

Standards for Nutrition Support: Adult Hospitalized Patients

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The American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) is a professional society of physicians, nurses, dietitians, pharmacists, allied health professionals, and researchers dedicated to ensuring that every patient receives optimal nutrition care. A.S.P.E.N.'s mission is to improve patient care by advancing the science and practice of nutrition support therapy. These Standards for Nutrition Support for Adult Hospitalized Patients are an update of the 2002 standards. They are intended for use by any hospital with or without a formal nutrition support service (or team).

A.S.P.E.N. defines Standards as a "benchmark representing a range of performance of competent care that should be provided to ensure safe and efficacious nutrition care." Standards are documents that define the structure needed to provide competent care. They usually outline in detail professional responsibilities as they relate to patient assessment, education, care plan development, implementation, clinical monitoring, evaluation, and professional issues. A.S.P.E.N. publishes discipline-based (eg, physician, dietitian, nurse, pharmacist) and practice-based (eg, adult hospitalized patients, pediatric hospitalized patients, home care, long-term care) Standards.

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1. Audience for Standards

These practice-based Standards are intended for use by healthcare professionals charged with the care of adult populations of patients receiving nutrition support in hospitals.

2. Level of Care

These Standards of Practice present a range of performance of competent care that should be provided by any hospital caring for patients receiving nutrition support therapy. A separate reference, *Guidelines for the Use of Parenteral and Enteral Nutrition in Adults and Pediatric Patients*,¹ provides evidence-based practice guidelines that are coded to reflect the strength of evidence supporting the guideline to assist clinicians in their decision-making process in the development of nutrition care plans for patients. The Standards are presented in the most generic terms possible. The details of specific tests, therapies, and protocols are left to the discretion of individual hospitals. Each hospital shall strive to provide the best nutrition support care that is possible given the resources of the organization. The Standards aim to ensure sound and efficient nutrition care for those in need of nutrition support therapy.

Terminology included in each standard is specified as follows:

- "*Shall*" indicates that Standards are to be followed strictly.
- "*Should*" indicates that among several possibilities one is particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required.
- "*May*" indicates a course of action that is permissible within the limits of recommended practice.

These Standards do not constitute medical or other professional advice and should not be taken as such. To the extent that the information published herein may be used to assist in the care of patients, this is the result of the sole professional judgment of the attending health-care professional whose judgment is the primary component of quality medical care. The information presented in these Standards is not a substitute for the exercise of such judgment by the healthcare professional. These Standards have been developed by the Task Force on Standards for Nutrition Support for Adult Hospitalized Patients, reviewed by the A.S.P.E.N. Clinical Practice Committee and approved by the A.S.P.E.N. Board of Directors.

These Standards of Practice should be used in conjunction with the following A.S.P.E.N. publications:

Definition of Terms, Style, and Conventions

American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Board of Directors and Clinical Practice Committee. Definition of Terms, Style, and Conventions Used in A.S.P.E.N. Board of Directors-Approved Documents. American Society for Parenteral and Enteral Nutrition. <http://www.nutritioncare.org/Library.aspx>. Published March 2010. Accessed March 30, 2010.

Hospitalized Pediatric Standards

American Society for Parenteral and Enteral Nutrition Board of Directors, and Task Force on Standards for Specialized Nutrition Support for Hospitalized Pediatric Patients: Wessel J, Balint J, Crill C, Klotz K. Standards for specialized nutrition support: hospitalized pediatric patients. *Nutr Clin Pract.* 2005;20:103-116.

Long-Term Care Standards

American Society for Parenteral and Enteral Nutrition Board of Directors, Task Force on Standards for Specialized Nutrition Support for Adult Residents of Long Term Care Facilities: Durfee SM, Gallagher-Allred C, Pasquale JA, Stechmiller J. Standards for specialized nutrition support for adult residents of long-term care facilities. *Nutr Clin Pract.* 2006;21:96-104.

Home Care Standards

American Society for Parenteral and Enteral Nutrition Board of Directors and the Standards for Specialized Nutrition Support Task Force: Kovacevich DS, Frederick A, Kelly D, Nishikawa R, Young L. Standards for specialized nutrition support: home care patients. *Nutr Clin Pract.* 2005;20:579-590.

Dietitians' Standards

Joint Standards Task Force of A.S.P.E.N. and the American Dietetic Association Dietitians in Nutrition Support Dietetic Practice Group; Rusell M, Stieber M, Brantley S, et al. Standards of practice and standards of professional performance for Registered Dietitians (generalist, specialty, and advanced) in nutrition support. *Nutr Clin Pract.* 2007;22:558-586.

Nurses' Standards

American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Board of Directors and Nurses Standards Revision Task Force: DiMaria-Ghalili RA, Bankhead R, Fisher AA, Kovacevich D, Resler R, Guenter PA. Standards of practice for nutrition support nurses. *Nutr Clin Pract.* 2007;22:458-465.

Pharmacists' Standards

American Society for Parenteral and Enteral Nutrition Task Force for Revision of Nutrition Support Pharmacist Standards: Rollins C, Durfee SM, Holcombe BJ, Kochevar M, Nyffeler M, Mirtallo J. Standards of practice for nutrition support pharmacists. *Nutr Clin Pract.* 2008;23:189-194.

Physicians' Standards

American Society for Parenteral and Enteral Nutrition, and Task Force on Standards for Nutrition Support Physicians: Seashore JH, McMahon M, Wolfson M, D'Angelo DW. Standards of practice for nutrition support physicians. *Nutr Clin Pract.* 2003;18:270-275.

Clinical Guidelines

American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Board of Directors. Clinical guidelines for the use of parenteral and enteral nutrition in adult and pediatric patients, 2009. *JPEN J Parenter Enteral Nutr.* 2009;33:255-259. [See <http://www.nutritioncare.org/Library.aspx> for individual clinical guidelines.]

Safe Practices for Parenteral Nutrition

Mirtallo J, Canada T, Johnson D, et al; Task Force for the Revision of Safe Practices for Parenteral Nutrition. Safe practices for parenteral nutrition [published correction appears in *JPEN J Parenter Enteral Nutr.* 2006;30:177]. *JPEN J Parenter Enteral Nutr.* 2004;28:S39-S70.

Enteral Nutrition Practice Recommendations

Enteral Nutrition Practice Recommendations Task Force: Bankhead R, Boullata J, Brantley S, et al. Enteral nutrition practice recommendations. *JPEN J Parenter Enteral Nutr.* 2009;33:122-167.

Statement on Aluminum in Parenteral Nutrition Solutions

The American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Aluminum Task Force, Charney PJ. A.S.P.E.N. Statement on Aluminum in Parenteral Nutrition Solutions. *Nutr Clin Pract.* 2004;19:416-417.

Statement on Parenteral Nutrition Standardization

A.S.P.E.N. Board of Directors and Task Force on Parenteral Nutrition Standardization: Kochevar M, Guenter P, Holcombe B, Malone A, Mirtallo J. A.S.P.E.N. statement on parenteral nutrition standardization. *JPEN J Parenter Enteral Nutr.* 2007;31:441-448.

Statement on Ethics of Withholding and/or Withdrawing Nutrition Support Therapy

American Society for Parenteral and Enteral Nutrition Statement on Ethics of Withholding and/or Withdrawing Nutrition Support Therapy. <http://www.nutritioncare.org/Library.aspx>. Published September 2008. Accessed March 4, 2010.

Chapter I: Organization

Standard 1. Nutrition Support Service (or Team)

A nutrition support service (or team) should assess and manage patients who require or may require nutrition support therapy. These patients are often but not always determined to be nutritionally-at-risk at admission or upon subsequent evaluation.² Organized nutrition support services (or teams) are associated with improved patient outcomes, decreased length of hospitalization, and improved cost effectiveness.³⁻¹⁴ If a hospital does not have a designated nutrition support service (or team), the care used to provide nutrition support therapy should be interdisciplinary. The scope and design of the nutrition support service (or team) and its activities vary according to the unique attributes of each hospital. Among various organizations, nutrition support may comprise a spectrum of activities including no formal structure, an administrative nutrition committee only, a consultative nutrition support service (or team), or a nutrition support service

(or team) that assumes responsibility for the nutrition care of patients who receive nutrition support therapy.

- 1.1 When an organized nutrition support service (or team) exists, it shall be directed by a clinician who has appropriate education, specialized training, or experience in the administration of nutrition support therapy.
- 1.2 An organized nutrition support service (or team) should include a physician, nurse, dietitian, and pharmacist, each following the standards of practice for their disciplines.¹⁵⁻¹⁸
- 1.3 If a nutrition support service (or team) is not established, nutrition support therapy should be managed with an interdisciplinary approach that includes the patient's physician, nurse, dietitian, and pharmacist.

Standard 2. Policies and Procedures

Written policies and procedures for the provision of nutrition support therapy shall be established.

- 2.1 The policies and procedures shall be created with the input of and review by all members of the nutrition support service (or team).
- 2.2 The policies and procedures shall be reviewed periodically and revised as appropriate to define optimal patient care and outcomes (see also 3.2).

Standard 3. Performance Improvement

The nutrition support service (or team) shall regularly review and report on service performance, quality indicators, patient outcome data, and adverse events related to administration of nutrition support therapy.

- 3.1 The review of performance should assess the appropriateness and effectiveness of the delivery of nutrition support therapy.
- 3.2 The nutrition support service (or team) shall recommend policy, procedure, or protocol changes that improve and/or enhance the safety and efficacy of delivery of nutrition support therapy.

Chapter II: Nutrition Care

Nutrition care and the administration of nutrition support therapy shall proceed according to a series of steps with feedback loops. These steps include nutrition screening (which is separate from the care provided by the nutrition support service [or team] or interdisciplinary team), formal nutrition assessment, formulation of a nutrition care plan, implementation of the plan, patient

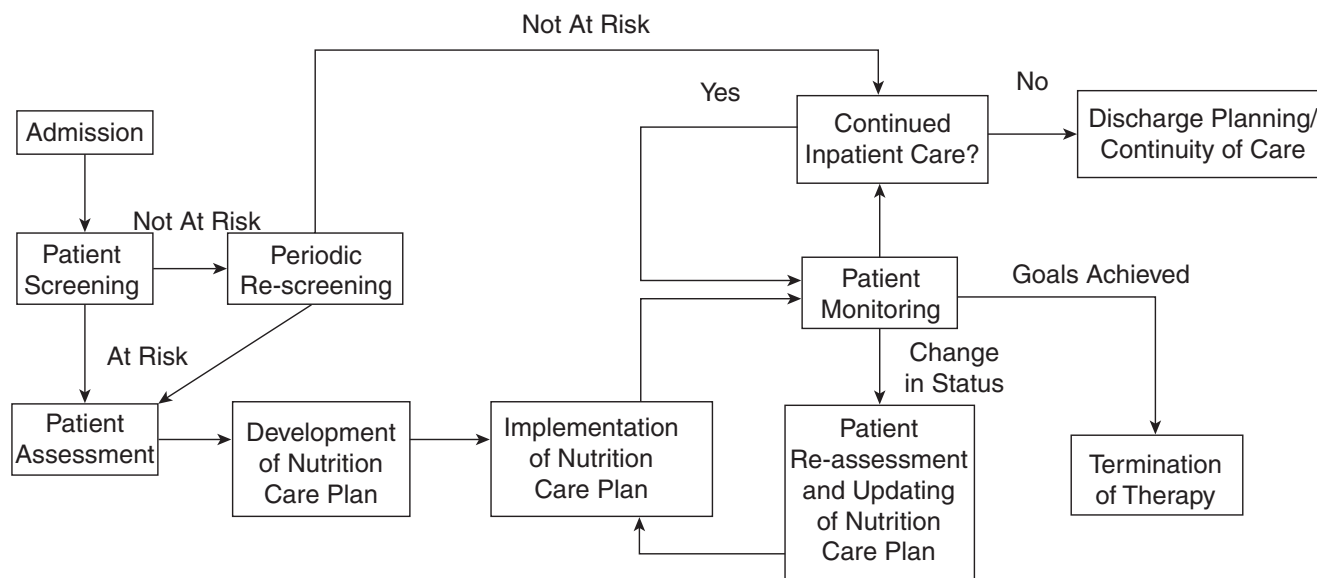


Figure 1. Nutrition care algorithm (adapted from Standards for Specialized Nutrition Support: Adult Hospitalized Patients⁶⁰).

monitoring, evaluation of the plan, evaluation of the care setting, and reformulation of the plan or termination of therapy.¹ The nutrition care algorithm is outlined in Figure 1.

Standard 4. Nutrition Screening

Nutrition screening is defined as “a process to identify an individual who is malnourished or who is at risk for malnutrition to determine if a detailed nutrition assessment is indicated.”¹⁹ Patients who are nutritionally-at-risk shall be identified by an appropriate screening process within 24 hours of hospital admission and periodic rescreening.^{1,2,20-22} This process should be created, approved, and regularly reviewed by the committee or other group with organizational authority, preferably a designated nutrition committee.

- 4.1. Results of the screen shall be documented and communicated, and appropriate intervention shall be initiated within the time frame specified by the hospital.
- 4.2. A procedure for re-screening of patients not immediately identified as nutritionally-at-risk should be implemented and regularly reviewed.

Standard 5. Nutrition Assessment

All patients screened as nutritionally-at-risk shall undergo a nutrition assessment.^{2,23-25} This nutrition assessment

shall be documented and made available to all patient care providers. The intent of the nutrition assessment is to document baseline nutrition parameters, identify nutritional risk factors and specific nutrition deficits, establish individual nutrition needs, and identify medical, psychosocial, and socioeconomic factors that may influence the prescription and administration of nutrition support therapy. Data gleaned from the nutrition assessment shall be used to diagnose and document the presence of malnutrition.

- 5.1. The nutrition assessment shall be performed within the time frame specified by the hospital and by a dietitian or a clinician with documented specialized expertise in nutrition.
- 5.2. The nutrition assessment shall include assessment of the patient’s current nutrition status and nutrition requirements.
- 5.3. The patient’s nutrition requirements shall be summarized based on the findings of the nutrition assessment and should include energy, macronutrient (protein and, as appropriate, carbohydrate and fat), fluid, electrolyte, and micronutrient requirements.
- 5.4. Nutrition assessment shall include review and documentation of factors relevant to delivery of nutrition support therapy. Relevant factors may include but are not limited to the following: ability to eat, assessment of aspiration risk, functional status of the gastrointestinal tract, mental status,

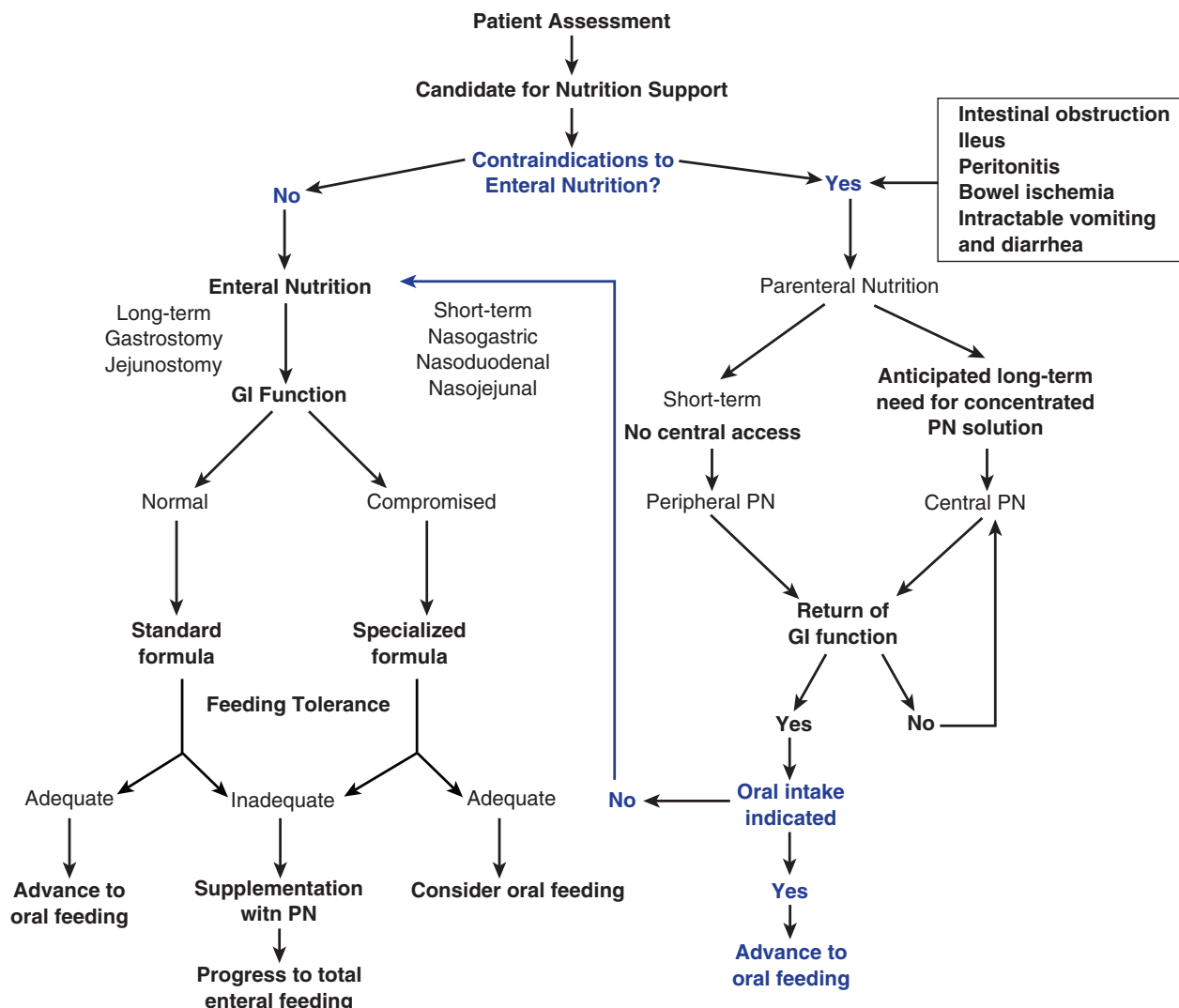


Figure 2. Route of administration algorithm (adapted from Clinical Pathways and Algorithms for Delivery of Parenteral and Enteral Nutrition Support in Adults⁶¹). GI, gastrointestinal; PN, parenteral nutrition.

enteral and vascular access, and schedule of tests and invasive procedures.

Chapter III: The Nutrition Care Plan

Standard 6. Goals

The process of nutrition care is multifactorial and shall include multiple levels of intervention including screening for nutrition risk factors. The nutrition care plan shall be created from a comprehensive analysis of information gathered from many aspects of care. The nutrition care plan should include energy and nutrient requirements and intake goals, routes of nutrition support therapy administration, and measurable short- and long-term goals of care and intervention.^{1,23,25}

A formal nutrition assessment provides the basis for the nutrition care plan. The nutrition care plan guides comprehensive nutrition therapy by defining its rationale, describing appropriate intervention and monitoring, and delineating recommended reassessment and reevaluation parameters. This process facilitates changes in care appropriate to the clinical setting while considering the continuum of care. Reformulation of the nutrition care plan as dictated by changes in clinical status and achievement of goals of therapy should occur before discontinuation of nutrition support therapy.

Standard 7. Interdisciplinary Approach

The nutrition care plan should be developed using an interdisciplinary team approach involving the patient and the nutrition support service (or team), the patient's

physician(s), dietitian(s), and other appropriate health-care personnel.

Standard 8. Patient and Family Communication

The nutrition care plan should include patient and family/caregiver education about nutrition support therapy, goals, and expectations, and should incorporate patient and family/caregiver wishes. Appropriate routes of administration shall be defined, identification of intake goals shall be included, and estimated duration of therapy as well as criteria for discontinuation of therapy should be discussed.

Standard 9. Selection of Route

The route selected to provide nutrition support therapy shall be appropriate to the patient's medical condition and should periodically be assessed for continued appropriateness as well as for its adequacy in meeting goals of the nutrition care plan (see Figure 2).

Standard 10. Selection of Formulation

The enteral nutrition (EN) or parenteral nutrition (PN) formulation shall be appropriate for the patient's disease process and compatible with the route of access.^{26,27}

- 10.1. The EN or PN formulation shall be adjusted as appropriate based on the patient's clinical response.
- 10.2. When significant amounts of nutrients are provided or lost through means other than the EN or PN formulation (eg, parenteral infusions, drugs, renal replacement therapy), the formulation shall be adjusted accordingly.

Chapter IV: Implementation

Standard 11. Ordering Process

Implementation of the nutrition care plan shall follow nutrition assessment and development of a formal nutrition care plan.

- 11.1. Authority to prescribe nutrition support therapy shall be determined by hospital policy and applicable professional licensure laws.
- 11.2. Prescriptions/orders for food or nutrition support therapy shall be documented in the patient's medical record before administration.

Standard 12. Nutrition Support Access

Access for nutrition support therapy shall be achieved and maintained in a manner that minimizes risk to the patient.^{1,25,28}

- 12.1. Standard techniques and policies should be established and followed for access device insertion and routine care (also see section 16.5).
 - 12.1.1. The selection of a venous access site (central vs peripheral vein) should depend on expected duration of therapy, nutrition requirements, and patient's vascular condition.²⁹ The subclavian site (rather than a jugular or femoral site) should be used in adult patients to minimize infection risks for nontunneled central venous catheters for PN delivery.³⁰
 - 12.1.2. The selection of an enteral access device (nasoenteric vs enterostomy, ie, gastrostomy or jejunostomy) should depend on the patient's disease state, gastrointestinal anatomy and function, expected duration of nutrition support therapy, and the ability to safely access the gastrointestinal tract via radiologic, surgical, or endoscopic techniques.³¹
 - 12.1.3. Appropriate access devices shall be placed by a physician, nurse, or trained healthcare professional who is competent to place the specific access device. Professionals with knowledge in recognizing and managing complications associated with the placement and maintenance of the access devices should monitor the use of the access devices.²⁹
 - 12.1.4. Proper placement of central venous and enteral access devices shall be radiographically confirmed and documented in the medical record before initial use. For enteral access devices, the auscultatory method should not be relied upon to differentiate between pulmonary, gastric, and small bowel placement of a nasoenteric tube.³²
 - 12.1.5. Central venous access should be used for the delivery of parenteral nutrition formulations with an osmolarity > 900 mOsm/L. The catheter tip should be positioned in the distal superior vena cava adjacent to the caval-atrial junction. Peripheral PN may be given, if indicated, through a peripheral access device, provided the osmolarity of the formulation is ≤900

mOsm/L. Intravenous fat emulsion should be concurrently infused.^{29,33,34}

12.1.6. Monitoring procedures for nutrition support therapy administration shall include visual inspection of the patient's enteral or parenteral access devices and insertion site.

12.2. Complications related to an access device and outcome of actions to manage the complication shall be clearly documented in the medical record.

Standard 13. PN Formulation Preparation

PN shall be prepared and stored accurately and safely as prescribed and according to USP <797>: Pharmaceutical Compounding-Sterile Products.³⁵

13.1. PN formulations shall be prepared using current policies and procedures regarding manufacturing, compatibility, and stability. These procedures shall be supervised by a healthcare professional with appropriate credentials and experience.²⁹

13.1.1. A standardized process for PN preparation should be used. This may include the use of standardized PN formulations when appropriate.³⁶

13.1.2. A pharmacist shall review the contents of a PN order for appropriateness and compare it with previous orders when applicable.²⁹

13.2. In hospitals that utilize automated compounding devices for preparation of PN formulations, policies and procedures shall be developed to address responsibilities for operation and maintenance, staff training, and monitoring compounder performance.³⁷

13.2.1. Adequate training of personnel shall include use of computer software to assist in daily use and troubleshooting of automated compounding equipment.

13.2.2. PN substrate dosing limit alerts shall be activated in the computer software and used in the assessment of the PN formulation prior to compounding.

13.2.3. Documents generated by the automated compounding device shall be compared with the PN formulation ordered.

13.2.4. The operator shall monitor the equipment during the preparation process to ensure proper operation of the equipment.

13.2.5. End-product testing of PN should be completed when using an automated compounding device.²⁹

13.3. In hospitals that outsource preparation of PN formulations, policies and procedures shall be developed for appropriate ordering, storage, preparation, labeling, and dispensing of PN formulations. Institutions should ensure that the outsource agency prepares PN formulations in accordance with USP <797>: Pharmaceutical Compounding-Sterile Products.³⁵

13.4. In hospitals that utilize standardized, commercial PN products, policies and procedures shall be developed for appropriate ordering, storage, preparation, labeling, and dispensing of PN formulations.

13.5. PN formulations shall be sterile and free from physical contaminants (foreign materials and physical matter).

13.6. A pharmacist should choose PN components that minimize patient exposure to aluminum.³⁸

Standard 14. EN Formulation Preparation

EN formulations shall be prepared accurately and safely as prescribed.

14.1. EN formulations shall be prepared by trained personnel under professional supervision in a clean environment. Aseptic technique shall be used in the preparation of EN formulations.³⁹

14.1.1. Preparation equipment shall be sanitized regularly.

14.1.2. Open-system containers shall be filled with EN formulation using aseptic technique.

14.2. Any addition of modular nutrients or water to the formulation shall be ordered by the prescribing clinician or designee.

14.2.1. Additions to EN formulations shall not be done at the bedside.

14.2.2. Additions to closed-system containers shall not be made.

Standard 15. Packaging and Labeling

PN and EN formulations shall be appropriately packaged and labeled.

15.1. PN formulations shall be packaged in administration containers that can ensure maintenance of sterility and allow visual inspection during preparation, storage, and administration.

15.1.1. The PN formulation shall be labeled with the patient's name, additives, rate of administration, route of administration (ie, central or peripheral vein), beyond-use date and time, and composition. The content and format of

a PN label shall follow the Standard Label Format for Adults as recommended by the Task Force for the Revision of Safe Practices for Parenteral Nutrition²⁹ or as dictated by state laws. The PN formulation label should contain a statement indicating that it is for parenteral administration only.

- 15.1.2. The PN formulation shall be stored in a refrigerator (according to established guidelines), unless the formulation will be administered immediately to the patient.²⁹
- 15.2. EN formulations shall be packaged in administration containers, which ensure accuracy of volume and cleanliness and minimize the risk for contamination.
 - 15.2.1. Open-system administration containers should be used if the EN formulation will be modified with modular products.
 - 15.2.2. Hospital-prepared EN formulations shall be stored in a refrigerator (per established guidelines), unless the formulation will be administered immediately to the patient.
- 15.3. EN formulation administration containers shall be labeled accurately with the contents and patient information.³⁹
 - 15.3.1. EN labels should be standardized.
 - 15.3.2. EN formulation administration containers should be labeled with the patient's name, medical record identification number, product name and strength, additives, volume, and beyond-use date and time.
 - 15.3.3. EN formulation labels should also contain delivery site/access and route (enteral), and method of administration.
 - 15.3.4. EN formulation labels should contain a statement indicating a formulation is for enteral administration only.

Standard 16. Administration of Nutrition Support Therapy Formulations

EN and PN formulations shall be administered safely and accurately in accordance with the prescribed order and consistent with the patient's tolerance.

- 16.1. Hospital-specific protocols, procedures, and adverse event reporting shall exist regarding techniques used to administer nutrition support therapy.
- 16.2. Nutrition support therapy formulations shall be administered by or under the supervision of trained personnel; administration and tolerance shall be documented in the medical record.
- 16.3. Before a formulation is administered to the patient, the label on the formulation shall be

checked against the order and the patient's identity shall be verified per hospital policy to ensure the prescribed formulation is delivered to the appropriate patient and administered by the correct route at the designated/intended time.

- 16.4. The administration rate of the prescribed formulation shall be checked each time a new volume of formulation is ordered or initiated, and periodically during its administration.
- 16.5. Protocols shall be written to prevent and manage vascular or enteral access device occlusion.
- 16.6. Each PN formulation should be inspected prior to and during administration. If visual changes are present, the formulation shall not be administered and the pharmacy notified.
- 16.7. Protocols and procedures shall exist to prevent, diagnose, manage, and monitor patient infections caused by contamination of the PN formulation or the equipment/devices used in its administration.^{40,41}
 - 16.7.1. Infection prevention strategies shall be used to minimize central venous catheter-related bloodstream infection including a bundle of targeted, evidence-based catheter insertion practices: use of hand hygiene, maximum sterile barrier precautions during insertion, use of chlorhexidine for skin disinfection before catheter insertion and during central venous catheter dressing change, avoidance of the femoral vein insertion site, prompt removal of unnecessary lines.^{30,42-44}
 - 16.7.2. If a multilumen catheter is used, one port should be designated exclusively for PN administration. Access ports shall be wiped with an appropriate antiseptic prior to catheter manipulation, and manipulation should be minimized.^{29,30,45} Co-infusion of fluids or medications into the PN system should be avoided if at all possible. If no other alternatives are available, a pharmacist should be contacted to investigate the compatibility and stability issues prior to administration.
 - 16.7.3. Unit-specific data regarding catheter-related bloodstream infections should be collected and reported through appropriate channels.
 - 16.7.4. PN formulations shall be labeled with the beyond-use date and time and discarded at that time; once started, the administration of a PN formulation shall be completed within 24 hours.^{29,30,35,46}
 - 16.7.5. Administration sets for total nutrient admixtures shall be changed every 24 hours. A 1.2-micron filter may be used for all PN

formulations. Alternatively, a 0.22-micron filter may be used for 2-in-1 formulations.²⁹

- 16.7.6. Intravenous (IV) fat emulsion administered separately from PN formulations should be completed within 12 hours of initiating the infusion. If volume considerations require more time, the IV fat emulsion administration should be completed within 24 hours of initiating the infusion.
- 16.8. A protocol shall be written regarding the maximal rate of administration for fat emulsions. Manufacturer's recommendations should be considered in formulating this protocol.
- 16.9. Cycling of PN formulations should be considered for patients with or at risk of liver dysfunction, on long-term PN, or those who are stable and active and may benefit from infusion-free time periods.⁴⁵
- 16.10. A protocol shall be written to minimize the risk of microbial contamination of EN formulations. [Please refer to the *Enteral Nutrition Practice Recommendations*³⁹ and *Guidelines for the Provision and Assessment of Nutrition Support Therapy in the Adult Critically Ill Patient*⁴⁷ for details.]
- 16.11. Protocols and procedures should exist to minimize the risk of regurgitation and aspiration of EN formulations.³⁹
- 16.11.1. All patients receiving EN shall be assessed for risk of aspiration.
- 16.11.2. Patients should be positioned upright at least 30° to 45° during and for 1 hour after receiving EN formulation.^{48,49}
- 16.11.3. A protocol shall define the process by which gastric residual volumes are used to assess EN feeding tolerance.^{49,50}
- 16.12. A protocol shall exist to minimize the risk of enteral misconnections.⁵¹⁻⁵⁴
- 16.12.1. Enteral access device administration set connectors shall not be purchased that can physically connect with a female luer IV line connector.⁵²
- 16.12.2. Standard luer syringes shall not be used to administer oral medications or EN.
- 16.12.3. Tubes or catheters shall be traced from the patient to the point of origin before connecting any new device or infusion.
- 16.12.4. Tubes and catheters having different purposes should be routed in different, standardized directions (eg, IV lines routed toward the head; enteric lines toward the feet).

16.13. Protocols shall be established for the administration of medications through an enteral access device.³⁹

16.13.1. Medications should not be mixed directly with enteral formulation due to potential drug–drug and drug–nutrient interactions.⁵⁵

16.13.2. Medications should be administered according to current guidelines.⁵⁵⁻⁵⁷

16.13.3. Enteral access device(s) should be flushed appropriately before and after medication administration and restarting EN administration.

Standard 17. Adverse Event Management

An adverse event, including sentinel events related to the administration of nutrition support therapy and the equipment/access devices, shall be documented and reported according to hospital protocol to promote a culture of patient safety. Protocols should be developed to decrease the risk of adverse events.

Chapter V: Monitoring and Reevaluating the Nutrition Care Plan

Standard 18. Parameters and Frequency

A plan for monitoring the effect of nutrition support therapy interventions should be stated in the nutrition care plan.¹

Monitoring parameters are chosen relative to the therapy goals of the nutrition care plan. The nutrition care plan shall be revised to optimize nutrition support therapy and achieve predetermined goals.

18.1. The frequency of monitoring should depend on severity of illness, level of metabolic stress, and degree of malnutrition.¹

- Daily or more frequent monitoring should be required in patients who are critically ill, have debilitating diseases or infection, are at risk for refeeding syndrome complications, are transitioning between PN or EN and oral diet, or have experienced complications associated with nutrition support therapy.
- Monitoring may be needed weekly or as clinically indicated in patients who are stable with documented stable laboratory parameters.

18.2. Monitoring parameters should include the following:

- Physical assessment, including clinical signs of fluid and nutrient excess or deficiency

- Functional status
- Vital signs
- Actual nutrient intake (oral, enteral, and parenteral)
- Weight
- Laboratory data
- Review of all medications
- Changes in gastrointestinal function

18.3. Appropriate changes in nutrition support therapy shall be made based on results of monitored parameters. Recommended changes in nutrition support therapy formulation or route and resulting outcomes shall be documented in the nutrition care plan.

18.4. Protocols should be established to maintain blood glucose control in patients receiving EN or PN.

Standard 19. Reevaluation of Nutrition Care Plan

The patient shall be monitored for progress toward short- and long-term goals as defined in the nutrition care plan.¹

19.1. Appropriate parameters should be measured serially during nutrition support therapy and documented.¹ Parameters may include weight change, changes in laboratory data, adequacy of intake, ability to transition to oral diet, functional status performance, and quality of life.

19.2. The monitoring parameters should be compared with the goals of the nutrition care plan. If goals are not being met or new problems/risks have arisen, the nutrition care plan should be modified or rewritten, as appropriate.

Chapter VI: Transition of Therapy

Standard 20. Adequacy of Intake

The transition of nutrition therapies shall be monitored. Recommendations for improving oral and enteral intake shall be documented. Adequacy of energy and nutrient intake is based on clinical judgment and shall be assessed and documented before discontinuation of nutrition support therapy (see Figure 2).

Standard 21. Continuity of Care^{58,59}

Continuity of the nutrition support therapy shall occur through active communication with all members of the patient care team, the patient, and family/caregivers (Figure 1).

21.1. A plan shall be developed for transition of nutrition support therapy to an alternate healthcare facility or to home care and should include identification of the primary clinician responsible for ordering home nutrition support therapy.

21.2. Indications for home nutrition support therapy shall be documented.

21.3. Appropriate teaching should be provided and documented before discharge, and proper communication with home infusion and healthcare agencies and with the patient's home nutrition support management team should be established prior to hospital discharge.

21.4. Nutrition support therapy formulation and administration schedule should be documented and communicated with home infusion and home health agencies before discharge. Specifically with PN, there should be pharmacist-to-pharmacist communication with the alternate healthcare facilities or home agencies.²⁹

21.5. Periodic monitoring should be recommended depending on patient's condition.

References

1. A.S.P.E.N. Board of Directors and the Clinical Guidelines Task Force. Guidelines for the use of parenteral and enteral nutrition in adult and pediatric patients [published correction appears in *JPEN J Parenter Enteral Nutr.* 2002;26:144]. *JPEN J Parenter Enteral Nutr.* 2002;26(suppl):1SA-138SA.
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