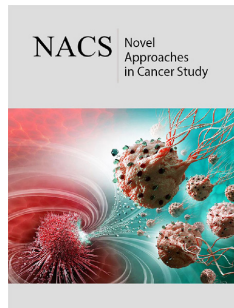


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Oncology Nursing Leadership in the Nutritional Management of Gastric Cancer Patients Post-Gastrectomy

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Abstract

Gastric cancer remains a leading cause of cancer mortality, with surgical resection, total or subtotal gastrectomy, serving as the primary curative treatment modality. However, this anatomical disruption introduces profound metabolic alterations that severely jeopardize patient nutritional status, leading to post-gastrectomy malnutrition, sarcopenia, and refractory cancer cachexia. Oncology nurses are uniquely positioned at the front lines of patient care to alter this trajectory. This narrative review highlights the expanded, leading role of oncology nursing in the perioperative continuum. By synthesizing evidence on advanced nutritional screening tools, examining the clinical administration of early enteral nutrition (EN), and delineating nurse-led multidisciplinary coordination, this paper underscores how structural nursing implications, aggressive patient advocacy, and proactive clinical management directly mitigate complications, enhance treatment tolerance, and optimize quality of life in gastric cancer survivors.

Keywords: Gastric cancer; Gastrectomy; Enteral nutrition; Nutritional screening; Oncology nurse

Introduction

Gastric cancer persists as a major public health challenge, as it is the fifth most common cancer and the fourth leading cause of cancer-related mortality worldwide. Adenocarcinoma comprises approximately 95% of these cases [1]. While surgical gastrectomy offers the definitive avenue for survival, the downstream physiological costs are steep. Gastrectomy fundamentally compromises the stomach's reservoir capacity, accelerating intestinal transit, altering hormonal signaling (such as ghrelin suppression), and severely impairing macro- and micronutrient absorption [2].

Malnutrition in this patient group is highly correlated with a poor prognosis, increased infectious complications, compromised anastomotic healing, delayed wound recovery, and abbreviated survival intervals. Consequently, addressing nutritional decline is not merely a supportive measure but a core therapeutic necessity in gastric cancer care [3,4].

Epidemiology of post-gastrectomy malnutrition

The epidemiological data surrounding gastric cancer underscores a profound nutritional crisis. About 20% to 50% of hospitalized gastrointestinal cancer patients exhibit some degree of malnutrition baseline. Following surgical intervention, the prevalence of severe malnutrition spikes dramatically in the acute postoperative phase, with weight loss continuing for up to a year after the surgery [5]. Malnutrition is among the few significant preoperative risk factors that can be easily modified, which are linked to adverse surgical outcomes, including mortality [6]. This post-surgical decline is driven by mechanical factors, including early satiety, dumping syndrome, fat malabsorption and severe anorexia [7]. Understanding these epidemiological trends is crucial for oncology nurses to anticipate risks, justify early clinical intervention,

and allocate specialized resources to high-risk patients before irreversible depletion occurs.

Deciphering the Nutritional Spectrum: Malnutrition versus Cachexia

Effective nursing interventions rely on the precise clinical differentiation of distinct metabolic states, as each requires a different therapeutic approach. At first, malnutrition is driven primarily by inadequate dietary intake, mechanical obstructions, or treatment-induced malabsorption. It is characterized by an involuntary weight loss greater than 10% within three months or a Body Mass Index (BMI) below 18.5kg/m². Crucially, simple malnutrition remains largely reversible with appropriate, targeted caloric and protein support [8]. Then, sarcopenia is the progressive, generalized loss of skeletal muscle mass and strength. While weight loss may involve fat depletion, it is the systemic erosion of muscle tissue that drives functional disability, chemotherapy toxicity, severe fatigue and elevated mortality [9].

A complex, multi-organ metabolic syndrome caused by cancer is cancer cachexia. It is driven by tumor-induced systemic inflammation, pro-inflammatory cytokines (such as TNF-alpha, IL-1, and IL-6) and neurohormonal alterations [10]. Cancer cachexia causes a continuous wasting of skeletal muscle tissue that cannot be fully reversed by conventional nutritional support alone, culminating in progressive functional decline [11].

Anorexia-Cachexia Syndrome (ACS) represents a highly prevalent and serious clinical condition observed in patients suffering from chronic diseases in their terminal phases, embodying a complex phenomenon that goes beyond simple weight loss. In the context of palliative care, ACS holds particular significance, impacting nearly 80% of cancer patients who are in the advanced stages of their illness. This syndrome is defined by the involuntary reduction of both lean and fat body mass, accompanied by anorexia and significant metabolic alterations, leading to detrimental effects on functional capacity and prognosis, as well as a considerable increase in the psychological strain experienced by both the patient and their caregivers [12,13].

The First Line of Defense: Nurse-Led Screening and Assessment

Because early detection is paramount to halting nutritional decline, oncology nurses occupy a vital position on the clinical front line [14]. However, evidence suggests a significant gap between guideline recommendations and actual clinical practice regarding nurse-led assessments. In a cross-national study examining oncology nurses' practices in Greece and Cyprus, an alarming 95.9% of surveyed nurses reported that they do not currently utilize a validated screening tool to evaluate patients' nutritional status as part of their standard clinical routine. Furthermore, critical gaps persist in the routine monitoring of secondary nutritional symptoms. For instance, the systematic assessment of early satiety was practiced by only 37% of oncology nurses in Greece compared to 64% in Cyprus, while taste and odor alterations were assessed by 45% and 77% respectively [15].

This screening deficit is not isolated to the Balkan region but reflects a broader, systemic challenge across European healthcare systems. Recent pan-European data present a severe policy-to-practice disconnect. Although validated nutritional screening infrastructure is structurally available in approximately 80% of European countries, it remains legally mandated in only 20% of them. Consequently, real-world clinical audits show that only 1 in 5 cancer patients undergoes a formal, systematic nutritional assessment at diagnosis and a staggering 74% of patients receive absolutely no professional nutritional guidance throughout their oncological journey despite widespread treatment side effects [16,17].

This highlights an urgent clinical necessity: nurses must transition from relying solely on subjective, informal observations of weight loss and anorexia toward implementing dynamic, validated and structured screening protocols at diagnosis and throughout the treatment trajectory. There is a need for a standardized, mandatory framework where the oncology nurse is legally and clinically empowered to enforce systematic, tool-based screening [18].

In surgical patients with cancer, body composition should be assessed. An effective clinical assessment framework must balance subjective data with objective biomarkers [19] such as:

- A. **Validating Screening Tools:** The Subjective Global Assessment (SGA) and the Patient-Generated Subjective Global Assessment (PG-SGA) demonstrate exceptional sensitivity for perioperative planning, allowing nurses to predict postoperative complications effectively [20]. Through PT-Global Platform the PG-SGA is foremost among the most used validated oncology-specific tools [21]. Additionally, the Malnutrition Universal Screening Tool (MUST) [22] and the Nutritional Risk Screening (NRS-2002) serve as highly reliable instruments for rapid risk stratification upon inpatient admission [23].
- B. **Anthropometrics & Body Composition:** Nurses conduct serial weight monitoring, BMI tracking, triceps skinfold thickness and mid-arm muscle circumference. In modern settings, nurses collaborate to interpret advanced modalities like Bioelectrical Impedance Analysis (BIA) or CT-derived body composition metrics to map hidden skeletal muscle wasting (sarcopenic obesity) [24].
- C. **Biochemical Biomarkers:** Continuous monitoring of serum albumin, transferrin, total lymphocyte count (TLC), and essential micronutrients (Zinc, Iron, Vitamin B12, and Folic Acid) is vital [25]. The Prognostic Nutritional Index (PNI), calculated from serum albumin and peripheral lymphocyte counts, is a powerful tool; a low PNI (<46) serves as an independent risk factor for severe postoperative complications and strongly predicts poorer 5-year overall survival (OS) rates [26].
- D. **Dietary History:** Oncology nurses lead prospective 24-hour dietary recalls or 3-to-7-day food diaries, benchmarking evaluated caloric intake against metabolic needs via predictive equations (e.g., Harris-Benedict) or indirect calorimetry [27].

Overall, all individuals diagnosed with cancer ought to undergo regular screenings to assess the risk or existence of malnutrition. In all cases, except for those receiving end-of-life care, energy and substrate needs should be fulfilled by providing a systematic approach to nutritional interventions, ranging from counseling to parenteral nutrition. Based on the European Society for Clinical Nutrition and Metabolism (ESPEN) guidelines, screening responsibilities can be categorized into two levels: level 1, which includes tasks carried out by oncologists, nurses, and other professionals with training not focused on nutrition, and level 2, which pertains to professional nutrition-related activities. The organization of a nutrition care process has been advanced by certain nutrition specialists and ought to be regarded as an interdisciplinary endeavor [28].

The Therapeutic Mandate of Enteral Nutrition in Upper Gastrointestinal Surgery

The primary principle of clinical nutrition dictates that the enteral route; utilizing the structural and immunological architecture of the gastrointestinal tract, must unequivocally be preferred over parenteral nutrition (PN), provided the gut remains functional. Within the oncological landscape, this principle demands a highly tailored approach, requiring the precise titration of energy supplies and high-protein formulas during both active treatment and subsequent recovery phases [28].

A profound deficiency in food consumption is recognized if a patient faces an inability to eat for over a week, or if their estimated energy intake dropped below 60% of their baseline requirements over an extended period. When oral intake fails, implementing Enteral Nutrition (EN) via nasogastric, nasoenteral (jejunal) tubes or percutaneous endoscopic gastrostomy/jejunostomy (PEG/PEJ), complemented by Oral Nutritional Supplements (ONS), serves as the gold-standard intervention. Compared to PN, the enteral route offers superior physiological protection; it actively preserves mucosal barrier integrity, maintains local gut-associated lymphoid tissue (GALT) immunity, and prevents bacterial translocation, thereby drastically lowering systemic sepsis rates [28,29].

The updated 2025 ESPEN guidelines on clinical nutrition in surgery have established clear, time-sensitive protocols for surgical interventions. The updated directive mandates that early EN via tube feeding must be initiated within the first 24 hours post-surgery if it is anticipated that a patient will fail to maintain adequate oral intake. This threshold of underfeeding is explicitly defined as an oral intake falling below 50% to 60% of estimated energy requirements for more than seven days. Healthcare professionals are cautioned that circumventing medical nutrition in these critical windows exposes the patient to an acute risk of deep, irreversible postoperative underfeeding. Furthermore, for patients undergoing major upper gastrointestinal procedures; such as total or subtotal gastrectomy, ESPEN explicitly recommends that intraoperative tube placement, via either a nasojejunal tube or a needle catheter jejunostomy, be routinely executed during the operation itself to secure immediate, post-pyloric enteral access that successfully bypasses the resected stomach. Proactive enteral

feeding is therefore labeled as a mandatory and unequivocally preferred supportive modality for upper GI malignancies, a population uniquely vulnerable to strictures, anastomotic leaks, severe infectious complications, and profound post-surgical weight loss. To fortify these individuals against the dual trauma of malignancy and major surgery, contemporary perioperative frameworks strongly advocate for the integration of oral or enteral immunonutrition within traditional care settings [29].

The clinical dividends of adhering to these enteral protocols during the post-gastrectomy recovery phase are substantial and well-documented. Proactive enteral support significantly reduces both short- and long-term postoperative complications, providing vital metabolic stability that protects fragile surgical sites and decreases the incidence of devastating anastomotic leaks and severe intra-abdominal infections. By mitigating these severe clinical setbacks, EN effectively shortens the overall duration of hospital stays and optimizes healthcare resource utilization. Furthermore, early and consistent EN successfully attenuates the severe post-surgical weight loss and muscle wasting typical of this population, which in turn accelerates physical rehabilitation, preserves functional performance status, and protects the patient's long-term quality of life [7,30].

To maximize these outcomes, the 2025 guideline update strictly consolidates the diagnostic criteria for identifying severe pre-operative nutritional risk in stomach surgery. A cancer patient is classified as high-risk if they present with at least one of the following clinical indicators: an involuntary weight loss exceeding 10% to 15% within the preceding 6 months, a Body Mass Index (BMI) falling below 18.5kg/m², a NRS-2002 score >5 or a SGA classification of Grade C, or a serum albumin level dropping below 30g/L in the absence of underlying hepatic or renal inflammation. Crucially, for any upper GI cancer patient meeting even a single one of these high-risk parameters, the guidelines mandate an absolute clinical pause: formal nutritional optimization must be implemented for 10 to 14 days prior to intervention, even if it requires intentionally postponing the definitive oncological surgery to guarantee a safer, more resilient postoperative recovery [29].

Nursing Implications

Nurses serve as the main implementers and monitors of EN delivery. The clinical administration of EN requires specialized, autonomous nursing expertise to ensure patient safety, minimize morbidity and maximize formula tolerance [31]. Nursing implications span across mechanical, gastrointestinal and metabolic domains.

Oncology nurses bear primary responsibility for verifying EN tube placement via radiographic or pH testing and maintaining patency. Regular flushing protocols using warm water before and after medication delivery or feeding cycles prevent crystallization and tube occlusion, eliminating the need for traumatic tube replacement [32].

A clogged feeding tube can lead to reduced nutrient delivery or postponed medication administration, and if not addressed, the

patient may need further surgical intervention to replace the tube [33]. Water is the optimal choice for initial declogging attempts. Nurses introduce warm water into the tube using a 60-mL syringe and gently move the plunger back and forth. The use of other fluids like cranberry juice and carbonated drinks to flush the tube can exacerbate tube blockages, as the acidic pH of these liquids may cause proteins in the enteral formula to precipitate within the tube. If water fails to resolve the issue, a pancreatic enzyme solution, an enzymatic declogging kit, or mechanical devices designed for clearing feeding tubes are recommended as the best second-line alternatives [32,33].

Then, to combat common gastrointestinal tolerance complications like diarrhea, cramping, nausea and delayed gastric emptying, nurses modulate administration parameters. This includes utilizing continuous infusion pumps rather than bolus feedings, gradually titrating the infusion rate (e.g., starting at 20mL/h and increasing to target over 24-48 hours), and ensuring formulas are delivered at room temperature [33,34].

Also, nurses implement strict aspiration precautions by maintaining the head of the bed elevated at 30-45 degrees during and for at least an hour after feeding [32]. To prevent fluid overload, it is essential to meticulously manage fluid repletion and keep a fluids and electrolytes balance [34]. Routine metabolic tracking includes capillary blood glucose monitoring to manage stress-induced hyperglycemia, which acts as a negative prognostic indicator for surgical wound healing and monitoring serum electrolytes to detect and prevent refeeding syndrome (marked by severe hypophosphatemia, hypokalemia and hypomagnesemia).

The pathophysiology of Refeeding Syndrome is multifaceted, primarily stemming from an abrupt intracellular shift in electrolytes, heightened phosphate requirements during tissue anabolism and the creation of high-energy phosphate bonds. Possible complications associated are life-threatening cardiac arrhythmias, systolic heart failure, respiratory insufficiency, and hematologic abnormalities. Given that the supportive care of cancer patients frequently includes nutritional and metabolic assistance, it is essential for nurses engaged in acute or palliative oncologic care to be well-versed in the risks, symptoms, and management of this syndrome [35,36].

Post-gastrectomy syndromes, particularly dumping syndrome (early and late), require structured nursing care. Dumping syndrome is not life-threatening; however, ongoing symptoms may be distressing and lead to both physiological and psychological issues. Severe dumping can serve as a precursor to various complications, such as malnutrition and weight loss resulting from nutrient malabsorption and chronic diarrhea. Additionally, it may result in social difficulties and ongoing fatigue due to insufficient nutrition. Nurses educate patients to minimize rapid jejunal flooding by administering small, frequent, low-carbohydrate enteral infusions, and restricting fluids during enteral or oral intake. Nurses, need to be aware of the conditions that can result in dumping syndrome in order to effectively educate patients. In any healthcare environment,

nurses ought to evaluate the requirements of patients experiencing dumping syndrome, offer general advice and when appropriate, refer them to a dietitian or another healthcare professional who can provide personalized support regarding dietary or medical interventions [37,38].

Nursing Advocacy

Beyond technical clinical tasks, oncology nurses act as a powerful patient advocate within the oncology continuum [39]. This advocacy manifests in several core areas. Facing a gastrectomy and relying on artificial feeding tubes often causes profound psychological distress, body image distortion and anxiety in patients [40]. Oncology nurses advocate for the patient's emotional well-being by providing intensive pre-operative counseling, destigmatizing feeding hardware and actively involving patients in daily care decisions. Interventions led by nurses aim at enhancing patient involvement in the management of their own health conditions [41].

The oncology nurse acts as the primary communication link between the surgical team, the clinical dietitian, and the patient. Nurses translate rigid, quantitative dietary prescriptions into bedside realities, alerting the multidisciplinary team the moment a patient shows signs of intolerance or psychological resistance to a regimen [42].

In advanced gastric cancer cases where cachexia transitions into a refractory, irreversible state, the focus of nursing advocacy shifts. Nurses advocate for comfort-oriented nutritional care, educating family members that reduced oral intake is a natural component of advanced disease [43], thereby protecting the patient's dignity and preventing non-beneficial, invasive interventions during the terminal phase.

Future Directions

The integration of novel screening tools can only be effective if accompanied by a paradigm shift in specialized nursing education. Data reveal that the clinical priority level assigned to Anorexia-Cachexia Syndrome management differs significantly among healthcare systems, often hindered by a lack of systematic knowledge [15-17]. To optimize post-gastrectomy care, future institutional strategies must prioritize continuous professional development and specialized training paths for oncology nurses. Enhancing nurses' core competencies in identifying subtle, nutrition-related symptoms; such as oral cavity problems, early satiety and sensory alterations will facilitate earlier nurse-led interventions, reduce clinical inertia and establish standardized, high-quality care delivery. Ongoing education for nurses must include cancer cachexia to enhance the quality of oncology care moving forward. Additionally, it is essential to standardize practical assessment tools that can be easily evaluated on a daily basis, which will facilitate interventions and promote the development of nurse-led multidisciplinary care [44].

To use advanced nutritional pathways, future healthcare models must evolve from traditional physician-centric structures

toward the implementation of specialized Nurse-Led clinics. Nurse-Led clinics represent a highly impactful, autonomous structural evolution in modern medicine, significantly improving patient continuity of care, safety profiles and clinical outcomes [45]. Within the context of gastric oncology, establishing post-gastrectomy nurse-led clinics could improve patient outcomes [46]. Implementing nurse-led structural paradigm not only bridges the gap between acute inpatient discharge and long-term community survivorship but also optimizes institutional resource allocation by reducing preventable emergency readmissions.

The landscape of nutritional oncology is rapidly moving toward personalized care, creating new avenues for nursing research and practice. Future oncology nursing models should leverage mobile health (mHealth) applications and remote monitoring devices. Nurse-led digital platforms can allow home-bound post-gastrectomy patients to log daily weights, enteral volume intake and gastrointestinal symptoms in real time, triggering early clinical reviews before acute dehydration or malnutrition sets in [47].

There is a critical need for large-scale, nurse-led randomized controlled trials examining the efficacy of specific EN, immune-nutrition formulas (enriched with arginine, omega-3 fatty acids, and nucleotides) exclusively within post-gastrectomy gastric cancer cohorts to establish standardized, international nursing care pathways.

Conclusion

Nutritional status remains one of the most critical determinants of long-term survival, treatment adherence, and overall quality of life for patients undergoing gastrectomy for gastric cancer. Enteral nutrition represents an evidence-based, highly effective therapeutic intervention that protects gut integrity and mitigates the severe metabolic impacts of surgical resection.

As treatment modalities grow increasingly complex, the role of the oncology nurse must expand from passive provider to proactive leader. Elevating oncology nursing through advanced education in metabolic screening, precision symptom management and interdisciplinary coordination is essential. By combining clinical expertise with passionate patient advocacy, oncology nurses serve as indispensable leaders in reducing oncological morbidity and empowering gastric cancer survivors throughout their recovery journey.

References

- Ilic M, Ilic I (2022) Epidemiology of stomach cancer. *World J Gastroenterol* 28(12): 1187-1203.
- Smyth EC, Nilsson M, Grabsch HI, Van Grieken NC, Lordick F (2020) Gastric cancer. *Lancet* 396(10251): 635-648.
- Grochowska E, Gazi A, SurwiHo-Snarska A, Kapala A (2024) Nutritional problems of patients after gastrectomy and the risk of malnutrition. *NOWOTWORY J Oncol* 74: 226-231.
- Zhou K, Tu RF, Lu LH, Zhang H (2026) Impact of nutritional status on treatment completion and prognosis during adjuvant chemotherapy following gastric cancer surgery. *World J Gastrointest Surg* 18(2): 114607.
- Durán Poveda M, Suárez-de-la-Rica A, Cancer Minchot E, Ocón Bretón J, Sánchez Pernaute A, et al. (2023) The Prevalence and Impact of Nutritional Risk and Malnutrition in Gastrointestinal Surgical Oncology Patients: A Prospective, Observational, Multicenter, and Exploratory Study. *Nutrients* 15(14): 3283.
- Vaid S, Bell T, Grim R, Ahuja V (2012) Predicting risk of death in general surgery patients on the basis of preoperative variables using American college of surgeon's national surgical quality improvement program data. *Perm J* 16(4): 10-17.
- Kang MK, Lee HJ (2024) Impact of malnutrition and nutritional support after gastrectomy in patients with gastric cancer. *Ann Gastroenterol Surg* 8(4): 534-552.
- Saunders J, Smith T (2010) Malnutrition: causes and consequences. *Clin Med (Lond)* 10(6): 624-627.
- Cho MR, Lee S, Song SK (2022) A review of sarcopenia pathophysiology, diagnosis, treatment and future direction. *J Korean Med Sci* 37(18): e146.
- Siddiqui JA, Pothuraju R, Jain M, Batra SK, Nasser MW (2020) Advances in cancer cachexia: Intersection between affected organs, mediators, and pharmacological interventions. *Biochim Biophys Acta Rev Cancer* 1873(2): 188359.
- Penet MF, Bhujwalla ZM (2015) Cancer cachexia, recent advances, and future directions. *Cancer J* 21(2): 117-122.
- Baracos VE, Martin L, Korc M, Guttridge DC, Fearon KCH (2018) Cancer-associated cachexia. *Nat Rev Dis Primers* 4: 17105.
- Saura I, Silva JB, Cunha D, Ramos I, Semedo V, et al. (2025) Management of anorexia-cachexia syndrome in a community palliative care support team. *Journal of Clinical Medicine* 14(17): 6167.
- Brielle B (2026) Oncology nurses are the frontlines to nutritional deficiencies. *Oncology Nursing News*.
- Socratous G, Cloconi C, Tsatsou I, Charalambous A (2021) Nurses' knowledge in relation to the anorexia-cachexia syndrome in cancer patients: A cross-national comparison in two European countries. *SAGE Open Nurs* 7: 23779608211035208.
- Medical Nutrition International Industry (MNI) (2025) Specialised Nutrition Europe (SNE). *Nutritional Care in Europe: A Critical Element to Achieve the Goals of Europe's Beating Cancer Plan*.
- Cancer Patients Europe (CPE) (2026) *Nutrition in Cancer Care: White Paper*.
- Sato R, Naito T, Hayashi N (2021) Barriers in nursing practice in cancer cachexia: A scoping review. *Asia Pac J Oncol Nurs* 8(5): 498-507.
- Reber E, Gomes F, Vasiloglou MF, Schuetz P, Stanga Z (2019) Nutritional risk screening and assessment. *J Clin Med* 8(7): 1065.
- Makhija S, Baker J (2008) The subjective global assessment: A review of its use in clinical practice. *Nutr Clin Pract* 23(4): 405-409.
- Patient-Generated Subjective Global Assessment (PG-SGA) (2026) *PT-Global*.
- Boléo-Tomé C, Monteiro-Grillo I, Camilo M, Ravasco P (2012) Validation of the Malnutrition Universal Screening Tool (MUST) in cancer. *Br J Nutr* 108(2): 343-348.
- Wang P, Tan Y, Soh KL, Soh KG, Ning C, et al. (2024) Nutrition risk screening 2002 for adult cancer patients: A systematic review and meta-analysis. *Nutr Cancer* 76(7): 573-583.
- Holmes CJ, Racette SB (2021) The utility of body composition assessment in nutrition and clinical practice: An overview of current methodology. *Nutrients* 13(8): 2493.
- Picó C, Serra F, Rodríguez AM, Keijer J, Palou A (2019) Biomarkers of nutrition and health: New tools for new approaches. *Nutrients* 11(5): 1092.

26. Kudeken N (2025) Prognostic nutritional index: A comprehensive review across clinical specialties. *Clin Nutr Open Sci* 66: 100601.
27. National Cancer Institute (2023) 24-hour Dietary Recall Profile. Dietary Assessment Primer [Internet]. Bethesda (MD): National Institutes of Health
28. Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, et al. (2017) ESPEN guidelines on nutrition in cancer patients. *Clin Nutr* 36(1): 11-48.
29. Weimann A, Braga M, Gianotti L, Gillis C, Hubner M, et al. (2025) ESPEN guideline on clinical nutrition in surgery – Update 2025. *Clin Nutr* 53: 222-261.
30. Triantafyllidis JK, Papakontantinou J, Antonakis P, Konstadoulakis MM, Papalois AE (2024) Enteral nutrition in operated-on gastric cancer patients: An update. *Nutrients* 16(11): 1639.
31. Wang J, Wang Y, Jia N, Zhang Y, Zhou J, et al. (2026) Construction of nursing management protocol for promoting tolerance of enteral nutrition in tube-fed perioperative cancer patients. *J Multidiscip Healthc* 19: 569432.
32. Ernmeyer K, Christman E (2021) Open Resources for Nursing (Open RN). *Nursing Skills* [Internet]. Eau Claire (WI): Chippewa Valley Technical College. Chapter 17 Enteral Tube Management.
33. Boullata JI, Carrera AL, Harvey L, Escuro AA, Hudson L, et al. (2017) ASPEN safe practices for enteral nutrition therapy. *Journal of Parenteral and Enteral Nutrition* 41(1): 15-103.
34. Blumenstein I, Shastri YM, Stein J (2014) Gastroenteric tube feeding: Techniques, problems and solutions. *World J Gastroenterol* 20(26): 8505-8524.
35. Marinella MA (2009) Refeeding syndrome: An important aspect of supportive oncology. *J Support Oncol* 7(1): 11-16.
36. Marinella MA (2008) Refeeding syndrome in cancer patients. *Int J Clin Pract* 62(3): 460-465.
37. Van Beek AP, Emous M, Laville M, Tack J (2017) Dumping syndrome after esophageal, gastric or bariatric surgery: Pathophysiology, diagnosis, and management. *Obes Rev* 18(1): 68-85.
38. Rodgers L, Phillips CA (2018) Dumping syndrome: Causes, management, and patient education. *American Nurse*.
39. Alsbrook KE, Donovan HS, Wesmiller SW, Hagan Thomas T (2022) Oncology nurses' role in promoting patient self-advocacy. *Clin J Oncol Nurs* 26(3): 239-243.
40. Gu Y, Ma X, Xin H, Xiang Z, Chen Y, et al. (2025) Navigating life after gastric cancer surgery: a qualitative exploration of the dyadic patient-caregiver perspective on quality of life outcomes. *BMC Cancer* 25(1): 288.
41. Bonetti L, Tolotti A, Anderson G, Nania T, Vignaduzzo C, et al. (2022) Nursing interventions to promote patient engagement in cancer care: A systematic review. *Int J Nurs Stud* 133:104289.
42. Boniface MM, Wani SB, Schefter TE, Koo PJ, Meguid C, et al. (2016) Multidisciplinary management for esophageal and gastric cancer. *Cancer Manag Res* 8: 39-44.
43. Hui D, Dev R, Bruera E (2015) The last days of life: symptom burden and impact on nutrition and hydration in cancer patients. *Curr Opin Support Palliat Care* 9(4): 346-354.
44. Sato R, Naito T, Hayashi N (2021) Barriers in nursing practice in cancer cachexia: A scoping review. *Asia Pac J Oncol Nurs* 8(5): 498-507.
45. Tsatsou I (2025) Nurse-Led clinics: A brief review of structure, evolution, and impact on modern healthcare. *Iris Journal of Nursing and Care* 5(3): 1-4.
46. Wang W, Zhu Y, Sun Y, Li Y (2025) Comparison of the effectiveness of nurse-led preoperative counseling and postoperative follow-up care vs standard care for patients with gastric cancer. *Open Med (Wars)* 20(1): 20241098.
47. Jiang XH, Yuan XH, Chen JM, Yu H, Chen XJ, et al. (2025) Effects of a nurse-led individualized mHealth nutrition intervention for post-discharged gastric cancer patients following gastrectomy: A randomized controlled trial. *Int J Nurs Stud* 168: 105092.