3 (2.8) Vit D3
Vitamin K	0.10-2.20 ng/mL	3(2.5)	2(66.7)	
Zinc	60-106 mcg/dL	76 (62.8)	14 (45.2)	4 (3.7)
Copper	73-129 mcg/dL (Male) 77-206 mcg/dL (Female)	27 (22.3)	5 (18.5)	1 (0.9)
Selenium	110-165 mcg/L	7 (5.8)	2 (28.6)	2 (1.9)
Iron	50-150 mcg/dL (Male) 35-145 mcg/dL (Female)	65 (53.7)	42 (64.6)	59 (55.1)
Ferritin	31-409 mcg/L (Male) 11-328 mcg/L (Female)	67 (55.4)	3 (4.5)	—
Ceruloplasmin	19.0-31.0 mg/dL (Male) 20.0-51.0 mg/dL (Female)	1 (0.83)	1(100)	0
Albumin	3.5-5.0 g/dL	107 (100)	80 (74.8)	—

P75 - Predicting Incomplete Frailty Assessments in Cirrhosis

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Financial Support: None Reported.

Background: Frailty, characterized by a decline in multiple physiologic systems, is common in patients with cirrhosis. The Liver Frailty Index (LFI) is validated to identify frailty in this population, yet little is known about patients who cannot complete the assessment. The goal of this study was to describe reasons patients are unable to complete the LFI, and determine various predictors associated with incomplete tests in the LFI assessment.

Methods: All patients with cirrhosis who were evaluated for liver transplantation between January 2019 and December 2024 were included in the retrospective cross-sectional study. At the time of LFI assessment, demographic variables (age, sex, race, ethnicity and body mass index) and clinical variables (etiology of cirrhosis, MELD-Na Score, history of diabetes, hepatocellular carcinoma, varices, hepatic encephalopathy, ascites, spontaneous bacterial peritonitis, or paracentesis) were recorded from the electronic medical record (EMR). The LFI assessment consisted of three performance tests; grip strength (measured using dynamometer in dominant hand, average of 3 trials), chair stands (seconds it took to complete 5 chair stands), and balance (ability to balance in three positions for 10 seconds each, recorded as a maximum 30 seconds). Based on the results of these performance tests, the LFI was calculated using a previously published equation. The reason(s) for not completing any of the tests within the LFI was documented in the registered dietitian's note. Univariate and multivariate logistic regression were used to identify significant predictors of incomplete LFI assessment.

Results: A total of 428 patients underwent liver transplantation evaluation. Within this group, 152 did not complete at least one test within the LFI. A total of 236 reasons for not completing the LFI were recorded (due to the non-discrete nature of this variable). The most common reasons for not completing the LFI were weakness (58%), pain (16%) and decompensation (13%). After performing a univariate logistic regression, age (OR: 1.03, CI: 1.01-1.05, p = 0.007), female sex (OR: 1.73, CI: 1.16-2.59, p = 0.007), MELD-Na score (OR: 1.07, CI: 1.04-1.11, p < 0.001), history

of hepatocellular carcinoma (OR: 0.46, CI: 0.28-0.74, p = 0.001), hepatic encephalopathy (OR: 1.965, CI: 1.30-2.96, p = 0.001), ascites (OR: 1.93, CI: 1.21-3.08, p = 0.006), and if the patient required paracentesis (OR: 2.44, CI: 1.60-3.74, p < 0.001) were determined to be significant predictors of incomplete LFI assessment. After performing a step-wise multivariate logistic regression, the variables that remained significant were age (OR: 1.04, CI: 1.02-1.07, p < 0.001), female sex (OR: 1.95, CI: 1.27-3.00, p = 0.002), MELDNa score (OR: 1.07, CI: 1.03-1.11, p < 0.001), and paracentesis (OR: 2.05, CI: 1.30-3.23, p = 0.002).

Conclusion: This study provides evidence that the most common reasons for incomplete LFI assessments relate to weakness, pain, and cirrhosis related decompensation. This study also determines that age, female sex, MELD-Na score, and paracentesis are predictors of incomplete assessments. These findings highlight a key limitation to the LFI. Patients unable to complete the full assessment cannot be accurately scored or risk stratified. Given the widespread use of the LFI in transplant centers, further research is warranted to understand the outcomes in this sub-population.

P76 - The Impact of Medication Formulations With High Osmolality on Hospital and Critical Care Length of Stay and Rectal Tube Dwell Time Among Patients With Rectal Tubes

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Financial Support: None Reported.

Background: Evidence has noted that diarrhea can increase intensive care unit (ICU) length of stay (LOS) and mortality compared to those without diarrhea. In a clinical setting, excessive diarrhea may require a rectal tube device to better manage fecal output. Enteral nutrition (EN) is commonly thought to cause or contribute to diarrhea; however, a common culprit overlooked in the critical care setting is the continuous usage of medication formulations with high osmolality. The primary aim of this study was to identify the impact of osmotic medication administration on rectal tube placement, hospital and ICU LOS, and the most common testing and associated cost with diarrheal workup in those with rectal tubes in the ICU.

Methods: A retrospective chart review was performed for patients with rectal tubes admitted to the ICU between January 2018 and January 2020. Total osmotic medications received at the time of rectal tube placement, number of doses delivered within 24 hours prior to rectal tube placement, hospital and ICU LOS, rectal tube dwell time, EN administration, and testing associated with diarrheal workups including bacterial stool sampling and abdominal X-raying were recorded.

Results: After exclusion, 164 patients met inclusion criteria. Only 66 patients (40%) were on osmotic medications. A total of 44 patients (67%) received 1 osmotic medication, and 22 patients (33%) received greater than 1 osmotic medication. A total of 45 patients (68%) received less than or equal to 3 doses of an osmotic medication, and 21 patients (32%) received greater than 3 doses. The most common categories of osmotic medications received included electrolyte replacements (50%) and cathartic and laxative medications (32%). Patients who received greater than 1 osmotic medication had a significantly greater ICU LOS (median: 27.50 vs.16; p = 0.0081), hospital LOS (median: 27.50 vs.18.50; p = 0.0331), and greater rectal tube dwell time (5 days vs. 4 days; p = 0.4320) compared to those on 1 osmotic medication, though dwell time was not significant. Regarding osmotic medication dosages, patients that received less than or equal to 3 doses had a higher ICU LOS (median: 18 vs.16; p = 0.8362) and hospital LOS (median: 20 vs. 19; p = 0.7461) compared to those who received greater than 3 doses; however, these differences were not statistically significant. Seventy-seven percent (77%) of patients were receiving EN at the time of rectal tube insertion. The most common test performed for a diarrheal workup was Clostrium difficule stool testing, totaling $7,941.15.

Conclusion: In summary, those who received an overall greater number of osmotic medications had a significantly greater hospital and ICU LOS, but interestingly, when less dosages of osmotic medications were delivered, a greater ICU and hospital LOS also resulted (not statistically significant). This would suggest a benefit to using a lesser quantity of osmotic medications with higher dosages (i.e. use 1 osmotic medication with greater than 3 doses daily) compared to using a higher quantity of osmotic medications with lower dosages (i.e. use 3 osmotic medications with 1 dose daily). However, further investigation to find the true impact on ICU and hospital LOS would be needed.

P77 - Economic Burden of Disease-Associated Malnutrition Continues to Increase in the United States: A 10-Year Update

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Financial Support: Study financially supported by Abbott.

Background: Malnutrition or its risk is prevalent among 30% of community-dwelling adults. These individuals are more likely to experience complications including higher mortality and morbidity as well as higher healthcare resource use than their well-nourished counterparts. In 2014, Snider et al. quantified the economic burden of community-based disease-associated malnutrition (DAM) in the United States (US) by estimating direct medical costs, and morbidity and mortality burden, for breast cancer, chronic obstructive pulmonary disease (COPD), colorectal cancer, coronary heart disease, dementia, depression, musculoskeletal disorders, and stroke. The cost of DAM was estimated at $156.7 billion per year. This study builds on the Snider et al. analysis with updated data and additional disease areas to estimate the burden of DAM in the US.

Methods: The burden of undernutrition was estimated by direct medical costs, combined with morbidity and mortality burden, monetized using the value of the quality-adjusted life years across 10 diseases (cancers including colorectal, breast, skin, prostate, and cervical; chronic obstructive pulmonary disease (COPD), Coronary Heart Disease, Congestive Heart Failure, and Angina (CHD), Arthritis, and Stroke). Disease and malnutrition prevalences were estimated using the National Health and Nutrition Examination Survey, 2017-2020 and 2021-2023. Mortality rates and adjusted life expectancies were estimated from Centers for Disease Control and Prevention data and the Human Mortality Database. Estimates of costs and morbidity of each disease and malnutrition were drawn from existing literature.

Results: DAM burden was $349.7 billion across the 10 diseases studied. Burden was highest in COPD, and lowest in Stroke. Morbidity accounted for the largest share of the burden (50.8%); with 13.1% of burden from direct medical costs.

Conclusion: DAM imposes a significant burden on the US healthcare system and has increased 68% from the Snider et al. 2014 estimate. Ongoing efforts to routinely screen, identify, and treat malnutrition, such as nutrition-focused quality improvement programs that highlight importance of screening and education, intervention with oral nutritional supplements, and follow-up, present an opportunity to minimize this burden through reduction in healthcare resource use and complications.

P78 - Empowering Safe Home PN Starts: Pharmacy Collaboration in a Complex Case of Hyperemesis

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Financial Support: None Reported.

Background: Initiating home parental nutrition (PN) is a high-risk intervention requiring skilled interdisciplinary collaboration to ensure patient safety, particularly in complex cases such as patients with hyperemesis gravidarum (HG). Due to the high-risk nature of home PN patients must have labs drawn to customize the PN formulation; however, delays in obtaining labs and incomplete results are common. Lab draws completed by home health agencies (HHAs) often take 24-36 hours for the pharmacy to obtain the results. Furthermore, if labs have critical values indicating the need for repletion prior to PN initiation this can further postpone therapy, complicating patient management and increasing risk. The Premier pharmacy team identified the home start PN referral at high risk for refeeding syndrome due to patient's pregnancy being complicated by HG, gastrointestinal surgical history, and significantly poor oral intake. At the time of the referral, the patient was a 27-year-old female post-bariatric surgery, 16 weeks gestation with complaints of severe nausea and vomiting. The patient was not able to keep food down for one month, leading her prescriber to order home start PN. As seen in Table 1, there was an eight-day delay between referral and receiving complete lab results. Unfortunately, the final results were critical, requiring further acute interventions prior to safe home PN initiation. The standard process for initiating home PN in this context typically requires a turnaround time of approximately three days. This includes obtaining physician orders for electrolyte replacement, coordinating an HHA visit for administration and conducting a follow-up lab draw to reassess critically low levels. The lab draw is performed either the same day or the following day, depending on timing and nursing availability, with results generally available the day after the draw. Each of these steps contributes to an average delay of an additional three days. Our team identified the urgency in this patient's case and implemented a multidisciplinary approach that was successfully executed in one day. This innovative process involved coordinated efforts across multiple team members. The registered dietitian (RD) collaborated with sales leadership to gain approval for utilizing internal resources and confirmed the patient's ability to visit the pharmacy's Ambulatory Infusion Suite (AIS) for same-day electrolyte replacement. The pharmacist facilitated expedited compounding to ensure the therapy was

ready upon the patient's arrival. The pharmacy's Home Health Registered Nurse (HHRN) administered the replacement therapy and performed the lab draw on site. The specimen was picked up by the processing center the same day, with results available the following morning, enabling timely and safe initiation of home parenteral nutrition.

Methods: None Reported.

Results: None Reported.

Conclusion: This case highlights an innovative, out-of-the-box solution to a time-sensitive and high-risk clinical situation. Through strategic teamwork and proactive coordination, the care team streamlined the process to safely initiate home PN demonstrating how creative thinking and collaboration can significantly improve patient outcomes.

Table 1. Timeframe of key events and lab results

Date	Weight	Key Events	Na	K^+	BUN/Cr	Cl/CO_2	Tbili, AST/ALT	Mg	Phos	Tg	Gluc
11/2024	108.9kg	Pre-pregnancy weight, post-bariatric surgery.									
2/3/25	--	**PN referral received: 16 week gestation** PICC placement + lab draw pending.									
2/6/25	--	Lab draw 2/5 results incomplete (MD draw). Requested Mg, Phos add on 2/6.	144	3.5	8/0.4	99/22	1.1, 50/68	*NA!*	*NA!*	*NA!*	120
2/7/25	--	Lab add on again incomplete. PICC placed.						*NA!*	4.2	147	
2/11/25	--	Stat lab redraw 2/10 (HHA draw) full results 2/11. **Innovative pharmacy intervention completed.**	139	2.5↓	7.1/0.3	99/28	1.2, 117/72	1.3↓	2.4	127	151
2/12/25	89kg	Lab draw 2/11 results complete on 2/12. **Home start PN initiated: 18 week gestation.**	140	3.3	5/0.2	99/20	0.8, 84/129	2.3	3.4	126	97
5/6/25	100kg	**PN ongoing: 29 week gestation.** Gained 24lb from SOC; bedrest. Baby healthy wt.	137	4.4	8.9/0.4	106/23	0.3, 14/12	1.9	4.0	84	72
5/17/25	100kg	**PN end of therapy.**									

Table 1 Key:

NA! = Missing lab results needed for safe home start PN; ↓ = Critical lab results; Bold = Key events. Abbreviations: kg = kilograms; PN = parenteral nutrition' HHA = home health agency; SOC = start of care; Na = sodium; K+ = potassium; BUN = blood urea nitrogen; Cr = creatinine; Cl = chloride; CO2 = carbon dioxide; Tbili = total bilirubin; AST/ALT = aspartate aminotransferase/alanine aminotransferase; Mg = magnesium; Phos = phosphorous; Tg = triglycerides; Gluc = glucose.

P79 - A Retrospective Review of Indirect Calorimetry in Hospitalized Ward Patients Compared to Predicative Equations and Weight-Based Nomograms

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Financial Support: None Reported.

Background: Indirect calorimetry (IC) is considered the gold standard for the assessment of energy needs. However, IC testing is resource intensive with limited availability at many institutions, leading to the use of predictive equations or weight-based nomograms to assess calorie needs. Our institution found that expanding the use of IC in critically ill patients led to significant changes in nutrition support recommendations. Therefore, we wanted to assess the use of IC in our non-critically ill hospitalized patients to determine the relationship between IC and predictive equations, and if obtaining IC led to changes in nutrition support recommendations.

Methods: A retrospective review of non-critically ill hospitalized patients who underwent IC between January 1st, 2023 and December 31st, 2024. IC results were compared to predictive equations and weight-based nomograms. Predictive equations utilized were Harris Benedict Basal (HB) and Mifflin St Jeor (MSJ). Weight-based nomograms were calculated based on BMI and included: BMI of 18.5-29.9 (25-30 kcal/kg actual body weight (ABW)), BMI 30-39.9 (20-25 kcal/kg ABW), BMI > 40 (25-30 kcal/kg ideal body weight). If this information was not in the

Registered Dietitian Nutritionist's (RDN's) note, it was retrospectively calculated by the investigators. Information on nutrition support plans and adjustments after IC were reviewed.

Results: Study cohort (N = 85) were majority male (n = 56, 65.9%) with mean age 58 ± 16.8 years, and most commonly admitted for organ/multiorgan failure (n= 33, 38.9%) (Table 1). Most patients had BMI less than 30 (BMI ≤ 29.9, n = 60; BMI 30-34.9 n= 14, BMI 35-39.9 n= 6; BMI ≥ 40, n = 5). Malnutrition determined by RDN assessment using the Academy of Nutrition and Dietetics and American Society of Parenteral and Enteral Nutrition criteria was present in majority of patients (n = 67, 79.8%); severity was primarily moderate (n = 38, 56.7%), compared to severe (n = 29, 43.3%) (Table 1). Mean IC measured REE (1727.7 ± 480 kcal) was compared to predictive equations; mean HB and MSJ were significantly lower than measured REE (1479.5± 292.3, p < 0.0001 and, 1428.4 ± 278.9, p < 0.0001 respectively). Weight-based nomogram high caloric needs significantly overestimated REE (2023.2 ± 447.4, p < 0.0001). Mean weight-based nomogram low caloric needs was not significantly different than IC measured REE (1684.5 ± 351.3, p = 0.366). Mean REE per BMI category per was BMI ≤ 29.9 = 1669.1 ± 459.9, BMI 30-34.9 1664.6 ± 434.2, BMI 35-39.9 = 2078.6 ± 510.6, BMI ≥ 40 = 2185.6 ± 517.2 (Table 2). Obtaining an IC study led to a change in the nutrition care plan majority of the time (n = 44, 51.8%).

Conclusion: In non-critically ill hospitalized patients, IC revealed significant discrepancies in energy requirements when compared to predictive equations and weight-based nomograms, indicating that estimation of caloric needs often led to under- or over-feeding. Use of IC led to significant changes in nutrition care plans in over half of the cases, underscoring its clinical impact in malnourished patients. Based on these findings, although resource intensive, IC has significant impact on clinical care and there should be broader implementation beyond critically ill settings to help optimize individualized nutrition support. Future studies are necessary to delineate impact on clinical outcomes, optimal frequency of IC measurements, as well as impact of increasing activity and rehabilitation on energy expenditure.

Table 1.

Table 1. Baseline Demographics and Clinical Characteristics

Variables n (%); mean ± SD; median (IQR: 25^{th},75^{th})	**n=85**
Age (at admission), year	58 ± 16.8
Gender	
• Male	56 (65.9)
• Female	29 (34.1)
Anthropometrics	
• Height, cm	171.5 ± 16.8
• Weight at admission, kg	77.5 ± 27.3
• Weight at REE, kg	71.8 ± 25
• Weight used for nutrition needs calculation, kg	67.5 ± 18.9
• BMI at admission, kg/m^2	26.3 ± 9.3
Service	
• Medical	40 (47.1)
• Surgical	45 (52.9)
Admission diagnosis	
• Cancer-related	5 (5.9)
• Infection/sepsis	6 (7)
• Organ/Multiorgan failure	33 (38.9)
• Post-GI surgery	7 (8.2)
• Post-other surgery	16 (18.9)
• Trauma	6 (7)
• Other/Misc.	12 (14.1)
Malnutrition	67 (79.8)
Malnutrition severity (n=67)	
• Moderate	38 (56.7)
• Severe	29 (43.3)
Hospitalizations and Mortality	
• Hospital length of stay, days	48 (23,87)
• Hospital mortality	13 (15.3)
• 90-day mortality	7 (8.2)
REE lead to change in nutrition support plan	44 (51.8)

Table 2.

Table 2. Differences in energy expenditure calculations using different predictive equations compared to IC/REE						
Variable Mean ± SD	**N**	**REE**	**HB**	**Wt-based Low (25.6 ± 3.6 kcal/kg)**	**Wt-based High (30.6 ± 3.9 kcal/kg)**	**MSJ**
Overall, kcal/d	85	1727.7 ± 480	1479.5 ± 292.3	1684.5 ± 351.3	2023.2 ± 447.4	1428.4 ± 278.9
Compared to REE *p*-value			**<0.0001**	0.366	**<0.0001**	**<0.0001**
Measured versus estimated energy requirements by BMI Category						
≤29.9	60	1669.1± 459.9	1391.9 ± 243.0	1638.2 ± 345.0	1948.4 ± 429.5	1351.0 ± 248.5
30 – 34.9	14	1664.6 ± 434.2	1608.5 ± 255.8	1830.5 ± 281.3	2243.2 ± 328.5	1559.1 ± 223.6
35 – 39.9	6	2078.6 ± 510.6	1842.8 ± 383.3	1937.6 ± 389.8	2410.6 ± 507.6	1711.1 ± 346.4
≥ 40	5	2185.6 ± 517.2	1732.8 ± 275.8	1527.6 ± 394.5	1839.2 ± 535.8	1651.8 ± 279.5

P80 - Spatial Epidemiology Study of Food Environments and Mortality Associated With Malnutrition

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Financial Support: None Reported.

Background: Malnutrition is associated with structural causes such as poverty, economic inequality, and lack of healthcare. In Mexico, severe malnutrition had a disease incidence rate of up to 1.4 cases per 100 inhabitants in 2020. The marginalization index is a summary measure that differentiates the different geographic units of the country according to the overall impact of the deficiencies suffered by the population as a result of lack of access to education, healthcare, adequate housing, and insufficient income. The high cost of food could particularly affect affordability among households that spend a considerable amount of their income on food. Food environments can be defined in terms of geographic access to food in a community, neighborhood, or retail outlet, as well as to health services.

Methods: This is an analytical study with spatial epidemiology using data from 2010 and 2020 from the Agri-Food System and Nutrition Platform in Mexico of the Geo Center, which were constructed from: CONAPO Marginalization Index, National Statistical Directory of Economic Units INEGI and Deaths Ministry of Health. Descriptive statistics and spatial and econometric models were made with R studio® and GeoDa™. The following were applied: spatial analysis to identify the type of spatial correlation using Global and bivariate Moran's I, with a significance ($p < 0.05$) and confidence intervals at 95%.

Results: In recent years, the excess risk rate for malnutrition has decreased in Mexico, although some areas remain at high risk, especially in the south of the country (Figure 1). There are significant differences between 2010 and 2020 in terms of the number of units of healthy food available (Table 1). Food deprivation is an important indicator of poverty and the capacity to obtain enough food for a healthy life. To calculate the indicator used to measure poverty, a person is considered to be food deprived if they have a degree of food insecurity. Regarding the degree of marginalization, it was found that the higher the degree of marginalization in the very high and high groups, the ratio of the mean was 33.6 and 27.3, respectively (Figure 2). A bivariate Moran's I test was used for the mortality rate and marginalization index variables. A positive overall autocorrelation and statistical significance were found. There were 139 municipalities with High-Low values (high marginalization/low mortality), drawing attention to states such as Sonora, Durango, Chihuahua and Nuevo Leon (Figure 3).

Conclusion: The inability to obtain a nutritious diet, due to social and economic factors, represents a burden for people suffering from malnutrition. Food environments have led to food insecurity. The results, based on a spatial analysis, reveal the most affected municipalities, which are important for decision-making regarding public health policies.

Table 1. Descriptive statistics on deaths from malnutrition and the healthy food unit index

	Total death rates for the statistical year		Healthy Food Economic Unit Index of the Food Environment	
	2010	2020	2010	2020
Mean	16.41	12.66	80.92	74.64
Median	6.94	2.86	80.81	74.39
SD±	37.71	36.57	11.92	10.18
Range	1084.01	1006.71	93.00	93.00
Min	0.00	0.00	7.00	7.00
Max	1084.01	1006.71	100.00	100.00

Difference in mortality between 2000 and 2020 (t-test = 4.119 $p < 0.01$), and for the difference between the Healthy Food Index of the Food Environment (t-test = 34.46 $p < 0.01$).

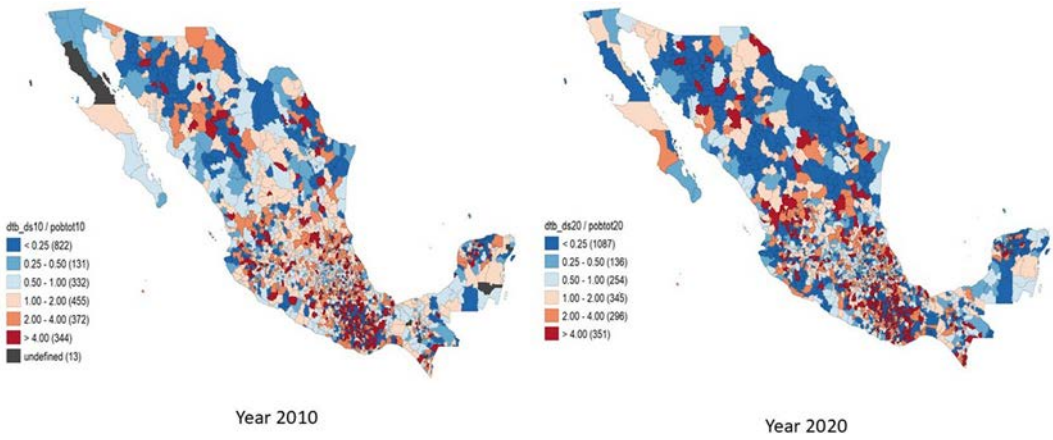

Figure 1. Malnutrition excess risk mortality between 2010 and 2020

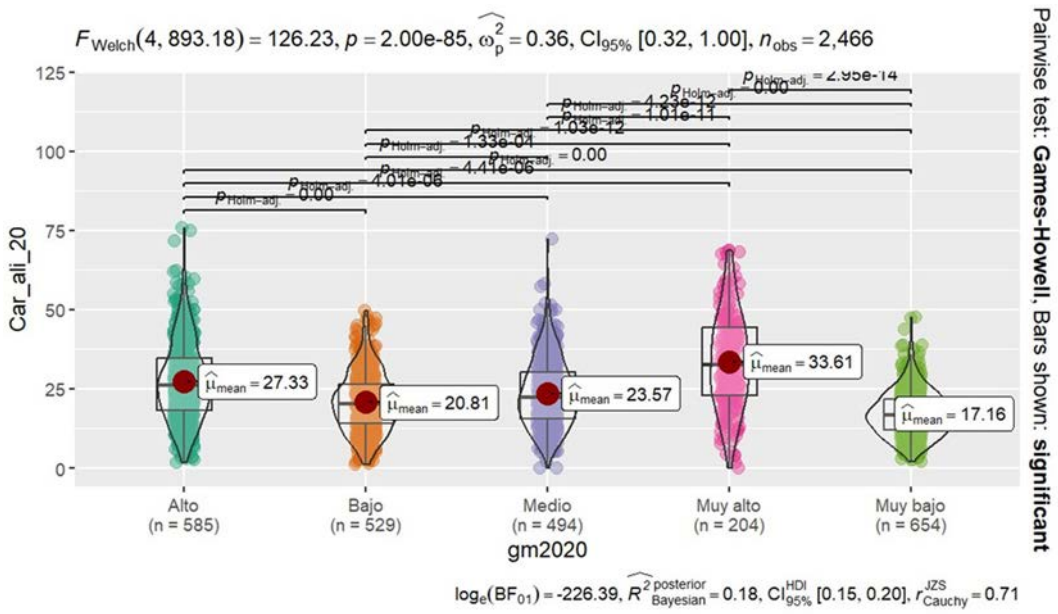

Figure 2. Food deprivation and marginalization

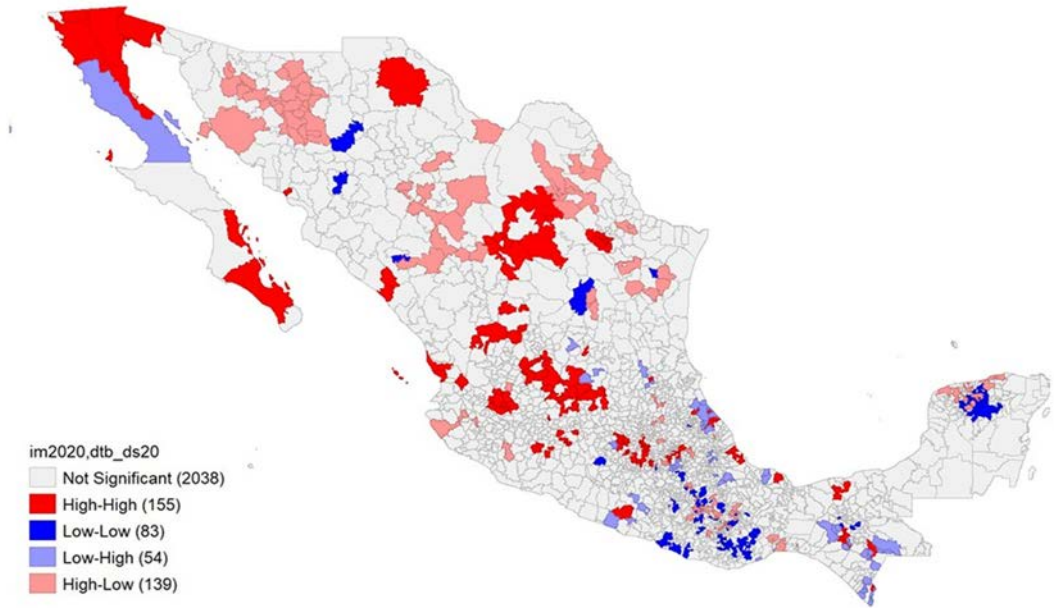

Figure 3. Malnutrition mortality and marginalization index

Bivariate Local Moran's I. For mortality 2020 Moran I = -0.097, p-value = 0.001.

P81 - Beyond BMI: A Comparative Study of Muscle Mass, Function and Strength Loss in Women

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Financial Support: None Reported.

Background: This, cross-sectional, population-based study was conducted among Mexican women via convenience sampling. Approved by the Ethics Committee of Aranda de la Parra Hospital (León, Guanajuato, Mexico), the study complies with the Declaration of Helsinki. All participants provided informed consent. Inclusion criteria: Mexican women aged 30–92 years, functionally independent. Exclusion criteria: amputations, movement disorders, or limb immobilization devices. The research team used standardized anthropometric techniques. Collected data included demographics, weight, height, BMI, calf circumference, and grip strength (dynamometer). Results are reported as mean ± SD. Spearman's correlation assessed associations between BMI, calf circumference (adjusted for BMI), and grip strength, with significance set at $p < 0.05$.

Methods: An observational, cross-sectional, population-based clinical study was conducted among Mexican women, recruited through convenience sampling. The study was approved by the Ethics Committee, and informed consent was obtained from all participants. Inclusion criteria: Mexican women aged 30 to 97 years who were functionally independent. Exclusion criteria: women with amputations, movement disorders, or immobilization devices on their extremities. The research team was previously standardized in anthropometric measurement techniques. Demographic data were collected, along with measurements of weight, height, body mass index (BMI), calf circumference, and grip strength using a dynamometer. Descriptive and analytical statistics were performed. ANOVA and Spearman's correlation analyses were conducted, with a significance level of $p < 0.05$ and a 95% confidence interval (CI).

Results: A total of 633 women were evaluated in workplaces, recreation centers, and health facilities. General functional and anthropometric results are shown in Table 1. The most frequent conditions identified were type 2 diabetes mellitus, hypothyroidism, osteoporosis, and hypertension, especially among women aged 70–80 years. Grip strength and Up and Go Test results showed a 6.3 kg difference between normal and elevated categories, with statistically significant differences (Figure 1). Spearman's correlation analysis revealed an inverse relationship between strength and function ($R = –0.4$, $p < 0.01$). Grip strength declined with age, with the most notable decrease between 80 and 90 years (ANOVA: $F = 21.601$, $p < 0.05$) (Figure 2). When TUG and BMI were analyzed by calf circumference interpretation, women classified as Obesity II showed the poorest TUG performance (28% vs. 6%) (Figure 3).

Conclusion: These findings support surveillance in young adulthood as a preventive strategy, enabling timely diagnosis and specialized care. They also emphasize the role of muscle mass and strength in aging, essential for preserving physical independence and performance. Our study revealed a moderate inverse correlation between strength and function ($r = -0.448$, $p < 0.001$). We recommend improving nutritional status and promoting regular multicomponent exercise to mitigate this decline. Public health policies should prioritize prevention through comprehensive assessments, focusing on muscle strength and mass in younger populations. Further research is needed to explore the underlying causes of this phenomenon, particularly its impact on the women studied.

Table 1. Functional and anthropometric results

Variable N=633	media	sd	mediana	min	max
Age (years)	68.0	11.7	70	30	97
Weight (kg)	67.9	13.1	66.4	35.8	144.5
Height (m)	1.5	0.1	1.52	1.32	1.78
BMI (kg/m2)	29.3	5.0	28.8	17.4	57.6
Mid-upper arm circumference (cm)	31.1	4.2	30.9	17.2	47.3
Grip strength (kg)	23.7	6.0	23	1.6	48
Calf circunference (cm)	22.0	7.6	20.5	8	53
TUG	8.5	3.9	7.43	2.46	40
Calf circunference BMI correction (cm)	31.6	3.1	32	17	43

BMI = Body Mass Index, TUG = Test Up and Go.

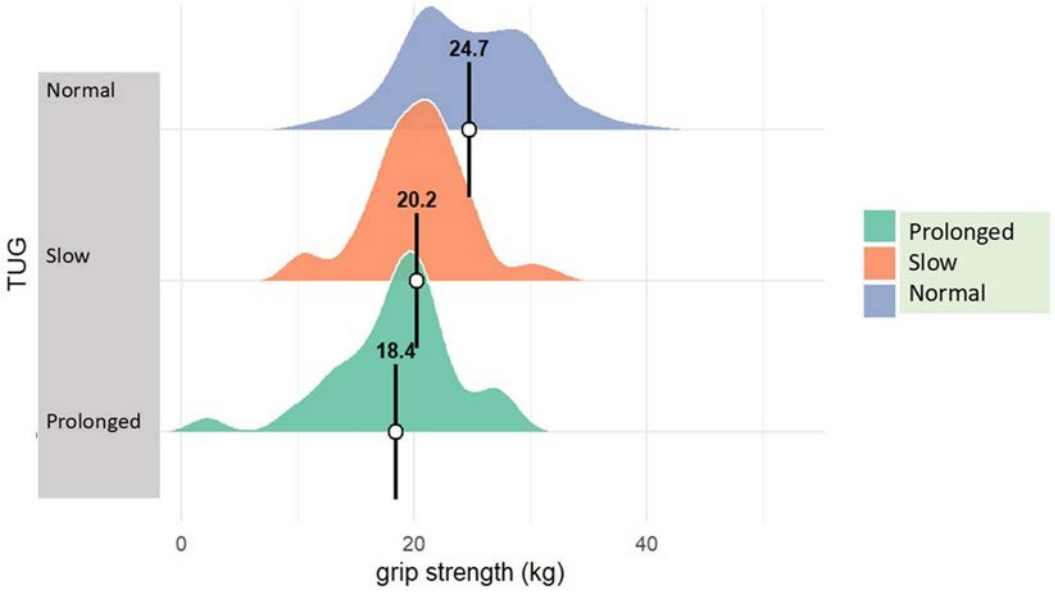

Figure 1. Distribution of grip strength by TUG results

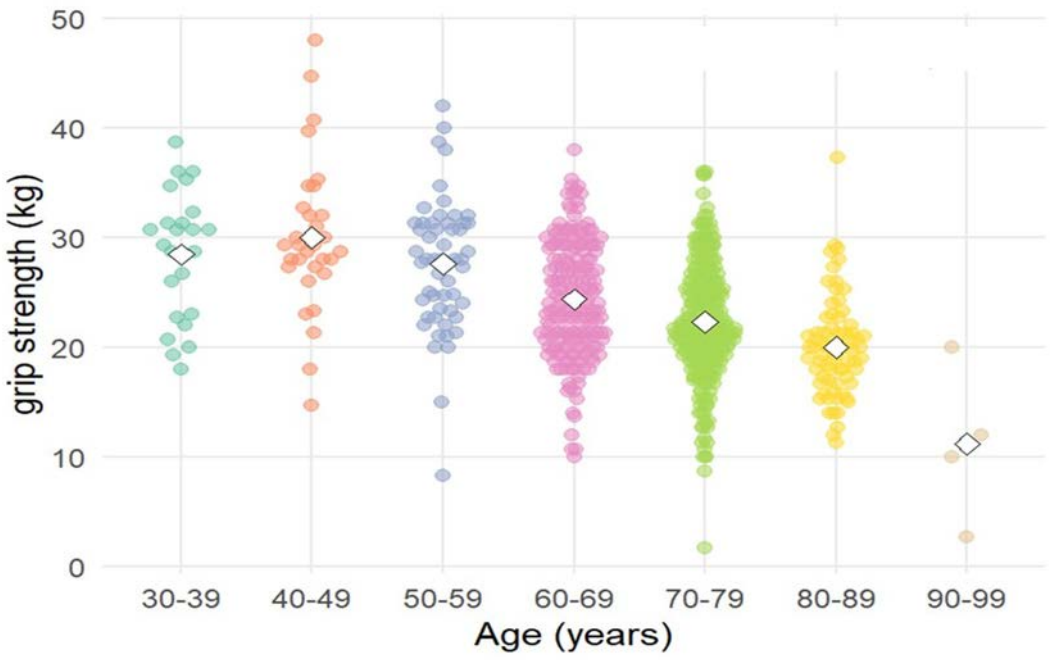

Figure 2. Grip strength by age group

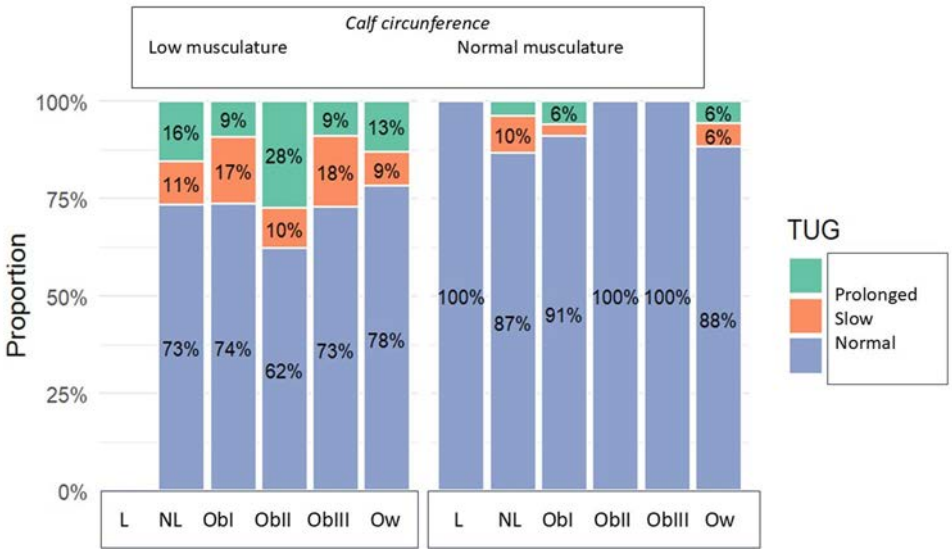

Figure 3. TUG results according to BMI, stratified by calf circumference

Low = L; normal = NL; Obesity I = Obl; Obesity II = Obll; Obesity III = Obllll; Overweight = Ow.

Poster of Distinction Award

P82 - CT Imaging as a Tool for Early Identification of Sarcopenia and Nutritional Risk in Older Adult Trauma Patients

Michael Ivey, BS[1]; Rajan Gupta, MD[1]; Jeroen Molinger, MS[2]; Paul Wischmeyer, MD, EDIC, FCCM, FASPEN[1]; Krista L. Haines, DO, MD[1]
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Financial Support: None Reported.

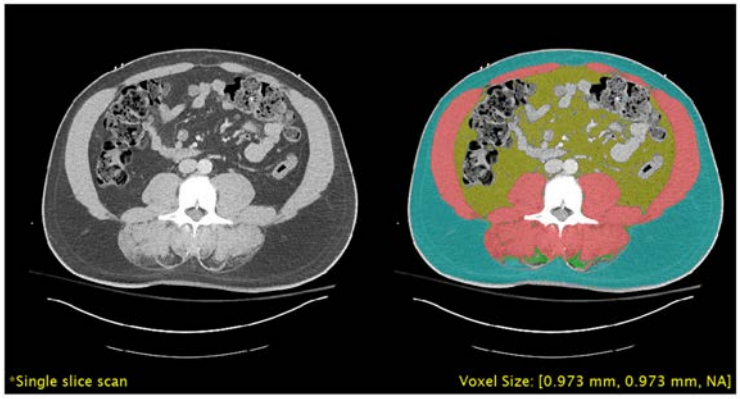
Background: To evaluate the utility of CT-based body composition metrics for predicting baseline clinical and functional outcomes in critically ill older adult trauma patients enrolled in a structured nutritional intervention trial.

Methods: This pilot randomized clinical trial enrolled 40 older adult trauma patients (≥ 60 years) hospitalized at a Level 1 trauma center. All participants received evidence-based inpatient nutritional supplementation. On discharge, ¾ were randomized to receive continued oral nutrition support. Abdominal CT scans were segmented at L3, quantifying skeletal muscle index (SKMI), subcutaneous adipose tissue index (SATI), visceral adipose tissue index (VATI), and intramuscular adipose tissue index (IMATI). Baseline sarcopenic measures included hand grip strength (HGS), quadriceps strength, and the SARC-F questionnaire. Length of hospital stay was recorded. Rectus femoris ultrasound was used to assess muscle quality. Baseline patient-reported measures included the Mini Nutritional Assessment (MNA) and Brief Resilience Scale (BRS). Multivariable linear regressions were conducted controlling for age, sex, and BMI category (overweight/obese vs. not).

Results: Lower SKMI was significantly associated with prolonged hospital length of stay at baseline ($p < 0.05$). SATI independently predicted worse baseline nutritional status by MNA and higher SARC-F scores. Higher IMATI predicted worse skeletal muscle quality on muscle ultrasound (fuel rectus femoris measures) and lower grip strength. Although SKMI as a continuous variable did not show a statistically significant association with grip strength ($p = 0.093$), dichotomization by established sarcopenia cutoffs (< 45.4 cm^2/m^2 men, < 34.4 cm^2/m^2 women) revealed a strong significant association ($p = 0.017$).

Conclusion: The 2019 revised guidelines from the European Working Group on Sarcopenia in Older People (EWGSOP) recommend handgrip strength (HGS) as the primary screening tool for sarcopenia, yet it is often not assessed during the acute recovery phase after trauma. In this context, CT-derived body composition metrics—particularly SKMI and IMATI—demonstrate strong predictive value in identifying sarcopenia in older trauma patients. Metrics such as SATI are useful in assessing baseline nutritional status. Together, these CT measures offer an effective

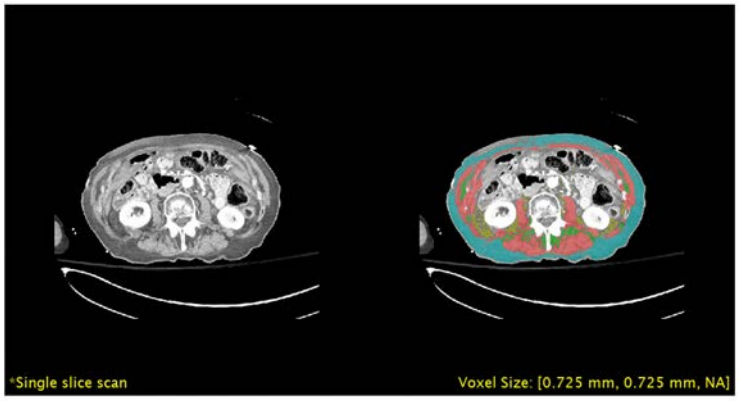
alternative for evaluating nutritional and functional status in this high-risk population. Clinical Relevance/Application: CT imaging, routinely performed as part of trauma care, offers a valuable opportunity for early identification of at-risk older adult patients and may guide targeted nutritional and rehabilitative interventions to improve resilience and recovery after injury.



Tissue	Cross-sectional Area (cm²)	Mean Intensity	Index
Skeletal Muscle [-29, 150]	302.79	47.68	
Subcutaneous Adipose Tissue [-190, -30]	375.43	-89.42	
Visceral Adipose Tissue [-150, -50]	216.97	-88.69	
Intramuscular Adipose Tissue [-190, -30]	10.66	-57.59	

Figure 1. Patient with high SKMI index

Representative body composition analysis images for one patient who had a normal SKMI and was found to not be sarcopenic on hand grip strength, and one who had low SKMI (i.e. sarcopenic) and was found to be sarcopenic based on decreased hand grip strength.



Tissue	Cross-sectional Area (cm²)	Mean Intensity	Index
Skeletal Muscle [-29, 150]	74.29	41.09	
Subcutaneous Adipose Tissue [-190, -30]	72.8	-57.4	
Visceral Adipose Tissue [-150, -50]	10.67	-66.66	
Intramuscular Adipose Tissue [-190, -30]	12.88	-50.87	

Figure 2. Patient with low SKMI index

Representative body composition analysis images for one patient who had a normal SKMI and was found to not be sarcopenic on hand grip strength and one who had low SKMI (i.e. sarcopenic) and was found to be sarcopenic based on decreased hand grip strength (same as Figure 1).

P83 - Development and Pilot Launch of a Real-Time Nutrition Informatics Dashboard to Enhance Nutrition Support Assessment and Delivery

Linah Alqurashi, PhD, RD[1]; Annette Dourney, RD, CNSC[2]; Michael Hockstein, MD[3]
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Financial Support: None Reported.

Background: Assessing energy and protein adequacy in hospitalized patients is critical for identifying those at risk of undernutrition. Traditionally, dietitians relied on manual review of intake and output flowsheets in the electronic medical record (EMR) to estimate intake from enteral nutrition (EN), parenteral nutrition (PN), oral nutrition supplements (ONS), and modular protein products. This process is time-consuming, inconsistently performed, and lacks standardization across units. To address these limitations, we developed and implemented a real-time, hospital-wide nutrition dashboard designed to integrate dietitian recommendations with provider orders and automatically collect intake data for comparison to individualized goals via interactive visual displays. We describe the pilot implementation and preliminary evaluation of this tool.

Methods: A multidisciplinary team led by a clinical nutrition scientist and a surgical critical care physician with programming expertise collaborated with clinical dietitians to design the dashboard. Intake data from the EMR, including EN, PN, ONS, and modular protein are automatically extracted and compared to individualized calorie and protein targets. The dashboard visualizes daily and cumulative nutrition adequacy by route over a 7-day window. Color-coded indicators highlight suboptimal intake. To support prioritization, contextual cues such as dialysis within the past 7 days and malnutrition diagnoses documented in the EMR are also displayed. Iterative feedback from end users guided dashboard refinements.

Results: The dashboard has been integrated into routine workflows across multiple inpatient units, with consistent use by clinical dietitians during daily assessments. Preliminary feedback suggests improved efficiency, reduced manual calculation, standardized tracking, and earlier identification of patients at nutritional risk. Contextual identifiers have helped prompt timely and targeted interventions. Figures 1 AND 2 illustrate dynamic intake trends by route during transitions in nutrition support. A prospective pilot study is planned to formally evaluate the dashboard's clinical impact.

Conclusion: This real-time nutrition dashboard offers a scalable, informatics-driven solution to enhance inpatient nutrition care. By automating intake tracking and visualizing adequacy trends by route, it supports timely, data-informed clinical decisions and lays the groundwork for outcome-driven quality improvement in nutrition support.

Figure 1. Interactive real-time nutrition dashboard for monitoring nutrition assessment and delivery

Displays daily calorie intake with overlays for patient-specific targets. Malnutrition and dialysis status are visibly indicated based on EMR data. Recommendations and medication orders are shown. Hover tooltips allow clinicians to view intake by source, supporting early intervention and care prioritization.

Figure 2. Calorie intake by route during transitions in nutrition delivery

Displays dynamic calorie delivery over time from oral, parenteral, enteral and modular protein sources. Route-specific trends are visualized alongside individualized goal ranges. While this figure highlights calorie intake, the dashboard also includes a parallel view of protein delivery to support clinical decision-making during transitions in nutrition support.

P84 - Diet Quality and the Validity of Self-Rated Diet Quality in Adults with Chronic Disease

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[1]FIU Herbert Wertheim College of Medicine, Miami, Florida; [2]University of Florida, Gainesville, Florida

Encore Poster

Previous Publication: Dahl WJ, Desgrottes N. Validity of a self-rated diet quality question. Journal of the National Extension Association of Family & Consumer Sciences (NEAFCS Journal). 2022;11–17.

Financial Support: None Reported.

Background: Effective evaluation of diet quality requires valid, practical tools. The Dietary Screening Tool (DST) assesses nutritional risk in older adults, but its online feasibility in chronic disease populations is limited. A single self-rated diet quality question may offer a rapid alternative for screening.

Methods: Adults with self-reported chronic disease (hypertension, diabetes, chronic kidney disease) were recruited via ResearchMatch.org. Participants completed an online survey with informed consent, the self-rated question ("In general, how healthy is your overall diet?" rated: excellent, very good, good, fair, poor), and the 25-item DST. DST scores classified risk: at-risk (< 60), possible risk (60-75), not at-risk (> 75). Feasibility was measured by completion time and ease (5-point scale). Pearson correlation compared self-rated responses to DST scores. Chi-square and receiver operating characteristic (ROC) analyses assessed validity, with sensitivity, specificity, predictive values, and area under the curve (AUC).

Results: Of 115 respondents, 109 completed the survey (mean age implied middle-aged/older). Mean completion time: 8 minutes (range: 2-50). 95% rated it easy/very easy. Mean DST score: 58.7 ± 12.0 (49% at-risk, 41% possible risk, 10% not at-risk). Self-rated responses: poor (4%), fair (26%), good (44%), very good (20%), excellent (6%). Correlation with DST: r = 0.45 (p < 0.05). Collapsing poor/fair/good vs. very good/excellent yielded sensitivity 95%, specificity 52%, positive predictive value 64%, negative predictive value 90%, AUC = 0.72 (Kappa = 0.37).

Conclusion: Online DST is feasible for chronic disease populations. The self-rated question adequately predicts nutritional risk, supporting its use for rapid screening to identify older adults with chronic disease who may benefit from nutrition education.

P85 - Age-Friendly Hospital Measure: Malnutrition and Metrics

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Financial Support: None Reported.

Background: As of January 1, 2025, hospitals participating in the CMS Hospital Inpatient Quality Reporting (IQR) Program must comply with the new Age-Friendly Hospital Measure. Hospitals must affirmatively attest to meeting five key domains including Domain 3: Frailty screening and

intervention. This stipulates that all patients aged 65 and older should undergo malnutrition screening using a validated tool, ideally upon admission, before major procedures, and/or upon significant changes in clinical status. Admission to an intensive care unit (ICU) can serve as an indicator of a significant change in clinical status. The goal of this study is to quantify and track RDN compliance with malnutrition screening and interventions for patients age 65+ at a 583-bed tertiary, acute-care teaching and research hospital, and to identify and implement novel strategies for identifying older patients with malnutrition.

Methods: Obtain baseline data for the following metrics: % of inpatient population ≥ 65 years old; % of population ≥ 65 who were assessed by an RDN; % of total RDN interventions (consults/assessments) that were provided for patients ≥ 65; % of total malnutrition risk diagnoses that were placed for patients ≥ 65. Develop new dashboard for tracking RDN interventions for patients admitted to the ICUs, including timeliness of interventions, and malnutrition risk diagnoses; modify existing malnutrition dashboard to identify and trend malnutrition diagnoses by age (18-64, and ≥ 65). Identify potential gaps in screening and nutrition interventions for patients ≥ 65; develop pilot program to address gaps.

Results: Baseline data (2024) indicated that approximately 54.5% of the inpatient population was ≥ 65 (excluding maternity/newborns). Data from January 2024 to June 2025 (18 months) indicates that 50% of all patients 65+ were assessed by an RDN during their hospital stay. Of the total consults completed during this time, an average of 63% each month were for patients ≥ 65. An additional 61% of all nutrition assessments (non-consult) were for patients ≥ 65. An average of 69% (65-71%) of malnutrition diagnoses placed each month by RDNs were for patients ≥ 65. A new dashboard created in 2025 measures RDN compliance with assessing 65+ patients within 2 days of ICU admission. RDNs achieved 80% compliance from January to June 2025. An age-based modification to the health system's malnutrition dashboard demonstrated that 22.9% of 65+ patients were diagnosed with malnutrition, compared to 11.8% of patients aged 18-64. To address the 50% of older patients who are not seen by an RDN during their hospital stay, a pilot was developed in August 2025 to add age ≥ 65 as an independent nutrition risk factor for selective screening and interventions.

Conclusion: Patients ≥ 65 were seen by an RDN for consults or assessments and were diagnosed with malnutrition risk at rates that exceed their representation in the hospitalized patient population. This demonstrates the benefit of directing RDN resources to this high-risk, older adult demographic. Development of health system dashboards can aid in tracking RDN interventions for 65+ patients and promote screening for malnutrition at time of admission and upon admission to an ICU, in accordance with the Age-Friendly Hospital Measure.

Poster of Distinction Award

P86 - Artificial Intelligence-Based Hospital Malnutrition Screening: Validation of a Novel Machine Learning Model

Jemima Meyer, RD, BSc[1]; Adam Bernstein, MD, ScD[2]; Pierre Janeke, BSc[1]; Richard Riggs, MD[3]; Emily Burke, RD, CNSC[3]; Meagan Moyer, MS, MPH, RD[4]; Keiy Murofushi, MS[5]; Josiah Meyer, BSc[1]; Ray Botha[1]

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Encore Poster

Previous Presentation: Michigan Society for Parenteral and Enteral Nutrition (MSPEN) Annual Conference, November 2024, Novi, MI; California Academy of Nutrition and Dietetics Annual Conference (CANDAC25), April 2025, Long Beach, CA.

Previous Publication: Bernstein AM, Janeke P, Riggs RV, Burke E, Meyer J, Moyer MF, Murofushi K, Botha RA, Meyer JEM. Artificial Intelligence-Based Hospital Malnutrition Screening: Validation of a Novel Machine Learning Model. Appl Clin Inform. 2025 Oct;16(5):1646-1657. DOI: 10.1055/a-2635-3158. Epub 2025 Jun 16. PMID: 40523638; PMCID: PMC12618146.

Financial Support: Supported by Cedars-Sinai Medical Center and HealthLeap Inc.

Background: Hospital malnutrition is common yet underdiagnosed, contributing to morbidity, mortality, longer length of stay, and higher costs. Existing screening instruments show variable performance, and most rely on episodic questionnaires. We evaluated an artificial intelligence (AI) model designed for continuous, EHR-based malnutrition risk screening in hospitalized adults and compared it with the Malnutrition Screening Tool (MST) used in practice, here referred to as the modified MST (M-MST).

Methods: A retrospective study of 166,841 adult inpatient admissions (106,449 unique patients) over 3.75 years (2019-01-01 to 2022-09-16) was conducted at a large academic medical center (Cedars-Sinai Medical Center). The aim was to study the criterion validity, predictive validity, and timing of high-risk flags relative to dietitians documentation. Structured, semi-structured, and unstructured EHR data were used to train a

machine-learning model, HealthLeap AI, that generated a daily malnutrition risk score per patient. A large-language-model–driven question-answering step converted information in clinician notes into tabular features. One admission per patient was included and split by out-of-time sampling into training, validation, and test sets. Criterion validity: Performance was indexed against (1) discharge-coded malnutrition (ICD-9/10) and (2) dietitian-recorded malnutrition using Academy of Nutrition and Dietetics and American Society for Parenteral and Enteral Nutrition (AAIM) criteria. Primary metrics were area under the receiver-operating characteristic curve (AUROC) and area under the precision–recall curve (AUPRC), with bootstrap 95% CIs, for both the first hospital day and maximum risk over the stay. Predictive validity: The model was compared with the M-MST in its prediction of health outcomes such as LOS, readmissions, mortality, and morbidity. We also looked at the timing of high-risk flags relative to dietitian documentation.

Results: The model demonstrated strong criterion validity against dietitian-recorded and discharge-coded malnutrition (AUROC 0.92 on day 1 [95% CI, 0.91–0.92]; 0.95 using maximum risk over the admission [95% CI, 0.95–0.96]) and predictive validity for downstream outcomes. See Figure 1 AND Figure 2 for a comparison of the AI model vs. the M-MST. At matched alert volume, the model's sensitivity was 88% higher than the nurse-administered M-MST on day 1. Patients flagged by the model (vs. M-MST) had greater acuity (Charlson Comorbidity Index 6.4 vs. 5.3) and longer length of stay (13.4 vs. 9.5 days), and experienced higher 30-, 60-, and 90-day readmissions and mortality, demonstrating predictive validity (see Table 1).The model identified patients earlier than was recorded in dietitian notes — a median of 1.3 days earlier and a mean of 4.0 days (Figure 3), highlighting the potential for earlier identification.

Conclusion: The novel AI model using EHR data accurately identified in-hospital malnutrition risk and outperformed the nurse-administered screener on the first day of care, with additional gains when considering the full admission. Malnutrition AI screening presents a promising solution to help dietitians spend more time on the highest-risk patients and less time on false flags. Continuous, passive screening can lead to earlier identification and thus more timely assessments and interventions.

Table 1. Health outcomes of patients flagged as at-risk by AI model vs. nurse-administered M-MST

Outcome	AI flagged	M-MST flagged	Absolute difference	Relative difference	P-value
Length of stay, days	10.5 (10.1–11.0)	9.0 (8.6–9.5)	1.9	20.6%	P < 0.0001
Charlson Comorbidity Index	6.4 (6.2–6.5)	5.5 (5.3–5.6)	0.9	15.8%	P < 0.0001
30-d Readmission (n = 1,947)	0.23 (0.21–0.25)	0.19 (0.17–0.21)	0.032	17.10%	p = 0.0063
60-d Readmission (n = 1,947)	0.32 (0.30–0.35)	0.28 (0.26–0.30)	0.043	15.40%	p = 0.0025
90-d Readmission (n = 1,947)	0.38 (0.36–0.41)	0.31 (0.29–0.34)	0.069	22.20%	p < 0.0001
180-d Readmission (n = 1,947)	0.46 (0.43–0.50)	0.41 (0.38–0.45)	0.058	14.20%	p = 0.0050
30-d Mortality (n = 1,947)	0.13 (0.12–0.15)	0.09 (0.07–0.10)	0.046	54.50%	p < 0.0001
60-d Mortality (n = 1,947)	0.19 (0.18–0.22)	0.13 (0.11–0.14)	0.067	53.30%	p < 0.0001
90-d Mortality (n = 1,947)	0.22 (0.21–0.25)	0.15 (0.14–0.17)	0.068	44.20%	p < 0.0001
180-d Mortality (n = 1,947)	0.28 (0.25–0.30)	0.19 (0.17–0.21)	0.086	45.20%	p < 0.0001

Day 1; matched alert volume.

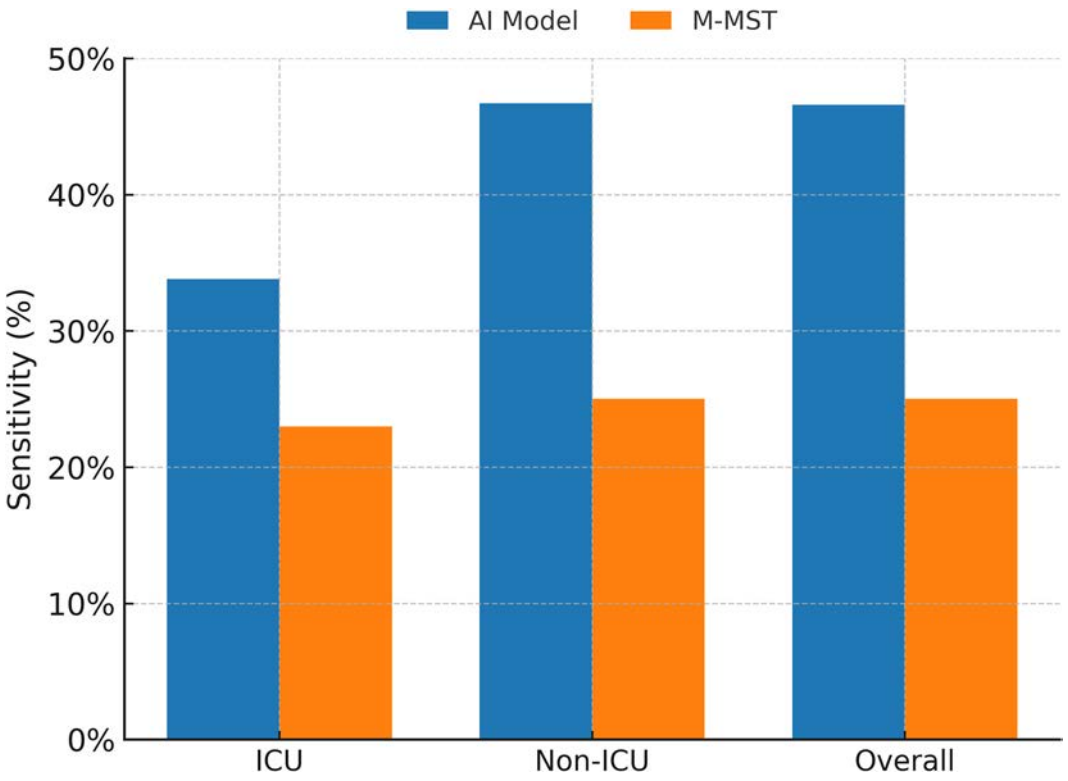

Figure 1. AI model vs. M-MST sensitivity by hospital location

n = 24,493.

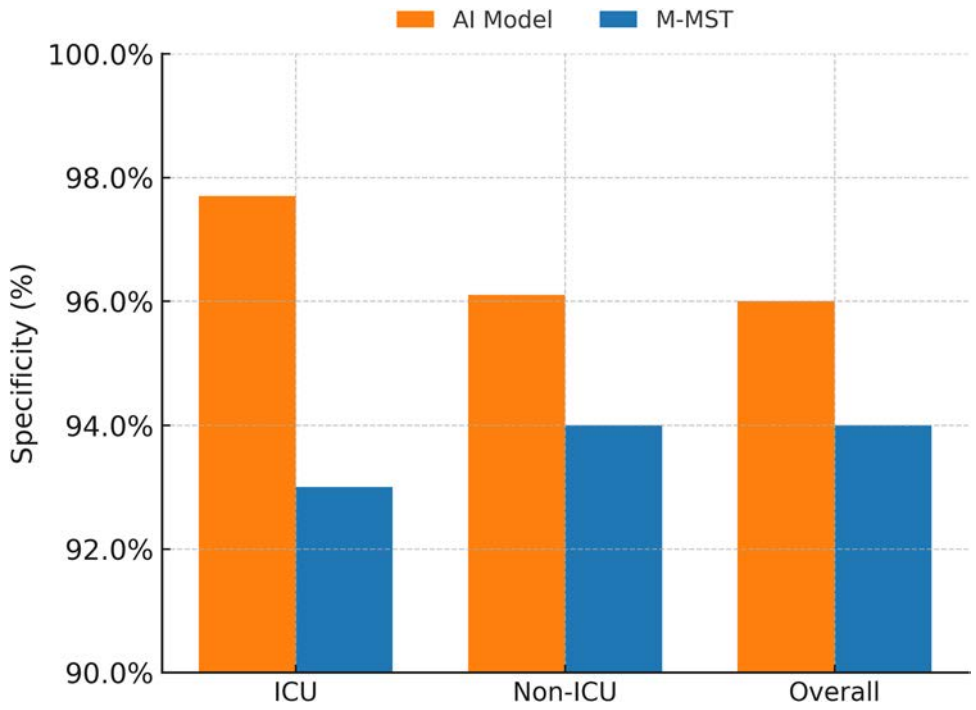

Figure 2. AI model vs. M-MST specificity by hospital location

n = 24,493.

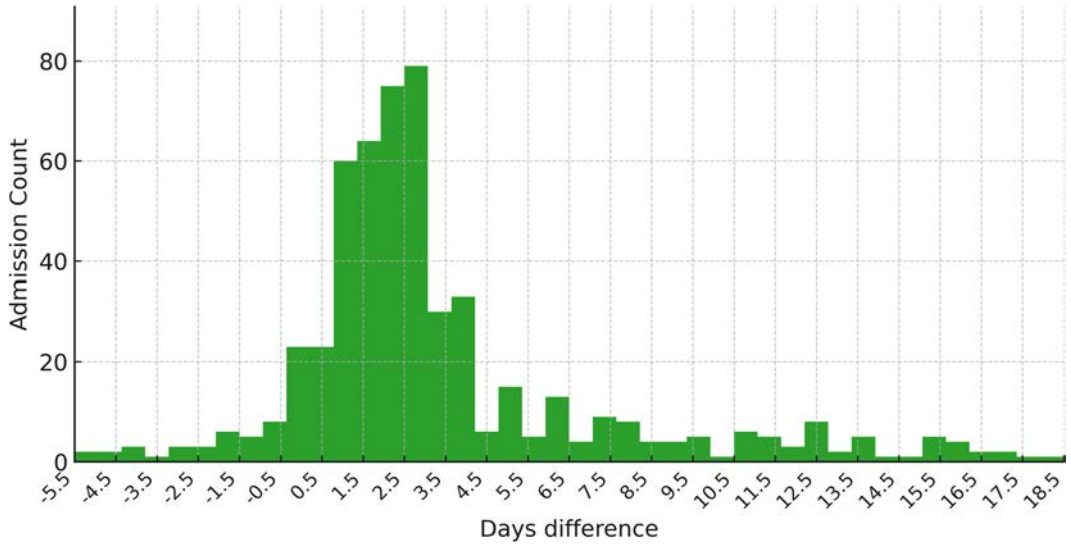

Figure 3. Days difference between AI risk flag and dietitian documentation of malnutrition

P87 - "Chicken or Egg: Risk Factors for Malnutrition and the Association of Sarcopenia, Dysphagia, and Functional Capacity in the Geriatric Population"

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Financial Support: None Reported.

Background: Malnutrition in older adults is a frequent and multifactorial condition influenced by physiological factors such as loss of appetite, alterations in taste and chewing, medical conditions including chronic diseases and polypharmacy, social determinants such as isolation and poverty, and psychological issues including depression and cognitive decline.

Methods: A cross-sectional study was conducted in 74 patients over 65 years of age, admitted to a private hospital in Mexico City. Nutritional risk and associated factors were assessed using the Mini Nutritional Assessment, Charlson Comorbidity Index, EAT-10, Barthel Index, and SARC-F questionnaires. Correlations among the instruments were analyzed.

Results: Significant associations were identified between malnutrition risk, dysphagia measured by EAT-10, functional dependence measured by the Barthel Index, and sarcopenia measured by SARC-F. The findings demonstrate that sarcopenia is related to greater dependency in performing daily activities and to dysphagia, both of which increase the risk of malnutrition and contribute to a vicious cycle that worsens prognosis.

Conclusion: Malnutrition in older adults is strongly associated with sarcopenia, functional decline, and dysphagia. Early detection and comprehensive management are essential. Swallowing rehabilitation should be integrated as a key component of multidisciplinary strategies to improve outcomes in this population.

Table 1. Spearman´s correlation among tools

	Indice de Charlson	BARTHEL	SARC-F	EAT-10	MNA
Number of XY Pairs	22	22	22	22	22
Spearman r	-0.1371	1.000	-0.7828	-0.4907	0.3323
95% confidence interval	-0.5378 to 0.3141	1.000 to 1.000	-0.9079 to -0.5296	-0.7616 to -0.07376	-0.1171 to 0.6687
P value (two-tailed)	0.5430	< 0.0001	< 0.0001	0.0204	0.1308
P value summary	ns	***	***	*	ns
Exact or approximate P value?	Gaussian Approximation	Gaussian Approximation	Gaussian Approximation	Gaussian Approximation	Gaussian Approximation
Is the correlation significant? (alpha=0.05)	No	Yes	Yes	Yes	No

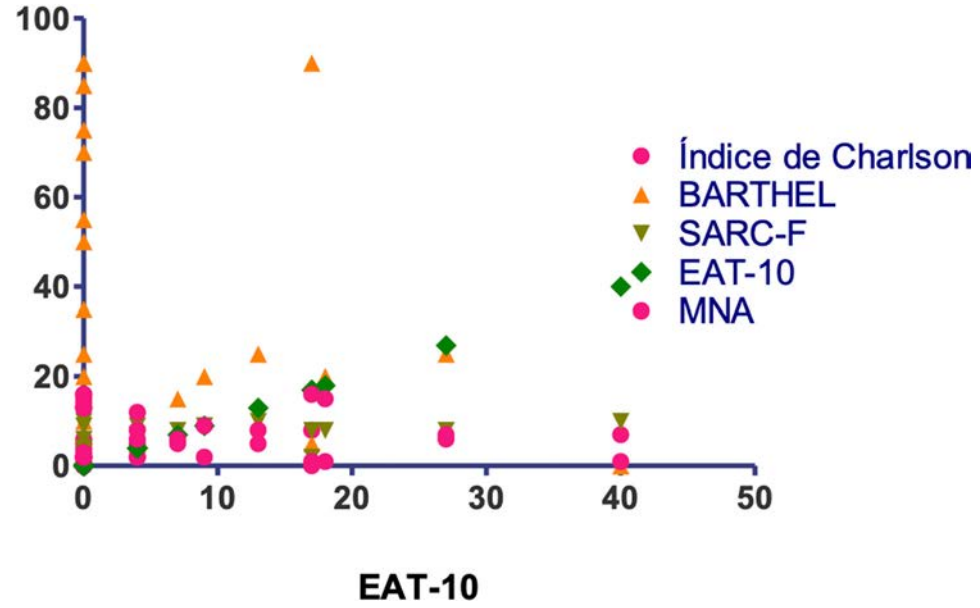

Figure 1. Correlation of the EAT questionnaire vs. other tools

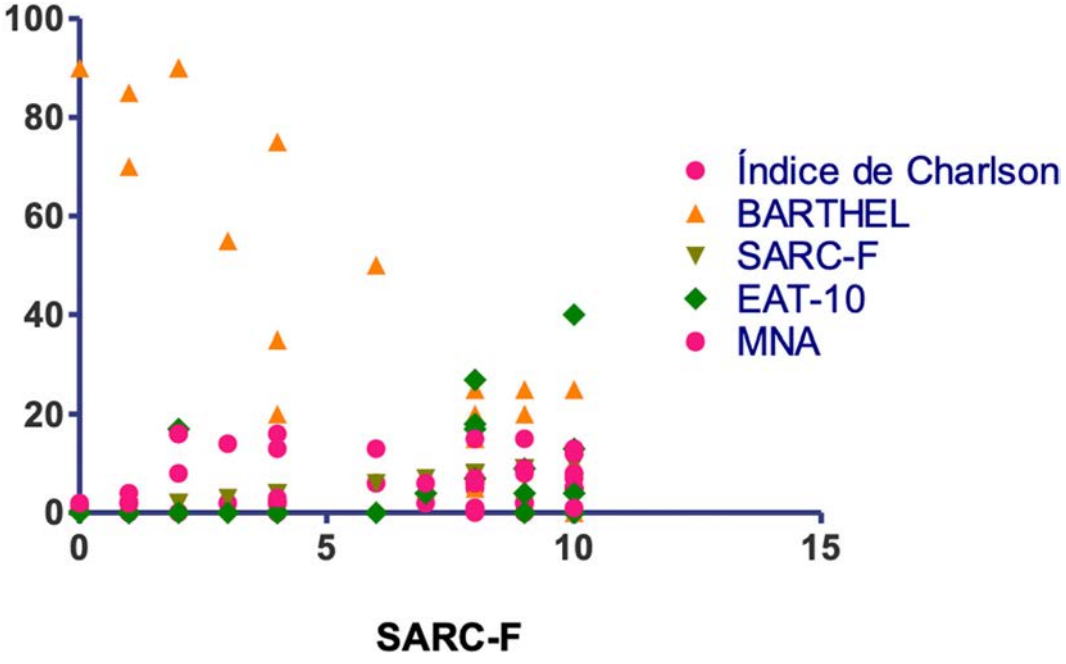

Figure 2. Correlation of the SARC-F questionnaire vs. other tools

P88 - Avoidant/Restrictive Food Intake Disorder (ARFID) in Patients With Inflammatory Bowel Disease: An Exploratory Observational Study

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Financial Support: None Reported.

Background: Patients with inflammatory bowel disease (IBD) frequently change their diet, either spontaneously or on medical advice, in order to manage flare-ups of their disease and minimize symptoms. Although these diet changes could promote avoidant and/or restrictive food intake disorder (ARFID). This pilot study aims to assess the prevalence of ARFID in patients with IBD.

Methods: In this prospective cohort study, all patients with IBD treated in outpatient clinics between February and April 2025 were included. ARFID was screened using the NIAS-French questionnaire (suspected ARFID in cases of the "picky eater," "small appetite," or "fear of eating" subtypes; score ≥ 10, 9, and 10, respectively). Associated disorders such as anxiety, depression, and visceral hypersensitivity were assessed using the GAD-7, PHQ-9, and VSI scores, respectively. Quality of life was estimated using the IBD-Disk score. A nutritional assessment was performed: weight, BMI, muscle mass by Bioelectrical Impedance Analysis, and muscle strength by handgrip. Sarcopenia was defined as a combination of loss of mass (appendicular muscle mass index < 7.0 kg/m² for men and < 5.7 kg/m² for women) and muscle strength (handgrip strength < 27 kg for men and < 16 kg for women). IBD activity was assessed using the Harvey-Bradshaw (Crohn's disease) and Mayo (ulcerative colitis) clinical indices. The primary objective was to assess the prevalence of ARFID in an outpatient IBD population. The α risk was set at 0.05.

Results: 65 patients (60% women, 46% Crohn's disease/54% ulcerative colitis) with a mean age of 34 years (±14.6), including 35 (54%) in clinical remission, were included. At inclusion, 9% had sarcopenia. Twenty-one patients (32%) were suspected of ARFID (mean NIAS-French score 12.3 ± 8.6, 4 patients with a "small appetite" subtype, 11 with "fear of eating" and 6 with "picky eater"). Patients with suspected ARFID were more frequently female (67% vs. 50%, p = 0.01), had Crohn's disease (57% vs. 39%, p = 0.007), and more frequently suffered from anxiety (48% vs. 20%, p = 0.03), depressive symptoms (67% vs. 61%, p = 0.045), and visceral hypersensitivity (67% vs. 34%, p = 0.02). In addition, the NIAS-French score was significantly higher in cases of active disease (17 [23.25–8.5] vs. 10 [15–4], p = 0.03), and correlated with poorer quality of life as estimated by the IBD-Disk score (ρ=0.48, p< 0.0001) and poorer muscle strength (ρ =−0.28, p = 0.025). With regard to ARFID subtypes, 1) the "small appetite" subtype was associated with lower weight and height (58 kg [64-49] vs. 68 [76-60], p = 0.046 and 156 cm [160-152] vs. 169 [174-162], p = 0.0049) and a history of intestinal resection (50% vs. 8%; p = 0.04). Patients with this subtype were less active professionally than those without it (25% vs. 72%, p = 0.02); 2) The "fear of eating" subtype was associated with a lower quality of life (IBD-disk 48 (85-29) vs. 37 (54-19), p = 0.02) and anxiety (82% vs. 37%, p = 0.005); 3) The "picky eater" subtype was associated with the presence of myopenia (50% vs. 14%, p = 0.047) and younger age (24 years (31.5-17) vs. 38 (50-21), p = 0.01).

Conclusion: This pilot study reveals that 1/3 of IBD outpatients are suspected of having ARFID, which was significantly more common in women, in those with Crohn's disease, and in those with more frequently associated neuropsychiatric symptoms (anxiety, depression, visceral hypersensitivity). The NIAS-F score appears to correlate with disease activity, poorer quality of life, and reduced muscle strength. It is difficult to know whether these patients have true ARFID or are experiencing consequences of the disease. It is therefore essential to validate this type of score in larger cohorts with active and non-active disease before offering systematic screening to these patients.

P89 - Early Feeding, Better Outcomes: Impact of Early Oral Nutritional Supplementation (EDONS) Within 2 hours in Non-Critical Hospitalized Patients

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Financial Support: None Reported.

Background: Malnutrition and delays in nutritional intervention are known contributors to prolonged hospital stays and adverse outcomes in non-critically ill patients. This study evaluates the impact of early oral nutritional supplementation (ONS), particularly within 2 hours of prescription (EDONS), on clinical and nutritional outcomes in hospitalized adults.

Methods: A prospective study was conducted at a tertiary care hospital from February 2022 to May 2025, enrolling non-critical adult inpatients who were assessed by a Clinical Dietitian and prescribed an ONS. Baseline nutritional status was assessed using the Modified Subjective Global Assessment (mSGA), Malnutrition Universal Screening Tool (MUST), and Body Mass Index (BMI). Comorbidity burden and 10-year survival probability were calculated using the Charlson Comorbidity Index (CCI). Data on timing, type, and delivery of ONS, along with outcomes including length of stay (LOS), mortality, and 30-day readmissions, were collected and analyzed using SPSS 25.0.

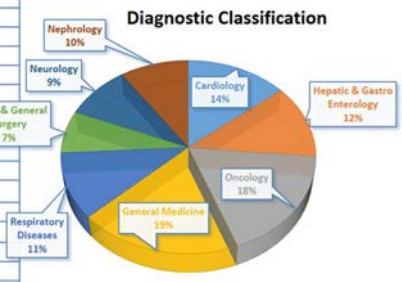
Results: Data from 2,009 non-critically ill hospitalized patients (mean age: 59.1 ± 16.6 years; 61.4% male) were analyzed. The mean age was 59.1 ± 16.6 years, with 61.4% male. Malnutrition prevalence was 62.9% (mSGA) and 71.3% (MUST). Mean BMI was 24.2 ± 5.7kg/m^2 (Underweight: 12.2%; Normal: 32.2%; Overweight: 18.2%; Obese: 37.4%) (Table 1). The average LOS was 8.8±6.9 days. Overall mortality was 1.7%, and 30-day readmission was 11.5%. Readmissions were due to procedures (47.8%), gastrointestinal discomfort (15.1%), medical illness/emergency visits (27.2%), infections (8.6%), and poor intake (1.3%). Oral Nutrition Supplement (ONS) initiation was categorized as early (≤ 2 hours; 55.1%), delayed (>2 hours; 20.7%), or not initiated (24.2%). Reasons for non-initiation are detailed in Figure 1. Early ONS (EDONS ≤2 hours) significantly reduced LOS (8.6 ± 5.9 vs. 10.1 ± 7.4 days; p < 0.001) (Figure 2) AND infection-related readmissions (8.7% vs. 14.0%; p=0.006) (Figure 3). Disease-specific ONS was also associated with shorter

LOS (8.4 ± 5.4 days; p=0.021). Neurology patients had the longest LOS (10.7 ± 8.7 days; p < 0.001). Patients with a 0% 10-year survival probability per CCI had longer LOS (9.6 ± 6.5 days) compared to those with 98% survival (6.3 ± 3.1days; p = 0.009). Obesity was independently associated with longer LOS (p = 0.003). Mortality was highest in respiratory diseases (28.6%), followed by oncology and general medicine (22.9%; p = 0.012). Polymorbidity showed a near-significant association with mortality (80%; p = 0.075), but nutritional status markers (BMI, MUST, mSGA) were not significantly correlated with mortality (p > 0.1). While overall ONS timing was not significantly associated with mortality (p = 0.259), EDONS showed a trend toward reduced mortality (2.0% vs. 2.4%; p = 0.082). Logistic regression confirmed EDONS independently reduced LOS (p < 0.001), lowered readmission rates (p = 0.031 with an odds ratio of 1.5) (Table 2), and showed a trend toward mortality reduction (p = 0.059), after adjusting for confounders.

Conclusion: Early ONS initiation within 2 hours of prescription (EDONS) significantly improves clinical outcomes, including shorter hospital stays and reduced infection-related readmissions, independent of baseline nutritional status. Incorporating timely, disease-specific nutritional interventions into routine inpatient care may enhance recovery and resource utilization in non-critically ill patients.

Table 1. Baseline patient characteristics

Baseline Patients' Characteristics (n=2009)		
Patients' Characteristics		**Mean±SD / Percentage (%)**
Age (y)		59.08±16.6y
Sex	Male	61.4%
	Female	38.6%
Polymorbidity		67.5%
Mean Body Mass Index (BMI) Kg/m^2		24.17±5.73
BMI Category	Underweight	12.2%
	Normal	32.2%
	Overweight	18.2%
	Obese	37.4%
Modified Subjective Global Assessment (mSGA) vs Malnutrition Universal Screening Tool (MUST)	Wellnourished / Low Risk	37.1% vs 28.7%
	Moderately Malnourished / Moderate Risk	62.1% vs 2.3%
	Severely Malnourished / High Risk	0.8% vs 69%
Average Length of stay (ALOS)		8.81±6.9d
Re-admission within 30 days		11.5%
Mortality		1.7%



Demographic, nutritional, and clinical characteristics of patients on admission.

Table 2. Logistic regression to predict readmission

Logistic Regression to Predict Readmission									
		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Step 1[a]	Age	0.006	0.005	1.294	1	0.255	1.006	0.996	1.016
	Sex	-0.005	0.147	0.001	1	0.971	0.995	0.745	1.327
	Cardiology			23.408	7	0.001			
	Hepatic & Gastro	-0.317	0.311	1.04	1	0.308	0.728	0.396	1.339
	Oncology	-0.826	0.261	10.015	1	0.002	0.438	0.263	0.73
	General Medicine	-0.288	0.275	1.095	1	0.295	0.75	0.438	1.285
	Respiratory	0.017	0.326	0.003	1	0.959	1.017	0.536	1.928
	Ortho & General Surgery	0.073	0.374	0.038	1	0.846	1.075	0.517	2.237
	Neurology	0.334	0.362	0.854	1	0.356	1.397	0.687	2.841
	Nephrology	-0.501	0.305	2.708	1	0.1	0.606	0.333	1.101
	Polymorbidity	-0.167	0.173	0.924	1	0.336	0.847	0.603	1.189
	BMI - Underweight			3.736	3	0.291			
	BMI - Normal	-0.353	0.268	1.735	1	0.188	0.702	0.415	1.188
	BMI - Overweight	-0.416	0.291	2.044	1	0.153	0.659	0.373	1.167
	BMI - Obese	-0.517	0.271	3.637	1	0.057	0.596	0.351	1.014
	MUST - Low Risk			0.608	2	0.738			
	MUST - Medium Risk	-0.351	0.45	0.608	1	0.436	0.704	0.291	1.702
	MUST - High Risk	-0.038	0.174	0.047	1	0.829	0.963	0.685	1.354
	ONS - Standard			6.999	3	0.072			
	ONS - Double-strength	-0.199	0.208	0.917	1	0.338	0.82	0.546	1.231
	ONS - Semielemental / Enzymatic	0.638	0.373	2.92	1	0.088	1.893	0.91	3.936
	ONS - Disease specific	0.044	0.24	0.034	1	0.855	1.045	0.653	1.671
	ONS Indent (<2hrs)	0.388	0.18	4.636	1	**0.031**	**1.473**	1.035	2.097
	Constant	2.337	0.507	21.268	1	<.001	10.354		
a. Variable(s) entered on step 1: age, sex, diag, Polymorbid_Condition , bmi_cat, must_rating, ons, indent_2h.									

Logistic regression confirmed EDONS independently lowered readmission rates (p = 0.031 with an odds ratio of 1.5) among non-critical hospitalized patients.

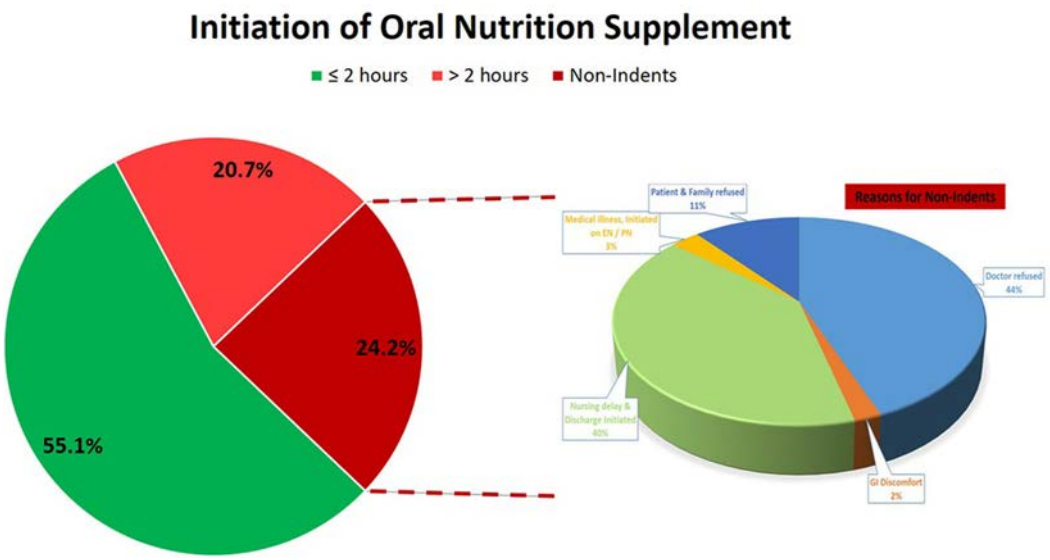


Figure 1. Initiation of oral nutrition supplement (ONS)

Initiation of oral nutritional supplements (ONS) and reasons for non-initiation.

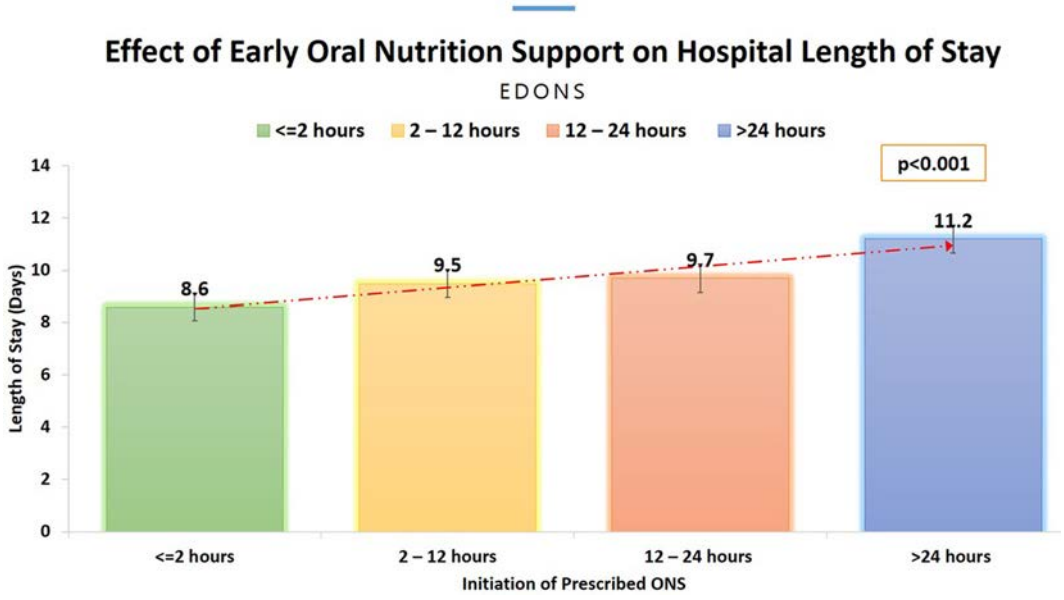


Figure 2. Effect of early delivery of oral nutritional supplement (EDONS) and on hospital length of stay

Association between early delivery of oral nutritional supplements within 2 hours (EDONS) and hospital length of stay.

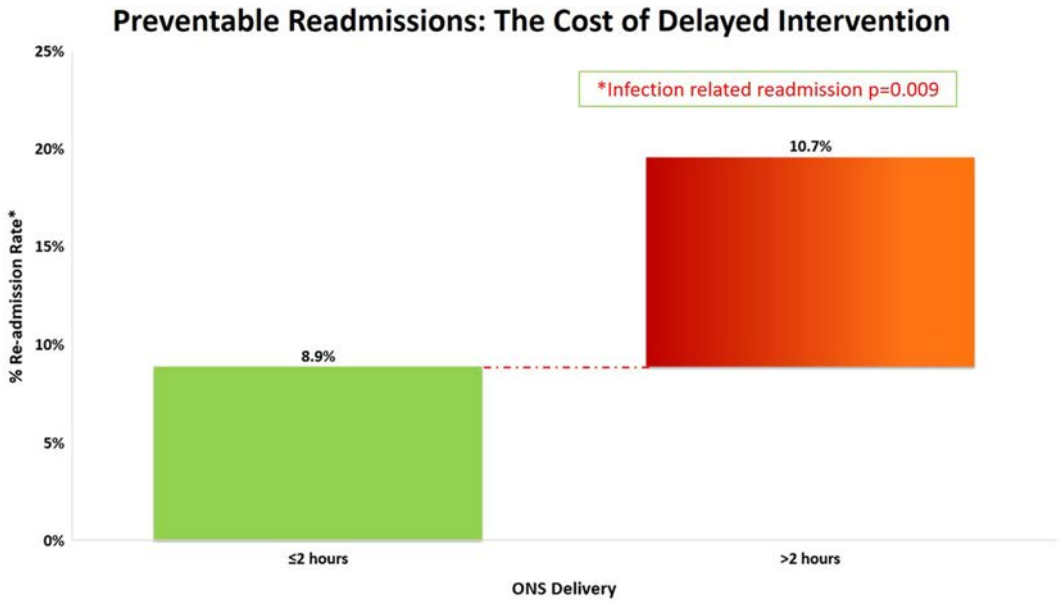


Figure 3. Preventable readmissions: the cost of delayed intervention

Preventable readmissions linked to delayed nutritional support: a costly missed opportunity.

P90 - The Malnutrition Gap: From Bedside to Beyond in a Safety-Net Hospital

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Background: Severe malnutrition is associated with poorer clinical outcomes, including higher in-hospital mortality, increased hospital costs, delayed wound healing, and prolonged ventilator time. At a large urban safety-net hospital, an internal review showed that patients with severe malnutrition had a 218% higher 30-day readmission rate and an average length of stay four days longer than those without malnutrition. These findings underscored a critical gap in care and prompted a quality improvement project aimed at reducing readmissions among malnourished patients. A variety of primary and secondary drivers were investigated, and multiple change ideas were implemented, ultimately resulting in improved patient outcomes.

Methods: The aim was to reduce 30-day readmissions for severe malnutrition from 21% in Q4 2024 to 12% by December 2025. Baseline data were obtained from chart review with the hospital bioinformatics team. A multidisciplinary driver diagram identified modifiable contributors, including awareness, documentation visibility, post-discharge nutrition access, and social determinants of health. Change ideas tested through plan-do-study-act (PDSA) cycles included improving electronic health record (EHR) documentation, providing intensive care unit (ICU) resident physician in-services, delivering targeted patient education, and initiating post-discharge phone calls. The process measure was the percentage of patients with severe malnutrition receiving Medical Nutrition Therapy (MNT). The outcome was the 30-day readmission rate, and the balancing measure was the Global Malnutrition Composite Score (GMCS).

Results: Targeted malnutrition interventions were implemented. The change idea investigated most deeply, as it was the most modifiable from a nutrition standpoint, was prioritizing malnutrition-related MNT even when malnutrition was not the most prominent comorbidity. This approach led to an increase in the percentage of patients with severe malnutrition receiving Medical Nutrition Therapy specifically for malnutrition, with an emphasis on post-discharge education. With the exception of one outlier month due to a small sample size, 30-day readmission rates decreased following intervention. During the review period, rates consistently remained below 20%, reflecting early progress toward the project aim. GMCS scores also improved, likely reflecting greater provider engagement and stronger alignment with nutrition care processes. Equity

analysis showed that sepsis/infection and respiratory failure were the most common primary diagnoses among readmitted patients with severe malnutrition.

Conclusion: This project demonstrated that targeted malnutrition interventions, including improved documentation, patient education, and prioritizing malnutrition-specific MNT, were associated with reduced readmissions and improved nutrition care quality metrics. As a safety-net hospital where a higher-than-average number of patients identify as food insecure, improving access to care remains essential for sustaining progress. Identifying sepsis/infection and respiratory failure as the most common primary diagnoses among readmitted malnourished patients provides an opportunity to better inform care planning and initiate earlier interventions for these high-risk groups. Importantly, this project highlights that simple, feasible, and affordable strategies—such as modest changes to EHR documentation and improved provider-patient communication—can meaningfully impact patient outcomes. Next steps include strengthening connections to outpatient and community nutrition services, addressing barriers related to food insecurity, and expanding these interventions to ensure long-term sustainability and broader equity in malnutrition care.

P91 - Prevalence of Malnutrition Risk Among Patients in Urban Emergency Departments

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Background: Malnutrition is a frequently overlooked yet clinically significant issue among emergency department (ED) patients. This study assessed the prevalence of malnutrition risk and its association with patient demographics and living situation in two urban academic EDs. We hypothesized malnutrition risk would be greater in those with unstable housing arrangements.

Methods: A cross-sectional study was conducted with adult patients in two urban EDs. Participants completed the Malnutrition Screening Tool (MST) during their ED visit. The MST is a 2-question screener collecting information about recent weight loss and intake to assess malnutrition risk. One ED was located in the 1,200-bed flagship tertiary care hospital with a 61-bed ED. The second ED, a level 1 trauma center, was about a mile away, closer to the underserved community and serving more of the local population compared to the flagship hospital. In addition to MST responses, demographic data, living arrangements, and household composition were collected. Associations were analyzed using chi-square tests and multivariate analyses.

Results: Of 787 participants, 231 (29.4%) screened positive for malnutrition risk (MST ≥ 2). Individuals were more likely malnourished if they had an underweight BMI, were age 65 or greater, or presented with oncology or GI-related concerns, abdominal pain, and non-traumatic acute emergencies including sepsis. Malnutrition risk varied by gender, with 31.5% (n = 135) of females and 27.1% (n = 96) of males screening positive. Risk also varied by living situation: most at-risk participants (n = 216, 93.5%) lived in a home or apartment, while others lived in nursing homes or assisted living facilities (n = 4, 1.7%), shelters or were homeless (n = 8, 3.4%). No at-risk individuals lived in group homes. Among 556 not at risk, 536 (96.4%) lived in home/apartment settings.

Conclusion: Nearly one-third of ED patients screened were at risk for malnutrition. Counter to our hypothesis, most at-risk patients lived in a home or apartment, not a less stable housing situation. While living situation was not statistically correlated with malnutrition risk, findings support published inpatient rates of 32.7%.[1] These results highlight the value of routine ED malnutrition screening to identify vulnerable patients and connect them with appropriate nutritional support.[1]Sauer AC, Goates S, Malone A, et al. Prevalence of Malnutrition Risk and the Impact of Nutrition Risk on Hospital Outcomes: Results From nutrition Day in the U.S. JPEN J Parenter Enteral Nutr. 2019;43(7):918-926. doi:10.1002/jpen.1499

P92 - Prevalence of Food Insecurity Among Patients in Urban Emergency Departments

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Financial Support: None Reported.

Background: Food insecurity is a critical determinant of health that often goes unrecognized in emergency department (ED) settings. This study evaluated the prevalence of food insecurity and its association with demographic and social factors among patients in two urban academic EDs. We hypothesized that food insecurity would be greater among patients with unstable housing situations than among those with stable housing.

Methods: In this cross-sectional study, adult ED patients completed the Hunger Vital Sign (HVS) screening tool to assess food insecurity. Data on race, gender, living situation, and ED location were collected. One ED was located in the 1,200-bed flagship tertiary care hospital with a 61-bed ED. While still a large medical center and level 1 trauma center, the second ED was located one mile away closer to the underserved community and serving more of the local population than the flagship hospital. Patients were screened using the Hunger Vital Sign questionnaire to screen for household food insecurity. In addition to MST questionnaire responses, demographic data, living arrangements, and household composition were collected. Associations were analyzed using chi-square tests and multivariate analyses.

Results: Among 758 participants who completed the food insecurity screening, 175 (22.2%) screened positive. Food insecurity was significantly associated with homelessness (OR = 35, RR = 4.4, $p < .001$), race (OR = 2.3, RR = 1.95, $p < .001$), being under the age of 65 (RR = 2.18, $p < .001$), and living alone (OR = 2.2, RR = 1.8, $p < .01$). Notably, food insecurity amongst individuals who were homeless or living in a shelter was 90% and they were 35 times more likely to be food insecure. Additionally, food insecurity rates were higher at the second ED located closer to the local community (31.8% vs. 18.9%, $p < .001$).

Conclusion: Food insecurity affects over one-fifth of ED patients. ED patients at risk of food insecurity in this urban sample were those who were homeless or living in a shelter, those living alone, those who were younger, and Black more than White patients. Further work is needed to design an impactful response to the problem. These findings support routine food insecurity screening in EDs to identify patients with unmet needs and facilitate timely referrals to community resources.

P93 - Food Frequency Intake and Body Composition Among University Students

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Background: Analyzing dietary patterns in young adults can help in understanding eating habits. Studies including this population are relevant given long-term health outcomes. This study aimed to describe food-frequency intake patterns and body composition among Health Sciences students from a university in Guayaquil, Ecuador.

Methods: An observational cross-sectional study was conducted from November 2022 to February 2023 with 350 university students aged 18–26 years. Exclusion criteria were implanted electrical devices or limb prostheses, pregnancy, and lack of signed informed consent. Socio-demographic data and dietary intake were collected using a validated national food-frequency questionnaire. Body composition was assessed by bioelectrical impedance analysis (seca mBCA 525). Data were analyzed using Kolmogorov–Smirnov, Mann–Whitney U, Kruskal–Wallis, and Spearman correlation tests.

Results: Among 350 students (67.6% female; mean age 21.6 ± 2.1 y), BMI averaged 24.9 ± 4.4 kg/m² (men 26.3 ± 4.0; women 24.2 ± 4.4). Overweight/obesity affected 43.4%; 27.7% had high visceral fat; abdominal obesity 19.1%; cardiovascular risk 12.0%; metabolic risk 29.7%

(higher in men, p < 0.001). Body composition did not differ by degree program except visceral fat (higher in dentistry; p = 0.012). Diets were dominated by white rice (65.4%), boiled eggs (29.7%), sunflower oil (33.4%), white sugar (29.1%), and coffee (28.6); banana (24%) and red onion were most common produce. Daily servings differed only for sweets/sugars (p < 0.05) There were significant differences in food-group intake by degree program (Table 1).

Conclusion: Findings indicate inadequate dietary patterns and unfavorable body composition in Ecuadorian university students, highlighting the need for health-promotion and nutrition-education interventions to reduce future chronic-disease risk.

Table 1. Consumption of daily servings of food according to the careers

Food groups	Medicine n = 132	Nursing n = 1	Dentistry n = 56	Nutrition n = 10	Physiotherapy n = 61	Total n = 350	p-value
Group I: Breads, cereals-tubers	7.7 ± 4.9	18.9	7.8 ± 5.5	7.2 ± 5.8	7.8 ± 5.2	7.6 ± 5.3	0.110
Group II: Fruits	4.0 ± 4.3	13.2	3.9 ± 3.5	4.3 ± 4.0	5.4 ± 5.0	4.3 ± 4.2	0.079
Group III: Vegetables and legumes	8.8 ± 7.0	32.0	9.2 ± 8.5	9.7 ± 7.4	9.2 ± 7.7	9.3 ± 7.5	0.320
Group IV: Eggs, meats, sausages, milk and derivatives	11.9 ± 20.6	20.6	10.2 ± 11.3	10.5 ± 8.9	9.6 ± 9.5	10.8 ± 10.3	0.122
Group V: Oils-fats	3.0 ± 2.6	5.1	3.0 ± 2.5	2.4 ± 2.0	2.7 ± 2.0	2.8 ± 2.3	0.267
Group VI: Sweets and sugars	1.4 ± 1.5	3.1	1.7 ± 1.8	1.1 ± 1.3	1.6 ± 1.2	1.4 ± 1.5	0.025*
Group VII: Miscellaneous	3.7 ± 3.4	2.5	3.5 ± 3.0	2.8 ± 2.6	3.2 ± 2.7	3.3 ± 3.0	0.096

Data are reported as mean ± standard deviation; p<0.05 = statistical significance.

P94 - Fluid Imbalance as an Indicator of Low Muscle Mass and Predictor of Sarcopenia in Community-Dwelling Older Women

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Background: Skeletal muscle contains substantial water distributed across intracellular (ICW) and extracellular (ECW) compartments. The ECW/ICW ratio has been proposed as a proxy for skeletal muscle quantity and cellular fluid balance. This study aimed to examine the association between the ECW/ICW ratio and muscle-mass indicators and assess whether this index predicts sarcopenia in community-dwelling older women.

Methods: This cross-sectional study included older women (n = 133) from an urban–marginal community in Guayaquil, Ecuador, between November 2019 and December 2020. Exclusion criteria were implanted electrical devices, massive edema/anasarca or significant ascites, skin lesions/infections at electrode sites, hemodynamic instability, sepsis, or high fever. Muscle mass indicators comprised appendicular skeletal muscle mass index (ASMI), calf circumference (CC), and corrected arm muscle area (cAMA). Appendicular muscle mass and fluid compartments (ECW, ICW) were obtained using a bioimpedance analyzer (Seca mBCA 550). The ECW/ICW ratio was computed as ECW divided by ICW. Associations were assessed with Spearman correlations and group comparisons; sarcopenia prediction was tested with logistic regression.

Results: Median age was 75 years (IQR 65–82). ECW/ICW correlated negatively with ASMI ($r = -0.59$; $p < 0.001$), CC ($r = -0.55$; $p < 0.001$), and cAMA ($r = -0.48$; $p < 0.001$). Women with sarcopenia showed a significantly different fluid-balance ratio than those without ($p < 0.001$). In logistic models, ECW/ICW significantly predicted sarcopenia (odds ratio per 0.1-unit increase = 0.38; 95% CI 0.23–0.63).

Conclusion: In community-dwelling older women, higher ECW/ICW is strongly associated with lower muscle mass and independently predicts sarcopenia. Bioimpedance-derived fluid-distribution indices may serve as accessible screening markers to flag low muscle reserves and sarcopenia risk.

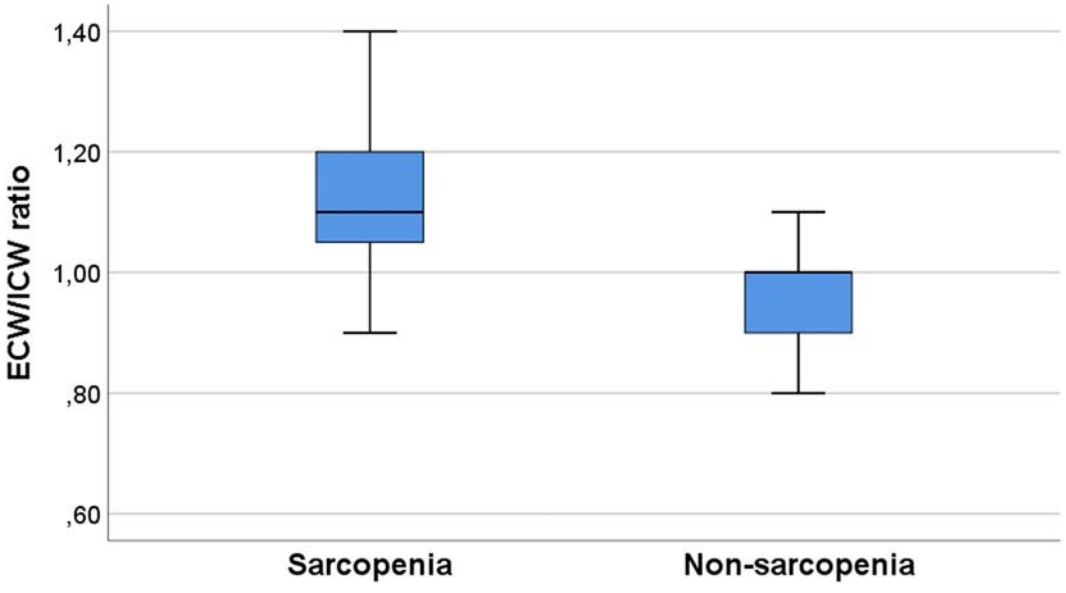

Figure 1. ECW/ICW ratio values according to sarcopenia and non-sarcopenia groups