

Standards for Nutrition Support: Hospitalized Patients

(based and adapted from the ASPEN & JCAHO Board of Directors' Standards of Nutrition Support for Hospitalized Patients)

Definition of Terms (1,2)

Drug-drug interaction. An event that occurs when a drug's activity, availability, or effect is altered by another drug.

Drug-nutrient interaction. An event that occurs when nutrient availability is altered by a medication, or when a drug effect is altered or an adverse reaction caused by the intake of nutrients.

Enteral Nutrition. Nutrition provided via the gastrointestinal tract.

Oral—Enteral nutrition taken by mouth.

Tube—Enteral nutrition provided through a tube, catheter, or stoma that delivers nutrients distal to the oral cavity.

Enteral access devices. Tubes placed directly into the gastrointestinal tract for the delivery of nutrients and/or drugs.

Feeding Formulation. A ready-to-administer mixture of nutrients.

Indicators. Prospectively determined measures used as normative standards within a quality assurance process.

Malnutrition. Any disorder of nutrition status including disorders resulting from a deficiency of nutrient intake, impaired nutrient metabolism, or over nutrition.

Nutrition assessment. A comprehensive evaluation to define nutrition status, including medical history, dietary history, physical examination, anthropometric measurements, and laboratory data.

Nutritionally-at-risk. Adults are considered at nutritional risk if they have any one of the following:

- Actual or potential for developing malnutrition (involuntary loss or gain of ³ 10% of usual body weight within 6 months, or ³ 5% of usual body weight in 1 month, a weight of 20% over or under ideal body weight) presence of chronic disease, or increased metabolic requirements.
- Altered diets or diet schedules (receiving total parenteral or enteral nutrition, recent surgery, illness, or trauma).
- Inadequate nutrition intake including not receiving food or nutrition products (impaired ability to ingest or absorb food adequately) for greater than 7 days.

Nutritionally-at-risk. Neonates, infants and children should be considered at nutritional risk if they have any one of the following:

- Very low birth weight or low birth weight even in the absence of gastrointestinal, pulmonary, or cardiac disorders.
- Birth weight less than 2 standard deviations below the mean (approximately the 3rd percentile) for gestational age on fetal weight curves.
- Acute weight loss of 10% or more.
- A weight/length less than the 10th percentile or greater than the 90th percentile.
- Increased metabolic requirements.
- Impaired ability to ingest or tolerate oral feedings.
- Documented inadequate provision or tolerance of nutrients.
- Inadequate weight gain or a significant decrease in an individual's usual growth percentile.

Nutrition care. Interventions and counseling of individuals on appropriate nutrition intake through the integration of information from the nutrition assessment. Nutrition therapy, a component of medical treatment, includes oral, enteral, and parenteral nutrition.

Nutrition screening.(1) The process of identifying characteristics known to be associated with nutrition problems. Its purpose is to identify individuals who are nutritionally-at-risk for malnutrition or who are malnourished. or dietary intake, or altered height and weight relationships.

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Nutrition support service or team. A multidisciplinary group of health care professionals with expertise in nutrition who aid in the provision of nutrition support.

Outcome. The measured result of the performance of a system or process.

Parenteral nutrition. Nutrients provided intravenously.

Central—Parenteral nutrition delivered into a large-diameter vein, usually the superior vena cava.

Peripheral—Parenteral nutrition delivered into a peripheral vein, usually of the hand or forearm.

Specialized nutrition support. Provision of specially formulated and/or delivered parenteral or enteral nutrients to maintain or restore optimal nutrition status.

Standard. Benchmark representing a range of performance of competent care that should be provided to assure safe and efficacious nutrition care (eg, parenteral or enteral nutrition therapy).

Chapter 1: Organization

1. Delivery of nutrition care services requires coordination of work and collaboration among departments and professional groups.
2. A nutrition support service or nutrition care team shall function to assess and manage patients determined to be nutritionally-at-risk (1)
 - a. When an organized nutrition support service exists, it shall be directed by a practitioner who by appropriate education, specialized training, or experience is knowledgeable in the delivery of parenteral and enteral nutrition.
 - b. An organized nutrition support service should include: a physician, nurse, registered dietitian, and pharmacist, each having qualifications in the area of nutrition support.
 - c. If a nutrition support service is not established, nutrition care should be addressed by a team approach. The membership of this team should include the patient's physician, nurse, registered dietitian, and pharmacist.
3. The nutrition support service shall establish written policies and procedures for nutrition care including the provision of parenteral and enteral nutrition support (1)
 - a. The policies and procedures shall be published with the input and review of all members of the nutrition support service.
 - b. The policies and procedures shall be reviewed periodically and revised as appropriate to ensure optimal standards of care.
4. The nutrition support service shall regularly review performance, patient outcome data, cost of services, and appropriately report the findings (1)
 - a. The review of performance should assess the appropriateness and effectiveness of the administration of specialized nutrition support for individual patients.
 - b. The nutrition support service shall review and approve all such reports.
 - c. The nutrition support service shall incorporate performance improvement mechanisms to initiate policy, procedure, and protocol changes that enhance the safety and efficacy of parenteral and enteral nutrition with the goal of improving organization performance.

Chapter 2: Nutrition Screening

1. Criteria shall be established for identification of patients who are nutritionally-at-risk by an initial screening mechanism (1) This will determine the need for assessment of the patient's nutrition status.
2. All patients admitted to the hospital for a specified length of stay shall undergo a nutrition screening process using subjective and/or objective criteria.
 - a. The policy, procedure, and content of the nutrition screen shall be formalized and documented.
 - b. The result of the nutrition screen shall be documented. An intervention is facilitated when screening indicates it is necessary.

Chapter 3: Nutrition Assessment

1. All patients identified as nutritionally-at-risk by the patient screening mechanism shall undergo a formal nutrition assessment (4,5).
2. The formal nutrition assessment shall be documented and be available to all patient care providers
 - a. The formal nutrition assessment shall be performed by or under the supervision of a registered dietitian or a nutrition care specialist (a clinician with specialized expertise in nutrition) within a time frame specified by institutional policy (1).
 - b. The formal nutrition assessment shall include a subjective and objective assessment of the patient's current nutrition status and nutritional requirements.
 1. The subjective assessment of nutrition status should include a nutritionally focused history and physical examination. Elements that should be documented as part of the subjective assessment of nutrition status include: usual body weight; ideal body weight; recent change in body weight (quantified); recent changes in dietary intake (quantitative and qualitative); masticatory, swallowing, gastrointestinal, and elimination symptoms (including stomatitis, nausea, vomiting, diarrhea, constipation, and anorexia); current status and recent changes in functional capacities (eg, ambulation, employment, recreation); admitting diagnosis; and concurrent medical and surgical problems that may effect nutritional requirements and nutrition support options (including allergies and medications). Elements of the physical examination relevant to nutrition status should be evaluated (eg, loss of subcutaneous fat, muscle wasting edema, ascites, mucocutaneous lesions, and hair changes).
 2. The objective assessment of nutrition status should include nutrition status data obtained from anthropometric and laboratory evaluations. Elements that should be documented as part of the objective assessment of nutrition status include: age; height; current body weight; complete blood count with red cell indices and total lymphocyte count; serum electrolytes, blood urea nitrogen, creatinine and glucose; serum albumin; serum triglycerides; and patient specific indices as determined from the subjective portion of the nutrition assessment (eg, serum magnesium level in a patient receiving amphotericin-B). Other elements of an objective assessment of nutrition status that may be helpful but that are not routinely used at many institutions include: arm muscle circumference, measurement of skinfold thickness, delayed cutaneous hypersensitivity skin test reactivity, serum proteins (transferrin and prealbumin), nitrogen balance, resting energy expenditure, respiratory quotient, body composition analysis, and specific nutrient balance.(8-12)

3. The subjective and objective assessments of nutrition status shall be summarized and documented.
4. A classification system for nutrition risk based on the findings of the subjective and objective nutrition assessments should be used. Example of Implementation
 - i. Level I – no nutrition risk identified, re-screen within an appropriate time interval;
 - ii. Level II – low nutrition risk, update formal nutrition assessment within an appropriate time interval;
 - iii. Level III – moderate nutrition risk, development of nutrition care plan with routine monitoring necessary;
 - iv. Level IV – high nutrition risk, development of nutrition care plan with specialized nutrition consultation and monitoring indicated.
 - b. Patients’ nutritional requirements shall be summarized based on the findings of the subjective and objective nutrition assessments. The summary should include protein and calorie target requirements. The summary should also include fluid, electrolyte, and micronutrient requirements that will not be met by “standard” oral, enteral, or parenteral feedings.
 - c. Nutrition assessment shall include an evaluation of psychosocial and socioeconomic factors that may influence prescription and administration of nutrition support.
 - d. The psychosocial assessment of nutrition status shall be documented. The summary should be documented. The summary should include an overall assessment of the appropriateness of specialized nutrition support for the individual patient.
5. Nutrition assessment shall include an assessment of factors relevant to route of administration of nutrition support therapies. Factors that may be included in the route of administration portion of the nutrition assessment include: ability to eat; schedule of tests and invasive procedures; functional status of gastrointestinal tract; adequacy of potential gastrointestinal tract access; mental status; status of gag reflex; and adequacy of potential venous access.
6. Assessment of the route of administration shall be documented.

Chapter 4: Development of Nutrition Care Plan

1. The nutrition care plan should be developed with an interdisciplinary approach involving the nutrition support service, the patient’s physician, and other healthcare personnel (1). The patient and/or family should be included in the development of the nutrition care plan.
2. The objective(s) of nutrition care shall be determined and documented. This should include: immediate and long term goals of nutrition therapy, anticipated duration of therapy, and discharge planning and/or home training.
3. The nutrition care plan should address patient/family education about nutrition support therapy and involvement in decisions regarding goals of treatment. Routes appropriate for use shall be defined and identification of requirements for nutrient intake shall be included.
4. The route selected to provide nutrition support shall be appropriate to the patient’s medical problems.
 - a. When both functional and available, the gastrointestinal tract is the preferred route for nutrition support and should be used to administer nutrition support.
 - b. Patients requiring nutrient needs greater than those which can be met through the gastrointestinal tract should receive parenteral supplementation.
 - c. Parenteral nutrition support should be provided when the gastrointestinal tract either is nonfunctional or cannot be accessed.
 - d. The mode of nutrition support shall be periodically reassessed for adequacy, appropriateness, and efficacy.

5. The selected feeding formulation shall be appropriate for the patient's disease process and compatible with the route of access.
 - a. The feeding formulation shall be adjusted as appropriate in patients with organ dysfunction.
 - b. The prescription shall be appropriate for the route of access.
 - c. When similarly effective formulations are available, the least costly should be selected.
 - d. When significant amounts of nutrients are provided through means other than the parenteral and enteral formulation (eg, IV fluids, as vehicles for medications, peritoneal dialysis, continuous arteriovenous hemodialysis), the formulation should be adjusted accordingly.
6. Assessment of the route of administration shall be documented.

Chapter 5: Implementation

1. Implementation should commence following assessment and development of a nutrition care plan.
2. Implementation of a nutrition care plan shall have a defined ordering process.
 - a. Verbal prescriptions/orders for food or nutrition products (1) shall be accepted only by personnel designated by institutional policy and authenticated by the prescribing/ordering practitioner within a defined time period.
 - b. Prescriptions/orders for food or nutrition products should be in the patient's medical record before any food or nutrition product is administered.
3. Access for specialized nutrition support shall be achieved and maintained in a manner that minimizes risk to the patient.
 - a. Access devices shall be placed by or under the supervision of a physician, nurse, or specially trained health care professional who is proficient in placement.
 - b. Standard techniques and protocols shall be established and followed for access procedures.
 - c. Proper placement of both venous catheters and enteral access devices shall be appropriately confirmed before being used.
 - d. Complications related to access by venous or enteral route shall be clearly documented in the medical record. Outcome of actions taken shall be documented.
 - e. Protocols shall be established for the routine care of access devices.
4. Parenteral and enteral feeding formulations shall be prepared accurately and safely as prescribed (1)
 - a. Parenteral and enteral feeding formulations shall be prepared using current and periodically updated policies and procedures regarding manufacturing, compatibility and stability and be supervised by a responsible health care professional.
 - b. Personnel, using automated equipment for the preparation of parenteral nutrition admixtures, shall be trained. Training should include: education on daily operation, appropriate sequencing of additives, periodic calibration, and maintenance of the machine.
 - i. Adequate training of personnel regarding software should occur to assist with daily use and trouble-shooting.
 - ii. Any output generated by a compounder regarding prepared admixtures shall be checked against the programmed admixture and weight of components.

- iii. The operator of the equipment shall continuously monitor it during the preparation process to assure the proper operation of all aspects of the machine.
 - c. Parenteral nutrition admixtures shall be sterile.
 - i. Parenteral nutrition admixtures shall be prepared in a laminar or vertical air flow hood by an individual accomplished in aseptic technique and under the direction of a pharmacist.
 - ii. The preparation area should be a controlled room with limited access to decrease potential contamination.
 - iii. A septic technique shall be taught, used, and evaluated on a periodic basis.
 - iv. The final formulation shall be checked visually by a pharmacist to assure appropriate volume, lack of particulate matter (cores, etc), and precipitation.
 - v. All parenteral nutrition admixtures shall prepared in compatible containers and should be administered with a filter.(13)
 - vi. Policies and procedures shall be established regarding subsequent, postpreparation additions to the parenteral feeding formulation to assure sterility and compatibility.
 - d. Enteral formulations shall be prepared to prevent contamination and promoted safety and accuracy.
 - i. Each enteral feeding formulation shall be prepared by trained personnel under professional supervision, in a clean environment, using, as minimum requirements, those standards established for kitchen personnel in handling food.
 - ii. Infant formula preparation shall comply with published standards.16
 - iii. Preparation equipment shall be sanitized regularly.
 - e. Policies and procedures shall be established regarding subsequent additions to enteral feeding formulations made after the initial preparation including dilution of formula and addition of medications.
- 5. Parenteral and enteral feeding formulations shall be appropriately packaged and labeled.
 - a. Parenteral nutrition formulations shall be packaged in containers that can assure maintenance of sterility and allow visual inspection during preparation, storage, and administration.
 - i. The formulations shall be visually inspected during preparation, prior to hanging, and during administration to identify potential incompatibilities of the formulation (ie, calcium/ phosphorus precipitation).
 - ii. The formulation shall be labeled with the patient's name, additives, rate of administration, expiration date and time, and composition.
 - iii. The formulation should be stored at 4°C.
 - b. Enteral feeding formulations shall be packaged in containers that assure cleanliness and accuracy of delivery.
 - i. Enteral feeding formulations shall be labeled with the patient's name, the product name, strength, additives, volume, and expiration date.
 - ii. Prepared enteral feeding formulations should be stored at 4°C in tamper-proof containers.
- 6. Additives to parenteral and enteral feeding formulations shall be compatible with all ingredients.
 - a. Health care professionals responsible for the preparation and delivery of parenteral and enteral feeding formulations shall have resources available to document compatibility and stability of any additives.

- b. Addition of any electrolytes to a parenteral nutrition formulation after it has left the IV admixture department should be discouraged.
 - c. The addition of calcium and phosphate to parenteral nutrition formulations should comply with guidelines in the literature.
 - i. Calcium gluconate and phosphate salts should not be added in close sequence or consecutively to the parenteral nutrition formulation.
 - ii. Phosphate should be added prior to the addition of calcium and other additives to an admixture.
 - iii. Some amino acid formulations contain phosphate ions utilized in the buffering process. The amount of phosphate in these preparations should be accounted for in the calculation of calcium/phosphorus solubility.
7. Parenteral and enteral feeding formulations shall be administered accurately in accordance with the prescribed therapeutic plan and consistent with the patient's tolerance (1) They shall be administered by or under the supervision of trained personnel.
- a. Administration of parenteral and enteral feeding formulations shall be documented.
 - b. The label on the feeding formulation shall be checked prior to administration of the formulation to be certain the ordered formulation is given to the appropriate patient.
 - c. The rate of administration shall be checked each time a new volume of feeding formulation is ordered and periodically during its administration.
 - d. Protocols shall exist regarding techniques used to administer enteral and parenteral feeding formulations.
 - i. Protocols should exist to prevent tube or catheter occlusion.
 - ii. A protocol shall exist to prevent infection of the patient secondary to the feeding formulation and the equipment used in its administration.
 - iii. A protocol shall exist regarding the appropriate hang time for enteral and parenteral feeding formulations.

Chapter 5: Monitoring

- 1. The patient shall be monitored for therapeutic and adverse effects and clinical changes that may influence nutrition therapy (1)
 - a. Protocols should be developed to obtain baseline information, and for periodic review of the patients' clinical and laboratory status.
 - b. In stable patients, monitoring may occur weekly or as indicated. For critically ill patients, daily or more frequent monitoring may be required. Routine monitoring should include: physical assessment including clinical signs of fluid and nutrient deficiency and excess; actual nutrient intake (oral, enteral, and parenteral); weight; laboratory data (complete blood cell count, glucose, blood urea nitrogen, creatinine, electrolytes, calcium, magnesium, phosphorus, liver function tests, triglycerides, serum proteins); assessment of major organ function; and tolerance of nutrition therapy (gastrointestinal tolerance such as gastric residuals, presence of bowel sounds, stool frequency and consistency, presence of abdominal distention, nausea, vomiting; substrate tolerance such as hyperglycemia or glucosuria, serum clearance of lipid emulsions).
 - c. Laboratory abnormalities and alterations in organ function and resulting changes in nutrition therapy (formulation and/or route) shall be documented.
 - d. Signs and symptoms of intolerance shall be documented. Results of action taken and outcomes shall be noted.
 - e. Monitoring protocols shall include visual inspection of enteral and parenteral access devices and formulations, and monitoring of temperature and laboratory data as indicated if infection is suspected.

2. The patient shall be monitored for achievement of immediate and long term goals of nutrition therapy as defined in the nutrition care plan (1).
 - a. Routine monitoring and documentation should include: weight change, adequacy of intake; transition to oral diet; improvement in laboratory data; and improvement in functional status and performance.
 - b. The monitored parameters should be periodically compared to the goals of the nutrition care plan and documented.

Chapter 6: Reassessment and Updating of Nutrition Care Plan

1. Periodic reassessment of the patient's nutrition status should be performed. This information should be evaluated in conjunction with the patient's baseline assessment and desired goals (1)
2. Reassessment should include evaluation of the patient's clinical status, laboratory parameters, anthropometric measurements, changes in nutrient intake or route of administration, and benefits of nutrition support.
3. Frequency of reassessment is determined by the patient's disease or condition, medical stability, tolerance of nutrition therapy, and achievement of goals. Policies and procedures should provide general guidelines for frequency of reassessment for given patient populations and nutrition therapies.
4. Reassessment and the resulting changes in the nutrition care plan shall be documented.

Chapter 7: Termination of Therapy

1. The patient should demonstrate the ability to tolerate and utilize enterally administered nutrients or to ingest and utilize adequate oral nutrients prior to the termination of parenteral nutrition support.
 - a. During the transition to enteral nutrition, parenteral nutrition should be continued while enteral nutrition is increased.
 - b. Adequate nutrient intake should be documented.
2. Adequate oral intake should be demonstrated prior to termination of specialized nutrition support.
 - a. When appropriate, specialized nutrition support should be gradually decreased as oral intake increases so that overall adequate nutrient intake is sustained (eg, \geq 75% of calculated nutrient needs) (1)
 - b. If daytime oral nutrient intake is suboptimal it may be supplemented by nocturnal administration of specialized nutrition support.
 - c. Adequate oral nutrient intake should be documented.
3. Specialized nutrition support should be modified or discontinued when indicated by the severity or magnitude of associated complications.
 - a. Protocols shall be developed to identify mechanical, metabolic, and infectious complication necessitating interruption of nutrition support.
 - b. Protocols should describe safe methods to terminate nutrition support.
4. Specialized nutrition support should be terminated when the patient no longer benefits from therapy.(3, 6)
 - a. Protocols shall exist to deal with the patient suffering from irreversible neurologic damage, untreatable cancer, severe intractable end-organ failure, or other conditions not likely to benefit from nutrition therapy. Patients or their designated representative should be involved in decisions regarding the withdrawal of nutrition support (1)

- b. Protocols shall provide latitude of clinical judgement in permitting the discontinuation of specialized nutrition support in accordance with local practice standards and current local, state and federal law.

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Standards for Hospitalized Pediatric Patients

A.S.P.E.N. BOARD OF DIRECTORS

Definition of Terms (1,2)

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- Altered diets or diet schedules (receiving total parenteral or enteral nutrition, recent surgery, illness, or trauma).
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Nutritionally-at-risk. Neonates, infants and children should be considered at nutritional risk if they have any one of the following:

- Very low birth weight or low birth weight even in the absence of gastrointestinal, pulmonary, or cardiac disorders.
- Birth weight less than 2 standard deviations below the mean (approximately the 3rd percentile) for gestational age on fetal weight curves.
- Acute weight loss of 10% or more.
- A weight/length less than the 10th percentile or greater than the 90th percentile.
- Increased metabolic requirements.
- Impaired ability to ingest or tolerate oral feedings.
- Documented inadequate provision or tolerance of nutrients.
- Inadequate weight gain or a significant decrease in an individual's usual growth percentile.

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Nutrition screening.(1) The process of identifying characteristics known to be associated with nutrition problems. Its purpose is to identify individuals who are nutritionally-at-risk for malnutrition or who are malnourished. or dietary intake, or altered height and weight relationships.

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Outcome. The measured result of the performance of a system or process.

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*Central—*Parenteral nutrition delivered into a large-diameter vein, usually the superior vena cava.

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Specialized nutrition support. Provision of specially formulated and/or delivered parenteral or enteral nutrients to maintain or restore optimal nutrition status.

Standard. Benchmark representing a range of performance of competent care that should be provided to assure safe and efficacious nutrition care (eg, parenteral or enteral nutrition therapy).

Chapter 2: Organization

1. Delivery of nutrition care services requires coordination of work and collaboration among departments and professional groups. A nutrition support service or nutrition care team shall function to assess and manage patients determined to be nutritionally-at-risk (2)
 - a. Health care professionals involved with nutrition support of pediatric patients shall be competent to assess the nutrition status and manage the specialized nutrition support of that population.
 - b. When an organized nutrition support service exists, it shall be directed by a practitioner who by appropriate education, specialized training, and/or experience is knowledgeable in the delivery of parenteral and enteral nutrition.
 - c. An organized nutrition support service shall include: a physician, nurse, registered dietitian, and pharmacist, each having qualifications in the field of nutrition support.
 - d. If a nutrition support service is not established, nutrition care should be addressed by a team approach. The membership of this team should include the patient's physician, nurse, registered dietitian, and pharmacist.
2. The nutrition support service shall establish written policies and procedures for nutrition care unique to the needs of children including the provision of parenteral and enteral nutrition support (2)
 - a. The policies and procedures shall be published with the input and review of all members of the nutrition support service.
 - b. The policies and procedures shall be reviewed periodically and revised as appropriate to insure optimal standards of care.
3. The nutrition support service shall regularly review performance, patient outcome data, and cost of services, and appropriately report the findings (2)
 - a. The review of performance should assess the appropriateness and effectiveness of the administration of specialized nutrition support for individual patients.
 - b. The nutrition support service shall review and approve all such reports.

- c. The nutrition support service shall incorporate performance improvement mechanisms to initiate policy, procedure, and/or protocol changes that enhance the safety and efficacy of parenteral and enteral nutrition with the goal of improving patient outcomes.

Chapter 3: Nutrition Screening

1. Criteria shall be established for the identification of pediatric patients who are nutritionally-at-risk by an initial and ongoing screening mechanism (2) The need for assessment of the pediatric patient's nutrition status shall be determined.
 - a. All hospitalized pediatric patients whose length of stay exceeds a threshold determined by the nutrition support committee shall undergo a nutrition screening process using subjective and/or objective criteria specific to pediatrics.(2-4) Appropriate growth charts shall be used.
 - b. The policy, procedure, content and timing of the initial and subsequent pediatric nutrition screenings shall be formalized and documented.
 - c. The result of the pediatric nutrition screen shall be documented in the medical record when intervention is indicated by established pediatric criteria.

CHAPTER IV. PEDIATRIC NUTRITION ASSESSMENT

1. All pediatric patients identified as nutritionally at-risk by the pediatric screening mechanism shall undergo a nutrition assessment.(4,5) The nutrition assessment shall be documented and be available to all patient care providers (2)
 - a. The nutrition assessment shall be performed by or under the supervision of a registered dietitian with pediatric experience or by a pediatric nutrition care specialist, within a time frame specified by institutional policy.
 - b. The nutrition assessment shall include subjective, and objective clinical data relevant to the patient's current nutrition status and nutritional requirements.
 - i. The subjective assessment of nutrition status should include, but not be limited to: a nutritionally focused history, eg feeding tolerance, dietary intake patterns, feeding skills development, and psychosocial/religious/cultural factors that effect intake. Elements that should be documented as part of the subjective assessment of nutrition status include caregiver (family or significant other's) perception of: previous growth history (qualitative); ideal body weight; recent changes in body weight; adequacy of current nutrient intake; recent changes in dietary intake; development of oral motor skills; gastrointestinal problems (including stomatitis, nausea, vomiting, diarrhea, constipation and anorexia); current status and recent changes in functional capacities, eg, ambulation, activities of daily living, school activities, developmental delays, and physical activity level.
 - ii. Clinical data gathered for the nutrition assessment should include but not be limited to: admitting diagnosis; concurrent medical and surgical problems that may affect nutritional requirements and nutrition support options (including allergies and medications).
 - iii. The objective assessment of nutrition status should include data obtained from clinical, anthropometric and laboratory evaluations. Elements that should be documented as part of the objective assessment of nutrition status of pediatric patients should include but not be limited to: growth indices both previous and current (including percentiles as appropriate); birth

anthropometrics as appropriate; head circumference (for patients < 3 years of age); height (length); current weight; 50% for weight/height (length); and Tanner stage,(6) as appropriate. All of the above parameters should be obtained via age appropriate measurement techniques and documented on the appropriate standardized growth chart. Elements of the physical exam relevant to nutrition status should be evaluated (eg, loss/lack of subcutaneous fat, muscle wasting, edema, ascites, mucocutaneous lesions, and hair changes). Biochemical indices should include but not be limited to: complete blood count with red cell indices; serum electrolytes; and blood urea nitrogen. They may also include serum albumin and other studies. Other biochemical indices should be utilized as indicated by the patient's clinical condition.

- c. The results of the nutrition assessment shall be summarized and documented.
 - i. A classification system for nutrition risk based on the findings of the subjective and objective nutrition assessments should be used.
 - ii. Patients' nutritional requirements shall be summarized based on the subjective, clinical, and objective nutrition assessments. The summary should include protein and calorie target requirements per kilogram. The summary should also include fluid, electrolyte and micronutrient requirements that will not be met by "standard" oral, enteral, or parenteral feedings.
- d. Nutrition assessment shall include an evaluation of psychosocial and socioeconomic factors that may influence prescription and administration of nutrition support.
 - i. The psychosocial assessment of nutrition status shall be documented. The summary should include an overall assessment of the appropriateness of specialized nutrition support for the individual patient.
- e. Nutrition assessment shall include an assessment of factors relevant to route of administration of nutrition support therapies. Issues that may be included in the route of administration portion of the nutrition assessment should include but are not limited to: ability to suck/swallow (infants) or other age appropriate feeding skills (>1 year old); schedule of tests and invasive procedures; functional status of the gastrointestinal tract; adequacy of potential gastrointestinal tract access; developmental status; status of gag reflex; and venous access options.
 - i. Assessment of the route of administration shall be documented.

Chapter 5: Development of Nutrition Care Plan

1. The nutrition care plan should be developed using an interdisciplinary approach involving the nutrition support service, the patient's physician and other health care personnel with pediatric experience (2) The caregiver and the patient should be included in the development of the nutrition care plan.
2. The objective(s) of nutrition care shall be determined and documented. The documentation should include: immediate and long term goals of nutrition therapy, discharge planning and/or home training, and anticipated length of therapy.
3. The nutrition care plan should address patient/ caregiver education about nutrition support therapy and involvement in decisions regarding goals of treatment. Routes appropriate for use shall be defined and identification of requirements for nutrient intake shall be included.
4. The route selected to provide nutrition support shall be appropriate to the patient's medical problems.
 - a. When both functional and available, the gastrointestinal tract is the preferred route for nutrition support and should be used to administer nutrition support.

- b. Patients requiring nutrient needs greater than those which can be met through the gastrointestinal tract should receive parenteral supplementation.
 - c. Parenteral nutrition support should be provided when the gastrointestinal tract is immature, nonfunctional, and/or cannot/should not be accessed.
 - d. The route of nutrition support should be periodically reassessed for adequacy, appropriateness, and efficacy.
5. The selected pediatric feeding formulation shall be appropriate for the patient's disease process and compatible with the route of access.
- a. The pediatric feeding formulation shall be adjusted as appropriate in patients with growth failure and/or organ dysfunction.
 - b. The prescription shall be appropriate for the route of access.
 - c. When similarly effective formulations are available and tolerated, the least costly should be selected.
 - d. When significant amounts of nutrients are provided through means other than the parenteral or enteral formulation (eg, IV fluids, fluids as vehicles for medications, peritoneal dialysis), the formulation should be adjusted accordingly.

Chapter 6: Implementation

1. Implementation of the nutrition care plan should commence following assessment and development of a nutrition care plan.
2. Implementation of a nutrition care plan shall have a defined ordering process.
 - a. Verbal prescriptions/orders for food or nutrition products shall be accepted only by personnel designated by institutional policy and authenticated by the prescribing/ordering practitioner within a defined time period (2)
 - b. Prescriptions/orders for food or nutrition products should be in the patient's medical record before any food or nutritional product is administered.
3. Access for specialized nutrition support shall be achieved and maintained in a manner which minimizes risk to the patient.
 - a. Access devices shall be placed by or under the supervision of a physician, nurse, or specially trained health care professional who is proficient in placement in children.
 - b. Standard techniques and protocols shall be established and followed for access procedures.
 - c. Proper placement of venous catheters and enteral access devices shall be confirmed before use, and shall be documented in the medical record.
 - d. Complications related to access by venous or enteral route shall be clearly documented in the child's medical record. Outcome of actions taken shall be documented.
 - a. Protocols shall be established for the routine care of access devices.
4. Parenteral and enteral feeding formulations shall be prepared accurately and safely as prescribed (2)
 - a. Parenteral feeding formulations shall be prepared using established policies and procedures and shall be supervised by a licensed pharmacist (2)
 - b. Automated equipment for the preparation of parenteral nutrition admixtures shall be used and cared for properly.
 - a. Personnel shall be trained in proper operation, calibration and maintenance of the equipment.
 - b. Personnel shall be trained in the use of the software which runs the equipment.
 - c. Output generated by a compounder regarding prepared admixtures shall be checked against the programmed admixture and weight of components.
 - d. The operator of the equipment shall continuously monitor it during the preparation process to assure the proper operation of all aspects of the equipment.

- c. Parenteral admixtures shall be sterile.
 - a. Parenteral nutrition admixtures shall be prepared in a laminar or vertical air flow hood by an individual accomplished in aseptic technique under the direction of or by a pharmacist.
 - b. The preparation area should be a controlled room with limited access to decrease potential room contamination.
 - c. Aseptic technique shall be taught, used and validated on a periodic and routine basis.
 - d. Sterility testing shall be performed on a regular surveillance basis.
- d. Components added to a feeding formulation shall be compatible with all ingredients.
 - a. Protocols should be established to define acceptable minimum and maximum amounts of specific nutrients in parenteral formulations.
 - b. Calcium gluconate and phosphate salts shall not be added in close sequence or consecutively to the parenteral nutrition formulation.
 - c. Phosphate shall be added prior to the addition of calcium and other additives to an admixture.
 - d. The amount of phosphate in the amino acid preparation shall be accounted for in the calculation of calcium/phosphorus solubility.
 - e. Procedures and policies for adding drugs and/or other nutrients to a feeding formulation should be established.
 - f. Deviation from established policies and procedures should require approval by a health care professional who is knowledgeable about physical-chemical compatibilities, drug-drug and drug-nutrient interactions.
 - g. Additions to parenteral feeding formulations shall be listed on the label.
 - h. The final parenteral nutrition admixture shall be checked visually by a pharmacist for evidence of particulate matter (cores, etc.) or precipitation.
 - i. Parenteral nutrition admixtures shall be prepared in compatible containers.
- e. Enteral feeding formulations shall be prepared using established policies and procedures.
- f. Enteral formulations shall be prepared accurately and safely.
 - a. Enteral feeding formulations shall be prepared by trained personnel under qualified professional supervision.
 - b. Enteral formulations shall be prepared in a clean environment using, as minimum requirements, the standards established for kitchen personnel in handling food.
 - c. Preparation equipment shall be sanitized regularly.
- g. Enteral feeding formulations should be prepared according to manufacturer's recommendations, published data and/or written institutional policies. (8)
- h. Components added to a feeding formulation shall be compatible with all ingredients.
 - a. Protocols should be established to define acceptable minimum and maximum amounts of specific nutrients in enteral formulations.
 - b. Procedures and policies for adding drugs and/or other nutrients to a feeding formulation should be established.
 - c. Deviation from established guidelines should require approval by someone who is knowledgeable about physiochemical compatibilities, drugdrug interactions, and drug-nutrient interactions.
- 5. Parenteral and enteral feeding formulations shall be appropriately packaged and labelled.
 - a. Parenteral nutrition formulations shall be packaged in containers which assure maintenance of sterility and allow visual inspection during preparation, storage and administration.
 - i. The formulation shall be visually inspected during preparation to identify potential incompatibilities of the formulation (ie, calcium/phosphorus precipitation).

- ii. The formulation shall be labelled with the patient's name, additives, rate of administration, expiration date and time, and composition.
 - iii. The formulation should be stored at 48C.
 - b. Enteral feeding formulations shall be packaged in containers which assure cleanliness and accuracy of delivery.
 - iv. Enteral feeding formulations shall be labelled with the patient's name, the product name, strength, additives, volume and expiration date.
 - v. Enteral feeding formulations shall be clearly and conspicuously labelled to be for enteral use only.
 - vi. Enteral feeding formulations should be stored at 48C.
- 6. Additives to parenteral and enteral feeding formulations shall be compatible with all ingredients and shall be added safely and accurately.
 - a. The addition of medications or other nutrients to parenteral nutrition formulations after they have left the pharmacy should be discouraged.
 - b. Health care professionals responsible for the addition of drugs or nutrients to parenteral and enteral feeding formulations shall have resources available to verify compatibility and stability of any additives.
 - c. Individuals who inject additives into parenteral nutrition formulations shall be trained in proper sterile technique.
- 7. Parenteral and enteral feeding formulations shall be administered accurately in accordance with the prescribed therapeutic plan and consistent with the patient's tolerance (2) They shall be administered by or under the supervision of trained personnel.
 - a. The label on the feeding formulation shall be checked prior to administration of the formulation to be certain that the ordered formulation is given to the appropriate patient and that the formulation is given by the correct route.
 - b. Parenteral feeding formulations shall be checked visually for particulate material or precipitates prior to and during administration. In the case of TNAs, the solution should be checked for signs of deterioration.
 - c. The rate of administration shall be checked each time a new volume of feeding formulation is ordered and periodically during its administration.
 - d. Protocols shall exist regarding techniques used to administer enteral and parenteral feeding formulations.
 - a. Protocols should exist to reduce the risk of tube occlusion.
 - b. A protocol should exist to prevent infection of the patient secondary to the feeding formulation and the equipment used in its administration.
 - e. A policy shall exist regarding the appropriate hang time for enteral and parenteral feeding formulations.
 - f. The type and volume of parenteral or enteral feeding formulation, the rate of administration, and tolerance to the feeding shall be documented in the child's medical record.

Chapter 7: Monitoring

1. The patient shall be monitored for therapeutic and adverse effects and clinical changes that may influence nutrition therapy (2)
 - a. Protocols should be developed to obtain baseline weight, height or length, and head circumference to be plotted on an age appropriate growth curve, and for periodic review of the patient's growth, development, clinical and laboratory status.
 - b. In stable pediatric patients, monitoring frequency should be based on gestational age, postnatal age, disease and acuity of illness. For neonates, infants and critically ill patients, daily or more frequent monitoring may be required. Routine monitoring should include:

- a. Physical assessment: weight, clinical signs of fluid and nutrient deficiency and excess; actual fluid and nutrient intake (oral, enteral, and parenteral); and measurement of output (urine, gastrointestinal, wound losses, chest tube drainage).
 - b. Biochemical indices: CBC, glucose, BUN, creatinine, electrolytes, calcium, magnesium, phosphorus, liver function tests, triglycerides, serum proteins, and assessment of major organ function as appropriate. The burden of the test, including consideration of the blood volume required to do the test, must be balanced by the benefit or usefulness of the results.
 - c. Tolerance of nutrition therapy: gastrointestinal tolerance (such as ostomy output, stool frequency and consistency, presence of abdominal distention, increasing abdominal girth, nausea, vomiting); and substrate tolerance (such as hyperglycemia or glucosuria).
- 1.3 Clinical laboratory abnormalities and alterations in organ function or maturity and resulting changes in nutrition therapy (formulation and/or route) shall be documented.
- 1.4 Signs and symptoms of intolerance shall be defined and documented. Results of action taken and outcomes shall be noted in the medical record.
- 2 The patient shall be monitored for achievement of immediate and long term goals of nutrition therapy as defined in the nutrition care plan (2)
- 1.3 Ongoing monitoring and documentation should include: weight; height or length; head circumference change; appropriateness of growth and development; adequacy of intake and output; transition to enteral or oral diet; laboratory data; achievement of developmental milestones; and functional status and performance.
 - 2.2 The monitored parameters should be periodically compared to the goals of the nutrition care plan and documented. The frequency of comparison should be based on the patient's gestational and/or postnatal age.

Chapter 8: Reassessment and Updating Nutrition Care Plan

- 1. Periodic reassessment of the patient's nutrition status should be performed in a systematic and ongoing manner. This information should be evaluated in conjunction with the patient's baseline assessment and goals of therapy (2)
 - a. Reassessment should include, but not be limited to, the patient's clinical status, response to interventions, laboratory parameters, growth and development, changes in nutrient intake or route of administration, and the benefits of therapy.
 - b. Guidelines for frequency of reassessment for given patient populations and nutrition therapies should be developed.
 - c. Revision of the nutrition care plan goals shall involve the patient, caregiver, and health care professionals, as appropriate.
 - d. The cost effectiveness of the updated nutrition care plan shall be evaluated in terms of the potential risks and benefit for the patient.
 - e. Reassessment and recommended changes in the nutrition care plan shall be documented in the patient's medical record.

Chapter 9: Discontinuation of Therapy

- 1. The child should demonstrate the ability to tolerate enterally administered nutrients or to ingest adequate oral nutrients prior to the termination of parenteral feeding and removal of a vascular access device.(4)

- a. During the transition to enteral nutrition, parenteral nutrition should be continued while enteral nutrition is increased.
- b. Adequate nutrient intake should be documented in the medical record.
2. Adequate oral intake should be demonstrated prior to termination of specialized nutrition support.
 - a. When appropriate, specialized nutrition support should be gradually decreased as oral intake increases so that overall adequate nutrient intake is sustained.
 - b. If daytime oral nutrient intake is suboptimal, it may be supplemented by nocturnal administration of specialized nutrition support.
 - c. Adequate oral intake should be documented.
3. Discontinuation of specialized nutrition support should be considered when the burdens of therapy outweigh the benefits.
 - a. Guidelines shall be developed to identify complications necessitating interruption of nutrition support.
 - b. Guidelines should exist for the patient suffering from irreversible neurological damage, untreatable cancer, severe intractable end-organ failure, or other conditions not likely to benefit from nutrition therapy.
 - c. Patients, family members and/or legal guardian should be involved in decisions regarding the withdrawal of nutrition support.
 - d. Decisions to discontinue specialized nutrition support should be based on clinical judgment in accordance with local practice standards and applicable local, state and federal law.

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Standards of Practice for Nutrition Support Physicians

American Society for Parenteral and Enteral Nutrition, and Task Force on Standards for Nutrition Support Physicians: John H. Seashore, MD*; M. Molly McMahon, MD†; Marsha Wolfson, MD, FACP‡; and David W. D'Angelo, DO§

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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 assuring that every patient receives optimal nutrition care. A.S.P.E.N.'s mission is to serve as the preeminent, interdisciplinary nutrition society dedicated to patient-centered clinical practice world-wide through advocacy, education, and research in specialized nutrition support. The diversity of our membership emphasizes both the importance of good nutrition in clinical practice and the necessity for a team approach. These Standards of Practice for Nutrition Support Physicians are an update of the 1996 standards. A.S.P.E.N. has developed these as general guidelines for physicians. Their application in any individual case should be determined by the best judgment of the professional. They present a range of performance of competent care that should be subscribed to by any Nutrition Support Physician (NSP) within or outside the context of a formal nutrition support service.

A NSP is a physician who devotes a significant part of his or her professional activities to nutrition support. These activities may include direct patient care as primary provider or consultant, research in nutritional fields, teaching, and administrative responsibilities. These standards are not intended for the physician who provides occasional nutrition support to his or her own patients but rather to those who by virtue of education, training, experience, and personal interest wish to be identified as NSPs and provide their expertise to the institution and other practitioners.

Organized nutrition support services or teams have generally provided valuable assistance to primary physicians. They improve patient outcomes, decrease length of hospitalization, and improve cost effectiveness. If an institution does not have a defined nutrition support service or team, it is recommended that an interdisciplinary team provide nutrition therapy. However, in view of the documented benefits, an organized nutrition support service or team is recommended for the provision of specialized nutrition support (SNS).

The standards are presented in general terms. The details of patient care are left to the discretion of individual physicians and hospital nutrition support teams or appropriate hospital committees. This revision includes Intent of Standard statements that are intended to clarify the standard. The standards aim to assure sound and efficient nutrition care, including enteral and parenteral support, for patients in all care settings (including hospitals, long-term care facilities, and homes) in need of SNS.

Use of the word *shall* within this document indicates standards to be followed strictly. Use of *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* is used to indicate 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 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 health professional.

These standards have been developed, reviewed, and approved by the A.S.P.E.N. Board of Directors. These Standards of Practice for NSPs should be used in conjunction with the following A.S.P.E.N. publications:

Correspondence: American Society for Parenteral and Enteral Nutrition, 8630 Fenton Street, Suite 412, Silver Spring, MD 20910. Electronic mail may be sent to aspen@aspen.nutr.org. 0884-5336/03/1803-0270\$03.00/0

- Nutrition in Clinical Practice 18:270–275, June 2003 Copyright © 2003 American Society for Parenteral and Enteral Nutrition
- Standards for Specialized Nutrition Support: Adult Hospitalized Patients. NCP 2002;17:384–391.
- Standards of Practice: Nutrition Support Nurse. NCP 2001;16:56–62.
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Chapter I. Scope of Practice

The structure and design of nutrition support activities vary according to the unique attributes of each healthcare institution. These activities may be structured in various ways: a primary nutrition support team that assumes responsibility for the care for all patients receiving SNS; an administrative nutrition committee only; a consultative nutrition support team; or no formal structure.

Ideally, each healthcare institution should have a formal interdisciplinary team responsible for SNS. It is recognized, however, that this is often not feasible in today's medical economic climate. Each institution shall strive to provide the best nutrition support structure that is possible given the resources of the institution. The NSP should lead or have oversight over whatever structure is created. To fulfill the collaborative and leadership roles required, the NSP must be familiar with all aspects of nutrition care, including patient screening, assessment, development of a nutrition care plan, implementation of the nutrition care plan, patient monitoring, reassessment and updating of the nutrition care plan, and termination of therapy. Furthermore, the NSP must effectively understand and be capable of managing the array of policy, procedure, personnel, management, education, finance, and quality improvement issues often confronted by a nutrition support team. Finally, the NSP must be an effective collaborator, leading, working with, and accepting recommendation from members of other disciplines on the team. These demands require that a NSP should be able to accept varied levels of involvement with patient care.

The NSP should be able to directly supervise care provided by other professionals, should be comfortable with administrative oversight of clinical operations and clinical care performed by

others, and be willing and able to participate in *all* aspects of direct care of patients' nutrition needs as indicated.

Standard 1. Criteria for Recognition as a NSP

1.0 The practice of SNS varies with the specialty practice of the physician. However, certain minimum qualifications are required of all NSPs to assure competence to practice SNS.

1.1 Demonstration of competence shall include documentation of:

1.1.1 American Board of Medical Specialties (ABMS) or American Osteopathic Association: eligibility or certification in anesthesiology, family medicine, internal medicine, obstetrics and gynecology, pediatrics, or surgery.

AND

1.1.2 Certification as a Nutrition Support Physician by the National Board of Nutrition Support Certification, Inc., or certified as a Physician Nutrition Specialist by the American Board of Physician Nutrition Specialists.

OR

completion of a residency or fellowship program which includes formal education and training in SNS.

OR

a minimum of 15% medical practice time devoted to the practice of SNS for at least 2 years.

AND

1.1.3 Active participation in the nutrition support committee of a hospital.

OR

health care entity responsible for development, implementation, and evaluation of protocols for administration of SNS.

AND

1.1.4 Involvement as the primary physician or as the primary consultant for administration of SNS to at least 20 patients annually.

AND

1.1.5 NSPs should have active membership in professional societies devoted to the promotion of safe and effective SNS and obtain a minimum of 20 hours annually of continuing medical education (CME) credit in SNS.

Intent of Standard

Competence as a NSP requires knowledge derived from both training and experience. These criteria establish the basis for demonstrating an appropriate knowledge base, sufficient clinical experience and a commitment to ongoing training and education to assure competence and specialized expertise.

Chapter II. Organization

Standard 2. Nutrition Support Service

2.0 The NSP shall participate in the nutrition support service or team and be familiar with all aspects of the nutrition care process, including screening, nutrition assessment, development of the nutrition care plan, implementation of the nutrition care plan, patient evaluation and reassessment, updating of the nutrition care plan, transitional feeding, evaluation of the setting of care, discharge planning, and termination of therapy.

2.1 When an organized nutrition support service exists, it shall be directed by a practitioner who, by appropriate education, specialized training, or experience, is knowledgeable in the delivery of SNS. Most often, the service leader is the NSP.

2.2 An organized nutrition support service should ideally include an NSP, nurse, dietitian, and pharmacist, each having qualifications in the area of SNS.

Intent of Standard

Optimal nutrition care requires an interdisciplinary effort by all involved healthcare professionals. This effort must be coordinated and integrated with the medical care of the patient. NSPs are uniquely qualified to assure appropriate integration and coordination. The NSP must be capable of coordinating the nutrition care of patients with various nutrition needs and medical problems in a variety of settings. These coordinating responsibilities include both patient management and systems administration issues. Even at institutions where the expertise of multiple disciplines is available, the NSP must have sufficient knowledge to assure effective coordination of care and realize the full benefits of an interdisciplinary approach to patient care.

2.3 The NSP shall participate in the management of the SNS program.

2.4 The NSP shall serve as a member of the nutrition support service or, if none exists, the interdisciplinary patient care team, to help coordinate the provision of SNS.

Intent of Standard

The NSP is best qualified to lead the nutrition support program of the institution and must play a significant role in the creation and operation of the administrative structures needed to assure safe, appropriate, and cost-effective use of SNS for all patients.

2.5 The NSP shall collaborate with other members of the nutrition support service or team to establish written policies and procedures for the provision of SNS.

2.6 The policies and procedures shall be published with input and review by all members of the nutrition support service.

2.7 The policies and procedures shall be reviewed periodically and revised as appropriate to ensure optimal standards of care.

2.8 There shall be documentation of the regular review and revision of policies and procedures for the provision of SNS.

2.9 The NSP should act as liaison between the nutrition support service or team, the health-care organization, and medical staff, as appropriate.

Intent of Standard

Communication of the role of nutrition and the importance of clinical and administrative support structures in providing quality nutrition care is imperative. The NSP should play a central role in informing the institution and its members of the necessity of SNS in the provision of high-quality care and of the administrative and clinical activities that are required to provide quality cost-effective nutrition care.

2.10 The NSP shall participate in planning, implementation, and evaluation of the educational programs in SNS.

Chapter III: Nutrition Assessment

Standard 3. Nutrition Screening and Assessment

3.0 All patients admitted to the institution shall be evaluated by a screening process to determine whether they are nutritionally-at-risk or might benefit from SNS.

3.1 The NSP should participate in or review the screening mechanism.

3.2 All patients identified as nutritionally-at-risk by a patient screening mechanism shall undergo a nutrition assessment. The nutrition assessment shall be documented and be available to all patient care providers.

3.3 The NSP shall be knowledgeable about all aspects of nutrition assessment in all care settings.

Intent of Standard

The intent of the nutrition assessment is to establish baseline subjective and objective nutrition parameters, identify specific nutritional deficits, determine nutritional risk factors for individual patients, establish nutritional needs for individual patients, and

identify medical and psychosocial factors that may influence the prescription and administration of nutrition support.

3.4 The NSP shall collaborate in the development of a nutrition assessment protocol to be performed by or under the supervision of a registered dietitian within a time frame specified by organizational policy.

3.4.1 The NSP should participate directly in nutrition assessment when appropriate.

3.4.2 The nutrition assessment shall include a subjective and objective assessment of the patient's current nutritional status and nutritional requirements. These assessments shall be summarized and documented.

3.4.3 Patients' nutritional requirements shall be determined and summarized based on the findings of the subjective and objective nutrition assessments. The summary shall include protein and calorie requirements. The summary should also include fat, carbohydrate, fluid, electrolyte, and micronutrient requirements.

3.4.4 Nutrition assessment shall include an evaluation of psychosocial, economic, cultural, and other factors that may influence prescription and administration of nutrition support.

3.4.5 Nutrition assessment shall include an assessment of factors relevant to route of administration of nutrition support therapies.

Intent of Standard

A nutrition assessment that documents the patient's nutritional requirements; that highlights relevant psychosocial, economic, and cultural factors; and that identifies factors relevant to choice of route of administration of specialized nutrition support is the basis of appropriate and cost-effective nutrition support. In collaboration with other members of the nutrition support service and the health-care team, the NSP should actively participate in the nutrition assessment process to assure that it is nutritionally and medically appropriate.

Chapter IV: The Nutrition Care Plan

Standard 4. Development of the Nutrition Care Plan

4.0 A Nutrition Care Plan (NCP) shall be developed for all patients who require nutrition support.

4.1 This plan may be developed by the patient's primary physician, by a dietitian, by members of the nutrition support team, or by an interdisciplinary group including any of these or other healthcare personnel. The patient or family should participate in the process. The NSP should participate in the development of an NCP for individual patients when appropriate.

4.1.1 The objectives of nutrition care shall be determined and documented. These should include immediate and long-term goals of nutrition therapy, anticipated duration of therapy, and discharge planning and home training if appropriate.

4.1.2 The NCP shall address the metabolic needs of the patient.

4.1.3 The NCP should address patient/family education about nutrition support therapy and their involvement in decisions regarding goals of treatment.

4.1.4 The NCP should define optimal route of administration of SNS and state nutritional requirements.

Intent of Standard

The NSP should act as an advisor to members of the healthcare team, and when requested, as a consultant to the patient's primary care physician to establish and document the objectives of SNS. The NCP is, in effect, the prescription that will be followed for nutrition care of the patient within the context of the broader medical, psychosocial, economic, and cultural situation. The NCP addresses the needs and opportunities identified in the nutrition assessment.

4.2 The NSP shall collaborate with other members of the nutrition support team to create, and periodically review, guidelines for the development of NCPs.

Intent of Standard

It is essential to have institutional guidelines for the development of NCPs to assure that such plans, whether created by a nutrition support service or an individual practitioner, are nutritionally appropriate, consistent with the patient's overall medical condition, and address the patient's psychosocial, economic, and cultural needs. The NSP is uniquely qualified to lead the development of these policies.

Chapter V: Implementation

Standard 5. Nutrition Support Access

5.0 Access devices shall be placed by or under the supervision of a physician, nurse, or a specially trained healthcare professional who is proficient in placement.

5.1 The NSP shall collaborate with other members of the nutrition support team to develop standards and protocols to be followed for access procedures.

5.2 The NSP shall collaborate with other members of the nutrition support team to establish and periodically review protocols for the routine care of access devices.

5.3 The NSP shall be knowledgeable in the management of complications related to nutrition support access.

Intent of Standard

Access devices should be placed safely and cared for effectively to prevent complications. The training of appropriate healthcare professionals to place access devices should be done under the supervision of an individual proficient in placement. Because of the importance of nutrition access, NSPs should also be knowledgeable or proficient in the techniques of vascular and enteral access. NSPs should also be knowledgeable concerning the safe care of access devices and the management of access complications. Although the NSP may not be capable of managing all potential complications, the physician must understand the general management principles to ensure the proper management of complications.

Chapter VI: Monitoring

Standard 6. Monitoring Policies

6.0 The NSP shall participate in the development and implementation of policies for monitoring of patients receiving SNS.

6.1 Protocols should be developed to assure that baseline information is obtained.

6.2 Protocols should be developed for periodic review of patients' clinical and laboratory status.

Intent of Standard

Protocols for monitoring enteral and parenteral nutrition therapy vary according to patient acuity, disease, duration of feeding, and institution. Locally developed institutional protocols help to assure administration of safe, effective, and cost-efficient nutrition support.

6.3 The nutrition support team shall assure that patients are monitored for progress toward immediate and long-term goals of nutrition therapy as defined in the NCP.

6.3.1 The monitored parameters should be periodically compared with the goals of the NCP.

Intent of Standard

Patient monitoring should include measures allowing an objective determination of the patient's progress toward fulfilling nutrition care goals.

Chapter VII: Reassessment and Updating of the NCP and Termination of Therapy

Standard 7. Re-evaluation of the NCP

7.0 The NSP shall participate in the development and implementation of policies for reassessing and updating the NCP of patients receiving SNS.

7.1 The NSP shall participate in the periodic reassessment of the patient's nutritional status when appropriate. This information should be evaluated in conjunction with the patient's base-line assessment and desired goals.

7.2 The NSP or other nutrition support practitioner shall document the patient's ability to tolerate and use enterally administered nutrients or to ingest and use adequate oral nutrients before the discontinuation of parenteral nutrition support. During transition from one form of nutrition support to another, nutrient intake should be maintained.

Standard 8. Termination of Therapy

8.1 The NSP shall participate in the development and implementation of policies for termination of SNS.

8.1.1 The NSP should participate, when appropriate, in decisions to terminate SNS when no longer needed or when the severity or magnitude of associated complications exceeds the benefit to the patient.

8.2 Safe and appropriate methods shall be used to terminate SNS.

8.3 SNS should be terminated when the patient no longer benefits from therapy.

8.3.1 SNS may be withdrawn if the patient is suffering from conditions not likely to benefit from nutrition therapy. Patients or their designated representative should be involved in decisions regarding the withdrawal of nutrition support. Such decisions should be made in accordance with local practice standards and current local, state, and federal law.

8.4 The NSP should participate in planning discharge policies.

Intent of Standard

Provision of SNS should be continued only when the benefits to the patient outweigh the burdens. The NSP, other nutrition support team members, or the patient's primary physician may best assess the risks, benefits, and prognosis of the patient's medical and nutrition therapy, within the context of the therapeutic goals established by the primary health-care team, the nutrition support service, the patient, and the patient's family.

Chapter VIII: Definitions

Terms used in these standards are defined as follows.

Enteral Access Devices. Tubes placed directly into the gastrointestinal tract for the delivery of nutrients or drugs.

Enteral Nutrition. Nutrition provided through the gastrointestinal tract.

Oral. Enteral nutrition taken by mouth.

Tube. Enteral nutrition provided through a tube, catheter, or stoma that delivers nutrients distal to the oral cavity.

Nutrition Assessment. A comprehensive approach to defining nutritional status that uses medical, nutrition, and medication histories; physical examination; anthropometric measurements; and laboratory data. A formal nutrition assessment should provide all of the information necessary to develop an appropriate NCP. Because of the inextricable relationship between malnutrition and severity of illness and the fact that tools of nutrition assessment reflect both nutritional status and severity of underlying disease, an assessed state of malnutrition or presence of specific indicators of malnutrition in fact refers to the consequences of a combination of an underlying illness *and* associated nutritional changes and deficits.

Nutrition Care. Interventions and counseling of individuals on appropriate nutrition intake through the integration of information from the nutrition assessment.

Nutrition Care Plan (NCP). A formal statement of the nutrition goals and interventions prescribed for an individual using the data obtained from a nutrition assessment. The plan

formulated by an inter-disciplinary process should include statements of nutrition goals and monitoring parameters, the most appropriate route of administration of specialized nutrition support (oral, enteral, or parenteral), method of nutrition access, anticipated duration of therapy, and training and counseling goals and methods.

Nutrition Screening. 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.

Nutrition Support Service (or Team). A multidisciplinary group of healthcare professionals including a physician, nurse, dietitian, and pharmacist with expertise in nutrition who manage the provision of SNS.

Nutrition Therapy. A component of medical treatment that includes oral, enteral, and parenteral nutrition.

Parenteral Nutrition. The administration of nutrients provided intravenously.

Central. Parenteral nutrition delivered into a large-diameter vein, usually the superior vena cava.

Peripheral. Parenteral nutrition delivered into a peripheral vein, usually of the hand or forearm.

Specialized Nutrition Support (SNS). Provision of nutrients orally, enterally, or parenterally with therapeutic intent. This includes, but is not limited to, provision of total enteral or parenteral nutrition support and provision of therapeutic nutrients to maintain or restore optimal nutrition status and health.

Vascular Access Device. A device inserted into a vein that permits administration of intermittent or continuous infusion of parenteral solutions or medications.

STANDARDS OF PRACTICE FOR NUTRITION SUPPORT DIETITIANS
A.S.P.E.N. Board of Directors
NCP 15:53-59, February 2000

INTRODUCTION

The American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) is a professional Society of physicians, nurses, dietitians, pharmacists, and nutritionists committed to promoting quality patient care, education, and research in the field of nutrition and metabolic support in all health care settings. The diversity of our membership emphasizes both the importance of good nutrition in clinical practice and the necessity for a team approach. These Standards for Nutrition Support Dietitians represent an update of a similar 1990 set of standards from A.S.P.E.N. The activities described in this document also reflect information obtained from a 1999 survey of practice activities performed by board certified nutrition support dietitians (6).

A.S.P.E.N. has developed these standards as the general guidelines for registered dietitians in the provision of specialized nutrition support. Their application in any individual case should be determined by the best judgment of the professional. The standards represent a consensus of A.S.P.E.N.'s members as to the range of activities (as appropriate to the individual's position, education and practice environment) a Nutrition Support Dietitian may perform at the minimal level of practice necessary to assure safe and effective enteral and parenteral nutrition care. Use of the word "shall" within this document indicates standards strictly to be followed to conform to the standard, use of "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" is used to indicate a course of action which 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 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 health professional.

These standards have been developed, reviewed, and approved by the A.S.P.E.N. Dietetics Practice Section and the A.S.P.E.N. Board of Directors. These Standards of Practice for Nutrition Support Dietitians should be used in conjunction with the following publications:

The American Dietetic Association. Standards of Professional Practice for Dietetics Professionals. *J Am Diet Assoc* 1998;98:83-87.

Definitions of Terms Used in A.S.P.E.N. Guidelines and Standards. *NCP* 1995; 10(1):1-3.

Standards for Nutrition Support: Hospitalized Patients. *NCP* 1995; 10(6): 208-218.

Standards for Nutrition Support: Hospitalized Pediatric Patients. *NCP* 1996; 11(5):217-228.

Standards of Nutrition Support for Adult Residents of Long Term Care Facilities. *NCP* 1997; 12:284- 293.

Standards for Home Nutrition Support. *NCP* 1999; 14(3): 151-162.

Standards for Nutrition Support Physicians. *NCP* 1996; 11(6): 235-240.

Standards of Practice: Nutrition Support Nurse. *NCP* 1996; 11(3):127-134.

Standards of Practice for Nutrition Support Pharmacists. *NCP* 1999; 14(5): 275-281.

Safe Practices for Parenteral Feeding Formulations. *JPEN* 1998; 22(2) supplement.

CHAPTER I: SCOPE OF PRACTICE

As the importance of specialized nutrition support continues to be recognized, and the technology of enteral and parenteral nutrient delivery advances, the role of the Nutrition Support Dietitian (NSD) continues to expand. The NSD's role has clearly emerged as a specialty practice within professional dietetics. The goal of the NSD, working in conjunction with other health care professionals, which include a pharmacist, a nurse and a physician, is to support, restore, and maintain optimal nutrition health for those individuals with potential or known alterations in nutrition status. The NSD is a registered dietitian with clinical expertise and/or credentialing in nutrition support obtained through education, training and/or experience in this field. The NSD assures optimal nutrition support through a) individualized nutrition screening and assessment; b) development of a medical nutrition therapy (MNT) care plan and its implementation (3); c) monitoring and reassessment of an individual's response to the nutrition care delivered; and d) development of a transitional feeding care plan or termination of a nutrition support care plan, as appropriate. Other activities may include management of nutrition support services, including developing policies and procedures and supervising personnel and budgets; recommending and maintaining enteral and parenteral formularies; evaluating equipment for enteral feeding delivery; participating in nutrition support committees; and assuring optimal reimbursement for nutrition support activities.

The NSD should provide or assist with the education and training of patients, caregivers and health care professionals concerning theories, principles and practices of specialized nutrition support. Furthermore, the NSD may take an active role in research activities to include participation in or generation of research and outcomes studies with evaluation, interpretation and application of research results.

The NSD may practice in a variety of settings (e.g., acute and sub-acute facilities, ambulatory/outpatient clinics, long-term care facilities, home care) for all age groups and across all developmental stages along the continuum of care. The NSD may not always work with a formal nutrition support service since the NSD practice may vary based on the individual's position and practice environment allowing the NSD to have independent, interdependent, and collaborative functions.

Standard 1: Competency

The NSD shall demonstrate competence to practice nutrition support. Education, knowledge, experiences, and abilities shall circumscribe the NSD's competence.

Intent of Standard

The practice of nutrition support varies with the specialty practice of the dietitian (e.g., critical care, pediatrics, home care). Minimum qualifications are required of all dietitians that practice nutrition support and include:

- 1.1 Current, valid registration to practice as a professional Registered Dietitian in the United States of America by the Commission on Dietetic Registration (CDR).
- 1.2 A current, valid license or certification to practice professional dietetics in those states with regulatory requirements.
- 1.3 Documentation of three or more of the following:
 - 1.3.1 Certification by the National Board of Nutrition Support Certification, Inc. as a Certified Nutrition Support Dietitian (CNSD).
 - 1.3.2 Formal education, training, and/or continuing professional education in nutrition support
 - 1.3.3 A minimum of 30-50% professional practice time devoted to the practice of nutrition support. (6)
 - 1.3.4 Participation in the health care institution's nutrition support activities
 - 1.3.5 Membership in professional societies devoted to nutrition support

CHAPTER II: STANDARDS OF CARE

Standard 2: Screening and Assessment

The NSD shall work in collaboration with other health care professionals to assess the nutrition state of a patient (2).

Intent of Standard

The intent of assessing nutrition state is to establish baseline subjective and objective nutrition parameters, identify nutrition deficits, and determine nutrition risk factors for individual patients. The assessment of nutrition requirements establishes daily energy, macronutrient, micronutrient, and fluid requirements based on subjective and objective findings. Nutrition assessment is documented in the medical record to facilitate subsequent communication, monitoring, and quality improvement.

2.1 The NSD may participate in the collection of data to determine if individuals are nutritionally-at-risk. (2)

2.1.1 The NSD works with other health care professionals to ensure that a mechanism for nutrition screening and re-screening, with established criteria for identifying a patient who is or may become malnourished, is operational and effective. The screening may include the patient's age, gender, diagnosis, past medical/surgical history, weight history and/or growth history, history of nutrient intake, special dietary requirements, current use of specialized nutrition support, drug-nutrient interactions, and food allergies, as well as their ability to obtain food and any factors which may interfere with nutrient intake.

2.1.2 The NSD should assure that results of the nutrition screening are documented in the medical record.

2.2 All patients who are classified as nutritionally-at-risk should undergo a comprehensive assessment. (2) The NSD should review the medical and nutrition history and evaluate the following:

2.2.1 Anthropometric measurements;

2.2.2 Physical assessment (e.g., fluid balance, functional status, clinical signs of malnutrition);

2.2.3 Biochemical indices;

2.2.4 Clinical factors that may interfere with ingestion of optimal nutrients (mechanical, physiological or psychological);

2.2.5 Alterations in digestion, absorption or metabolism of nutrients;

2.2.6 Dietary intake history including consumption of nutrition/herbal supplements;

2.2.7 Medication usage (both physician-prescribed and self-prescribed);

2.2.8 Socioeconomic status and access to medical care.

2.3 The NSD shall complete a quantitative and qualitative nutrition assessment prior to initiation of specialized nutrition support. This includes:

2.3.1 Determination of nutrient and fluid needs based upon the patient's resting energy expenditure, activity, hemodynamic status, metabolic demands, disease state and treatment, organ system function, current nutrition state, medications, and goals of medical nutrition therapy.

2.3.2 Documentation of the results of nutrition assessment and recommendations in the medical record with appropriate communication to the health care team.

Standard 3: Medical Nutrition Therapy Care Plan

Standard 3: The NSD shall share in the development of a medical nutrition care plan based on the results of the nutrition assessment (2).

Intent of Standard

Patient-specific outcomes are achieved through the implementation of the nutrition care plan. Goals are defined, documented, monitored and modified to facilitate the most efficient and effective clinical outcome(s). The medical nutrition therapy care plan addresses the specific patient needs identified in the nutrition assessment and serves as a guide to all health care professionals who collaborate in the care of the patient. All medical nutrition therapy care plans should be based on the most current medical evidence as it pertains to each patient's disease state and clinical condition.

- 3.1 The NSD shall establish a medical nutrition therapy care plan based upon the results of the comprehensive nutrition assessment.
- 3.2 The NSD shall recommend the appropriate route of nutrition support based upon the patient's current medical condition. The recommendation shall provide the assessed nutrient and energy requirements and should ideally achieve nutrition objectives safely and cost effectively.
 - 3.2.1 The gastrointestinal tract should be used when there is no contraindication.
 - 3.2.2 Parenteral nutrition should be initiated when nutrient and energy needs cannot be met by the enteral route.
 - 3.2.3 The route of nutrition support should be reassessed periodically during the course of therapy as indicated by the patient's physiologic/anatomic condition and/or response to therapy.
- 3.3 The NSD may recommend, write orders and/or obtain verbal orders for enteral and parenteral formulations (as guided by professional licensure or delineated by clinical privileges of an institution), adjust regimens on the basis of response to therapy, clinical condition, and nutritional parameters. The nutrition formulation recommended/selected shall be appropriate for the medical condition and estimated nutrient and energy needs, and compatible with the route of access.
 - 3.3.1 The medical nutrition therapy care plan should include recommendations for oral diets, enteral tube feedings, and parenteral formulations as appropriate.
 - 3.3.2 The selection of disease-specific solutions should be based on established criteria.
 - 3.3.3 Feeding formulations should be tailored to current medical condition constraints and clinical status that affect tolerance and nutrient utilization.
 - 3.3.4 Recommendations for feeding formulations should be made with consideration of compatibility issues.
 - 3.3.4.1 Enteral formulations: addition of modular nutrients and medications with regard to physical compatibility and drug-nutrient interactions.
 - 3.3.4.2 Parenteral formulations: compatibility issues per National Advisory Group's Safe Practices for Parenteral Feeding Formulations (4).
 - 3.3.5 When similarly effective preparations that meet patient nutrient requirements are available, the most cost-effective product shall be selected.
- 3.4 The NSD shall provide and document education/information regarding nutrition support techniques and nutrition intervention to the health care team, patient and/or caregiver to assist them in making informed decisions prior to initiating therapy.
 - 3.4.1 Short and long-term goals of medical nutrition therapy should be established and re-evaluated.
 - 3.4.2 Educational needs of the patient and caregiver should be evaluated and met accordingly.
 - 3.4.3 Medical necessity for specialized nutrition support in alternative sites should be documented. (5)
 - 3.4.4 The individual's progress toward achieving nutrition goals should be detailed in the medical record and communicated to appropriate health care professionals.

Standard 4: Implementation

The NSD shall participate in the implementation of a medical nutrition therapy care plan to ensure appropriate, safe, and cost-effective nutrition care.

Intent of Standard

Provision of nutrition care may involve many health care professionals. The NSD may be involved at several levels of the medical nutrition therapy care plan implementation, dependent upon job responsibilities, professional licensure, credentialing, and delineated by clinical privileges of an institution.

4.1 The NSD shall participate in an interdisciplinary process for recommendation of placement and management of enteral access devices.

4.2 The NSD with specialized training, demonstrated competency, and delineated clinical privileges may place nasoenteric access devices.

4.3 The NSD with specialized training and delineated clinical privileges may recommend and/or perform proper maintenance of enteral feeding devices (e.g., tube patency) and tube site care.

4.4 The NSD may recommend placement of access devices for parenteral nutrition.

4.5 The NSD should assure that enteral formulations are prepared according to established guidelines (Hazard Analysis Critical Control Point) for safe, aseptic, and effective nutrition therapy. (7)

4.5.1 The NSD shall assure that enteral feeding formulations are prepared to prevent contamination and incompatibility of ingredients (e.g. medications, modular components).

4.5.2 The NSD shall assure that written guidelines for the preparation and storage of enteral feeding formulations are maintained, to include proper labeling (including patient's name, type of formula, date formula expires, etc.). Policies and procedures shall specify allowable hang time for enteral formulations.

4.6. The NSD shall verify that specialized nutrition support is administered in accordance with the prescribed medical nutrition therapy care plan and consistent with patient tolerance.

4.7 The NSD should participate in the monitoring of written orders for specialized nutrition support by verifying comprehension of written orders with other health care professionals to minimize errors in formulation composition and/or administration

4.8 The NSD should collaborate with other members of the health care team to develop protocols that ensure the administration and delivery of safe and effective nutrition support to provide optimal patient care.

4.8.1 Protocols will be established and should include guidelines for administration, monitoring, and infection control. (4)

4.8.2 Protocols will be reviewed regularly to ensure that they are consistent with current knowledge of feeding formulations and access devices.

Standard 5: Monitoring

The NSD, in collaboration with other members of the health care team, shall monitor and evaluate the patient's clinical status, the effectiveness and appropriateness of medical nutrition therapy and progress toward attainment of desired outcomes (2). The NSD shall participate in the development and implementation of policies and procedures for monitoring patients receiving specialized nutrition support.

Intent of Standard

Patient monitoring is essential for determining the success of the medical nutrition therapy care plan. It is imperative in the evaluation of the patient's progress towards fulfilling the medical nutrition therapy goals.

5.1 The NSD, with interdisciplinary collaboration, shall monitor the clinical and metabolic response to specialized nutrition support to provide a basis for modifying the medical nutrition support therapy care plan. The evaluation shall include use of multiple sources of data, including patient interview, medical records, clinical and nutritional status, laboratory indices, and discussion with caregivers as appropriate.

5.1.1 The NSD's role in monitoring patients may include any of the following: A nutrition-focused physical exam (including but not limited to signs of fluid, energy and/or nutrient depletion and/or excess); inspection of nutrition access devices; assessment of adequacy of nutrient intake (e.g., oral, enteral, parenteral); evaluation of weight changes; fluid balance; acid/base balance; review of pertinent nutrition related laboratory data; review of medications; assessment of organ function and hemodynamic status; tolerance of nutrition therapy (see 5.4.1); substrate tolerance (e.g., glycemic control, triglyceride levels); evaluation of appropriateness of medical nutrition therapy (use of oral, enteral, and/or parenteral route); scheduling of formula administration; transitional feeding; functional performance status; and discontinuation of therapy.

5.1.2 The NSD shall monitor patients for physical, social, psychological, cognitive, and environmental factors that may influence the response to nutrition support. (2).

5.1.3 The NSD shall evaluate and document drug-nutrient and nutrient-nutrient interactions in order to minimize adverse side effects.

5.2 The NSD shall be involved in the development of protocols for timely review and documentation of the patient's clinical, metabolic, and nutritional status.

5.3 The NSD, based upon delineated clinical privileges, may recommend and/or order laboratory tests and other monitoring methods (intake & output, body weight measurements, blood gases, etc.) necessary for evaluating and adjusting the medical nutrition therapy care plan.

5.4 The NSD shall document that the feeding formulation progresses towards or meets the nutrient needs of the patient. Feeding formulation progression will be based on patient tolerance.

5.4.1 Gastrointestinal (GI) tolerance to the initiation and advancement of tube feedings should be reviewed. GI tolerance includes evaluation of stool frequency and consistency, gastric residuals, reflux, abdominal distention, presence or quality of bowel sounds, presence of flatulence, aspiration, nausea, vomiting, and malabsorption. Recommendations for alteration in the feeding plan (route, formula, amount) based on gastrointestinal tolerance should be made as appropriate.

5.4.2 The frequency of monitoring shall increase for patients who are critically ill, have debilitating diseases or infections, are at risk for refeeding syndrome, or are transitioning between parenteral, enteral (tube) and oral nutrition (2).

5.5 The NSD should recommend adjunctive services for optimization of nutrition care (e.g., physical, occupational, or speech therapy; social services; psychology; or dental services) as indicated.

5.6 The NSD should evaluate compliance of patient, family, and health care professionals with nutrition care protocols, or medical nutrition therapy plans.

5.7 The NSD shall document results of the evaluation in the medical record and communicate them to the appropriate health care professionals. The plan of care shall be reviewed and modified accordingly. Modifications of energy and/or nutrient delivery to the patient will be based upon the specific disease state, current clinical condition, medical/surgical therapy, nutrition status, and the anticipated duration of inadequate oral intake or need for special nutrition support therapy.

Standard 6: Reassessment, Updating, and Termination of Medical Nutrition Therapy Care Plan

The NSD will participate in the reassessment and updating of the medical nutrition therapy care plan (2) and changes in stated goals of the patient and family when appropriate. Reassessment promotes the continued provision of adequate and appropriate nutrition support.

Intent of Standard

The NSD plays a key role in reassessment and transitioning the patient between the different methods of nutrient delivery. The nutrition regimen is modified as dictated by the patient's clinical status and monitoring parameters. Determining the optimal mode of nutrient delivery,

evaluation of nutrient consumption, and identifying the appropriateness of termination of specialized nutrition support is important for providing optimal and cost-effective patient care.

6.1 The NSD shall monitor the transition from parenteral to enteral (tube) nutrition/oral diet, from enteral (tube) nutrition to an oral diet, and for the termination of specialized nutrition support.

6.1.1 Parenteral nutrition should not be discontinued until a desired amount of energy, nutrient and fluid requirements are met and documented by enteral intake.

6.1.2 Enteral (tube) nutrition should not be discontinued until a desired amount of energy, nutrient and fluid requirements are met and documented by oral intake.

6.1.3 Recommendations should be made for the gradual decrease and/or cycling of parenteral nutrition and/or enteral (tube) nutrition in order to maintain adequate energy and nutrient delivery.

6.2 The NSD shall assure and document adequacy of energy and nutrient intake (approximately 60% of estimated requirements) prior to discontinuing parenteral or enteral nutrition support and progressing to the next stage of nutrition intervention (e.g., oral diet).

6.2.1 A quantitative and qualitative estimate of intake should be determined.

6.2.2 Tolerance of enteral (tube) nutrition should include assessment of gastrointestinal function (see 5.4.1), adequacy of energy, nutrient, fluid intake, and metabolic status.

6.2.3 Tolerance of adequate oral intake and consistency of foods should include assessment of sucking ability in infants, chewing or swallowing difficulties, gag reflex, pain with eating, changes in elimination patterns, and GI function.

6.2.4 If appropriate, oral nutrition supplements should be recommended to improve oral nutrient intake.

6.3 The NSD shall play an active role in facilitating communication of the patient/resident/client's nutrition care plan between care sites to assure continuity of care.

6.4 The NSD shall assist with decisions regarding termination of specialized nutrition support when clinically indicated or when an advance directive is activated.

6.4.1 Protocols shall be developed which address the termination of nutrition support for patients with irreversible neurological damage, metastatic and untreatable cancer, severe intractable end-organ failure or other conditions not likely to benefit from nutrition therapy. Patients or their durable power of attorney for healthcare should be involved in the decisions regarding the withdrawal of specialized nutrition support (2).

6.4.2 Protocols should provide latitude of clinical judgment in permitting the discontinuation of specialized nutrition support in accordance with local practice standards and current local, state and federal law.

CHAPTER III. MANAGEMENT OF NUTRITION SUPPORT SERVICES

Standard 7: Administrative Management

The NSD may provide administrative management of the nutrition support program. The NSD may participate in management activities, to include directing the nutrition support service, as appropriate to the individual's job responsibilities, education, and practice environment.

Intent of Standard

The NSD may contribute to the development of practice guidelines, as well as institutional policies and procedures which ensure a patient receives an appropriate nutrition care plan and safe delivery of parenteral and enteral nutrition support.

7.1 The NSD shall participate in development of policies and procedures (guidelines for use) for patient care aspects of specialized nutrition support.

7.1.1 There shall be documentation of the regular review and revision of policies and procedures for the provision of specialized nutrition support

- 7.2 The NSD may participate in the development of policies and procedures for operational aspects of nutrition support, including continuous quality and process improvement (CQI).
- 7.2.1. The NSD may develop CQI indicators that help facilitate continuity of care throughout the health care delivery system
- 7.2.2 The NSD may collect data for analysis of whether standards have been met over the course of a patient's therapy
- 7.2.3 The NSD may participate in the review of collected data and the appropriate plan of action resulting from CQI
- 7.3 The NSD may serve as a member of the nutrition support service, committee or team to coordinate the provision of specialized nutrition support.
- 7.4 The NSD may direct, coordinate and/or manage all or some of the activities of a interdisciplinary nutrition support team/service/committee (e.g., rounds, human resources, financial resources, educational programs).
- 7.5 The NSD should participate in the development, review and maintenance of an adequate and cost effective nutrition support formulary and should participate in the selection of nutrition support devices (e.g., feeding systems, enteral access devices).

CHAPTER IV. PROMOTION OF NUTRITION SUPPORT

Standard 8: Education, Training and Communication

The NSD shall actively participate in nutrition support related educational and training activities. The NSD will disseminate information regarding current accepted nutrition support techniques and practices through organizational education efforts.

Intent of Standard

Patient care issues are often complex and require interdisciplinary collaboration to solve problems and improve processes. It is important to work as a team to support continual learning that promotes optimal patient care. This education process may be achieved by presenting educational lectures or inservices, or by publishing articles related to nutrition support practice standards and/or advancements.

8.1 The NSD shall assess learning needs of patients/caregivers, provide education on the basis of needs, and evaluate effectiveness of teaching. The NSD shall develop or use patient/caregiver educational materials related to nutrition support administration and management applicable to the patient/caregiver's learning ability and needs, as well as inform the patient/caregiver about community resources. (2)

8.2 The NSD should contribute to the educational and professional development of other dietitians, students and health care professionals through formal and informal teaching activities.

8.3 The NSD shall maintain professional competence by participating in formal education and continuing education programs. (2)

8.4 The NSD shall supervise and/or mentor other dietitians interested in pursuing a certification in nutrition support along with incorporating and coordinating their help, as well as assist physicians or other health care providers in pursuing a nutrition-related fellowship or training.

Standard 9: Research

The NSD should actively participate in nutrition support related research activities as related to the individual's job responsibilities, education, experience and practice environment.

Intent of Standard

The NSD needs to retrieve and evaluate available scientific findings regarding nutrition in order to advance individual patient care, oversee management of services, and provide education to the patient, health care professional and others.

9.1 The NSD shall critically evaluate and apply research findings to assess, provide, and improve patient care, manage services, and educate patients, health care professionals and others. The NSD should identify and/or develop research-based policies, procedures, and clinical pathways as a basis for medical nutrition therapy.

9.2 The NSD may perform and collaborate with others to perform nutrition support research. The NSD may identify research issues, participate in designing and implementing research projects, facilitate research activities, and/or disseminate research findings.

9.3 The NSD may participate in studies designed to examine clinical outcomes for nutrition medical therapy in specific patient populations.

9.4 The NSD may present research findings to the lay public, hospital administrators, and at national, state, and local meetings (e.g., oral presentation, publication).

9.5 The NSD shall participate in the evaluation of new nutrition support products and equipment to assure optimal and cost-effective medical nutrition therapy.

DEFINITIONS

Medical Nutrition Therapy. The assessment of the nutrition status of a patient followed by nutrition therapy ranging from diet modification to the administration of enteral and parenteral nutrition.

Specialized Nutrition Support. Provision of tube enteral or parenteral nutrients to maintain or restore optimal nutrition status.

REFERENCES:

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**Standards of Practice for Nutrition Support Nurses
American Society for Parenteral and Enteral Nutrition
Board of Directors, NCP, 16:(1) 56-62, February 2001**

Introduction

Standard 1. Criteria for Recognition as a Nutrition Support Nurse

The Nutrition Support Nurse shall demonstrate competence to practice specialized nutrition support.

Measurement Criteria

1. Documentation of competence shall include the following:
 - a. A current, valid license to practice nursing in the United States or the equivalent in foreign countries.
 - b. significant responsibility in the practice of nutrition support, including but not limited to: direct patient care, consultation, patient advocacy, case management, administration or management, performance improvement, education, and or research.
 - c. Documentation of one of the following criteria:
 - i. Completion of an educational program (e.g., clinical practicum, fellowship) that includes specialized nutrition support. OR
 - ii. Active participation in the nutrition support service or committee of a health care entity responsible for development, implementation, and evaluation of protocols for administration of specialized nutrition support, OR
 - iii. Active participation (e.g., leader, committee member) in one or more professional societies devoted to the promotion of safe and effective specialized nutrition support. OR
 - iv. Certification by the National Board of Nutrition Support Certification, Inc. as a Certified Nutrition Support Nurse (CNSN).

Standard 2. Screening and Assessment

The NSN shall participate in assessment activities related to the nutritional care of the individual.

Measurement Criteria

1. The Nutrition Support Nurse (NSN) may participate in nutrition screening to identify a patient who is malnourished, or who is at risk of becoming malnourished.
 - a. The NSN may work with dietitian and nursing staff to ensure that a mechanism for nutrition screening is operational.
2. The NSN may participate in interdisciplinary nutrition assessment of an individual identified to be malnourished or at nutritional risk.
 - a. Pertinent subjective and objective data shall be collected and documented in a systematic and ongoing fashion using established assessment techniques including nutrition history, physical assessment parameters, laboratory data, and psychosocial issues.
 - b. Data collection shall include retrieving and analyzing information from the patient, caregiver, health care providers and the medical record. Anticipated nutrition care issues for specific disease states and/or developmental stages guide the data collection process for the NSN.
 - c. Data shall be analyzed to determine the nutrition status and energy and nutrient requirements of the patient. This analysis shall include the effect of clinical status on nutritional needs and requirements.

- d. Relevant data shall be synthesized and documented in a format that is available to health care providers.
- 3. The NSN shall assess the appropriateness of the specialized nutrition support therapy with respect to the delivery setting and the patient's status.
 - a. The NSN shall assess the ability of the patient and/or caregiver to safely perform tasks related to the nutrition therapy including the assessment of:
 - i. physical status
 - ii. functional status
 - iii. educational needs
 - iv. cognitive ability
 - v. psychomotor skills
 - vi. patient goals/psychosocial issues
 - b. The NSN's assessment may also include an appraisal of the following:
 - i. the environment of care
 - ii. community resources
 - iii. economic and reimbursement issues

Standard 3. Therapeutic Plan

The NSN, in collaboration with other health care providers and the patient and/or caregiver(s), shall participate in the development of a nutrition care plan based on the results of the nutrition assessment and in accordance with Clinical Pathways and Algorithms for Delivery of Parenteral and Enteral Nutrition Support in Adults, 1998, A.S.P.E.N., Silver Spring, MD.

Measurement Criteria

1. The NSN may determine and document the goals of the nutrition care plan. This may include:
 - immediate and long-term goals of nutrition therapy
 - recommendation for appropriate route of nutrition delivery
 - recommendation for specialized nutrition support prescription as guided by professional licensure or delineated privileges.
 - duration of therapy
 - plan for monitoring clinical, nutritional, and metabolic response to therapy
 - patient/caregiver education
 - discharge planning
 - training for home nutrition support therapy
 - a. The nutrition care plan is derived from the synthesis of patient-specific assessment data, as well as evidence based literature. The nutrition care plan shall ensure that therapy provides optimal, appropriate and resource efficient care.
 - b. The NSN shall ensure that the nutrition care plan supports the medical care plan and the patient's clinical
 - c. condition and is congruent with established organizational policies, procedures and protocols.
2. The NSN may recommend the preferred route for the administration of specialized nutrition support based on the patient's medical condition, objectives of therapy, psychosocial issues and potential home care needs.
 - a. During therapy, the route of administration should be reassessed periodically and changed as indicated.
 - b. The NSN may develop a plan to transition from one mode of feeding to another.
3. The NSN may recommend the patient-specific feeding formulation, rate of administration (e.g., initiation, advancement, discontinuation); and mode of administration (e.g.,

intermittent, cyclic, bolus, continuous) on the basis of the patient's disease process and compatibility with the route of access.

Standard 4. Implementation

The NSN shall participate in the implementation of a therapeutic nutrition care plan to ensure its appropriateness, safety, accuracy and cost-effectiveness.

Measurement Criteria

1. The NSN shall participate in an interdisciplinary process for placement and management of enteral access devices and venous access devices.
 - a. The NSN shall collaborate with the healthcare provider regarding the selection and insertion of the appropriate enteral access device or venous access device for the patient's specific nutritional needs.
 - b. The NSN with specialized education and validated competency may place enteral access devices or venous access devices following formal established protocols and procedures as delineated by clinical privileges and professional licensure laws.
 - c. The NSN should oversee care and ensure compliance with organizational policies and procedures for management of enteral access devices and venous access devices.
2. The NSN may obtain or write orders for feeding formulations and laboratory tests, adjusting regimens based on response to therapy, changing clinical conditions, and nutrition parameters procedures as delineated by clinical privileges and professional licensure laws.
3. The NSN should ensure that appropriate equipment and supplies are used for the administration of enteral and parenteral nutrition.
 - a. The NSN may select appropriate equipment and supplies based on the route of nutrient delivery, the type of feeding device, the desired flow rate, individual needs of the patient and family, the clinical situation, clinical safety and cost-effectiveness.
4. NSN interventions shall be designed to prevent, detect and manage complications related to the feeding formulation, equipment and supplies, and the access device.
 - a. Interventions shall include adjustment of feeding formulations, adjustment of infusion rates, and recommendations for managing complications of therapy.

Standard 5. Monitoring/Evaluation

The NSN, in collaboration with other members of the healthcare team, shall monitor and evaluate the patient's changing clinical condition, the effectiveness and appropriateness of nutrition therapy and progress toward attainment of desired outcomes.

Measurement Criteria

1. Monitoring and evaluation shall be ongoing and follow the nursing process.
2. Monitoring and evaluation shall include interdisciplinary collaboration and use of multiple sources of data, including the patient interview, physical assessment, medical record, and discussions with significant others.
3. The evaluation process shall assess the therapeutic and adverse physiologic and psychosocial effects of nutrition interventions.
4. Evaluation of implementation of the nutrition care plan should be predicated on a risk/benefit and cost-effectiveness analysis of the treatment process.
5. Protocols should be developed that outline the required baseline data and periodic review of the patient's clinical, nutritional, and laboratory status.
 - a. Routine monitoring and evaluation should include but is not limited to:
 - i. a nutrition focused physical examination

- ii. inspection of the enteral access device or venous access device and insertion site
 - iii. determination of actual nutrient intake
 - iv. weight changes
 - v. fluid balance
 - vi. status of wounds and skin integrity
 - vii. functional performance status
 - viii. meeting appropriate developmental milestones
 - ix. laboratory data
 - x. review of medications
 - xi. assessment of major organ function
 - xii. tolerance of nutrition therapy
 - xiii. appropriateness of nutrition therapy
 - xiv. scheduling of formula administration
 - xv. discontinuation of therapy when it is no longer needed or consistent with patient goals
6. The frequency of monitoring shall increase for patients who are critically ill, have debilitating diseases or infection, are at risk for refeeding syndrome, are transitioning feedings between parenteral and enteral nutrition, and oral diets, or have experienced complications associated with therapy.
7. Results of the evaluation shall be summarized and documented in the patient's medical record. The plan of care shall be reviewed and revised according to organizational policy.
- a. Documentation should include:
 - i. · adequacy of fluid and nutrient intake
 - ii. · changes in the route of nutrient delivery or scheduling of formula administration
 - iii. · weight changes
 - iv. · changes in laboratory and functional performance status
 - v. · signs and symptoms of intolerance to nutrition therapy
 - vi. · physical or laboratory abnormalities and alterations in organ function that may affect nutrition therapy
 - vii. · problems associated with the access device
 - viii. · nutrition therapy related complications
 - ix. · pertinent nutrient-nutrient or drug-nutrient interactions
 - b. Specialized nutrition support shall be discontinued when the patient demonstrates the ability to ingest adequate oral intake or when it is determined that therapy is no longer consistent with patient goals and needs.

Standard 6. Administrative Management

The NSN shall participate in nutrition support program management activities as appropriate to the NSN's position, education, and practice environment. In collaboration with other health care providers, the NSN shall participate in the administrative management of the specialized nutrition support program.

Measurement Criteria

1. The NSN shall participate in the development and review of organizational policy and procedures for specialized nutrition support (e.g., nutrition assessment, monitoring, delivery procedures, and nursing care).
 - a. There shall be documentation of the review and revision of policies and procedures for the provision of specialized nutrition support.

2. The NSN shall participate in the development and review of policies and procedures for implementation of specialized nutrition support (e.g., administrative procedures, ordering procedures, and billing).
3. The NSN may serve as a member of the nutrition support service or committee that coordinates the provision of specialized nutrition support.
 - a. The NSN may coordinate and/or manage all or some of the activities of an interdisciplinary specialized Nutrition Support Team (NST), (e.g., clinical rounds, human and financial resources, educational programs).
4. The NSN shall act as liaison between the nutrition support service or team including, but not limited to the medical staff, home care organizations, third party payers, hospital administration, and others, as appropriate.
5. The NSN may participate in the development and maintenance of an appropriate and cost-effective nutrition support formulary.
6. The NSN shall participate in the healthcare organization's strategic planning process for specialized nutrition support (e.g., goal planning, performance improvement).

Standard 7. Quality of Care

The NSN shall systematically evaluate the quality and effectiveness of nutrition support practice in collaboration with other health care providers involved in the nutrition care of patients.

Measurement Criteria

1. The NSN shall provide leadership in promoting quality nutritional care. The NSN may:
 - a. · evaluate appropriateness of interdisciplinary nutritional care
 - b. · promote cost-effective, quality care
 - c. · facilitate continuity of care throughout the health care system
 - d. · identify areas for quality assessment and performance improvement
 - e. · identify indicators (clinical, process, outcome)
 - f. · collect and analyze performance improvement data
 - g. · design, implement and evaluate process improvement projects
 - h. · collaborate with the NST and other health care providers in the development and evaluation of clinical pathways
2. The NSN shall collaborate with other health care professionals to ensure standardization of nutrition care practices and the safe and accurate provision, distribution and administration of food and nutrition products.

Standard 8. Resource Utilization

The NSN shall use information related to efficacy, safety, cost and outcomes to develop, implement, and evaluate a therapeutic plan.

Measurement Criteria

1. The NSN shall participate in evaluation of new products and equipment used in the nutrition care process. (e.g., infusion control devices, dressing materials, and feeding formulations.)
2. The NSN shall participate in the development of organizational policies and procedures designed to provide cost effective nutritional care.
3. The NSN shall delegate tasks consistent with the scope of practice, when appropriate, to other healthcare professionals on the basis of competency and validation of their skill and knowledge base.
4. The NSN may act as a liaison with third party payers to ensure an appropriate level of nutritional care is provided for patients.

Standard 9. Research

The NSN shall actively question nutrition support practice, guide practice based on critical reflection and analysis of research, and consistently provide evidence based nutrition support care. Ongoing evaluation, especially in terms of outcomes, trend analysis and patient care needs shall guide the practice of the NSN. The NSN shall participate in nutrition support related research activities as appropriate to the NSN's formal educational preparation.

Measurement Criteria

1. The NSN shall identify, develop, review, and revise evidenced based policies, procedures and clinical pathways to guide nutritional care.
 - a. The NSN shall evaluate the strength of evidence according to the Agency for Healthcare Research and Quality as follows:
 - i. · Evidence obtained from meta-analysis of randomized controlled trials.
 - ii. · Evidence obtained from at least one randomized controlled trial.
 - iii. · Evidence obtained from at least one well-designed controlled study without randomization.
 - iv. · Evidence obtained from at least one other type of well-designed quasi-experimental study.
 - v. · Evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities.
 - b. The NSN shall grade the strength of the evidence as follows:
 - i. · There is good research-based evidence to support the recommendation (A).
 - ii. · There is fair research-based evidence to support the recommendation (B).
 - iii. · The recommendation is based on expert opinion and panel consensus (C).
2. The NSN may actively participate in nutrition support related research activities. The research related roles and responsibilities of the NSN may include:
 - a. · data collector
 - b. · research assistant
 - c. · co-investigator or principal investigator
 - i. · identification of research issues
 - ii. · participation in the design of or conduction of research studies
 - iii. · facilitation of research activities
 - iv. · dissemination of research findings
3. The NSN shall monitor current nutrition and nursing research for potential clinical application and may assist with, conduct or serve as a consultant to research, which is driven by patient needs, according to the educational framework of the NSN.

Standard 10. Education

The NSN shall actively participate in nutrition support related educational activities.

Measurement Criteria

1. The NSN shall maintain professional competence by participating in formal education and continuing education to enhance nursing competence.
2. The NSN shall participate in intradisciplinary and interdisciplinary nutrition support related education through formal and informal programs. In addition, as appropriate for practice setting, the NSN shall participate in intradisciplinary and interdisciplinary student learning experiences in the classroom and/or clinical settings.
3. The NSN shall coordinate the patient/caregiver education program related to nutrition support. The NSN may:

- a. · assess and/or serve as resource for the assessment of the learning needs of patients/caregivers
 - b. · provide education
 - c. · identify barriers to learning
 - d. · evaluate the effectiveness of teaching and refer patient/caregiver to appropriate community resources
4. The NSN shall develop, approve or revise patient/caregiver educational materials related to the administration and management of therapeutic nutrition support modalities.

Standard 11. Collegiality/Collaboration

The NSN shall develop collaborative relationships with colleagues, students, patients and caregivers. This collaborative practice model should contribute to optimal patient care, professional development of self and others, and advancement of the field of nutrition support.

Measurement Criteria

1. The NSN shall establish collegial relationships with other health care professionals in order to facilitate the exchange of knowledge, skills, and clinical information. This collaboration should take place through participation in clinical rounds, interdisciplinary patient care conferences, mentoring programs, and professional association meetings.
2. The NSN shall confer with the patient, caregiver and other members of the health care team to develop an individualized plan of care.
3. The NSN shall make referrals to other members of the healthcare team, as appropriate, to maintain and provide optimal patient care.
4. The NSN shall build networks, as appropriate, with other professional organizations and governmental agencies to promote optimal nutrition care. This may include advocating for legislation related to the provision of and/or reimbursement for optimal nutritional care.

Standard 12. Ethics

The NSN shall make decisions and take actions on behalf of patients receiving nutrition support in an ethical manner.

Measurement Criteria

1. The NSN shall be guided by individual state Nurse Practice Acts and the American Nurses Association (ANA) Standards of Clinical Practice and Code of Ethics. This includes but is not limited to the following:
 - a. The NSN shall consistently advocate to promote the patient’s health, rights, and safety.
 - b. The NSN shall administer high quality, safe care in a nonjudgmental, nondiscriminatory, and culturally sensitive manner.
 - c. The NSN shall preserve and protect the patient’s autonomy and the patient’s right to make informed decisions regarding care.
 - d. The NSN shall maintain the confidentiality of information obtained in a professional capacity.
2. The NSN shall work with an interdisciplinary healthcare team to resolve moral, ethical, and legal dilemmas, while developing appropriate resolutions.
3. The NSN shall conduct research in accordance with standards established by institutional review boards and ethics committees.
4. The NSN shall recognize potential and actual conflicts of interest and withdraw from participation in decisions or activities that may be influenced by conflicts of interest.

Definitions:

1. Home care organization: Organization that provides services, equipment, or products to patients requiring home nutrition support under the direction of a provider.
2. Specialized Nutrition Support: Provision of nutrients orally, enterally, or parenterally with therapeutic intent. This includes, but is not limited to provision of total enteral or parenteral nutrition support and provision of therapeutic nutrients by any route.

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3. Comprehensive Accreditation Manual for Home Care, Joint Commission Accreditation of Healthcare Organizations, Oakbrook Terrace, Illinois, 1999.
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Standards of Practice for Nutrition Support Pharmacists

Definitions

The following terms that are used in these standards have been defined previously in "Definitions of Terms Used in A.S.P.E.N. Guidelines and Standards"¹ or by other organizations as referenced.

Admixture. The result of combining two or more fluids.

Continuous Quality Improvement (CQI). A systematic approach to assessing and improving the effectiveness and reliability of processes (nutrition care) using a scientific methodology and teamwork.

Diet. A prescribed allowance of food or nutrients provided via the oral route.

Drug-Disease Interaction. An event that occurs when a drug's activity, availability, or effect is altered by a disease or condition.

Drug-Drug Interaction. An event that occurs when a drug's activity, availability, or effect is altered by another drug.

Drug-Nutrient Interaction. An event that occurs when nutrient availability is altered by a medication or when a drug effect is altered or adverse reaction caused by the intake of nutrients.

Enteral Nutrition. Nutrition provided via the gastrointestinal tract.

Oral. Enteral nutrition taken by mouth.

Tube. Enteral nutrition provided through a tube or catheter or stoma that delivers nutrients distal to the oral cavity.

Feeding Formulation. A ready-to-administer mixture of nutrients.

Formulary. A list of drugs, solutions, and formulations approved for use within an organization by its Pharmacy and Therapeutics Committee, or other applicable authority.

Indicators. Prospectively determined measures used as normative standards within a quality assurance process.

Clinical Indicator. An instrument that measures a quantifiable aspect of nutrition care to guide professionals in monitoring and evaluating nutrition care quality and/or appropriateness.

Process Indicator. An instrument that assesses data concerning functions carried out by practitioners, including assessment, treatment, treatment planning, technical aspects of performing treatment, management of complications, and indications for treatments and procedures.

Outcome Indicator. An instrument that looks at the results of practitioners' activities, including complications, adverse events, short-term results of specific procedures and treatments, and long-term status of patients' health and functioning.

Macronutrient. Nutrients present in the body and required in the greatest amount (eg, carbohydrates, proteins, lipids).

Malnutrition. Any disorder of nutritional status, including those resulting from a deficiency of nutrient intake, impaired nutrient metabolism, or overnutrition.

Micronutrient. Nutrients present and required in the body in minute quantities (eg, vitamins, trace elements).

Nutrient. Protein, carbohydrate, lipid, vitamins, minerals, trace elements, and water.

Nutrient-Nutrient interaction. An event that occurs when a nutrient's availability or effect is altered by another nutrient.

Nutrition. The sum of the processes by which one takes in and utilizes nutrients.

Nutrition. Of or relating to the state of nutrition or things related to the field of nutrition. Can be used as a compound structure with terms such as nutrition support, nutrition nurse, nutrition team, nutrition program, etc.

Nutritional. Usually, that which has nutrient value, such as nutritional cereal, nutritional meal, etc.

Nutrition Assessment. A comprehensive evaluation to define nutritional status, including medical

history, dietary history, physical examination, anthropometric measurements, and laboratory data.

Nutritionally-at-Risk (Adult Definition). An adult is considered at nutritional risk if they have:

- Actual or potential for developing malnutrition (involuntary loss or gain of 10% of usual body weight within 6 months, or 5% of usual body weight in 1 month, a weight of 20% more than or less than ideal body weight), presence of chronic disease, or increased metabolic requirements.
- Altered diets or diet schedules (receiving total parenteral or enteral nutrition; recent surgery, illness, or trauma).
- Inadequate nutritional intake, including not receiving food or nutrition products (impaired ability to ingest or absorb food adequately) for >7 days.

Nutritionally-at-Risk (Pediatric Definition). Neonates, infants, and children should be considered at nutritional risk if they have:

- Very low birth weight, or low birth weight, even in the absence of gastrointestinal, pulmonary or cardiac disorders.
- Birth weight <2 standard deviations below the mean (approximately the 3rd percentile) for gestational age on fetal weight curves.
- An acute weight loss of 10%.
- A weight/length less than the 10th percentile or greater than the 90th percentile.
- Increased metabolic requirements.
- Impaired ability to ingest or tolerate oral feedings.
- Documented inadequate provision or tolerance of nutrients.
- Inadequate weight gain or a significant decrease in an individual's usual growth percentile.

Nutrition Care. Interventions and counseling of individuals on appropriate nutrition intake by integrating information from the nutrition assessment. Nutrition therapy, a component of medical treatment, includes oral, enteral, and parenteral nutrition.

Nutrition Screening. The process of identifying characteristics known to be associated with nutrition problems. Its purpose is to pinpoint individuals who are nutritionally-at-risk for malnutrition or are malnourished.

Nutrition Support Service or Team. A multidisciplinary group of health care professionals with expertise in nutrition who aid in the provision of nutrition support.

Nutrition Therapy. The provision of nutrients and any necessary adjunctive therapeutic agents to patients orally or by administration into the stomach, intestine, and/or by IV infusion for the purpose of improving or maintaining a patient's nutritional status.

Outcome. The measured result of the performance of a system or process.

Parenteral Nutrition. Nutrients provided intravenously. *Central.* Parenteral nutrition delivered into a large diameter vein, usually the superior vena cava. *Peripheral.* Parenteral nutrition delivered into a peripheral vein, usually of the hand or forearm.

Pharmacodynamics. The effects of drugs on tissues and organisms.

Pharmacokinetics. Study of the absorption, distribution, biotransformation, and excretion of drugs by the body.

Practice Guideline. Systematically developed statement to assist practitioner and patient decisions about appropriate health care for specific circumstances. Statements suggesting the proper indications for doing a procedure or treatment or the proper management for specific clinical problems.

Quality Assurance. See quality assessment and improvement.

Quality assessment and improvement. Any procedure, method, or philosophy for collecting, processing, or analyzing data that is aimed at maintaining or improving the appropriateness and reliability of nutrition care services.

Quality Assessment and Improvement Criteria. Objective limits for analysis of process or clinical outcomes.

Specialized Nutrition Support. Provision of specially formulated and/or delivered parenteral or enteral nutrients to maintain or restore optimal nutritional status.

Standard. The benchmark representing a range of performance of competent care that should be provided to assure safe and efficacious nutrition care (ie, parenteral or enteral nutrition therapy).

Total Nutrient Admixture. A parenteral nutrition formulation containing carbohydrate, amino acids, lipid, vitamins, minerals, trace elements, water, and other additives in a single container.

Transitional Feeding. Progression from one mode of feeding to another, while continuously administering estimated nutrient requirements.

Chapter I. Scope of Practice

The practice of specialized nutrition support has been recognized as a specialty area within the profession of pharmacy. The Nutrition Support Pharmacist may practice in a variety of settings, including acute and subacute care facilities, ambulatory clinics, skilled nursing facilities, and home care and may serve patients across the continuum of care. The specialized nutrition support program provided within each health care institution should ideally be interdisciplinary in structure and design. The Nutrition Support Pharmacist should be able to work collaboratively with other disciplines to promote optimal nutrition care to all patients within the practice setting. The scope of practice includes, but is not limited to: direct patient care; administrative management of the specialized nutrition support program; quality improvement; education of pharmacists and other health care professionals, patients, students, and the public; and research.

Chapter II. Criteria for Recognition as a Nutrition Support Pharmacist

1. The practice of specialized nutrition support varies with the individual pharmacist's position, education, and practice environment. However, certain minimum qualifications are required of all who practice specialized nutrition support.
2. The Nutrition Support Pharmacist shall document competence to practice specialized nutrition support. Demonstration of competence shall include documentation of the following:
 - a. A current, valid license to practice pharmacy in the United States of America or the equivalent in foreign countries.
 - b. Substantial practice time devoted to the practice of specialized nutrition support.
 - c. Documentation of one of the following criteria: Completion of an educational training program that includes specialized nutrition support. OR Active participation in the nutrition support service or committee of a health care entity responsible for development, implementation, and evaluation of protocols for administration of specialized nutrition support. OR Active participation (eg, leader, committee member) in one or more professional societies devoted to the promotion of safe and effective specialized nutrition support. OR Certification by the Board of Pharmaceutical Specialities as a Board Certified Nutrition Support Pharmacist (BCNSP).

Chapter III. Nutrition Assessment

1. The Nutrition Support Pharmacist may participate in nutrition screening to identify a patient who is, or who is at risk of becoming, malnourished.
 - a. The patient or caregiver may be interviewed to obtain the medical, surgical, nutrition, medication, psychosocial, and socioeconomic history.
 - b. The medical record shall be reviewed for disease states (including clinical condition), medical/ surgical therapies, pharmacotherapy, laboratory findings, and physical findings.
 - c. Physical and biochemical assessment parameters relevant to nutritional status may be measured and/or interpreted.
 - d. The Nutrition Support Pharmacist may document or verify the documentation of the patient's nutritional status in the medical record.
2. The Nutrition Support Pharmacist may participate in the assessment of the qualitative and quantitative nutrient requirements of the patient.
 - a. Daily energy and protein requirements may be estimated or measured.
 - b. Daily vitamin, mineral, and fluid requirements may be estimated.
 - c. The Nutrition Support Pharmacist may document or verify documentation of the patient's nutrition requirements in the medical record.
3. The Nutrition Support Pharmacist shall assess subjective and objective data to prevent and/or identify nutrient-nutrient, drug-nutrient, drug-drug, and drug-disease interactions.
4. The Nutrition Support Pharmacist may participate in the assessment of the appropriateness of the patient for specialized nutrition support.
5. The Nutrition Support Pharmacist may participate in the assessment of the educational needs of the patient, health-care professionals, and others regarding specialized nutrition support.

Chapter IV. Development and Implementation of the Nutrition Care Plan

1. The Nutrition Support Pharmacist shall participate in the development of the specialized nutrition care plan.
 - a. The nutrition care plan should be developed with an interdisciplinary approach involving the Nutrition Support Service, the patient's physician, and other health care personnel (2). The patient and/or family member(s) should be included in the development of the care plan.
 - b. The objective(s) of the nutrition care plan shall be determined and documented. The documentation should include immediate and long term-goals, anticipated duration of therapy, patient education, discharge planning, and, if necessary, home training.
 - c. The Nutrition Support Pharmacist shall help ensure that the nutrition care plan addresses the following: route and composition of formulation, pharmacologic adjuncts to nutrition support, nutrient delivery system, surveillance and management of therapy-associated complications, delivery of cost-effective care, and management of drug-nutrient interactions. All nutrition support care plans should be based on the most up-to-date medical evidence as it pertains to each individual disease state and/or clinical condition.
 - d. The nutrition care plan should address patient/ family education regarding the role of nutrition support therapy and the outcome of care.
2. The Nutrition Support Pharmacist shall participate in the implementation of the nutrition care plan.
 - a. The Nutrition Support Pharmacist shall communicate the individual nutrition care plan with other health care providers to ensure continuity of care.
3. The Nutrition Support Pharmacist shall facilitate the prescribing of the specialized feeding formulation, based on law and/or delineated professional privileges.

4. The Nutrition Support Pharmacist shall participate in the education of the patient and/or caretakers regarding the feeding formulation.

Chapter V. Compounding the Feeding Formulation

1. The Nutrition Support Pharmacist shall oversee policies and procedures related to the compounding and delivery of safe and effective parenteral feeding formulations.
 - a. Aseptic technique shall be strictly enforced for the compounding of parenteral formulations.
 - b. Appropriate labeling, according to national guidelines such as those established by the National Advisory Group on Standards and Practice Guidelines for Parenteral Nutrition (3) should be followed.
 - c. Methods for detection and/or prevention of formulation incompatibilities or instability shall be identified and employed.
 - d. Automated equipment for the preparation of parenteral formulations shall be maintained and updated appropriately.
2. The Nutrition Support Pharmacist may oversee policies and procedures related to the compounding and delivery of safe and effective enteral feeding formulations.
 - a. Maintenance of a clean area in the pharmacy for compounding of enteral feeding formulations.
 - b. Appropriate labeling should be performed.
 - c. Methods for detection and/or prevention of formulation incompatibilities.

Chapter VI. Monitoring

1. The Nutrition Support Pharmacist, in collaboration with other health care providers, shall monitor and evaluate the patient's response to therapy. Therapeutic efficacy and adverse effects shall be documented, and therapy goals shall be adjusted accordingly.
 - a. The Nutrition Support Pharmacist shall participate in the development of monitoring guidelines. These guidelines may include physical assessment, biochemical assessment, and subjective patient input regarding therapy tolerance.
 - b. Surveillance for complications associated with specialized nutrition support shall be performed and documented as delineated by the patient-specific nutrition care plan.
 - c. Frequency and extent of physical and laboratory assessment shall depend on the acuity of the patient and be congruent with the nutrition care plan.
2. Outcome measurements should be monitored to determine if therapy continuation or revisions are required.
3. The Nutrition Support Pharmacist shall participate in monitoring and evaluating pharmacotherapy used in conjunction with specialized nutrition support. Modification of pharmacotherapy regimens may result from both objective and subjective patient evaluation, based on properties of the specific drug adjuvant(s) and the patient's clinical goals.

Chapter VII. Management of Nutrition Support Services

The Nutrition Support Pharmacist, in collaboration with other health care providers, is competent to provide administrative management of the specialized nutrition support program. The Nutrition Support Pharmacist shall participate in practice management activities as appropriate to the individual's position, education, and practice environment.

1. The Nutrition Support Pharmacist may participate in development of policies and procedures (guidelines for use) for cost-effective patient-care aspects of specialized nutrition support (e.g. nutrition assessment, monitoring, patient selection, route of administration).
 - a. There shall be documentation of the regular review and revision of policies and procedures for the provision of specialized nutrition support.
2. The Nutrition Support Pharmacist may participate in the development of policies and procedures for operational aspects of specialized nutrition support (eg, labeling of feeding formulations, ordering procedures, compounding, quality control), according to national guidelines (3).
 - a. There shall be documentation of the regular review and revision of policies and procedures for the provision of specialized nutrition support.
3. The Nutrition Support Pharmacist may serve as a member of the nutrition support service or committee to coordinate the provision of specialized nutrition support.
4. The Nutrition Support Pharmacist may participate in the development and maintenance of an adequate and cost-effective nutrition support formulary.
5. The Nutrition Support Pharmacist may participate in the evaluation and selection of infusion control devices and supplies for specialized nutrition support.
6. The Nutrition Support Pharmacist may act as liaison between the nutrition support service and/or committee, medical staff, and providers of home nutrition support services, hospital administration, and others.
7. The Nutrition Support Pharmacist shall act as a nutrition support expert to health care providers, patients, and other caregivers.
 - a. The Nutrition Support Pharmacist should be involved in training those responsible for the preparation and administration of feeding formulations. This would include the stability and compatibility of feeding formulations and administration of concurrent medications.
8. The Nutrition Support Pharmacist may participate in interdisciplinary nutrition-related quality improvement activities (2). The Nutrition Support Pharmacist may:
 - a. Evaluate clinical practice.
 - b. Identify areas for quality monitoring.
 - c. Identify indicators (clinical, outcome, process).
 - d. Collect and analyze quality improvement data.
 - e. Formulate and implement plans to improve specialized nutrition support and/or patient outcomes.
 - f. Reevaluate plans to assess effectiveness.
9. The Nutrition Support Pharmacist may collaborate with other nutrition support team members to design and integrate nutrition support protocols into disease state management (e.g. critical pathways, clinical practice guidelines).

Chapter VIII. Advancement of Nutrition Support Pharmacy Practice

1. The Nutrition Support Pharmacist shall develop collaborative relationships with colleagues, students, patients and caregivers. This spirit of collaboration should contribute to optimal patient care, professional development of self and others, and advancement of the field of nutrition support.
2. The Nutrition Support Pharmacist shall participate in self-directed education to ensure professional competence as it relates to nutrition support pharmacy practice.

Chapter IX. Research

1. The Nutrition Support Pharmacist shall incorporate research findings into practice and may participate in research activities as appropriate to the individual's position, education, and practice environment.
2. The Nutrition Support Pharmacist may generate and analyze data to evaluate feeding formulations and nutrition support techniques, service, equipment, and supplies.
3. The Nutrition Support Pharmacist may design and/or conduct basic science and/or clinical research in areas such as nutrition support, nutrition medicine, clinical nutrition, and nutrition pharmacology.

Chapter X. Ethics

The Nutrition Support Pharmacist shall uphold the ethics of the profession of pharmacy. These actions include but are not limited to providing patient care activities that promote the compassionate and confidential care of patients receiving nutrition support under the professional competence of the Nutrition Support Pharmacist(4).

References

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