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## **Definition of Terms, Style, and Conventions Used in A.S.P.E.N. Board of Directors– Approved Documents**

American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Board of Directors and Clinical Practice Committee

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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. A.S.P.E.N. envisions an environment in which every patient receives safe, efficacious, and high quality patient care. A.S.P.E.N.'s mission is to improve patient care by advancing the science and practice of nutrition support therapy.

These definitions include many terms which were defined in the 1995<sup>1</sup> and 2005<sup>2</sup> definitions documents along with additional terms which were defined in the 2004 Safe Practices for Parenteral Nutrition<sup>3</sup> document, the 2007 Statement on Parenteral Nutrition Standardization,<sup>4</sup> and the 2009 Enteral Nutrition Practice Recommendations.<sup>5</sup> This Definition of Terms, Style and Conventions paper shall be used in conjunction with all A.S.P.E.N Board of Directors–approved documents including the following: Standards of Practice, Clinical Guidelines, Position and White Papers, and Bundles. [See A.S.P.E.N. Documents Library at <http://www.nutritioncare.org/Library.aspx> ]

## **A.S.P.E.N. Board of Directors–approved Documents (terms and definitions)**

**Standards:** Benchmarks representing a range of performance of competent care that should be provided to assure safe and efficacious nutrition care. Standards are documents that define the structure needed to provide competent care. They usually address professional responsibilities as they relate to patient assessment, diagnosis, education, care plan development, implementation, clinical monitoring, evaluation, and professional issues. A.S.P.E.N. publishes discipline-based (e.g., dietitian, nurse, pharmacist, or physician) and practice-based (e.g., adult hospitalized patients, pediatric hospitalized patients, home care, long-term care) standards. Standards are presented in the most generic terms possible. The details of specific tests, therapies, and protocols are left to the discretion of individual healthcare facilities. The Standards aim to assure sound and efficient nutrition care for those in need of nutrition support therapy.<sup>6</sup> The application of Standards is always subject to the judgment of the professional as applied to the individual case.

Publication: *Nutrition in Clinical Practice*

**Clinical Guidelines:** Systematically-developed statements to assist practitioner and patient decisions about appropriate nutrition care for specific clinical circumstances. Clinical Guidelines contain recommendations that are based on evidence from a rigorous systematic review and evaluation of the published medical literature.<sup>7</sup> These Guidelines may include categories such as screening, evaluation, assessment of therapeutic effectiveness, diagnosis, management, rehabilitation, risk assessment, prevention, counseling, technology assessment, or treatment relating either to a specific disease or condition or to a therapy, specifically nutrition support therapy. The application of Clinical Guidelines is always subject to the judgment of the professional as applied to the individual case.

Publication: *Journal of Parenteral and Enteral Nutrition*

**Position Paper:** A document that presents the official opinion of A.S.P.E.N. on a particular topic. These papers include a comprehensive review of the literature supporting the position taken.<sup>8</sup>

Publication: *Nutrition in Clinical Practice*

**White Paper:** An authoritative report or guide that often addresses problems and how to solve them.<sup>9</sup>

White papers are used to educate readers and help people make decisions, but do not include a direct opinion or position on the topic.

Publication: *Nutrition in Clinical Practice*

**Bundle:** A structured method of improving the processes of patient care and patient outcomes. This is typically implemented as a small set of specific practices (3-5) that have been proven to improve outcomes when performed together and reliably.<sup>10</sup>

Publication: *Journal of Parenteral and Enteral Nutrition*

## Definition of Terms

The following terms are used in A.S.P.E.N. documents approved by the Board of Directors:

**Administer:** The act of delivering substance(s) to an individual by a prescribed dosage and route.

**Administration:** The physical delivery of substance(s) to individuals.

**Admixture:** The result of combining 2 or more fluids.

**Adolescent:** 11 years to 21 years of age.<sup>11</sup>

**Adverse Event:** An adverse event is any undesirable experience associated with the use of a medical product in a patient. The adverse event is serious when the patient outcome is: death, life-threatening, hospitalization (initial or prolonged), disability or permanent damage, congenital anomaly / birth defect, required intervention to prevent permanent impairment or damage (devices) or other serious outcomes (important medical events).<sup>12</sup>

**Automated Compounding Device:** A device that compounds parenteral preparations. When relating to parenteral nutrition, it transfers large-volume parenterals such as dextrose, amino acids, fat emulsion, and sterile water, as well as small-volume parenterals including electrolytes, minerals, and vitamins to the final parenteral nutrition container. (adapted from Safe Practices for Parenteral Nutrition<sup>3</sup>)

**Beyond-Use Date:**

- (parenteral): The date or time after which a compounded sterile preparation shall not be stored or transported. The date is determined from the date or time the preparation is compounded.<sup>13</sup>
- (enteral): The date established by healthcare professionals recommended in the published literature or manufacturer-specific recommendations beyond which the facility-prepared product should not be used. This definition also includes closed enteral feeding systems that do not require facility preparation, but for which the manufacturer's expiration date is no longer valid once the product is spiked with an enteral administration set. (adapted from Enteral Nutrition Practice Recommendations<sup>5</sup>)

**Birth Weight:** First weight of the fetus or newborn obtained after birth.<sup>14</sup>

- Low Birth Weight: weight of less than 2500 g (up to and including 2499 g).
- Very Low Birth Weight: weight of less than 1500 g.
- Extremely Low Birth Weight: weight of less than 1000 g.

**Body Weight:** [see Weight]

**Calorie:** In metabolic studies, the Calorie (equivalent to 1000 calories or 1 kilocalorie [kcal]) is the amount of heat energy required to raise or lower 1 kg of pure liquid water by 1°C. The Calorie is used in nutrition to

express the energy content of food.<sup>15</sup> *Calorie* should only be used in the quantification of *energy*. [also see *Energy*]

**Care Plan:** Design (or scheme) of professional clinical activities developed to implement and achieve treatment goals.

**Child:** 12 months to 11 years of age.<sup>11</sup>

**Closed Enteral System:** A closed enteral container pre-filled with sterile, liquid formula by the manufacturer which is considered ready to hang.<sup>16</sup>

**Compatibility:** The ability to combine 2 or more products such that the physical integrity and stability of each product is not altered when combined. By contrast, incompatibility refers to the physical alteration of a product when combined with 1 or more other products as a result of concentration or temperature-dependent reactions (e.g., precipitation) that can alter activity or stability. (adapted from *Safe Practices for Parenteral Nutrition*<sup>3</sup>)

**Computerized Prescriber Order Entry:** An electronic clinical information system in which the prescriber enters orders directly into a computer. (adapted from *Safe Practices for Parenteral Nutrition*<sup>3</sup>)

**DEHP:** di (2-ethylhexyl) phthalate, a plasticizer used in various intravenous administration sets or plastic infusion bags.<sup>3</sup>

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

- **Regular Diet or Normal Diet:** A full, well-balanced diet containing all of the essential nutrients needed for optimal growth, tissue repair, and normal functioning of the organs. Such a diet contains foods rich in proteins, carbohydrates, high-quality fats, minerals, and vitamins in proportions that meet the specific nutrient requirements of the individual. (adapted from *Mosby's Medical Dictionary*, 8th ed. Regular diet.<sup>17</sup>)
- **Therapeutic Diet:** A diet used as part of a treatment of a disease or clinical condition to eliminate, decrease, or increase certain substances in the diet. (adapted from *Nutritional Deficiencies in Long-term Care, Part III: OBRA Regulations and Administrative and Legal Issues*,<sup>18</sup> and *Liberalization of the Diet Prescription Improves Quality of Life for Older Adults in Long-term Care* [American Dietetic Association]<sup>19</sup>)

**Dosing Weight:** A patient-specific weight determined and used by the clinician to arrive at a specific nutrient dose. Determination of dosing weight is dependent on institutional or professional preference; the dosing weight may be the actual, ideal, or adjusted body weight of the individual.

**Drug-Drug Interaction:** A pharmacokinetic or pharmacodynamic interaction between 2 or more drugs that might result in a therapeutic, subtherapeutic, or suprathreshold clinical response.

**Drug-Nutrient Interaction:** An event that results from a physical, chemical, physiologic, or pathophysiologic relationship between a drug and nutrient status, nutrient(s), or food in general, which is clinically significant if drug response is altered or nutrition status is compromised. (adapted from *An Approach to Evaluating Drug-nutrient Interactions*<sup>20</sup>)

**Energy:** Required to sustain the body's various functions by oxidation (primarily carbohydrates, fats, and amino acids), yielding the chemical energy needed to sustain metabolism, nerve transmission, respiration, circulation, and physical work. [also see *Calorie*]  
(adapted from Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids (Macronutrients)<sup>21</sup>)

**Enteral Access Device:** Tube placed directly into the gastrointestinal tract for the delivery of nutrients and/or drugs.

**Enteral Misconnection:** An inadvertent connection between an enteral feeding system and a non-enteral system such as an intravascular line, peritoneal dialysis catheter, tracheostomy, medical gas tubing, etc.<sup>22</sup>

**Enteral Nutrition:** Feeding provided through the gastrointestinal tract via a tube, catheter, or stoma that delivers nutrients distal to the oral cavity. Enteral nutrition to be used in preference to "enteral feeding".

**Expiration Date:**

- (foods): "Generally, 'expiration' dates and 'use-by' dates are the last dates that the manufacturer *recommends* a food item be consumed to ensure peak quality and nutrient retention. However, there is no regulation requiring that manufacturers mark their product with such dates. The one exception to these general rules is infant formula. The Food and Drug Administration (FDA) requires manufacturers mark infant formula with a 'use-by' date. Additionally, the FDA prohibits the sale of infant formula after the use-by date."<sup>23</sup>
- (drugs): Identifies the time during which the drug product may be expected to meet the requirements of the compendial monograph, provided it is kept under the prescribed storage conditions; limits the time during which the article may be dispensed or used. Where an expiration date is stated only in terms of the month and year, it is a representation that the intended expiration date is the last day of the stated month. (adapted from United States Pharmacopeia. General Notices and Requirements<sup>24</sup>)

**Geriatric:** An adult 65 years of age or greater.<sup>25</sup>

**Hang Time (for enteral nutrition):** The length of time a formulation is considered safe for administration to the patient beginning with the time the formulation has been compounded, reconstituted, warmed, decanted, or has had the original package seal broken. (adapted from Enteral Nutrition Practice Recommendations<sup>5</sup>)

**Indicators:** Prospectively-determined measures used as normative standards within a performance improvement process.

**Infant:** Birth to 12 months of age.<sup>11</sup>

**Intravenous Fat Emulsion:** An intravenous oil-in-water emulsion of oils(s), egg phosphatides, and glycerin. The term should be used in preference to lipids.<sup>3</sup>

**Macronutrient:** Nutrients that are required in relatively large amounts and can be metabolized to produce energy (carbohydrates, proteins, fats).

**Malnutrition:** An acute, subacute or chronic state of nutrition, in which a combination of varying degrees of overnutrition or undernutrition with or without inflammatory activity have led to a change in body composition and diminished function. (adapted from Soeters PB, Schols AM. Advances in understanding and assessing malnutrition <sup>26</sup>)

The 3 etiology-based nutrition diagnoses in adults in clinical practice settings are:

- Starvation-related malnutrition: chronic starvation without inflammation (e.g., anorexia nervosa)
- Chronic disease-related malnutrition: inflammation is chronic and of mild to moderate degree (e.g., organ failure, pancreatic cancer, rheumatoid arthritis or sarcopenic obesity)
- Acute disease or injury-related malnutrition: inflammation is acute and of severe degree (e.g., major infection, burns, trauma or closed head injury)<sup>27</sup>

**Medical Food:** "...a food which is formulated to be consumed or administered enterally under the supervision of a physician and which is intended for the specific dietary management of a disease or condition for which distinctive nutritional requirements, based on recognized scientific principles, are established by medical evaluation"<sup>28</sup> as defined in section 5(b) of the Orphan Drug Act (21 U.S.C. 360ee (b) (3)).

**Medical Nutrition Therapy:**

- Two phases of (a) assessment of the nutrition status of the patient or client, and (b) treatment which includes diet therapy, counseling, or use of specialized nutrition supplements. The services of qualified health professionals are provided in a variety of settings, including inpatient and outpatient services (e.g., consultations provided in a home, office, school, ambulatory or institutional setting). (adapted from Identifying Patients at Risk: ADA's Definitions for Nutrition Screening and Nutrition Assessment <sup>29</sup>)
- (Pertaining to reimbursement of services) Nutrition diagnostic, therapeutic, and counseling services provided by a registered dietitian or nutrition professional for the purpose of managing diabetes or a renal disease. (adapted from Medicare Program; Revisions to Payment Policies and Five-year Review of and Adjustments to other Relative Value Units under the Physician Fee Schedule Calendar for Year 2002<sup>30</sup>)

**Micronutrient:** Nutrients present and required in the body in minute quantities (e.g., vitamins, trace elements).

**Minimum Data Set:** Part of the federally mandated process for clinical assessment of all residents in Medicare- or Medicaid-certified nursing homes. This process provides a comprehensive assessment of each resident's functional capabilities and helps nursing home staff identify health problems. Resident Assessment Protocols are part of this process, and provide the foundation upon which a resident's individual care plan is formulated.<sup>31</sup>

**Modular Enteral Feeding:** Formulation created by combination of separate nutrient sources or by modification of existing formulations.

**Multi-Chamber Bag:** A container designed to promote extended stability of a parenteral nutrition formulation by separating some components (e.g., intravenous fat emulsion) from the rest of the formulation. It consists of 2 or more chambers separated by a seal or tubing that is clamped. At the time of administration, the seal or clamp is opened to allow the contents of the chambers to mix and create an admixture. (adapted from Safe Practices for Parenteral Nutrition<sup>3</sup>)

Neonate: An infant during the first 4 weeks (28 days) of life.<sup>32,33</sup>

Nutrient: Protein, carbohydrate, lipid, vitamins, minerals, or water.

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

- Nutrition vs. Nutritional:
  - 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, and so on.

Nutrition Assessment: A comprehensive approach to diagnosing nutrition problems that uses a combination of the following: medical, nutrition, and medication histories; physical examination; anthropometric measurements; and laboratory data.

Nutritionally-at-Risk Neonates: Neonates should be considered at nutrition risk if they have any of the following:

- Low birth weight (<2500 g) even in the absence of gastrointestinal, pulmonary, or cardiac disorders.<sup>34</sup>
- Birth weight greater 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.

Nutritionally-at-Risk Children: Children should be considered at nutrition risk if they have any of the following:

- A weight for length or weight for height or sex less than the 10th percentile or greater than the 95th percentile.<sup>30</sup>
- Body mass index for age or sex less than 5th percentile or greater than the 85th percentile.<sup>35</sup>
- Increased metabolic requirements.<sup>29</sup>
- Impaired ability to ingest or tolerate oral feedings.<sup>29</sup>
- Documented inadequate provision of or tolerance of nutrients.<sup>31</sup>
- Inadequate weight gain or a significant decrease in usual growth percentile.<sup>31</sup>

Nutritionally-at-Risk Adults: Adults may be considered at nutrition risk if they have any of the following:

- Involuntary loss of  $\geq 10\%$  of usual body weight within 6 months, or involuntary loss of  $\geq 5\%$  of usual body weight in 1 month.<sup>36</sup>
- Involuntary loss or gain of 10 pounds within 6 months.<sup>37</sup>
- Body mass index less than  $18.5 \text{ kg/m}^2$  or greater than  $25 \text{ kg/m}^2$ .<sup>38</sup>
- Chronic disease.<sup>31</sup>
- Increased metabolic requirements.<sup>31</sup>
- Altered diets or diet schedules.<sup>31</sup>
- Inadequate nutrition intake, including not receiving food or nutrition products for greater than 7 days.<sup>39</sup>

Nutrition Care: Interventions, monitoring, and evaluation designed to facilitate appropriate nutrient intake based upon the integration of information from the nutrition assessment.

Nutrition Care Plan: A formal statement of the nutrition goals and interventions prescribed for an individual using the data obtained from a nutrition assessment. The plan should include statements of nutrition goals and monitoring/evaluation parameters, the most appropriate route of administration of nutrition therapy, method of nutrition access, anticipated duration of therapy, and training and counseling goals and methods.

Nutrition Screening: A process to identify an individual who may be malnourished or at risk for malnutrition to determine if a detailed nutrition assessment is indicated.

Nutrition Support Process: The assessment, diagnosis, ordering, preparation, distribution, administration, and monitoring of nutrition support therapy.

Nutrition Support Team (or Service): An interdisciplinary group which may include physicians, nurses, dietitians, pharmacists, and/or other healthcare professionals with expertise in nutrition who manage the provision of nutrition support therapy. [When first used in a document, the expression "Nutrition Support Team (also referred to as Nutrition Support Service)" will be used]

Nutrition Support Specialist: A healthcare professional with specialized training and/or experience in nutrition support therapy. The specialized training may include independent or formalized education endeavors. Specialists may be recognized with specialty certification.

Nutrition Support or Nutrition Support Therapy: Parenteral and/or enteral nutrition.

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

Open Enteral System: A feeding system in which the clinician/patient/caregiver is required to decant formula into the enteral container. (adapted from Enteral Nutrition Practice Recommendations<sup>5</sup>)

Osmolality: The measured osmotic concentration of a liquid expressed in osmoles or milliosmoles per kilogram of solvent (Osmol per kg or mOsmol per kg, respectively). Osmolality is a measure of the osmotic pressure exerted by a liquid across a semipermeable membrane. (adapted from USP <785> Osmolality and Osmolarity<sup>40</sup>)

**Osmolarity:** The theoretical, calculated osmotic concentration of a liquid expressed in osmoles or mOsmol per liter of a solution; used in clinical practice because it expresses osmoles as a function of volume. Osmolarity cannot be measured, only calculated. (adapted from USP <785> Osmolality and Osmolarity<sup>40</sup>)

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

**Oral Nutrition:** Nutrients taken by mouth.

**Parenteral Nutrition:** The intravenous administration of nutrients. (Parenteral nutrition to be used in preference to "parenteral feeding".)

- **Central:** Parenteral nutrition delivered into a large-diameter vein, usually the superior vena cava adjacent to the right atrium.
- **Peripheral:** Parenteral nutrition delivered into a peripheral vein, usually of the hand or forearm.<sup>3</sup>

**Pediatrics:** Includes the growth, development, and health of the child and therefore begins in the period before birth when conception is apparent. It continues through childhood and adolescence when the growth and developmental processes are generally completed. The responsibility of pediatrics therefore may begin during pregnancy and usually terminates by 21 years of age.<sup>41</sup>

**Pharmacodynamics:** The study of the biological effects resulting from the interaction between drugs and biological systems.<sup>42</sup>

**Pharmacokinetics:** The study of the absorption, distribution, metabolism, and elimination of drugs in patients.<sup>43</sup>

**Preparation:** A food, drug, or dietary supplement (or mixtures thereof) compounded in a licensed pharmacy or other healthcare-related facility pursuant to the order of a licensed prescriber. (adapted from USP <797> Pharmaceutical Compounding—Sterile Preparations<sup>13</sup>)

**Product:** A commercially-manufactured food, drug, or dietary supplement. Drug products are accompanied by full prescribing information, which is commonly known as the Food Drug Administration-approved manufacturer's labeling or product package insert. (adapted from USP <797> Pharmaceutical Compounding—Sterile Preparations<sup>13</sup>)

**Sentinel Event:** An unexpected occurrence involving death or serious physical or psychological injury, or the risk thereof. Serious injury specifically includes loss of limb or function. The phrase "or the risk thereof" includes any process variation for which a recurrence would carry a significant chance of a serious adverse outcome.<sup>44</sup>

**Stability:** The extent to which a product retains, within specified limits and throughout its period of storage and use (i.e., its shelf-life), the same properties and characteristics that it possessed at the time of its preparation.<sup>45</sup>

**Standardized, Commercial Parenteral Nutrition Product:** A standardized parenteral nutrition formulation available from a manufacturer and requiring fewer compounding steps before administration. Current examples of these products are concentrated amino acids (with or without electrolytes) plus concentrated dextrose containers or multichamber bags of these products, often called *premixed solutions*.<sup>4</sup>

**Standardized Parenteral Nutrition Formulation:** A parenteral nutrition formulation intended to meet the daily maintenance requirements of a specific patient population (e.g., age-, stress-, or disease state-specific) and differentiated by route of administration (central vs. peripheral vein).<sup>4</sup>

**Total Nutrient Admixture:** A parenteral nutrition formulation containing intravenous fat emulsion as well as the other components of parenteral nutrition (dextrose, amino acids, vitamins, minerals, water, and other additives) in a single container.<sup>3</sup>

**Transitional Feeding:** Progression from one mode of feeding to another.

**Use-By Date:** (see Expiration Date)

**Vascular Access Device:** Catheter placed directly into the arterial or venous system for infusion therapy and/or phlebotomy. (adapted from Safe Practices for Parenteral Nutrition<sup>3</sup>)

**Weight / Body Weight:** Actual, measured body weight of an individual. The use of other body weights must be defined by the author(s). (see Dosing Weight)

## **Style, Symbols, and Abbreviations**

The following style, symbols, and abbreviations lists are used in all A.S.P.E.N. documents and publications to (1) promote consistency among the A.S.P.E.N. Standards and Clinical Guidelines documents and publications; and (2) promote consistency with national recommendations regarding patient safety including those produced by The Joint Commission and the Institute for Safe Medication Practices (ISMP) (Tables 1 through 6).

### **Style Convention**

1. The units of the International System of Units (SI) [e.g., metric system] and those units recognized for use with the SI are preferred to express the values of quantities. Equivalent values in other units may be used only when deemed necessary for the intended audience, e.g., kcal instead of joule. (adapted from International System of Units (SI) rules and style conventions<sup>46</sup>)
2. Place a space between the numerical value and unit symbols (e.g., 25 mg, never 25mg).<sup>46,47</sup>
3. Do not use trailing zeros for integers (e.g., 5 mg, never 5.0 mg).<sup>47,48</sup> Exception: A “trailing zero” may be used only where required to demonstrate the level of precision of the value being reported, such as for laboratory results, imaging studies that report size of lesions, or catheter/tube sizes.<sup>48</sup>
4. Always use leading zeros for numerical values less than 1 (e.g., 0.3, never .3).<sup>47,48</sup> Exception: certain statistical values such as  $\alpha$  levels or  $P$  values, should be reported without the use of 0 before the decimal marker.<sup>49</sup>
5. Unit symbols are unaltered in the plural (e.g., 175 cm, never 175 cms).<sup>46</sup>
6. Unit symbols are not followed by a period unless at the end of a sentence (e.g., 175 cm, never 175 cm.).<sup>46,47</sup>

7. Information is not mixed with unit symbols or names (e.g., “the water content is 20 mL/kg” never “20 mL H<sub>2</sub>O/kg” or “20 mL of water/kg”).<sup>46</sup>
8. Express drug products by generic name (use lowercase letters) as the primary drug nomenclature, ensuring that each matches Food and Drug Administration (FDA) or United States Pharmacopeia (USP)-approved nomenclature. Do not abbreviate drug names.<sup>47</sup> Do not use slang or stem names (e.g., “intravenous fat emulsion” is preferred to “lipids”).
9. Do not use proprietary, commercial trade names unless both of the following criteria are met: 1) Use of the trade name is essential for the reader to distinguish among similar products for clinical or research purposes, and 2) Specific evidence is provided to document or contrast the use of one product vs. another similar product. If a trade name is used, begin the trade name with a capital letter and include the appropriate legal symbol (e.g., ©, ®, or ™).
10. Use only standard abbreviations; use of nonstandard abbreviations can be confusing to readers. Avoid abbreviations in the title of the manuscript. The spelled-out abbreviation followed by the abbreviation in parenthesis should be used on first mention unless the abbreviation is a standard unit of measurement.<sup>49</sup>

**Table 1: Acceptable symbols (units of measure)<sup>a</sup>**

| Symbol           | Name                   | Symbol         | Name                   |
|------------------|------------------------|----------------|------------------------|
| kcal             | Kilocalorie            | Eq             | Gram-equivalent weight |
| g                | Gram                   | mEq            | Milliequivalent        |
| kg               | Kilogram               | mol            | Gram-molecular weight  |
| mg               | Milligram              | mmol           | Millimole              |
| mcg <sup>b</sup> | Microgram <sup>b</sup> | Osm or Osmol   | Osmole                 |
| ng               | Nanogram               | mOsm or mOsmol | Milliosmole            |
| pg               | Picogram               | s              | Second                 |
| L                | Liter                  | min            | Minute                 |
| dL               | Deciliter              | h              | Hour                   |
| mL               | Milliliter             | d              | Day                    |
| m                | Meter                  | mo             | Month                  |
| dm               | Decimeter              | wk             | Week <sup>50</sup>     |
| cm               | Centimeter             | y              | Year                   |
| mm               | Millimeter             | °C             | Degree Celsius         |

<sup>a</sup> All symbols from National Institute of Standards and Technology<sup>51</sup> or USP<sup>52</sup> except when specified.

<sup>b</sup> The µg symbol is acceptable in the scientific literature; however, ISMP<sup>47</sup> and The Joint Commission<sup>48</sup> recommend that mcg be used to avoid confusion with mg.

**Table 2: Acceptable symbol prefixes<sup>51</sup>**

| Symbol | Name and factor        | Symbol               | Name and factor         |
|--------|------------------------|----------------------|-------------------------|
| G      | giga; 10 <sup>9</sup>  | d                    | deci; 10 <sup>-1</sup>  |
| M      | mega; 10 <sup>6</sup>  | c                    | centi; 10 <sup>-2</sup> |
| k      | kilo; 10 <sup>3</sup>  | m                    | milli; 10 <sup>-3</sup> |
| h      | hecto; 10 <sup>2</sup> | μ (mc <sup>a</sup> ) | micro; 10 <sup>-6</sup> |
| da     | deka; 10 <sup>1</sup>  | n                    | nano; 10 <sup>-9</sup>  |

<sup>a</sup>The mu (μ) symbol is acceptable in the scientific literature; however, ISMP<sup>47</sup> and The Joint Commission<sup>48</sup> recommend that μ not be used as μg (e.g., mcg should be used to avoid confusion with mg. See Table 4).

**Table 3: Acceptable statistical symbols and abbreviations<sup>53</sup>**

| Symbol         | Name   | Symbol         | Name                                 |
|----------------|--|----------------|--------------------------------------|
| ∑              | Sum  | n              | Size of a subsample                  |
| ^              | Hat, used above a parameter to denote an estimate                        | N              | Total sample size                    |
| ANOVA          | Analysis of variance   | OR             | Odds ratio                           |
| α              | Alpha, probability of Type I error                                       | P              | Statistical probability              |
| β              | Beta, probability of Type II error; or population regression coefficient | X <sup>2</sup> | X <sup>2</sup> test or statistic     |
| CI             | Confidence interval  | r              | Bivariate correlation coefficient    |
| CV             | Coefficient of variation   | R              | Multivariate correlation coefficient |
| Δ              | Delta, change  | RR             | Relative risk                        |
| δ              | Delta, true sampling error   | ρ              | Rho, population coefficient          |
| ε              | Epsilon, true experimental error   | SD             | Standard deviation of a sample       |
| H <sub>0</sub> | Null hypothesis  | SE             | Standard error                       |
| H <sub>1</sub> | Alternate hypothesis; specify whether 1 or 2 sided                       | SEM            | Standard error of the mean           |
| κ              | Kappa statistic  | t              | Student t; specify α level           |
| μ              | Population mean  | U              | Mann-Whitney U (Wilcoxon) statistic  |
|                |  | z              | z score                              |

**Table 4: Non-acceptable symbols<sup>47,48</sup>**

| Symbol | Intended Meaning   | Misinterpretation   | Correction   |
|--------|--------------------|---|--|
| cc     | Cubic centimeter   | Misread as “U” or “4”<br>Note: cm <sup>3</sup> is SI nomenclature | mL for fluid volumes or cm <sup>3</sup> for solid volumes  |
| U or u | Unit               | Mistaken as the number 0 or 4                                     | Spell out “unit”   |
| µg     | Microgram          | Confusion with mg   | mcg  |
| IU     | International Unit | Confusion with IV   | Spell out International Unit (or Unit as appropriate)<br>[note: "IU" may be used in printed tables if horizontal space is an issue. "IU" should never be used in patient-care area clinical documents] |

**Table 5: Acceptable abbreviations**

Note: The full term which an abbreviation represents shall precede its first use in the text. This table only includes abbreviations common to nutrition support therapies. This table is not all-inclusive of medical abbreviations. For other sources of medical abbreviations see: "Medical Abbreviations and Eponyms" "Stedman's Medical Abbreviations, Acronyms and Symbols", &/or online sources such as <http://www.medilexicon.com/>

| Term       | Intended Meaning                                      | Term | Intended Meaning   |
|------------|---|------|--|
| A.S.P.E.N. | American Society for Parenteral and Enteral Nutrition | IVFE | Intravenous fat emulsion                                   |
| AGA        | Appropriate for gestational age                       | LBM  | Lean body mass   |
| AI         | Adequate intake                                       | LBW  | Low birth weight   |
| BEE        | Basal energy expenditure                              | LGA  | Large for gestational age                                  |
| BMI        | Body mass index                                       | NRI  | Nutritional risk index                                     |
| BMR        | Basal metabolic rate                                  | PCM  | Protein-calorie malnutrition                               |
| BUD        | Beyond use date                                       | PICC | Peripherally inserted central catheter                     |
| CPN        | Central parenteral nutrition                          | PINI | Prognostic inflammatory and nutritional index              |
| CQI        | Continuous quality improvement                        | PN   | Parenteral nutrition                                       |
| DRI        | Dietary reference intake                              | PNI  | Prognostic nutrition index                                 |
| EAR        | Estimated average requirement                         | PPN  | Peripheral parenteral nutrition                            |
| EER        | Estimated energy requirement                          | RDA  | Recommended dietary allowance                              |
| ELBW       | Extremely low birth weight                            | REE  | Resting energy expenditure                                 |
| EN         | Enteral nutrition                                     | RMR  | Resting metabolic rate                                     |
| FDA        | Food and Drug Administration                          | RNI  | Recommended nutrient intake                                |
| FFA        | Free fatty acids                                      | RQ   | Respiratory quotient                                       |
| FFM        | Fat free mass   | SDA  | Specific dynamic action                                    |
| FTT        | Failure to thrive                                     | SGA  | Small for gestational age, or Subjective global assessment |
| GI         | Gastrointestinal                                      | SVC  | Superior vena cava   |

|      |                                    |      |                              |
|------|------------------------------------|------|------------------------------|
| HM   | Human milk                         | TEE  | Total energy expenditure     |
| HEN  | Home enteral nutrition             | TNA  | Total nutrient admixture     |
| HPN  | Home parenteral nutrition          | UL   | Tolerable upper intake level |
| IBW  | Ideal body weight                  | USP  | United States Pharmacopeia   |
| IDPN | Intradialytic parenteral nutrition | VLBW | Very low birth weight        |
| IUGR | Intrauterine growth restriction    |      |                              |

**Table 6: Unacceptable abbreviations**

Abbreviations in this table shall not be used in A.S.P.E.N. Board of Directors-approved documents

| Symbol  | Intended Meaning  | Misinterpretation  | Correction                                     |
|---------|---|--|--|
| HA, HAL | Hyperalimentation   | Antiquated term for parenteral nutrition; unclear as to “hyper” amount of nutrients or hypertonic solutions  | PN, CPN, or PPN                                |
| HAS     | Hyperalimentation solution  | [See HA, HAL]  | PN, CPN, or PPN                                |
| MVI     | Multivitamin  | MVI is a registered trademark for “Multi-Vitamin Infusion”   | Spell out use                                  |
| NCP     | Nutrition Care Plan vs. American Dietetic Association’s “Nutrition Care Process” vs. <i>Nutrition in Clinical Practice</i> (A.S.P.E.N. journal) | Unclear as to which term   | Spell out use                                  |
| NST     | Nutrition Support Team vs. Nutrition Support Therapy  | Unclear as to which term   | Spell out use                                  |
| PEN     | Parenteral/enteral nutrition  | Combination term unclear when meaning one or the other therapy   | PN or EN                                       |
| SNS     | Specialized Nutrition Support   | This term and Artificial Nutrition Therapy are no longer to be used in A.S.P.E.N. documents  | Nutrition Support or Nutrition Support Therapy |
| TJC     | The Joint Commission  | “Officially, The Joint Commission does not use this abbreviation. There have been some exceptions, e.g., the social media realm where character space limitations exist.” <sup>a</sup> | Spell out full title                           |
| TPN     | Total parenteral nutrition  | Unclear as to total nutrients in formulation or totally by parenteral route  | PN, CPN, or PPN                                |

<sup>a</sup> Frank Barancyk, October 6, 2009, *personal communication*, Internet/Intranet Communications Manager, Communications, The Joint Commission.

## References

- <sup>1</sup> A.S.P.E.N. Board of Directors. Definitions of terms used in A.S.P.E.N. guidelines and standards. *Nutr Clin Pract.* 1995;10(1):1-3.
- <sup>2</sup> A.S.P.E.N. Board of Directors and Standards Committee. Definitions of terms, style, and conventions used in A.S.P.E.N. guidelines and standards. *Nutr Clin Pract.* 2005;20(2):281-285.
- <sup>3</sup> Mirtallo J, Canada T, Johnson D, et al: Task Force for the Revision of Safe Practices for Parenteral Nutrition. Safe practices for parenteral nutrition (Erratum in: *JPEN J Parenter Enteral Nutr.* 2006;30(2):177.). *JPEN J Parenter Enteral Nutr.* 2004;28(6): S39–S70.
- <sup>4</sup> A.S.P.E.N. Board of Directors and Task Force on Parenteral Nutrition Standardization: Kochevar M, Guenter P, Holcombe B, Malone A, Mirtallo J. A.S.P.E.N. statement on parenteral nutrition standardization. *JPEN J Parenter Enteral Nutr* 2007; 31:441–448.
- <sup>5</sup> Bankhead R, Boullata J, Brantley S, et al; A.S.P.E.N. Board of Directors. Enteral nutrition practice recommendations. *JPEN J Parenter Enteral Nutr.* 2009;33(2):122-167.
- <sup>6</sup> A.S.P.E.N. Board of Directors. A.S.P.E.N. Standards Policy. Internal Board Document. 2008.
- <sup>7</sup> Committee to Advise the Public Health Service on Clinical Practice Guidelines. Institute of Medicine. *Clinical Practice Guidelines: Directions for a New Program.* Washington, DC: National Academy Press;1990:38.
- <sup>8</sup> United Nations Association of the United States of America. Position papers, model UN preparation guide. <http://www.unausa.org/Page.aspx?pid=521>. Accessed April 18, 2012.
- <sup>9</sup> About Freelance Writing. On Writing White Papers as a Freelance Writer. About Freelance Writing. <http://aboutfreelancewriting.com/articles/writingspecialties/whitepapers.htm>. Accessed April 18, 2012.
- <sup>10</sup> Haraden C. What is a bundle? <http://www.ihl.org/knowledge/Pages/ImprovementStories/WhatIsaBundle.aspx> . . Accessed April 18, 2012.
- <sup>11</sup> Committee on Practice and Ambulatory Medicine, Bright Futures Steering Committee. Recommendations for preventive pediatric health care. American Academy of Pediatrics web site. <http://aappolicy.aappublications.org/cgi/content/full/pediatrics ;105/3/645>. Revised December 1, 2007. Accessed April 18, 2012.
- <sup>12</sup> US Food and Drug Administration. Safety, What is a Serious Adverse Event? <http://www.fda.gov/safety/medwatch/howtoreport/ucm053087.htm>. Accessed April 23, 2012.
- <sup>13</sup> Pharmaceutical compounding—sterile preparations, General Chapter <797>, In: *The United States Pharmacopeia, 34th rev., and The National Formulary, 29th ed.* Rockville, MD: The United States Pharmacopeial Convention; 2012:336-74..

- 
- <sup>14</sup> World Health Organization Statistical Information System (WHOSIS). Indicator definitions and metadata, 2008. World Health Organization web site. <http://www.who.int/whosis/indicators/compendium/2008/2bwn/en/> . Accessed April 19, 2012.
- <sup>15</sup> American Medical Association. *AMA Manual of Style: A Guide for Authors and Editors*, 10th ed. New York, NY: Oxford University Press; 2007:796-797.
- <sup>16</sup> Hsu TC, Chen NR, Sullivan MM, et al. Effect of high ambient temperature on contamination and physical stability of one-liter ready-to-hang enteral delivery systems. *Nutrition*. 2000;16(3):165-167.
- <sup>17</sup> *Mosby's Medical Dictionary*, 8th ed. Regular diet. The Free Dictionary. <http://medical-dictionary.thefreedictionary.com/regular+diet> . Accessed April 19, 2012.
- <sup>18</sup> Thomas ER, Kamel H, Morley JE. Nutritional deficiencies in long-term care, Part III: OBRA regulations and administrative and legal issues. *Annals of Long-Term Care: Clinical Care and Aging*. 1998;6(10):325-332.
- <sup>19</sup> American Dietetic Association. Position of the American Dietetic Association: liberalization of the diet prescription improves quality of life for older adults in long-term care. *J Am Diet Assoc*. 2005; 105(12):1955-1965.
- <sup>20</sup> Santos CA, Boullata JI. An approach to evaluating drug-nutrient interactions. *Pharmacotherapy*. 2005;25(12):1789-1800.
- <sup>21</sup> Panel on Macronutrients, Food and Nutrition Board, Institute of Medicine. Energy. In: *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids (Macronutrients)*. Washington DC: National Academies Press; 2005:107-264. [http://books.nap.edu/catalog.php?record\\_id=10490](http://books.nap.edu/catalog.php?record_id=10490) . Accessed April 19, 2012.
- <sup>22</sup> Guenter P, Hicks RW, Simmons D, et al. Enteral feeding misconnections: a consortium position statement. *Jt Comm J Qual Patient Saf*. 2008;34(5):285-292.
- <sup>23</sup> United States Department of Agriculture. Food Distribution National Policy Memorandum. [http://www.fns.usda.gov/fdd/policymemo/pmfd107\\_NSLP\\_CACF\\_SFSP\\_CSFP\\_FDPIR\\_TEFAP\\_CI-StorandInvMgmt.pdf](http://www.fns.usda.gov/fdd/policymemo/pmfd107_NSLP_CACF_SFSP_CSFP_FDPIR_TEFAP_CI-StorandInvMgmt.pdf). Published June 9, 2010. Accessed April 30, 2012.
- <sup>24</sup> United States Pharmacopeia. General Notices and Requirements, USP 32. <http://www.usp.org/search/site/General%20Notices%20and%20Requirements>. Accessed April 19, 2012.
- <sup>25</sup> American Geriatric Society. Aging & Health A to Z. <http://www.healthinaging.org/aging-and-health-a-to-z/topic/geriatrics/>. Accessed April 19, 2012.
- <sup>26</sup> Soeters PB, Schols AM. Advances in understanding and assessing malnutrition. *Curr Opin Clin Nutr Metab Care* 2009; 12(5):487-494.
- <sup>27</sup> Jensen GL, Mirtallo J, Compher C, Dhaliwal R, Forbes A et al. Adult starvation and disease-related malnutrition: A proposal for etiology-based diagnosis in the clinical practice setting from the International Consensus Guideline Committee. *JPEN J Parenter Enteral Nutr*. 2010;34(2):156-159.

- 
- <sup>28</sup> Food and Drug Administration. Medical foods, overview. U.S. Department of Health and Human Services web site. <http://www.fda.gov/Food/FoodSafety/Product-SpecificInformation/MedicalFoods/default.htm> . Updated May 18, 2009. Accessed April 19, 2012.
- <sup>29</sup> ADA Council on Practice Quality Management Committee. Identifying patients at risk: ADA's definitions for nutrition screening and nutrition assessment [Erratum in: *J Am Diet Assoc* 1994; 94(10):1101.]. *J Am Diet Assoc*. 1994;94(8):838-839.
- <sup>30</sup> Department of Health and Human Services, Centers for Medicare & Medicaid Services. Medicare Program; revisions to payment policies and five-year review of and adjustments to other relative value units under the physician fee schedule calendar for year 2002. *Federal Register*. November 1, 2001;66: 55331.
- <sup>31</sup> Centers for Medicare & Medicaid Services. MDS 2.0 Public quality indicator and resident reports. Department of Health and Human Services web site. <http://www.cms.hhs.gov/MDSPubQIandResRep/> . Modified March 15, 2012. Accessed April 19, 2012.
- <sup>32</sup> World Health Organization. Maternal, newborn, child and adolescent health, Newborn health epidemiology. [http://www.who.int/maternal\\_child\\_adolescent/epidemiology/newborn/en/](http://www.who.int/maternal_child_adolescent/epidemiology/newborn/en/) Accessed: April 24, 2012.
- <sup>33</sup> U.S. National Library of Medicine. MedlinePlus, Neonate. <http://www.nlm.nih.gov/medlineplus/ency/article/002271.htm>. Updated November 7, 2011. Accessed April 24, 2012.
- <sup>34</sup> Institute of Medicine. Anthropometric risk criteria. In: *WIC Nutrition Risk Criteria: A Scientific Assessment*. National Academies Press. 1996:67-148. [http://books.nap.edu/openbook.php?record\\_id=5071&pg67](http://books.nap.edu/openbook.php?record_id=5071&pg67) . Accessed April 19, 2012.
- <sup>35</sup> Centers for Disease Control. Use and interpretation of the CDC growth charts. <http://www.cdc.gov/nccdphp/dnpa/growthcharts/resources/growthchart.pdf> . Accessed April 19, 2012.
- <sup>36</sup> Blackburn GL, Bistran BR, Maini BS, Schlamm HT, Smith MF. Nutritional and metabolic assessment of the hospitalized patient. *JPEN J Parenter Enteral Nutr*. 1977;1(1):11-22.
- <sup>37</sup> White JV, Dwyer JT, Posner BM, Ham RJ, Lipschitz DA, Wellman NS. Nutrition screening initiative: development and implementation of the public awareness checklist and screening tools. *J Am Diet Assoc*. 1992;92(2):163-167.
- <sup>38</sup> World Health Organization. BMI classification. [http://apps.who.int/bmi/index.jsp?introPage=intro\\_3.html](http://apps.who.int/bmi/index.jsp?introPage=intro_3.html) . Updated April 19, 2012. Accessed April 19, 2012.
- <sup>39</sup> Braunschweig CL, Levy P, Sheean PM, Wang X. Enteral compared with parenteral nutrition: a meta-analysis. *Am J Clin Nutr*. 2001;74(4):534-542.

- 
- <sup>40</sup> Osmolality and osmolarity (general information chapter 785). In: *The United States Pharmacopeia, 30th rev., and The National Formulary, 25th ed.* Rockville, MD: The United States Pharmacopeial Convention; 2007:334-51.
- <sup>41</sup> American Academy of Pediatrics, Council on Child Health. Age limits of pediatrics. *Pediatrics*. 1998;102:249-250. Reaffirmed in: *Pediatrics*. 2006; 117:1846-7.
- <sup>42</sup> Lalonde RL. Pharmacodynamics. In: Evans WE, Schentag JJ, Jusko WJ, eds. *Applied Pharmacokinetics: Principles of Therapeutic Drug Monitoring*. Vancouver, WA: Applied Therapeutics; 1992:4-1-4-33.
- <sup>43</sup> Bauer LA. Clinical pharmacokinetics and pharmacodynamics. In: DiPero JT, Talbert RL, Yee GC, Matzke GR, Wells BG, Posey LM, eds. *Pharmacotherapy: A Physiologic Approach*. 6<sup>th</sup> ed. New York: McGraw Hill; 2005:51-73.
- <sup>44</sup> The Joint Commission. Sentinel event policy and procedures. <http://www.jointcommission.org/SentinelEvents/PolicyandProcedures/>. Revised January 2011. Accessed April 18, 2018.
- <sup>45</sup> Pharmaceutical Compounding---Nonsterile Preparations, General Chapter <795>, *The United States Pharmacopeia, 34th rev., and The National Formulary, 29th ed* Rockville, MD: The United States Pharmacopeial Convention; 2012: 330-36.
- <sup>46</sup> National Institute of Standards and Technology. International System of Units (SI), rules and style conventions. U.S. Department of Commerce Physics Laboratory. <http://physics.nist.gov/cuu/Units/rules.html>. Accessed April 19, 2012.
- <sup>47</sup> Institute for Safe Medication Practices. ISMP's list of error-prone abbreviations, symbols, and dose designations. <http://www.ismp.org/Tools/errorproneabbreviations.pdf>. Published 2012. Accessed April 19, 2012.
- <sup>48</sup> The Joint Commission. Facts about the Official "Do Not Use" List. [http://www.jointcommission.org/assets/1/18/Official\\_Do\\_Not\\_Use\\_List\\_6\\_111.PDF](http://www.jointcommission.org/assets/1/18/Official_Do_Not_Use_List_6_111.PDF) . Revised February, 2012. Accessed April 19, 2012.
- <sup>49</sup> International Committee of Medical Journal Editors (ICMJE). Uniform requirements for manuscripts submitted to biomedical journals: manuscript preparation and submission: preparing a manuscript for submission to a biomedical journal. <http://www.icmje.org/index.html> . Accessed April 19, 2012.
- <sup>50</sup> American Medical Association. *AMA Manual of Style: A Guide for Authors and Editors*, 10th ed. New York, NY: Oxford University Press; 2007:525.
- <sup>51</sup> National Institute of Standards and Technology. The NIST reference on constants, units and uncertainty, International System of Units (SI), SI base units. U.S. Department of Commerce Physics Laboratory. <http://physics.nist.gov/cuu/Units/units.html>. Accessed April 19, 2012.

---

<sup>52</sup> United States Pharmacopeial Convention. General notices and requirements. In: United States Pharmacopeial Convention, eds. *The United States Pharmacopeia (USP 32), The National Formulary (NF 27)*. Rockville, MD: United States Pharmacopeial Convention, Inc.; 2009.

<sup>53</sup> American Medical Association. *AMA Manual of Style: A Guide for Authors and Editors*, 10th ed. New York, NY: Oxford University Press; 2007:900-902