

Editorial Guidance for the Nutrition Care Process (NCPT) Terminology

The Nutrition Care Process Terminology is a standardized language for use in electronic health records, research, and reports to promote the consistency of nutrition care, for quality management and improvement efforts, and to communicate all aspects of the nutrition care process.

The NCPT is maintained by the Commission on Dietetic Registration's Nutrition Care Process and Terminology Committee (NCPTC) and its subcommittees (eg, NCPTC International Subcommittee, NCPTC Classification Subcommittee, NCPTC Advisory Subcommittee).

The most recent paper describing the nutrition care process terminology is Swan WI, Pertel DG, Hotson B, et al. Nutrition care process (NCP) update part 2: Developing and using the NCP terminology to demonstrate efficacy of nutrition care and related outcomes. *J Acad Nutr Diet*. 2019;119(5):840-855. doi:10.1016/j.jand.2018.10.025

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Editorial Guidance Intent

Editorial guidelines are intended to offer a consistent approach to the development and maintenance of the Nutrition Care Process Terminology (NCPT). Guidance may evolve over time as research advances and nutrition care changes. There are areas of the terminology that may lack editorial guidance. When possible, new guidance will be added. Updates to this guidance are provided as needed.

Editorial Guidance Audience

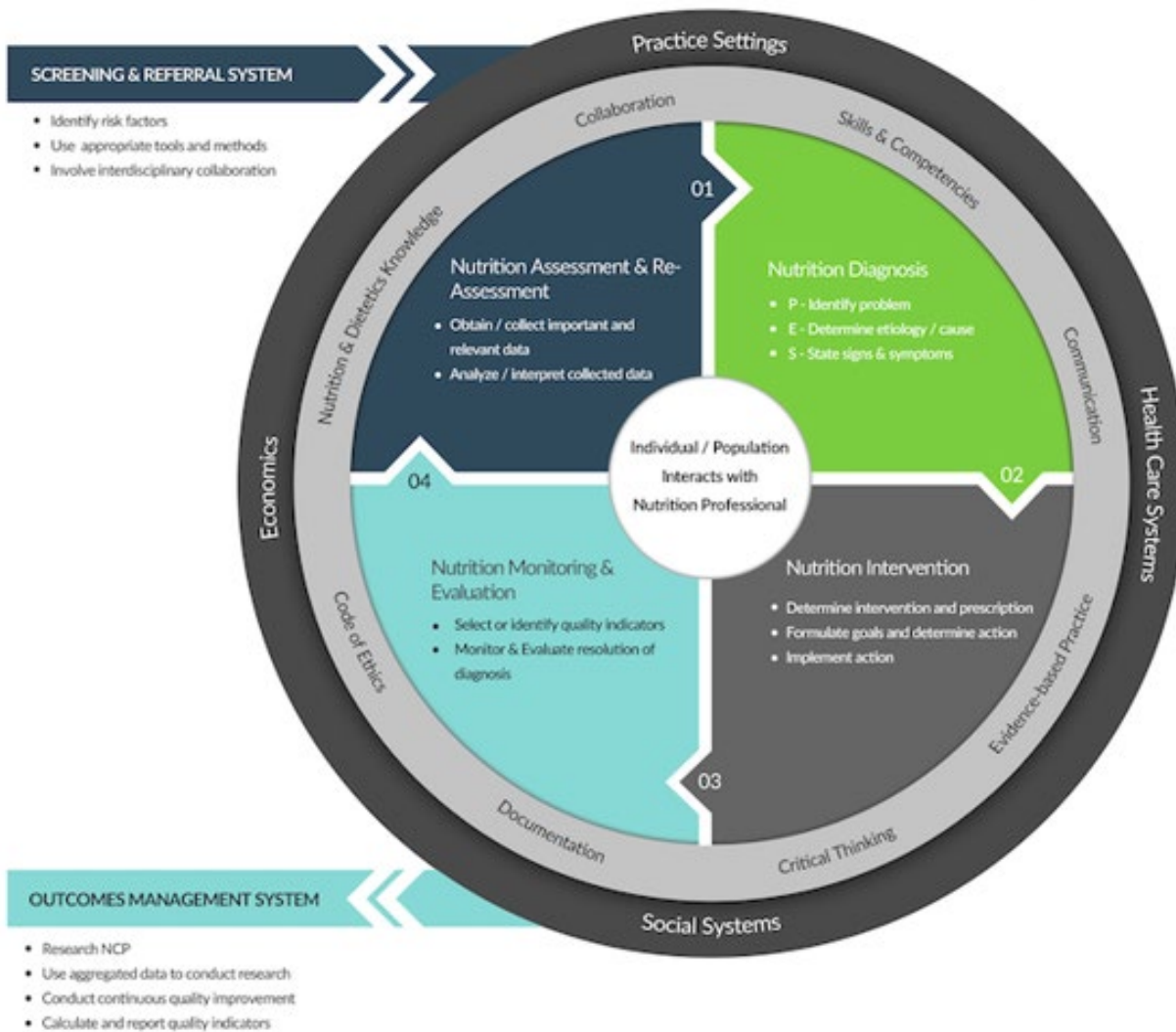
Editorial guidance is useful for professionals engaged in the development and maintenance of the NCPT, content expert contributors, translators of the terminology, researchers, terminology subcommittee and task force members, individuals involved in electronic standards setting, and NCPT implementers and users.

NCPT Model

Please refer to the current paper for a description of all aspects of the nutrition care process and model.

Swan WI, Vivanti A, Hakel-Smith NA, et al. Nutrition care process and model update: Toward realizing people-centered care and outcomes management. *J Acad Nutr Diet.* Dec 2017;117(12):2003-2014. doi:10.1016/j.jand.2017.07.015

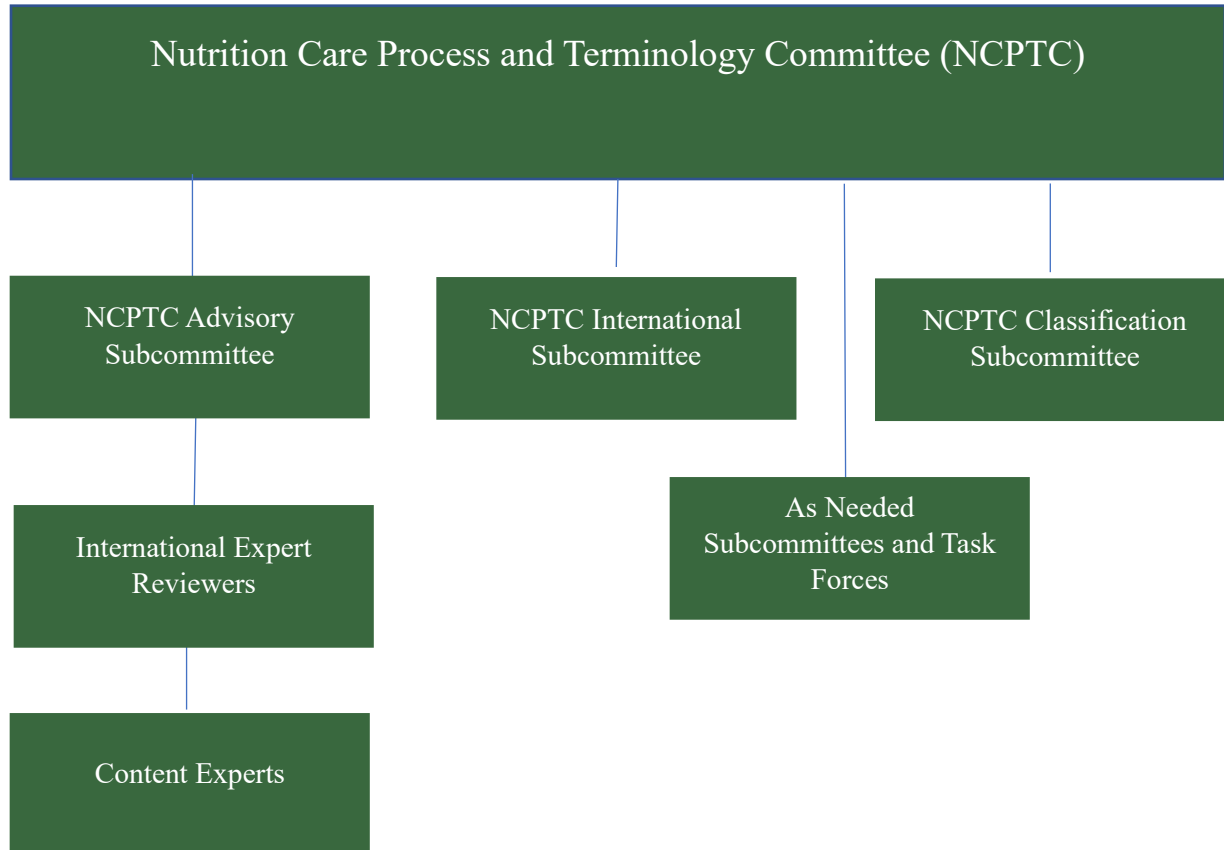
THE NUTRITION CARE PROCESS MODEL



Nutrition Care Process and Terminology Committee (NCPTC) and NCPT

NCPTC and its subcommittees are responsible for the maintenance of existing and development of new content in the NCPT.

The Committee and subcommittee structure:



Content experts assist and guide terminology development and revisions. Reviews of new and/or revised content may occur by additional international content experts. There are three subcommittees that include U.S. and international members to ensure content is fit for use in the profession and for inclusion in standardized health terminologies. All three include U.S. and international members:

- **NCP and Terminology Advisory Subcommittee:** This subcommittee receives the initial drafts of new and/or revised content once experts have provided input. The responsibility includes review of terms, their definitions and values (eg, mg/dL, present/absent, basic knowledge).
- **NCP and Terminology International Subcommittee:** This group reviews the content to ensure that it is consistent with international dietetics and nutrition research and practice. Clarity of content is important for facilitating translation of the content.

- **NCP and Terminology Classification Subcommittee:** This subcommittee ensures content is fit for use in the profession and for inclusion in standardized health terminologies.

The NCP and Terminology Committee, which also has U.S. and international membership, has the final review and approval of new and/or revised NCPT content and term placement within the NCPT hierarchy.

NCPT Maintenance and Distribution

Terminology maintenance is ongoing and evolves to meet the needs of the profession and quality improvement of the NCPT. The NCPTC oversees the NCPT maintenance process. A plan for term review, revision, and/or development is approved by the NCPTC Chair and Vice Chair annually and presented for approval by the Committee.

Maintenance processes include development by content experts with terminology consultant assistance, reviews by NCPTC subcommittees and staff, as well as new submissions or revisions: <https://www.ncpro.org/terminology-submission-process>. Research and/or evidence-based guidelines must accompany requests.

Final decision to include new or revised terms in NCPT is the purview of the Nutrition Care Process and Terminology Committee. A typical review cycle takes approximately four months with development of new concepts taking from a few months to up to 18 months for more complex terminology additions.

The terminology is available to subscribers of eNCPT (ncpro.org), the complete nutrition care process and terminology resource. Mappings to approved standardized health terminologies (e.g., Systematized Nomenclature of Medicine Clinical Terms [SNOMED CT] and Logical Observation Identifier Names and Codes [LOINC]) are fully accessible to subscribers.

Format for terminology distribution is under revision and this document will be updated as information becomes available.

Guidance about the terminology content in each distribution is provided in the materials. Definitions of structural aspects of the terminology (e.g., Academy of Nutrition and Dietetics Unique Identifier [ANDUID]) used are included as well. The status (i.e., e2019_to_e2020_Status) describes if a concept is created, inactivated, or changed since the previous release.

NCPT Structure

The NCPT is comprised of three (3) terminologies: Nutrition Assessment/Monitoring and Evaluation (NA/ME) Terminology, Nutrition Diagnostic (ND) Terminology, and Nutrition Intervention (NI) terminology. The NCPT concept, the root concept of the terminology for the profession of nutrition and dietetics, does not have a parent (supertype) concept. All other concepts within the terminology have one parent (supertype) concept. Some also have child (subtype) concepts.

An example of a parent and child relationship in the NCPT:

Parent (supertype) Energy intake (FH-1.1.1)

Child (subtype) concept of Estimated energy intake (FH-1.1.1.1).

Each concept has the following:

- At least one term description with a US English readable text of the concept (eg, Total energy estimated intake in 24 hours).
- One ANDUID . This is a unique 5 digit numerical code for each concept without any relationship to its meaning or its place in the term hierarchy (eg, 11383 is the ANDUID for the concept Total energy estimated intake in 24 hours).

A text definition to describe the exact meaning of a concept may be present. As concepts are added to NCPT, if they already exist in standardized health terminologies, a text definition is not required to be included in NCPT. Work to develop definitions for concepts that do not have them will occur as resources permit.

Granularity in the terminology varies based on the needs, knowledge, and requirements for communicating nutrition care. This also offers flexibility for electronic health record implementations at more or less granular levels.

Concept Inclusion: Overall Guidance

Concepts are included when they are:

- Understandable, reproducible, and useful, a principle held by SNOMED CT where most NCPT concepts are mapped and modeled. More on mapping and modeling can be found in the section on LOINC and SNOMED principles.
- Relevant to the nutrition care process and the nutrition and dietetics profession for inclusion in health records, research, and/or reports, including for quality improvement and management.

- Applicable to individuals, groups, populations, supportive individuals (eg, family members, care givers), and supportive structures (eg, social service agencies, faith-based organizations).
- Communicate meaningful, discreet nutrition related ideas. Often there is a desire to develop very granular terms. However, this can also pose challenges for users to distinguish between concepts and implementers to build useful electronic health records (EHRs). The NCPT aims to provide sufficient detail to communicate the nutrition care process and support identification of the outcomes of care.

New submissions or revisions to existing concepts are welcome at any time. The process for submitting a new concept or changes to an existing concept can be found here: <https://www.ncpro.org/terminology-submission-process>. Research and/or evidence-based guidelines must accompany requests.

Stakeholders involved in identifying new concepts or recommending changes to existing ones include:

- Nutrition Care Process and Terminology Committee (NCPTC) members
- Practitioners at large
- NCPTC subcommittees (eg, NCPTC International Subcommittee, NCPTC Classification Subcommittee, NCPTC Advisory Subcommittee)
- Researchers
- SNOMED Nutrition and Dietetics Clinical Reference Group (CRG)
- Collaboration partners (eg, International Dysphasia Diet Standardization Initiative, Gravity Project)
- Academy staff and consultants

Resources for the development of term descriptions and their definitions include:

- Nutrition and dietetics professionals. Development of terminology for the profession of nutrition and dietetics should be useful and understandable to persons who are members of the profession, users of the terminology, and/or those engaged in nutrition and dietetics research. This includes those who provide nutrition care to individuals, groups, populations, supportive individuals (eg, family members, care givers), and supportive structures (eg, social service agencies, faith-based organizations).
- Food and/or nutrition literature. Clear articulation of concepts must be supported by scientific literature and resources (eg, national or societal guidelines, government publications).

- The Academy’s Evidence Analysis Library, <https://www.anddeal.org/>.
- Other health professionals who work collaboratively with nutrition and dietetics professionals.
- Standardized health terminologies, SNOMED CT and LOINC, so terms align with their editorial guidance and can be authored if they do not already exist there:
 - SNOMED CT, <https://confluence.ihtsdotools.org/display/DOCEG>
 - LOINC editorial guide for which is located at <https://loinc.org/kb/users-guide/editorial-policies-and-procedures/>
- United States (US) federal agencies (eg, Food and Drug Administration, United States Department of Agriculture) and international regulatory bodies (eg, European Medicines Agency, Australian Department of Health Food Standards and Safety) who codify terminology and definitions that are used in the nutrition and dietetics profession.
- Health entities in the US (eg, National Institutes of Health, American Academy of Pediatrics) and international counterparts (eg, Swedish National Institute of Public Health) who define and describe medical concepts.
- PubMed, which should be consulted for current naming conventions and definitions.
- The NCPT itself. Concept construction should be undertaken with the current terminology and definition structure in mind.
- The Oxford English Dictionary (OED.com). The OED is the dictionary of the NCPT because it is the definitive dictionary for the English language. If there are questions about a word’s meaning for a concept or text definition, the definitions in the OED are considered.

Concept Exclusion: Overall Guidance

Not included in the terminology are:

- Vague concepts without a meaning in themselves, such as, other and specify. Previously these were included in NCPT, and every effort is being made to remove them since their meaning is unknown.
- Content that is outside of the nutrition and dietetics profession.
- Concepts represented in other terminologies may be deemed out-of-scope on a case-by-case basis.
- Nutrition screening is presently outside of the NCP and not included in the NCPT.
- While outcomes management processes are outside of the NCPT, the term concepts that are used to document or report nutrition care outcomes are in the NCPT.

Concept Hierarchy Placement

An opportunity to suggest hierarchy placement is offered in the term submission and/or revision application. Full understanding of a concept is needed to place that concept within one of the of three terminologies. At times there are concepts that could be considered for more than one location within an NCP terminology (eg, intake nutrition diagnoses vs clinical nutrition diagnoses); however, only one placement location is allowed.

Definitions of each step within the NCPT as well as the domains, classes, and subclasses should be consulted when considering the hierarchy placement. If a concept is accepted for inclusion in the NCPT or changes occur to the concept, the final decision for placement of the concept rests with the NCPTC.

Concept Construction

Each NCPT concept is unique and occurs only in one place in the NCPT. Related concepts, such as, protein intake, inadequate protein intake, and a modified protein diet are considered three different concepts because they are examples of nutrition assessment/monitoring and evaluation (NA/ME), nutrition diagnosis (ND), and nutrition intervention (NI) concepts associated with protein intake, respectively. A concept meaning amount of protein intake would not be acceptable as a new concept submission because protein intake already exists and conceptually these are believed to be the same idea. Because the nutrition assessment and monitoring and evaluation terminology are shared, separate concepts for protein intake assessment and protein intake monitoring and evaluation are not permitted since the outcome of these concepts is the same, the amount of protein consumed and/or infused. Only the timing of the protein intake is different, and this is documented in an electronic record automatically, or in reports, by indicating the sequence of the measures.

Standardized health terminology(ies) editorial guidance should be consulted when developing a concept. Whenever possible NCPT concepts require representation in an external standardized health terminology (ie, authoring, mapping, and modeling). Therefore, understanding how the concept will be represented in the designated standardized health terminology(ies) is necessary.

Please note that not all existing concepts in NCPT conform to current NCPT and standardized health terminology standards because many were drafted prior to these standards being developed or used as guidance. Quality improvement projects continue to align NCPT with standardized health terminology(ies) editorial guidance and improve the NCPT over time.

The following applies to all concepts in NCPT:

US English

The terminology is constructed using US English with correct spelling.

Articles

Articles, such as, *a*, *an*, and *the* are not included in a term description.

Capitalization

Capitalization occurs only in the first word of a term description except for proper nouns, vitamins that are designated by a letter (eg, Inadequate intake of vitamin D), and concepts that can only be accurately expressed by upper case (eg, pH).

Complete Term Concept

Each term description is complete on its own and should not require contextual clues from surrounding terms to understand its meaning. Instead of ‘Calcium’ as a term, examples of complete terms are: Estimated calcium needs in 24 hours, Inadequate intake of calcium. Ongoing quality improvement efforts aim to achieve this standard.

Conjunction

AND statements (e.g., protein *and* amino acid) are permitted if the concepts joined by *and* are always true for the term concept in all situations. If there needs to be an ‘or’ statement, then two different nutrition terms are required. Occasionally AND/OR statements can be included if clear (e.g., food and/or nutrition).

Estimated Versus Measured Term Concepts

If needed, estimated and/or measured terms can be added to the NCPT. Alternate words for estimated (ie, approximate) and measured (ie, known) are used in the definitions of the concepts but not in term descriptions.

A note is added to reference sheets that contain estimated and measured terms to explain that in most nutrition settings, food and nutrient intakes are estimates. The only exceptions are in research or care protocols that include exact measurement of intake.

International Terminology

As an international terminology, NCPT aims to minimize the use of US focused naming for concepts and the terminology explanatory materials in chapters and references sheets. Programs, such as, WIC (Women, Infants, and Children) program can be included if the idea is phrased generically—a food and nutrition program focused on women and children (eg, WIC) can be included. Reference intakes are another example of a concept that is referenced by explicitly stating Dietary Reference Intakes (DRIs) and Reference intakes in other countries.

Person-Centered Language

Person-centered language is a priority in NCPT construction and revisions. The terminology, and its supporting documents, have been developed over time and continue to evolve to include more person centered language, Revision of concepts, such as, replacement of ‘compliant’ with ‘adherent’ is ongoing. Synonyms have been used as an interim measure, but more person-centered language is desired in NCPT content.

Severity Language

Concepts expressing the severity (eg, mild, moderate, severe) of a term can be included in NCPT. Please note, if the appropriate standardized health terminology for the concept is SNOMED CT, current SNOMED CT editorial guidance may permit inclusion of severity concepts if there are internationally agreed upon definitions that are consistently used. If submitted and rejected by SNOMED International, inclusion in a country extension may be permitted. Additionally, severity can be managed by post-coordination of the term concept with a severity modifier.

Singular Term Concepts

The use of the singular form (e.g., meal) of a word is preferred to the plural form (e.g., meals). Exceptions include, but are not limited to, Total energy estimated intake in 24 hours (Food/Nutrition Related History), Estimated nutrient needs (Comparative Standards), and Imbalance of nutrients (Nutrient Intake Nutrition Diagnoses).

Term Character Limit

Every attempt should be made to make terms as concise as possible for ease of use in implementation of electronic health records, research, and/or reports. As for an absolute limit of characters, NCPT follows the SNOMED CT and LOINC Long Common Name 255-character limit for term construction.

Preference For Specific Words Throughout the NCPT

Client

Client has a defined meaning in the NCPT. Client refers to individuals, groups, populations, supportive individuals (e.g., family members, care givers), and supportive structures (eg, social service agencies, faith-based organizations). *Patient* is ideally never used because it is inconsistent with person-centered language.

Energy

Energy is the concept used in NCPT instead of calorie, kilocalorie (kcal), or kilojoule (kJ) because all three can be expressed with the idea of energy. Therefore, when providing explanatory information about terms with energy in them, the values include all three calorie, kcal, and kJ.

Enteral Nutrition

Enteral nutrition is defined as infusion of nutrients distal to the oral cavity via a tube inserted into the gastrointestinal tract. When nutrients are delivered via the enteral nutrition route, they are consistent with the SNOMED CT concept of gastroenteral route, which is defined as *A digestive tract route that begins in the gastrointestinal tract (from the upper esophagus through the rectum)*.

Food

The word food includes solid food (eg, fruit, vegetables) and liquid food (eg, ice cream, juice).

Food and/or Nutrition

Slash marks are almost always prohibited from term descriptions because this often represents more than one idea (eg, belief/attitude). One exception is *food and/or nutrition*, which can be included in terms when either or both (ie, and/or) could be involved. Therefore, in order for a slash to exist in a fully specified name, it must be used in conjunction with "and/or". A slash as a standalone character may be used in a synonym description to decrease character string length for display name purposes with the understanding that it carries the implied meaning of "and/or".

One solution to reduce the ambiguity of an and/or statement is the construction of separate food and nutrition terms. Firstly, there is a concern that this could lead to a significant increase in the number of terms, and secondly, food and nutrition ideas are often intertwined making documentation of two separate concepts difficult to consistently distinguish. Therefore, food and/or nutrition is permitted.

Yet, if food and/or nutrition can be expressed by *nutrition*, this word is considered broader than food.

Oral Nutrition

The description oral nutrition is used to accommodate oral intake of substances. The word dietary is not used as this may be perceived as pertaining only to food consumed orally as part of a diet. This may lead to omission of consumption of other substances via the oral route, such as nutrition supplements.

Parenteral Nutrition

Parenteral nutrition is defined as nutrients infused via a route other than the gastrointestinal tract (i.e., intravenous and/or intraperitoneal infusion). This can include parenteral nutrition that is the exclusive source of nutrition or partial source of nutrition for a person.

Thiamin

The spelling of thiamin, without an ‘e,’ is the preferred spelling of thiamin in NCPT. Please see the SNOMED CT section with a table on substances.

Vitamin C

Vitamin C is used to construct terms rather than ascorbic acid, although, these are considered the same substances. Please see the SNOMED CT section with a table on substances.

Synonyms

A synonym should have the same meaning as the concept and not be broader or narrower, and/or introduce or remove context. Some synonym descriptions use more person-centered language than the original term description; however, every attempt should be made to construct the original term description with person-centered language to avoid the need for synonyms. Approved synonyms are noted in the terminology reference materials and can be used throughout the nutrition care process terminology. Further, additional synonyms can be created and submitted for consideration for specific terms by using the terminology submission process: <https://www.ncpro.org/terminology-submission-process>.

Nutrition Assessment/Monitoring and Evaluation (NA/ME) Terminology Concepts

Nutrition assessment and monitoring and evaluation concepts are data that nutrition professionals collect, observe, and/or evaluate during the nutrition care process.

During nutrition assessment, nutrition and dietetics practitioners do the following three actions:

- **Review** observed and measured data collected for factors that affect nutritional and health status.
- **Cluster** data elements to identify a nutrition problem as described in the nutrition diagnosis reference sheets.
- **Identify** standards by which data will be compared.

Concept construction should be undertaken with the current NCP terminology and definition structure in mind. Following similar patterns will result in more consistent construction of terms.

Estimated and Measured NA/ME Concepts

Both are permitted to represent separate concepts in NCPT. Alternate words for estimated (i.e., approximate) and measured (ie, known) are used in the definitions of the concepts. No other synonyms for estimated and measured are recommended.

In most nutrition settings, food and nutrient intakes are estimates. The only exceptions are in research or care protocols that include exact measurement of intake. This note is added to the reference sheets that contain estimated and measured terms.

Liquid and Fluid Concepts

The need to express concepts as liquids (e.g., liquid meal replacement) and fluids (e.g., fluid needs) exists in NCPT. The idea of beverage is included in existing term descriptions but less desirable for new term development since this can have cultural implications that may not be applicable worldwide.

Nutrition Diagnostic (ND) Terminology Concepts

Nutrition diagnostic concepts include problems identified during the nutrition care process. One additional concept, No nutrition diagnosis at this time (NO-1.1), is also included in the Nutrition diagnostic terminology. This may be documented if the assessment indicates that no nutrition problem currently exists that warrants a nutrition intervention.

During the Nutrition Diagnosis step, nutrition and dietetics practitioners do the following:

- Identify the problem(s)
- Determine the etiology(ies) and the category (type) of etiology
- List the corresponding signs/symptoms

Concept construction should be undertaken with the current NCP terminology and definition structure in mind. Following similar patterns will result in more consistent construction of terms.

Nutrition Intervention (NI) Terminology Concepts

Nutrition intervention concepts are actions (e.g., diets, management, counseling, collaboration) that nutrition professionals engage in during the nutrition care process. Interventions might be further described with the following details: Nutrition and dietetics practitioners recommend, implement, or order nutrition interventions and the action(s) may be to initiate, modify or discontinue a nutrition intervention(s).

Planning and implementation are the two actions of nutrition intervention.

Concept construction should be undertaken with the current NCP terminology and definition structure in mind. Following similar patterns will result in more consistent construction of terms.

Not Permitted in Term Construction

The following are not allowed for concept construction. Where noted, there are specific exceptions.

Abbreviations

Abbreviations in term descriptions are not permitted.

Acronyms

Acronyms are allowed in term descriptions only when accompanied by the complete spelling of all words in parentheses. The use of acronyms should be limited to minimize confusion, term searching, and natural language processing. The Joint Commission Do Not Use List should be consulted and followed for clear term, value, and/or definition construction:

<https://www.jointcommission.org/resources/news-and-multimedia/fact-sheets/facts-about-do-not-use-list/>

Brand Names

Brand names are not permitted in terms because these require acknowledgement of registered trademarks and can vary among countries.

Disjunction

Term descriptions with OR in them are not permitted (e.g., food or nutrition quality of life). AND statements are permitted if the concepts joined by AND are always true for the term concept in all situations. If there needs to be an 'or' statement, then two different nutrition

concepts are required. Occasionally AND/OR statements can be included if clear (e.g., food and/or nutrition).

Duplicate Concepts

All concepts must be unique in the NCP terminology; therefore, a concept that duplicates an existing concept is not permitted.

Examples

Examples to explain the meaning of a nutrition and dietetics idea are not permitted in term descriptions. Every effort should be made to use words that clearly convey the meaning of a concept without the need for examples. If examples are thought to be needed, they may be included in the text definition of the concepts. For example, *food* used as a word in term descriptions. In the text definition of the concept, it is noted that food includes liquid and solid food.

Eponyms

While pervasive in medicine, eponyms in nutrition are not as common and primarily used in metabolic rate equations (e.g., Mifflin St. Jeor Equation, Penn State Equations). Currently, the NCPT does not include the metabolic rate equation names. The concept *Method for estimating energy needs* is used and the answer, for which, can be supplied by text information or a relevant list of metabolic rate equations.

Other in Term Descriptions

The ideas of ‘other’, not otherwise specified (NOS), or not elsewhere classified (NEC) have been developed as terms and/or requested in the past. Elimination of them remains a priority in the terminology because they are inherently ambiguous. The meaning of what is included in ‘other’ concepts can and does change as new concepts are developed making the usefulness of them questionable and problematic.

Proper Names

Select Nutrition Assessment, Monitoring and Evaluation Tool names are included in NCPT, such as, Subjective global assessment (SGA). The following interpretation is largely consistent with SNOMED International's interpretation of named and copyrighted tools.

Item	Description	Permitted in SNOMED CT	Permitted in NCPT
Tool names	The name of the tool.	√	√
Tool questions	Specific questions from a tool.	With the permission of the author.	With the permission of the author
Tool total score	Term to designate the total numerical result for the tool.	√	√
Tool ratings	Terms which interpret the tool score (e.g., Moderately, or suspected of being, malnourished).	With the permission of the author.	Tool rating term included for data collection, but not specific ratings terms are not included.

Users of Nutrition Assessment, Monitoring and Evaluation Tools should evaluate their needs and the permissions needed for their EHRs.

Specify in Term Descriptions

In the past, specify was added to term descriptions to encourage documentation of additional relevant information for the concept, eg, Food medication interaction, specify. These have all been eliminated from terms because in almost all cases these are term concepts in standardized health terminologies so there is no need for this additional information in the description. Further, for nutrition diagnoses, the PES (problem, etiology, sign/symptom) statement contains the necessary contextual information. The removal of the word specifies, though, does not preclude a professional from providing necessary information relevant to the care of a client. As an example, information about the specific food and medication interaction (e.g., grapefruit and statins) should be included in client care documentation, research, and reports.

Symbols

Symbols, such as, slash (/), comma (,), pound (#), apostrophe (‘), and hyphen (-) and any others, are highly discouraged in term descriptions unless absolutely necessary. These can cause errors when validating terminology in electronic databases, pose difficulty when searching for concepts, and/or in natural language processing. In NCPT, this includes omission of hyphens where grammar rules support a hyphen between two words, e.g., use self-feeding, not self-feeding. On occasion if a proper name for an object, program names, or chemical names contain a hyphen, these can be included in NCPT.

Text Definition Construction

Text definitions (both reference sheet and indicator definitions) offer an opportunity to provide explanatory information about a term. Well-constructed definitions:

- Should be conceptual definitions, in other words, what the ideas means. They should not use the same words as the term, add supplementary information, remove contextual information, or change the meaning of the term.
- Are concise. Extraneous words are not necessarily helpful and can be constraining, not always true, and/or confusing in the definition.
- Do permit the occasional use of examples, such as, Food (e.g., liquid and solid), but examples should be limited to promote ease of understanding.
- Do not contain OR statements. AND statements are permitted if the concepts joined by AND are always true for the term concept in all situations. If there needs to be an ‘or’ statement, then two different nutrition terms and definitions are required. Occasionally AND/OR statements can be included if clear (e.g., food and/or nutrition).
- Need to only define the concept. Information on how, when, and/or under what circumstances professionals apply them is not permitted and/or recommended in definitions since these are best described in other documents (e.g., practice guidelines) and not necessarily true in every client population and/or setting.
- Are only required for terms that are not presently included in standardized health terminologies since text definitions are required for new concept development. As resources permit, text definitions could be developed for terms that are already included in standardized health terminologies and do not have a text definition in NCPT.
- Have correct grammatical construction.

Not all existing definitions in NCPT conform to these standards because many were drafted prior to these being put in place.

Publication of NCPT

Notification of additions, changes, and deleted concepts are communicated to users in a timely, regular manner on eNCPT (ncpro.org). As part of this notification, users are advised of these since the previous release.

NCPT Translation Activities

Translations of NCPT are conceptual in nature rather than word for word translations and managed by the translating country.

LOINC and SNOMED Principles

The standardized health terminologies approved for interoperable health record exchange are defined in HL7 standards. Large, structured terminologies, such as LOINC and SNOMED CT among others, may be among those approved for use in electronic health records, so NCPT concepts are mapped to equivalent or near equivalent concepts in those terminologies. For nutrition care implementations, NCPT is recommended for the nutrition and dietetic professional user interface with concept mappings to LOINC and/or SNOMED CT behind the scenes for data retrieval and analysis.

Terminology mappings to approved standardized health terminologies (ie, LOINC, SNOMED CT) are included and fully accessible to subscribers of eNCPT (ncpro.org). Mappings are the equivalent or near equivalent concept representation between NCPT concepts.

All mappings for NCPT concepts are reviewed and approved by the NCPTCs Classification Subcommittee, a subcommittee of experts in nutrition care, standardized health terminology, and electronic health records standards with representatives from the US and international community.

Principles of terminology mapping processes are described in: Lorentzen SS, Papoutsakis C, Myers EF, Thoresen L. Adopting Nutrition Care Process Terminology at the National Level: The Norwegian Experience in Evaluating Compatibility with International Statistical Classification of Diseases and Related Health Problems, 10th Revision, and the Existing Norwegian Coding System. *J Acad Nutr Diet*. Mar 2019;119(3):375-393. doi:10.1016/j.jand.2018.02.006

Questions about NCPT concept mappings can be submitted to ncp@eatright.org.

LOINC

Many NA/ME concepts in NCPT have mappings to LOINC (Logical Observations Identifiers and Codes) concepts, in particular energy and nutrient intake concepts. Mappings are the equivalent concept representation between NCPT concepts and LOINC concepts, some of which may be used internationally.

In electronic health record standards, LOINC may be the designated terminology from which values must be drawn. Please see the mapping resource available to subscribers of eNCPT (ncpro.org) for the NCPT term to LOINC concept identifier.

Within LOINC:

- Numerous NA/ME concepts have LOINC concept mappings.
- There are no concepts in LOINC to represent a specific nutrition diagnosis. The idea of nutrition diagnosis itself is represented in LOINC. Please see the mapping spreadsheet in the electronic NCPT (ncpro.org) for the LOINC concept identifier.
- There are no concepts in LOINC to represent NCPT nutrition interventions.

In addition to energy and nutrient intake concepts, common LOINC concepts are laboratory concepts. Many laboratory terms are included in NCPT; however, a decision was made to not map them to specific LOINC concepts because of a variety of use cases for these terms. Depending on the care setting and client population some laboratory values require 24 hour, 12 hour, 8 hour samples, serum or whole blood, and others. Since these concepts can provide important outcomes for nutrition care, users are encouraged to speak with their informatics professionals to ensure accurate documentation in their care setting of laboratory-based nutrition care outcomes.

SNOMED CT

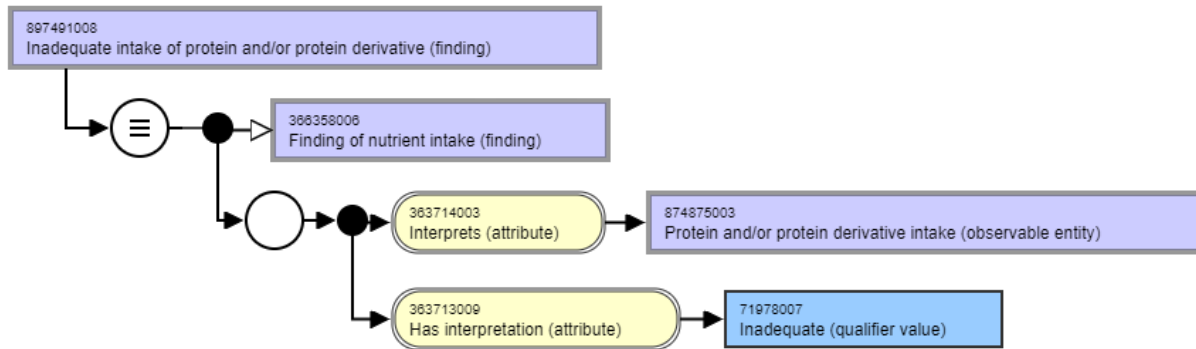
Most concepts in NCPT are mapped and/or modeled in SNOMED CT (Systematized Nomenclature of Medicine Clinical Terms), the largest and most comprehensive clinical terminology in the world.

Mappings are the equivalent concept representation between NCPT concepts and SNOMED CT concepts. Semantic tags are used in SNOMED CT to disambiguate concepts that are similar but distinct (eg, 138045004 |Vegan diet (finding)| and 1255165006 |Vegan diet (regime/therapy)|).

All SNOMED CT mappings for NCPT concepts are reviewed and approved by the NCPTC's Classification Subcommittee, a subcommittee of experts in nutrition care, standardized health terminology, and electronic health records standards with representatives from the US and international community.

- NA/ME concepts have mappings to concepts with the semantic tags observable entity, finding and disorder (a subtype of finding), assessment scale, and situation with explicit context.
- ND concepts have mappings to concepts with the semantic tag finding, disorder, and situation with explicit context.
- NI concepts have mappings to concepts with the semantic tags procedure and regime/therapy (a subtype of procedure).

Modeling in SNOMED CT shows the relationships between concepts and permits logical inferences by a computer. Here is a logical model for the SNOMED CT mapping for Inadequate protein intake, 897491008 |Inadequate intake of protein and/or protein derivative (finding)|.



Please refer to the [SNOMED Editorial Guide](#) for more on SNOMED CT modeling.

Outcomes of the Academy Collaboration with SNOMED International

In 2021, the Academy signed a [collaboration agreement](#) with SNOMED International to include the 2020 Edition of the NCPT reflecting nearly a decade of working together.

The Academy’s work with SNOMED International began in 2012 to include authoritative nutrition content in SNOMED CT. Outcomes of the collaboration include:

- In 2017 and 2018, over 800 NCPT concepts were authored and modeled in the US Edition of SNOMED in the finding, procedure, and regime therapy hierarchies. This content was promoted to the International Edition, SNOMED CT, in 2019.
- With the backing of international dietetic and nutrition representatives around the world, in 2019, SNOMED International supported formation of the [NCPT Clinical Project Group \(CPG\)](#) to accomplish two objectives:
 - Complete a pilot test to review the modeling of promoted US Edition nutrition content to ensure accurate representation of the concepts in SNOMED CT.
 - Three SNOMED CT authoring templates were developed as part of the pilot. Nearly 800 concepts are modeled using the templates, which promote consistent and accurate authoring of concepts and quality assurance and compliance mechanisms. Please follow the links to view the template specifications:
 - [Nutrition observable](#)
 - [Nutrition finding](#)
 - [Modified substance diet](#)
 - Author and model of over 1,000 NCPT concepts for inclusion in SNOMED CT.

- Future plans with SNOMED International:
 - Transition of the SNOMED NCPT Clinical Project Group (CPG) to a SNOMED Nutrition and Dietetics Clinical Reference Group (CRG) occurred in May 2023. The purpose of this group is to ensure accurate representation of nutrition terminology and quality nutrition content throughout SNOMED CT. There is ongoing work to review and address specific areas of SNOMED CT with duplicate and/or ambiguous concepts. There is also a desire to address areas lacking relationships (eg, substances); please see the [SNOMED CT section](#) with a table on substances.
 - Creation of a NCPT Reference Set for use by implementers of nutrition content in electronic health records. An eventual goal is to make the diagnostic portion of the reference set available for download in the US from the National Library of Medicine website like the "Nursing Problem List Subset of SNOMED CT" (https://www.nlm.nih.gov/research/umls/Snomed/nursing_problemlist_subset.html).

Comparative Standards

SNOMED International has discussed whether concepts that are target values (ie, comparative standards in NCPT) should be included in the observable entity hierarchy or if a separate semantic tag should be created. For now, target values (eg, target weight, target weight gain per day) remain in the observable entity hierarchy. As such, the NCPTC has included the comparative standards as a domain of the Nutrition Assessment/Monitoring and Evaluation Terminology.

Nutrient Requirements

The words ‘needs’ and ‘requirement’ are synonymous in NCPT and SNOMED CT in the context of nutrient requirements, but this may not be true for other SNOMED CT concepts.

Nutrition Assessment, Monitoring and Evaluation Tools, Scores, and Ratings

Select Nutrition Assessment, Monitoring and Evaluation Tool names are included in NCPT and were authored and modeled in SNOMED CT, such as, Subjective Global Assessment (SGA) score and Subjective global nutritional assessment (SGNA) for children. The following interpretation for NCPT is largely consistent with SNOMED International’s interpretation of named and copyrighted tools.

Item	Description	Permitted in SNOMED CT	Permitted in NCPT
Tool names	The name of the tool.	√	√
Tool questions	Specific questions from a tool.	With the permission of the author.	With the permission of the author
Tool total score	Term to designate the total numerical result for the tool.	√	√
Tool ratings	Terms which interpret the tool score (eg, Moderately (or suspected of being) malnourished).	With the permission of the author.	Tool rating term included for data collection, but not specific ratings terms are not included.

Users of Nutrition Assessment, Monitoring and Evaluation Tools should evaluate their needs and the permissions needed for their EHRs.

Substances

Substances are part of the concept model for modeling content in the SNOMED CT observable entity hierarchy. Observable entity concepts, such as Protein intake, are often mapped to nutrition assessment/monitoring and evaluation terminology of the NCP.

There are some substance naming conventions in SNOMED CT that differ from NCPT to represent an idea. An example is the NCPT concept of Vitamin B12 estimated intake in 24 hours, where all forms of Vitamin B12 are included based on the NCPT definition. To fully capture this, SNOMED CT uses the substance 781584003 |Vitamin B12 and/or vitamin B12 derivative (substance)| to define the concept. NCPT does not have subtype concepts of Vitamin B12 estimated intake in 24 hours (eg, cyanocobalamin intake) because the intake of Vitamin B12 foods and/or supplements may include several forms of B12. If needed, more granular NCPT concepts for various macro- and micronutrients (eg, cyanocobalamin) could be created using the SNOMED CT substance hierarchy.

Please see [Appendix A](#) for a complete listing of NCPT and SNOMED CT substance equivalents.

Current NCP Model and NCP Terminology Citations

The citations in the *Journal of the Academy of Nutrition and Dietetics* describing the nutrition care process model and terminology are the following. Additional citations about the model terminology can be found in ncpro.org and Pubmed.

1. Swan WI, Vivanti A, Hakel-Smith NA, et al. Nutrition care process and model update: Toward realizing people-centered care and outcomes management. *J Acad Nutr Diet.* Dec 2017;117(12):2003-2014. doi:10.1016/j.jand.2017.07.015
2. Swan WI, Pertel DG, Hotson B, et al. Nutrition care process (NCP) update part 2: Developing and using the NCP terminology to demonstrate efficacy of nutrition care and related outcomes. *J Acad Nutr Diet.* 2019;119(5):840-855. doi:10.1016/j.jand.2018.10.025

Appendix A: Appendix A: Substance equivalents between NCPT and SNOMED CT

Here is a table of typical substance equivalents between NCPT and SNOMED CT. Newly authored nutrition content should include, when applicable, the SNOMED substance that is consistent with the meaning of the concept. The table shows the substance concept used most often for NCPT content authored to date. Substance projects by SNOMED International are ongoing. They and the Academy continue to track concerns about possible missing relationships between concepts.

NCPT	SNOMED CT Concept	Notes
Energy	Not applicable	Not a substance so concepts cannot be fully defined in SNOMED.
Alcohol	53527002 Alcoholic beverage (substance)	--
Beer	53410008 Beer (substance)	--
Distilled alcohol	6524003 Distilled spirits (substance)	--
Wine	35748005 Wine (substance)	226887002 Fat and oil (substance)
Hard cider	226025006 Cider (substance)	Request clarification of substance, 226025006 Cider (substance) , since there are those that contain alcohol and those that do not (eg, apple cider). Rejected and part of a larger project to address substances.
Fat	226887002 Fat and oil (substance)	Original concept was 256674009 Fat (substance) (a body material concept). Requested change in 256674009 Fat (substance) to 'adipose (substance),' which was rejected. The SNOMED substance group added fat and oil (substance) for intake concepts. Also, submitted request to associate this concept with fatty acid. Rejected and part of a larger project to address substances.
Essential fatty acid	871563004 Essential fatty acid (substance)	Requested addition of concept consistent with content in NCPT, which was added.
Saturated fat	436841000124103 Saturated fat (substance)	--
Trans fatty acid	436831000124108 Trans fat (substance)	Trans fat in SNOMED CT and request for synonym with trans fatty acid approved.

NCPT	SNOMED CT Concept	Notes
Polyunsaturated fat	436821000124105 Polyunsaturated fat (substance)	--
Linoleic acid	8822004 Linoleic acid (substance)	--
Monounsaturated fat	436811000124102 Monounsaturated fat (substance)	--
Omega 3 fatty acid	226365003 N-3 fatty acid (substance)	N-3 fatty acid in SNOMED CT and request for synonym of omega-3 fatty acid approved.
Alpha linolenic acid	81868000 Linolenic acid (substance)	Linolenic acid in SNOMED CT and request for synonym of alpha-linolenic acid approved.
Eicosapentaenoic acid	226367006 Eicosapentaenoic acid (substance)	--
Docosahexaenoic acid	226368001 Docosahexaenoic acid (substance)	--
Medium chain triglyceride	395781005 Medium chain triglyceride (substance)	--
Cholesterol	84698008 Cholesterol (substance)	--
Protein	735252001 Protein and/or protein derivative (substance)	Substance group added Protein and protein derivative (substance) to distinguish nutrition protein concepts.
High biological value protein	Not applicable	Not a substance so concepts are primitive.
Gluten	89811004 Gluten (substance)	Accurate substance. However, submitted request to associate this concept with protein and/or protein derivative. Rejected and part of a larger project to address substances.
Casein	50593009 Casein (substance)	Accurate substance. However, submitted request to associate this concept with protein and/or protein derivative. Rejected and part of a larger project to address substances.
Whey protein	878874009 Whey protein (substance)	Request to add whey protein approved. However, submitted request to associate this concept with protein and/or protein derivative. Rejected and part of a larger project to address substances.
Natural protein	Not applicable	Not a substance so concepts are primitive.

NCPT	SNOMED CT Concept	Notes
Amino acid	52518006 Amino acid (substance)	Request to associate concept with protein and/or protein derivative approved.
Essential amino acid	112000000 Essential amino acid (substance)	--
Histidine	60260004 Histidine (substance)	Request to associate concept with protein and/or protein derivative approved.
Methionine	70288006 Methionine (substance)	Request to associate concept with protein and/or protein derivative approved.
Isoleucine	14971004 Isoleucine (substance)	Request to associate concept with protein and/or protein derivative approved.
Leucine	83797003 Leucine (substance)	Request to associate concept with protein and/or protein derivative approved.
Lysine	75799006 Lysine (substance)	Request to associate concept with protein and/or protein derivative approved.
Threonine	52736009 Threonine (substance)	Request to associate concept with protein and/or protein derivative approved.
Tryptophan	54821000 Tryptophan (substance)	Request to associate concept with protein and/or protein derivative approved.
Phenylalanine	63004003 Phenylalanine (substance)	Request to associate concept with protein and/or protein derivative approved.
Valine	72840006 Valine (substance)	Request to associate concept with protein and/or protein derivative approved.
Nonessential amino acid	63330006 Nonessential amino acid (substance)	--
Arginine	52625008 Arginine (substance)	Request to associate concept with protein and/or protein derivative approved.
Glutamine	25761002 Glutamine (substance)	--
Homocysteine	102747008 Homocysteine (substance)	--
Tyramine	14092002 Tyramine (substance)	--
Tyrosine	27378009 Tyrosine (substance)	--
Carbohydrate	2331003 Carbohydrate (substance)	--

NCPT	SNOMED CT Concept	Notes
Complex carbohydrate	226374001 Complex carbohydrate (substance)	--
Simple carbohydrate	74801000 Simple carbohydrate (substance)	--
Galactose	38182007 Galactose (substance)	--
Lactose	47703008 Lactose (substance)	--
Fructose	58202007 Fructose (substance)	--
Fiber	37202001 Plant fiber (substance)	Substance group supported the suggestion to name concept plant fiber (substance) to distinguish it from other fibers in SNOMED. Some concepts, but no substances, labeled dietary fiber and no decision was made regarding revision of all concepts.
Soluble fiber	789081002 Soluble fiber (substance)	--
Insoluble fiber	789082009 Insoluble fiber (substance)	--
Vitamin	87708000 Vitamin (substance)	--
Vitamin A	787948005 Vitamin A and/or vitamin A derivative (substance)	Requested and received concept Vitamin A and/or vitamin A derivative because vitamin A is not limited to retinol, the only concept initially available.
Vitamin C	43706004 Ascorbic acid (substance)	Required revision of Vitamin C concepts to Fully Specified Name (FSN) with ascorbic acid in all concept categories and addition of Vitamin C as a synonym in the concepts.
Vitamin D	30178006 Vitamin D and/or vitamin D derivative (substance)	Requested and received concept Vitamin D and/or vitamin D derivative because vitamin D is not limited to cholecalciferol, the only concept initially available.
Vitamin E	37237003 Vitamin E and/or vitamin E derivative (substance)	Requested and received concept Vitamin E and/or vitamin E derivative.
Vitamin K	65183007 Vitamin K and/or vitamin K derivative (substance)	Requested and received concept Vitamin K and vitamin K derivative because vitamin K is not limited to phyloquinone, the only concept initially available.

NCPT	SNOMED CT Concept	Notes
Thiamin	259659006 Thiamine (substance)	Accurate, but required revision of concepts to FSN with substance spelling, Thiamine, in all concept categories.
Riboflavin	13235001 Riboflavin (substance)	--
Niacin	273943001 Nicotinic acid (substance)	--
Folate	792796007 Folate and/or folate derivative (substance)	Requested and received concept folate and/or folate derivative folate is not limited to folic acid, the only concept initially available.
Vitamin B6	787967009 Vitamin B6 and/or vitamin B6 derivative (substance)	Requested and received concept Vitamin B6 and/or vitamin B6 derivative because vitamin B6 is not limited to pyridoxine, the only concept initially available.
Vitamin B12	781584003 Vitamin B12 and/or vitamin B12 derivative (substance)	Requested and received concept Vitamin B12 and/or vitamin B12 derivative because vitamin B12 is not limited to cyanocobalamin, the only concept initially available.
Pantothenic acid	86431009 Pantothenic acid (substance)	--
Biotin	8919000 Biotin (substance)	Required addition to SNOMED CT.
Mineral	87918000 Mineral (substance)	Accurate substance. 1) No relationship to 226355009 Nutrients (substance) , though. Request submitted to address this. 2) Also, all concepts in minerals are in compound form in nature. However the need in nutrition and medicine is to recognize the portion of whatever compound that impacts health (eg, sodium, potassium, magnesium). The compounds, potassium chloride or potassium acetate, are not relevant to the observables Estimated quantity of intake of potassium in 24 hours or Inadequate or Excessive potassium intake so concepts do not all have the compound form of the mineral in the FSN.
Calcium	5540006 Calcium (substance)	--
Chloride	50213009 Chloride salt (substance)	Created by SNOMED to support modeling chloride concepts but then decision regarding minerals subsequently made (see Mineral).
Iron	3829006 Iron (substance)	Note some applications need concept iron (substance) and some require 767270007 Iron

NCPT	SNOMED CT Concept	Notes
		and/or iron compound (substance) (eg, for iron dextran via parenteral route).
Magnesium	72717003 Magnesium (substance)	--
Potassium	88480006 Potassium (substance)	--
Phosphorus	30820000 Phosphorus (substance)	--
Sodium	39972003 Sodium (substance)	--
Zinc	86739005 Zinc (substance)	--
Sulfate	26967001 Sulfate salt (substance)	Created by SNOMED to support modeling sulfate concepts but then decision regarding minerals subsequently made (see Mineral).
Fluoride	372639009 Fluoride (substance)	--
Copper	66925006 Copper (substance)	--
Iodine	44588005 Iodine (substance)	--
Selenium	22038003 Selenium (substance)	Required adding to SNOMED to support NCPT concepts.
Manganese	87869004 Manganese (substance)	Required adding to SNOMED to support NCPT concepts.
Chromium	111070004 Chromium (substance)	Required adding to SNOMED to support NCPT concepts.
Molybdenum	71128006 Molybdenum (substance)	Required adding to SNOMED to support NCPT concepts.
Boron	70597009 Boron (substance)	Required adding to SNOMED to support NCPT concepts.
Cobalt	54808007 Cobalt (substance)	Required adding to SNOMED to support NCPT concepts.
Trace element	Not applicable	Rejected because there is not agreement in literature of what is 'trace element.'
Potable water	890302005 Potable water (substance)	Required adding to SNOMED to support NCPT concepts.
Enteral nutrition	Not applicable	Submitted to SNOMED CT. Substance rejected.

NCPT	SNOMED CT Concept	Notes
Parenteral nutrition	Not applicable	Submitted to SNOMED CT. Substance rejected. The available concept is 789708003 [Total parenteral nutrition agent (substance)] which is not used because SNOMED CT substance contains more context (ie, total) that is not applicable in all NCPT cases.

Appendix B: Link to Nutrition Care Process Terminology Submission Process and Forms: <https://www.ncpro.org/terminology-submission-process>