NUTRITION DIAGNOSIS TERMS AND DEFINITIONS

Nutrition Diagnostic Term	Term Number	Definition of Diagnostic Term	Reference Sheet Page Numbers
DOMAIN: INTAKE **Defined as "actual problems related to intake of energy, nutrients, fluids, bioactive substances through oral diet or nutrition support (enteral or parenteral nutrition)"**	NI		
Class: Caloric Energy Balance (1) ***Defined as "actual or estimated changes in energy (kcal)"***			
Hypermetabolism (Increased energy needs)	NI-1.1	Resting metabolic rate (RMR) above predicted requirements due to stress, trauma, injury, sepsis, or disease. Note: RMR is the sum of metabolic processes of active cell mass related to the maintenance of normal body functions and regulatory balance during rest.	32-33
Increased energy expenditure	NI-1.2	Resting metabolic rate (RMR) above predicted requirements due to body composition, medications, endocrine, neurologic, or genetic changes. Note: RMR is the sum of metabolic processes of active cell mass related to the maintenance of normal body functions and regulatory balance during rest.	34
Hypometabolism (Decreased energy needs)	NI-1.3	Resting metabolic rate (RMR) below predicted requirements due to body composition, medications, endocrine, neurologic, or genetic changes	35-36
Inadequate energy intake	NI-1.4	Energy intake that is less than energy expenditure, established reference standards, or recommendations based upon physiological needs. Exception: when the goal is weight loss or	37-38

NUTRITION DIAGNOSIS TERMS AND DEFINITIONS

		during end of life care.	
Excessive energy intake	NI-1.5	Caloric intake that exceeds energy expenditure, established reference standards, or recommendations based upon physiological needs. Exception: when weight gain is desired.	39-40
Class: Oral or Nutrition Support Intake (2) ***Defined as "actual or estimated food and beverage intake from oral diet or nutrition support compared with patient goal"***			
Inadequate oral food/beverage intake	NI-2.1	Oral food/beverage intake that is less than established reference standards or recommendations based upon physiological needs. Exception: when recommendation is weight loss or during end of life care.	41-42
Excessive oral food/beverage intake	NI-2.2	Oral food/beverage intake that exceeds energy expenditure, established reference standards, or recommendations based upon physiological needs. Exception: when weight gain is desired.	43-44
Inadequate intake from enteral/parenteral nutrition infusion	NI-2.3	Enteral or parenteral infusion that provides fewer calories or nutrients compared to established reference standards or recommendations based upon physiological needs. Exception: when recommendation is for weight loss or during end of life care.	45-46
Excessive intake from enteral/parenteral nutrition	NI-2.4	Enteral or parenteral infusion that provides more calories or nutrients compared to established reference standards or recommendations based upon physiological needs	47-48
Inappropriate infusion of enteral/parenteral nutrition USE WITH CAUTION ONLY AFTER DISCUSSION WITH OTHER MEMBERS OF THE HEALTH CARE TEAM	NI-2.5	Enteral or parenteral infusion that provides either fewer or more calories and/or nutrients or is of the wrong composition or type, is not warranted because the patient is able to tolerate an enteral intake, or is unsafe because of the potential for sepsis or other complications	49-50

NUTRITION DIAGNOSIS TERMS AND DEFINITIONS

Class: Fluid Intake (3) ***Defined as "actual or estimated fluid intake compared with patient goal"***			
Inadequate fluid intake	NI-3.1	Lower intake of fluid containing foods or substances compared to established reference standards or recommendations based upon physiological needs	51-52
Excessive fluid intake	NI-3.2	Higher intake of fluid compared to established reference standards or recommendations based upon physiological needs	53-54
Class: Bioactive Substances (4) ***Defined as "actual or observed intake of bioactive substances, including single or multiple functional food components, ingredients, dietary supplements, alcohol"***			
Inadequate bioactive substance intake	NI-4.1	Lower intake of bioactive substances containing foods or substances compared to established reference standards or recommendations based upon physiological needs	55-56
Excessive bioactive substance intake	NI-4.2	Higher intake of bioactive substances other than traditional nutrients, such as functional foods, bioactive food components, dietary supplements, food concentrates compared to established reference standards or recommendations based upon physiological needs	57-58
Excessive alcohol intake	NI-4.3	Intake above the suggested limits for alcohol	59-60
Class: Nutrient (5) ***Defined as "actual or estimated intake of specific nutrient groups or single nutrients as compared with desired levels"***			
Increased nutrient needs (specify)	NI-5.1	Increased need for a specific nutrient compared to established reference standards or recommendations based upon	61-62

		physiological needs	
Evident protein-energy malnutrition	NI-5.2	Inadequate intake of protein and/or energy	63-64
Inadequate protein-energy intake	NI-5.3	Inadequate intake of protein and/or energy compared to established reference standards or recommendations based upon physiological needs of short or recent duration	65-66
Decreased nutrient needs (specify)	NI-5.4	Decreased need for a specific nutrient compared to established reference standards or recommendations based upon physiological needs	67-68
Imbalance of nutrients	NI-5.5	An undesirable combination of ingested nutrients, such that the amount of one nutrient ingested interferes with or alters absorption and/or utilization of another nutrient	69-70
Sub-Class: Fat and Cholesterol (51)			
Inadequate fat intake	NI-51.1	Lower fat intake compared to established reference standards or recommendations based upon physiological needs. Exception: when recommendation is for weight loss or during end of life care.	71
Excessive fat intake	NI-51.2	Higher fat intake compared to established reference standards or recommendations based upon physiological needs	72-73
Inappropriate intake of food fats (specify)	NI-51.3	Intake of wrong type or quality of food fats compared to established reference standards or recommendations based upon physiological needs	74-75
Sub-Class: Protein (52)			
Inadequate protein intake	NI-52.1	Lower intake of protein containing foods or substances compared to established reference standards or recommendations based upon physiological needs	76
Excessive protein intake	NI-52.2	Intake above the recommended level and/or type of protein compared to established reference standards or	77-78

NUTRITION DIAGNOSIS TERMS AND DEFINITIONS

		recommendations based upon physiological needs	
Inappropriate intake of amino acids (specify)	NI-52.3	Intake that is more or less than recommended level and/or type of amino acids compared to established reference standards or recommendations based upon physiological needs	78-80
Sub-Class: Carbohydrate and Fiber (53)			
Inadequate carbohydrate intake	NI-53.1	Lower intake of carbohydrate-containing foods or substances compared to established reference standards or recommendations based upon physiological needs	81
Excessive carbohydrate intake	NI-53.2	Intake above the recommended level and type of carbohydrate compared to established reference standards or recommendations based upon physiological needs	82-83
Inappropriate intake of types of carbohydrate (specify)	NI-53.3	Intake or the type or amount of carbohydrate that is above or below the established reference standards or recommendations based upon physiological needs	84-85
Inconsistent carbohydrate intake	NI-53.4	Inconsistent timing of carbohydrate intake throughout the day, day to day, or a pattern of carbohydrate intake that is not consistent with recommended pattern based upon physiological needs	86-87
Inadequate fiber intake	NI-53.5	Lower intake of fiber-containing foods or substances compared to established reference standards or recommendations based upon physiological needs	88-89
Excessive fiber intake	NI-53.6	Higher intake of fiber-containing foods or substances compared to recommendations based upon patient/client condition	90-91
Sub-Class: Vitamin (54)			
Inadequate vitamin intake (specify)	NI-54.1	Lower intake of vitamin-containing foods or substances compared to established reference standards or recommendations based upon physiological needs	92-94

NUTRITION DIAGNOSIS TERMS AND DEFINITIONS

Excessive vitamin intake (specify)	NI-54.2	Higher intake of vitamin containing foods or substances compared to established reference standards or recommendations based upon physiological needs	95-96
Sub-Class: Mineral (55)			
Inadequate mineral intake (specify)	NI-55.1	Lower intake of mineral containing foods or substances compared to established reference standards or recommendations based upon physiological needs	97-98
Excessive mineral intake (specify)	NI-55.2	Higher intake of mineral from foods, supplements, medications or water, compared to established reference standards or recommendations based upon physiological needs	99-100
DOMAIN: CLINICAL **Defined as "nutritional findings/problems identified that relate to medical or physical conditions"**	NC		
Class: Functional (1) ***Defined as "change in physical or mechanical functioning that interferes with or prevents desired nutritional consequences"***			
Swallowing difficulty	NC-1.1	Impaired movement of food and liquid from the mouth to the stomach	101
Chewing (masticatory) difficulty	NC-1.2	Impaired ability to manipulate or masticate food for swallowing	102-104
Breastfeeding difficulty	NC-1.3	Inability to sustain nutrition through breastfeeding	105-106
Altered GI function	NC-1.4	Changes in ability to digest or absorb nutrients	107-108
Class: Biochemical (2) ***Defined as "change in capacity to metabolize nutrients as a result of***			

NUTRITION DIAGNOSIS TERMS AND DEFINITIONS

medications, surgery, or as indicated by altered lab values"			
Impaired nutrient utilization	NC-2.1	Changes in ability to absorb or metabolize nutrients and bioactive substances	109-110
Altered nutrition-related laboratory values	NC-2.2	Changes in ability to eliminate by-products of digestive and metabolic processes	111-112
Food-medication interaction	NC-2.3	Undesirable/harmful interaction(s) between food and over the counter (OTC) medications, prescribed medications, herbals, botanicals, and/or dietary supplements that diminishes, enhances, or alters effect of nutrients and/or medications	113-114
Class: Weight (3) ***Defined as "chronic weight or changed weight status when compared with usual or desired body weight"***			
Underweight	NC-3.1	Low body weight compared to established reference standards or recommendations	115-116
Involuntary weight loss	NC-3.2	Decrease in body weight that is not planned or desired	117-118
Overweight/obesity	NC-3.3	Increased adiposity compared to established reference standards or recommendations	119-120
Involuntary weight gain	NC-3.4	Weight gain above that which is desired or expected	121-122
DOMAIN: BEHAVIORAL-ENVIRONMENTAL **Defined as "nutritional findings/problems identified that relate to knowledge, attitudes/beliefs, physical environment, or access to food and food safety"**	NB		
Class: Knowledge and Beliefs (1)			

NUTRITION DIAGNOSIS TERMS AND DEFINITIONS

Defined as "actual knowledge and beliefs as reported, observed, or documented"			
Food and nutrition-related knowledge deficit	NB-1.1	Incomplete or inaccurate knowledge about food, nutrition or nutrition-related information and guidelines, e.g., nutrient requirements, consequences of food behaviors, life stage requirements, nutrition recommendations, diseases and conditions, physiological function, or products	123-124
Harmful beliefs/attitudes about food or nutrition-related topics USE WITH CAUTION TO BE SENSITIVE TO PATIENT CONCERNS	NB-1.2	Beliefs/attitudes and practices about food, nutrition, and nutrition-related topics that are incompatible with sound nutrition principles, nutrition care, or disease/condition	125-126
Not ready for diet/lifestyle change	NB-1.3	Lack of perceived value of nutrition-related care benefits compared to consequences or effort required to making the change; inconsistencies with other value structure/purpose; antecedent to behavior change	127-128
Self monitoring deficit	NB-1.4	Lack of data recording to track personal progress	129-130
Disordered eating pattern	NB-1.5	Beliefs, attitudes, thoughts and behaviors related to food, eating, and weight management, including classic eating disorders as well as less severe, similar conditions that negatively impact health	131-133
Limited adherence to nutrition-related recommendations	NB-1.6	Lack of nutrition-related changes as per intervention agreed upon by client or population	134-135
Undesirable food choices	NB-1.7	Food and/or beverage choices that are inconsistent with US Recommended Dietary Intake, US Dietary Guidelines, or with the My Pyramid or with targets defined in the nutrition prescription or nutrition care process	136-137
Class: Physical Activity and Function (2) ***Defined as "actual physical activity, self-care, and quality of life problems as***			

NUTRITION DIAGNOSIS TERMS AND DEFINITIONS

reported, observed, or documented"			
Physical inactivity	NB-2.1	Low level of activity/sedentary behavior to the extent that it reduces energy expenditure and impacts health	138=139
Excessive exercise	NB-2.2	An amount of exercise that exceeds that which is necessary to improve health and/or athletic performance	140-141
Inability of lack of desire to manage self care	NB-2.3	Lack of capacity or unwillingness to implement methods to support healthful food and nutrition-related behavior	142-143
Impaired ability to prepare foods/meals	NB-2.4	Cognitive or physical impairment that prevents preparation of foods/meals	144-145
Poor nutrition quality of life	NB-2.5	Diminished Nutrition Quality of Life (NQOL) scores related to food impact, self-image, psychological factors social/interpersonal factors, physical (factors), or self-efficacy	146-147
Self feeding difficulty	NB-2.6	Impaired actions to place food in mouth	148-149
Class: Food Safety and Access (3) ***Defined as "actual problems with food access or food safety"***			
Intake of unsafe food	NB-3.1	Intake of food and/or fluids intentionally or unintentionally contaminated with toxins, poisonous products, infectious agents, microbial agents, additives, allergens, and/or agents of bioterrorism	150-151
Limited access to food	NB-3.2	Diminished ability to acquire food from sources (e.g., shopping, gardening, meal delivery), due to financial constraints, physical impairment, caregiver support, or unsafe living conditions (e.g. crime hinders travel to grocery store). Limiting food intake because of concerns about weight or aging.	152-153

HYPERMETABOLISM (NI-1.1)

Definition

Resting metabolic rate (RMR) above predicted requirements due to stress, trauma, injury, sepsis, or disease. Note: RMR is the sum of metabolic processes of active cell mass related to the maintenance of normal body functions and regulatory balance during rest.

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Catabolic illness
- Infection
- Sepsis

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Insulin resistance (difficult to control blood glucose)
Anthropometric Measurements	
Physical Examination Findings	• Fever • Increased heart rate • Increased respiratory rate • Measured RMR > estimated or expected RMR
Food/Nutrition History	
Client History	• Conditions associated with a diagnosis or treatment of, e.g., AIDS/HIV, burns, chronic obstructive pulmonary disease, hip/long bone fracture, infection, surgery, trauma, hyperthyroidism (pre- or untreated), some cancers (specify) • Medications associated with ↑ RMR

HYPERMETABOLISM (NI-1.1)

References:

1. Bitz C, Toubro S, Larsen TM, Harder H, Rennie KL, Jebb SA, Astrup A. Increased 24 hour energy expenditure in Type 2 diabetes mellitus. *Diabetes Care*. 2004;27:2416-2241.
2. Dickerson RN, Roth-Yousey L. Medication effects on metabolic rate; a systematic review (Part 2). *J Am Diet Assoc*. 2005;105:1002-1009.
3. Dickerson RN, Roth-Yousey L. Medication effects on metabolic rate: a systematic review (Part 1). *J Am Diet Assoc*. 2005;105:835-841.
4. Frankenfield D, Roth-Yousey L, Compher C. Comparison of predictive equations to measured resting metabolic rate in healthy nonobese and obese individuals: a systematic review. *J Am Diet Assoc*. 2005;105:775-789.

INCREASED ENERGY EXPENDITURE (NI-1.2)

Definition

Resting metabolic rate (RMR) above predicted requirements due to body composition, medication, endocrine, neurologic, or genetic change(s). Note: RMR is the sum of metabolic processes of active cell mass related to the maintenance of normal body functions and regulatory balance during rest.

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Anabolism or growth
- Voluntary or involuntary physical activity/movement

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	
Anthropometric Measurements	• Unintentional weight loss of 10% in 6 months, 5% in 1 month • Evidence of need for accelerated or catch up growth or weight gain in children; absence of normal growth • Increased proportional lean body mass
Physical Examination Findings	• Measured RMR > estimated or expected RMR
Food/Nutrition History	• Increased physical activity, e.g., endurance athlete
Client History	• Conditions associated with a diagnosis or treatment, e.g., Parkinson's disease, cerebral palsy, Alzheimer's disease, other dementia

Reference:

1. Frankenfield D, Roth-Yousey L, Compher C. Comparison of predictive equations to measured resting metabolic rate in healthy nonobese and obese individuals: a systematic review. *J Am Diet Assoc*. 2005;105:775-789.

HYPOMETABOLISM (NI-1.3)

Definition

Resting metabolic rate (RMR) below predicted requirements due to body composition, medications, endocrine, neurologic, or genetic changes

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Loss of lean body mass, weight loss
- Medications, e.g., midazolam, propranalol, glipizide
- Endocrine changes, e.g., hypothyroidism

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Increased TSH, decreased T4, T3 (hypothyroidism)
Anthropometric Data	• Decreased weight or mid-arm muscle circumference • Weight gain (e.g., hypothyroidism) • Growth stunting or failure, based on National Center for Health Statistics (NCHS) growth standards
Physical Exam Findings	• Decreased or normal adipose and somatic protein stores • Measured RMR < estimated or expected RMR
Food/Nutrition History	
Client History	• Conditions associated with a diagnosis or treatment, e.g., hypothyroidism, anorexia nervosa, malnutrition, failure to thrive, Prader-Willi syndrome, hypotonic conditions • Bradycardia, hypotension, decreased bowl motility, slow breathing rate, low body temperature (in significant weight loss) • Cold intolerance, hair loss, decreased endurance, difficulty concentrating, decreased libido, feelings of anxiety/depression

HYPOMETABOLISM (NI-1.3)

References:

1. Brozek J. Starvation and nutritional rehabilitation; a quantitative case study. *J Am Diet Assoc.* 1952;28:917-926.
2. Collins S. Using middle upper arm circumference to assess severe adult malnutrition during famine. *JAMA.* 1996;276:391-395.
3. Detzer MJ, Leitenberg H, Poehlman ET, Rosen JC, Silberg NT, Vara LS. Resting metabolic rate in women with bulimia nervosa: a cross sectional and treatment study. *Am J Clin Nutr.* 1994;60:327-332.
4. Dickerson RN, Roth-Yousey L. Medication effects on metabolic rate: a systematic review (Part 2). *J Am Diet Assoc*. 2005;105:1002-1009.
5. Dickerson RN, Roth-Yousey L. Medication effects on metabolic rate: a systematic review (Part 1). *J Am Diet Assoc*. 2005;105:835-841.
6. Frankenfield D, Roth-Yousey L, Compher C. Comparison of predictive equations to measured resting metabolic rate in healthy nonobese and obese individuals: a systematic review. *J Am Diet Assoc.* 2005;105:775-789.
7. Kerruish KP, O'Conner JO, Humphries IRJ, Kohn MR, Clarke SD, Briody JN, Thomson EJ, Wright KA, Gaskin KJ, Baur LA. Body composition in adolescents with anorexia nervosa. *Am J Clin Nutr.* 2002;75:31-37.
8. Mollinger LA, Spurr GB, el Ghatil AZ, Barboriak JS, Rooney CB, Davidoff DD. Daily energy expenditure and basil metabolic rates of patients with spinal cord injury. *Arch Phys Med Rehabil.* 1985;66:420-426.
9. Obarzanek E, Lesem MD, Jimerson DC. Resting metabolic rate of anorexia nervosa patients during weight gain. *Am J Clin Nutr.* 1994;60:666-675.
10. Pavlovic M, Zavalic M, Corovic N, Stilinovic L, Malinar M. Loss of body mass in ex prisoners of war. *Eur J Clin Nutr.* 1993;47:808-814.

INADEQUATE ENERGY INTAKE (NI-1.4)

Definition

Energy intake that is less than energy expenditure, established reference standards, or recommendations based upon physiological needs. Exception: when the goal is weight loss or during end of life care.

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Pathologic or physiologic causes that result in increased energy requirements or decreased ability to consume sufficient energy, e.g., increased nutrient needs due to prolonged catabolic illness
- Lack of access to food or artificial nutrition, e.g., economic constraints, cultural or religious practices restricting food given to elderly and/or children
- Food- and nutrition-related knowledge deficit
- Psychological causes, e.g., depression or disordered eating

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• ↓ Chol
Anthropometric Measurements	
Physical Examination Findings	• Weight loss • Poor dentition

INADEQUATE ENERGY INTAKE (NI-1.4)

Food/Nutrition History	Reports or observations of: • Insufficient energy intake from diet compared to needs based on estimated or measured resting metabolic rate • Restriction or omission of energy dense foods from diet • Food avoidance and/or lack of interest in food • Inability to independently consume foods/fluids (diminished joint mobility of wrist, hand, or digits) • Parenteral or enteral nutrition insufficient to meet needs based on estimated or measured resting metabolic rate
Client History	• Excessive consumption of alcohol or other drugs that reduce hunger

Reference:

1. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids.* Washington, DC: National Academy Press; 2002.

EXCESSIVE ENERGY INTAKE (NI-1.5)

Definition

Caloric intake that exceeds energy expenditure, established reference standards, or recommendations based upon physiological needs. Exception: when weight gain is desired.

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Harmful beliefs/attitudes about food, nutrition, and nutrition-related topics
- Food- and nutrition-related knowledge deficit
- Lack of access to healthful food choices, e.g., food provided by caregiver
- Lack of value for behavior change, competing values
- Mental illness, depression
- Medications that increase appetite, e.g., steroids
- Overfeeding of parenteral/enteral nutrition (TPN/EN)
- Unwilling or uninterested in reducing energy intake
- Failure to adjust for lifestyle changes and decreased metabolism, e.g., aging
- Resolution of prior hypermetabolism without reduction in intake

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

EXCESSIVE ENERGY INTAKE (NI-1.5)

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)

Biochemical Data	• Overfeeding of TPN/EN (usually seen early after initiation of feeding):
	  • Hyperglycemia
	  • Hypokalemia < 3.5 mEq/L
	  • Hypophosphatemia <1.0 mEq/L
	  • Abnormal liver function tests

Anthropometric Measurements	• Body fat percentage > 25% for men and > 32% for women • BMI > 25 • Weight gain
Physical Exam Findings	• Increased body adiposity • Overfeeding TPN/EN: • Increased respirations
Food/Nutrition History	• Observations or reports of intake of calorically dense foods/beverages or large portions of foods/beverages • Observations, reports, or calculation of TPN/EN above estimated or measured (e.g., indirect calorimetry) caloric expenditure • Metabolic cart/indirect calorimetry measurement, e.g., respiratory quotient > 1.0
Client History	• Conditions associated with a diagnosis or treatment of, e.g., obesity, overweight, metabolic syndrome, depression, or anxiety disorder

References:

1. McClave SA, Lowen CC, Kleber MJ, McConnell JW, Jung LY, Goldsmith LJ. Clinical use of the respiratory quotient obtained from indirect calorimetry. *J Parenter Enteral Nutr*. 2003;27:21-26.
2. McClave SA, Lowen CC, Kleber MJ, Nicholson JF, Jimmerson SC, McConnell JW, Jung LY. Are patients fed appropriately according to their caloric requirements? *J Parenter Enteral Nutr*. 1998;22:375-381.
3. Overweight and Obesity: Health Consequences. www.surgeongeneral.gov/topics/obesity/calltoaction/fact_consequences.htm. Accessed August 28, 2004.

INADEQUATE ORAL FOOD/BEVERAGE INTAKE (NI-2.1)

Definition

Oral food/beverage intake that is less than established reference standards or recommendations based upon physiological needs. Exception: when the goal is weight loss or during end of life care.

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Physiologic causes, e.g., increased nutrient needs due to prolonged catabolic illness
- Lack of access to food, e.g., economic constraints, cultural or religious practices, restricting food given to elderly and/or children
- Food- and nutrition-related knowledge deficit concerning sufficient oral food/beverage intake
- Psychological causes, e.g., depression or disordered eating

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	
Anthropometric Measurements	
Physical Examination Findings	• Dry skin, dry mucous membranes, poor skin turgor • Weight loss, insufficient growth velocity
Food/Nutrition History	Reports or observations of: • Insufficient intake of energy or high-quality protein from diet when compared to requirements • Economic constraints that limit food availability

INADEQUATE ORAL FOOD/BEVERAGE INTAKE (NI-2.1)

Client History	• Conditions associated with a diagnosis or treatment of catabolic illness such as AIDS, tuberculosis, anorexia nervosa, sepsis, or infection from recent surgery), depression, acute or chronic pain • Protein and/or nutrient malabsorption • Excessive consumption of alcohol or other drugs that reduce hunger • Medications that cause anorexia

References:

1. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids*. Washington, DC: National Academy Press; 2002.
2. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate.* Washington, DC: National Academy Press; 2002.

EXCESSIVE ORAL FOOD/BEVERAGE INTAKE (NI-2.2)

Definition

Oral food/beverage intake that exceeds energy expenditure, established reference standards, or recommendations based upon physiological needs. Exception: when weight gain is desired.

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Harmful beliefs/attitudes about food, nutrition, and nutrition-related topics
- Food- and nutrition-related knowledge deficit
- Lack of access to healthful food choices, e.g., food provided by caregiver
- Lack of value for behavior change, competing values
- Inability to limit or refuse offered foods
- Lack of food planning, purchasing, and preparation skills
- Loss of appetite awareness
- Medications that increase appetite, e.g., steroids, antidepressants
- Unwilling or uninterested in reducing intake

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Variable high blood glucose levels • Abnormal Hgb A1C
Anthropometric Measurements	• Weight gain not attributed to fluid retention or normal growth
Physical Exam Findings	• Evidence of acanthosis nigricans

EXCESSIVE ORAL FOOD/BEVERAGE INTAKE (NI-2.2)

Food/Nutrition History	Reports or observations of: • Intake of calorically dense foods/beverages (juice, soda, or alcohol) at meals and/or snacks • Intake of large portions of foods/beverages, food groups, or specific food items • Intake that exceeds estimated or measured energy needs • Highly variable daily caloric intake • Binge eating patterns • Frequent, excessive intake of fast food or restaurant food
Client History	• Conditions associated with a diagnosis or treatment, e.g., obesity, overweight, or metabolic syndrome, depression, anxiety disorder • Resting metabolic rate measurement reflecting excess intake, e.g., respiratory quotient > 1.0

References:

1. Overweight and Obesity: Health Consequences. www.surgeongeneral.gov/topics/obesity/calltoaction/fact_consequences.htm. Accessed August 28, 2004.
2. Position of the American Dietetic Association: Weight management. *J Am Diet Assoc*. 2002;102:1145-1155.
3. Position of the American Dietetic Association: Total diet approach to communicating food and nutrition information. *J Am Diet Assoc*. 2002;102:100-108.
4. Position of the American Dietetic Association: The role of dietetics professionals in health promotion and disease prevention. *J Am Diet Assoc*. 2002;102:1680-1687.

INADEQUATE INTAKE FROM ENTERAL/PARENTERAL (EN/TPN) NUTRITION INFUSION (NI-2.3)

Definition

Enteral or parenteral infusion that provides fewer calories or nutrients compared to established reference standards or recommendations based upon physiological needs. Exception: when the goal is weight loss or during end of life care.

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Altered absorption or metabolism of nutrients, e.g., medications
- Food and nutrition-related knowledge deficit (patient/client, caregiver, supplier), e.g., incorrect formula/formulation given such as wrong enteral feeding, or missing component of TPN
- Lack of, compromised, or incorrect access for delivering EN/TPN
- Increased biological demand of nutrients, e.g., accelerated growth, wound healing, chronic infection, multiple fractures
- Intolerance of EN/TPN
- Infusion volume not reached or schedule for infusion interrupted

Signs/Symptoms *(Defining Characteristics)*

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)

Biochemical Data	• Cholesterol < 160 mg/dL (4.16 mmol/L)
	• Vitamin/mineral abnormalities
	  • Calcium < 9.2 mg/dL (2.3 mmol/L)
	  • Vitamin K--Prolonged prothrombin time (PT), partial thromboplastin time (PTT)
	  • Copper < 70 µg/dL (11 µmol/L)
	  • Zinc < 78 µg/dL (12 µmol/L)
	  • Iron < 50 µg/dL (9 nmol/L); iron binding capacity < 250 µg/dL (44.8 µmol/L)

INADEQUATE INTAKE FROM ENTERAL/PARENTERAL (EN/TPN) NUTRITION INFUSION (NI-2.3)

Anthropometric Measurements	• Growth failure, based on National Center for Health Statistics (NCHS) growth standards and fetal growth failure • Insufficient maternal weight gain • Lack of planned weight gain • Unintentional weight loss of 5% in 1 month or 10% in 6 months (not attributed to fluid) in adults • Any weight loss in infants and children • Underweight (BMI < 18.5)
Physical Exam Findings	• Clinical evidence of vitamin/mineral deficiency (e.g., hair loss, bleeding gums, pale nail beds, neurologic changes) • Evidence of dehydration, e.g., dry mucous membranes, poor skin turgor • Loss of skin integrity or delayed wound healing • Loss of muscle mass and/or subcutaneous fat • Nausea, vomiting, diarrhea
Food/Nutrition History	Observation or reports of: • Inadequate EN/TPN volume compared to estimated or measured (indirect calorimetry) requirements • Metabolic cart/indirect calorimetry measurement, e.g., respiratory quotient < 0.7
Client History	• Conditions associated with a diagnosis or treatment of, e.g., intestinal resection, Crohn's disease, HIV/AIDS, burns, decubitus ulcers, pre-term birth, malnutrition • Feeding tube or venous access in wrong position or removed • Altered capacity for desired levels of physical activity or exercise, easy fatigue with increased activity

References:

1. McClave SA, Spain DA, Skolnick JL, Lowen CC, Kieber MJ, Wickerham PS, Vogt JR, Looney SW. Achievement of steady state optimizes results when performing indirect calorimetry. *J Parenter Enteral Nutr*. 2003;27:16-20.
2. McClave SA, Lowen CC, Kleber MJ, McConnell JW, Jung LY, Goldsmith LJ. Clinical use of the respiratory quotient obtained from indirect calorimetry. *J Parenter Enteral Nutr*. 2003;27:21-26.
3. McClave SA, Snider HL. Clinical use of gastric residual volumes as a monitor for patients on enteral tube feeding. *J Parenter Enteral Nutr*. 2002;26(Suppl):S43-48; discussion S49-S50.
4. McClave SA, DeMeo MT, DeLegge MH, DiSario JA, Heyland DK, Maloney JP, Metheny NA, Moore FA, Scolapio JS, Spain DA, Zaloga GP. North American Summit on Aspiration in the Critically Ill Patient: consensus statement. *J Parenter Enteral Nutr*. 2002;26(Suppl):S80-S85.
5. McClave SA, McClain CJ, Snider HL. Should indirect calorimetry be used as part of nutritional assessment? *J Clin Gastroenterol*. 2001;33:14-19.
6. McClave SA, Sexton LK, Spain DA, Adams JL, Owens NA, Sullins MB, Blandford BS, Snider HL. Enteral tube feeding in the intensive care unit: factors impeding adequate delivery. *Crit Care Med*. 1999;27:1252-1256.
7. McClave SA, Lowen CC, Kleber MJ, Nicholson JF, Jimmerson SC, McConnell JW, Jung LY. Are patients fed appropriately according to their caloric requirements? *J Parenter Enteral Nutr*. 1998;22:375-381.
8. Spain DA, McClave SA, Sexton LK, Adams JL, Blanford BS, Sullins ME, Owens NA, Snider HL. Infusion protocol improves delivery of enteral tube feeding in the critical care unit. *J Parenter Enteral Nutr*. 1999;23:288-292.

EXCESSIVE INTAKE FROM ENTERAL/PARENTERAL NUTRITION (NI-2.4)

Definition

Enteral or parenteral infusion that provides more calories or nutrients compared to established reference standards or recommendations based upon physiological needs.

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Physiologic causes, e.g., decreased needs related to low activity levels with critical illness or organ failure
- Food- and nutrition-related knowledge deficit on the part of the caregiver, patient/client or clinician

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Elevated BUN:creatinine ratio (protein) • Hyperglycemia (carbohydrate) • Hypercapnia • Elevated liver enzymes
Anthropometric Measurements	• Weight gain in excess of lean tissue accretion
Physical Examination Findings	• Edema with excess fluid administration
Food/Nutrition History	Report or observation of: • Documented intake from enteral or parenteral nutrients that is consistently above recommended intake for carbohydrate, protein, and fat (e.g., 36 kcal/kg for well, active adults, 25 kcal/kg or as measured by indirect calorimetry for critically ill adults, 0.8 g/kg protein for well adults, 1.5 g/kg protein for critically ill adults, 4 mg/kg/minute of dextrose for critically ill adults, 1.2 g/kg lipid for adults, or 3 g/kg for children)*

* When entering weight (i.e., gram) information into the medical record, use institution or Joint Commission Accreditation of Healthcare Organizations' approved abbreviation list.

EXCESSIVE INTAKE FROM ENTERAL/PARENTERAL NUTRITION (NI-2.4)

Client History	• Use of drugs that reduce requirements or impair metabolism of energy, protein, fat or fluid. • Unrealistic expectations of weight gain or ideal weight • Receiving significant calorie intake from lipid or dextrose infusions, or peritoneal dialysis or in association with other medical treatments

References:

1. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids*. Washington, DC: National Academy Press, 2002.
2. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate*. Washington, DC: National Academy Press, 2004.
3. Aarsland A, Chinkes D, Wolfe RR. Hepatic and whole-body fat synthesis in humans during carbohydrate overfeeding. *Am J Clin Nutr*. 1997;65:1774-1782.
4. McClave SA, Lowen CC, Kleber MJ, Nicholson JF, Jimmerson JC, McConnell JW, Jung LY. Are patients fed appropriately according to their caloric requirements? *J Parenter Enteral Nutr*. 1998;22:375-381.
5. McClave SA, Lowen CC, Kleber MJ, McConnell JW, Jung LY, Goldsmith LJ. Clinical use of the respiratory quotient obtained from indirect calorimetry. *J Parenter Enteral Nutr*. 2003;27:21-26.
6. Wolfe RR, O'Donnell TF, Jr., Stone MD, Richmand DA, Burke JF. Investigation of factors determining the optimal glucose infusion rate in total parenteral nutrition. *Metabolism: Clinical & Experimental*. 1980;29:892-900.

INAPPROPRIATE INFUSION OF ENTERAL OR PARENTERAL NUTRITION (NI-2.5)

Use with caution–only after discussion with other health team members

Definition

Enteral or parenteral infusion that provides either fewer or more calories and/or nutrients or is of the wrong composition or type, is not warranted because the patient/client is able to tolerate an enteral intake, or is unsafe because of the potential for sepsis or other complications

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Physiologic causes, e.g., improvement in patient/client status, allowing return to total or partial oral diet; changes in the course of disease resulting in changes in nutrient requirements
- Product or knowledge deficit on the part of the caregiver or clinician
- End of life care if patient/client or family do not desire nutrition support

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Abnormal liver function tests in patient/client on long term (more than 3-6 weeks) feeding • Abnormal levels of markers specific for various nutrients, e.g., hyperphosphatemia in patient/client receiving feedings with a high phosphorus content, hypokalemia in patient/client receiving feedings with low potassium content
Anthropometric Measurements	• Weight gain in excess of lean tissue accretion • Weight loss
Physical Examination Findings	• Edema with excess fluid administration • Complications such as fatty liver in the absence of other causes • Loss of subcutaneous fat and muscle stores

INAPPROPRIATE INFUSION OF ENTERAL OR PARENTERAL NUTRITION (NI-2.5)

Food/Nutrition History	Report or observation of: • Documented intake from enteral or parenteral nutrients that is consistently above or below recommended intake for carbohydrate, protein, and/or fat — especially related to patient/client's ability to consume an oral diet that meets needs at this point in time • Documented intake of other nutrients that is consistently above or below that recommended • Nausea, vomiting, diarrhea, high gastric residual volume
Client History	• History of enteral or parenteral nutrition intolerance

References:

1. Aarsland A, Chinkes D, Wolfe RR. Hepatic and whole-body fat synthesis in humans during carbohydrate overfeeding. *Am J Clin Nutr*. 1997;65:1774-1782.
2. McClave SA, Lowen CC, Kleber MJ, Nicholson JF, Jimmerson SC, McConnell JW, Jung LY. Are patients fed appropriately according to their caloric requirements? *J Parenter Enteral Nutr*. 1998;22:375-381.
3. McClave SA, Lowen CC, Kleber MJ, McConnell JW, Jung LY, Goldsmith LJ. Clinical use of the respiratory quotient obtained from indirect calorimetry. *J Parenter Enteral Nutr*. 2003;27:21-26.
4. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids*. Washington, DC: National Academy Press; 2002.
5. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate*, Washington, DC: National Academy Press; 2004.
6. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Calcium, Phosphorus, Magnesium, Vitamin D, and Fluoride*. Washington, DC: National Academy Press; 1997.
7. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Vitamin C, Vitamin E, Selenium, and Carotenoids*. Washington, DC: National Academy Press; 2000.
8. Wolfe RR, O'Donnell TF, Jr., Stone MD, Richmand DA, Burke JF. Investigation of factors determining the optimal glucose infusion rate in total parenteral nutrition. *Metabolism*. 1980;29:892-900.

INADEQUATE FLUID INTAKE (NI-3.1)

Definition

Lower intake of fluid-containing foods or substances compared to established reference standards or recommendations based upon physiological needs

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Physiologic causes, e.g., increased fluid needs due to climate/temperature change; increased exercise or conditions leading to increased fluid losses; fever causing increased insensible losses, decreased thirst sensation, use of drugs that reduce thirst
- Lack of access to fluid, e.g., economic constraints, cultural or religious practices, inability to access fluid independently (such as elderly or children)
- Food- and nutrition-related knowledge deficit
- Psychological causes, e.g., depression or disordered eating; dementia resulting in decreased recognition of thirst

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Plasma or serum osmolality greater than 290 mOsm/kg • ↑ BUN, ↑ Na
Anthropometric Measurements	• Acute weight loss
Physical Examination Findings	• Dry skin and mucous membranes, poor skin turgor • Urine output <30 mL/hr
Food/Nutrition History	Report or observation of: • Insufficient intake of fluid when compared to requirements • Thirst • Difficulty swallowing

INADEQUATE FLUID INTAKE (NI-3.1)

Client History	• Conditions associated with a diagnosis or treatment, e.g., Alzheimer's disease or other dementia resulting in decreased recognition of thirst, diarrhea • Use of drugs that reduce thirst

References:

1. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate*, Washington, DC: National Academy Press; 2004.
2. Grandjean AC, Campbell, SM. *Hydration: Fluids for Life*. Monograph Series. Washington,D.C: International Life Sciences Institute North America, 2004.
3. Grandjean AC, Reimers KJ, Buyckx ME. Hydration: Issues for the 21st Century. *Nutr Rev*. 2003;61:261-271.

EXCESSIVE FLUID INTAKE (NI-3.2)

Definition

Higher intake of fluid compared to established reference standards or recommendations based upon physiological needs

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Physiologic causes, e.g., decreased fluid losses due to kidney, liver or cardiac failure; diminished water and sodium losses due to changes in exercise or climate, syndrome of inappropriate antidiuretic hormone (SIADH)
- Food- and nutrition-related knowledge deficit
- Psychological causes, e.g., depression or disordered eating

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Lowered plasma osmolarity (270-280 mOsm/kg), only if positive fluid balance is in excess of positive salt balance • Decreased serum sodium in SIADH
Anthropometric Measurements	• Weight gain
Physical Examination Findings	• Edema in the skin of the legs, sacral area, or diffusely; weeping of fluids from lower legs • Ascites • Pulmonary edema as evidenced by shortness of breath; orthopnea; crackles or rales
Food/Nutrition History	Report or observation of: • Fluid intake in excess of recommended intake • Excessive salt intake • Inability to tolerate solid foods necessitating a liquid diet

EXCESSIVE FLUID INTAKE (NI-3.2)

Client History	• Conditions associated with a diagnosis or treatment, e.g., end stage renal disease, nephrotic syndrome, heart failure, or liver disease • Nausea, vomiting, anorexia, headache, muscle spasms, convulsions, coma related to SIADH • Shortness of breath or dyspnea with exertion or at rest • Providing medications in large amounts of fluid • Use of drugs that impair fluid excretion

References:

1. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate*, Washington, DC: National Academy Press; 2004.
2. Schrier R.W. ed. *Renal and Electrolyte Disorders*.6th ed. Philadelphia, Pa: Lippincott Williams and Willkins; 2002.
3. SIADH. Available at : http://ww.nlm.nih.gov/medlineplus/ency/article/000394.

INADEQUATE BIOACTIVE SUBSTANCE INTAKE (NI-4.1)

Definition

Lower intake of bioactive substances containing foods or substances compared to established reference standards or recommendations based upon physiological needs

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Food- and nutrition-related knowledge deficit
- Limited access to food-containing substance
- Altered GI function, e.g., pain or discomfort

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	
Anthropometric Measurements	
Physical Exam Findings	

Food/Nutrition History	Observations or reports of:
	• Low intake of plant foods containing:
	  • Soluble fiber, e.g., psyllium (↓ total and LDL cholesterol)
	  • Soy protein (↓ total and LDL cholesterol)
	  • β-glucan, e.g., whole oat products (↓ total and LDL cholesterol)
	  • Plant sterol and stanol esters, e.g., fortified margarines (↓ total and LDL cholesterol)
	• Lack of available foods/products with bioactive substance in markets

INADEQUATE BIOACTIVE SUBSTANCE INTAKE (NI-4.1)

Client History	• Conditions associated with a diagnosis or treatment, e.g., cardiovascular disease, elevated cholesterol • Discomfort or pain associated with intake of foods rich in bioactive substances, e.g., soluble fiber, β-glucan, soy protein

Reference:

1. Position of the American Dietetic Association: Functional foods. *J Am Diet Assoc*. 2004;104:814-826.

EXCESSIVE BIOACTIVE SUBSTANCE INTAKE (NI-4.2)

Definition

Higher intake of bioactive substances other than traditional nutrients, such as functional foods, bioactive food components, dietary supplements, or food concentrates compared to established reference standards or recommendations based upon physiological needs

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Food- and nutrition-related knowledge deficit
- Contamination, misname, mislabel, misuse, recent brand change, recent dose increase, recent formulation change of substance consumed
- Frequent intake of food containing bioactive substance
- Altered GI function, e.g., pain or discomfort

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Lab values indicating excessive intake of the specific substance, such as rapid drop in cholesterol from intake of stanol or sterol esters in combination with a statin drug • Increased hepatic enzyme reflecting hepatocellular damage
Anthropometric Measurements	• Weight loss as a result of malabsorption or maldigestion
Physical Exam Findings	• Constipation or diarrhea related to excessive intake • Neurologic changes, e.g., anxiety, mental status changes • Cardiovascular changes, e.g., heart rate, EKG, blood pressure

EXCESSIVE BIOACTIVE SUBSTANCE INTAKE (NI-4.2)

Food/Nutrition History	Observations or reports of: • High intake of plant foods containing: • Soy protein (↓ total and LDL cholesterol) • β-glucan, e.g., whole oat products (↓ total and LDL cholesterol) • Plant sterol and stanol esters, e.g., fortified margarines (↓ total and LDL cholesterol) or other foods based upon dietary substance, concentrate, metabolite, constituent, extract or combination • Substances which interfere with digestion or absorption of foodstuffs • Ready access to available foods/products with bioactive substance, e.g., as from dietary supplement vendors
Client History	• Conditions associated with a diagnosis or treatment, e.g., cardiovascular disease, elevated cholesterol, hypertension • Discomfort or pain associated with intake of foods rich in bioactive substances, e.g., soluble fiber, β-glucan, soy protein • Attempts to use supplements or bioactive substances for weight loss, treat constipation, prevent or cure chronic or acute disease

References:

1. National Academy of Sciences, Institute of Medicine. *Dietary Supplements: A framework for evaluating safety*. Washington, DC: National Academy Press; 2004.
2. Position of the American Dietetic Association: Functional foods. *J Am Diet Assoc*. 2004;104:814-826.

EXCESSIVE ALCOHOL INTAKE (NI-4.3)

Definition

Intake above the suggested limits for alcohol

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems.

- Harmful beliefs/attitudes about food, nutrition, and nutrition-related topics
- Food- and nutrition-related knowledge deficit
- Lack of value for behavior change, competing values
- Alcohol addiction

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Elevated aspartate aminotransferase (AST), gamma-glutamyl transferase (GGT), carbohydrate-deficient transferrin, mean corpuscular volume, blood alcohol levels
Anthropometric Measurements	
Physical Exam Findings	
Food/Nutrition History	Reports or observations of: • Intake of > 2 drinks/day (men) (1 drink = 5 oz. wine, 12 oz beer, 1 oz. distilled alcohol) • Intake of > 1 drink/day (women) (1 drink = 5 oz. wine, 12 oz beer, 1 oz. distilled alcohol) • Binge drinking • Consumption of any alcohol when contraindicated

EXCESSIVE ALCOHOL INTAKE (NI-4.3)

Client History	• Conditions associated with a diagnosis or treatment, e.g., severe hypertriglyceridemia, elevated blood pressure, depression, liver disease, pancreatitis • New medical diagnosis or change in existing diagnosis or condition • History of excessive alcohol intake • Giving birth to an infant with fetal alcohol syndrome • Drinking during pregnancy despite knowledge of risk • Unexplained falls

Reference:

1. Position of the American Dietetic Association: The role of dietetics professionals in health promotion and disease prevention. *J Am Diet Assoc*. 2002;102:1680-1687.

INCREASED NUTRIENT NEEDS (SPECIFY) (NI-5.1)

Definition

Increased need for a specific nutrient compared to established reference standards or recommendations based upon physiological needs

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Altered absorption or metabolism of nutrient, e.g., from medications
- Compromise of organs related to GI function, e.g., pancreas, liver
- Decreased functional length of intestine, e.g., short bowel syndrome
- Decreased or compromised function of intestine, e.g., celiac disease, Crohn's disease
- Food- and nutrition-related knowledge deficit
- Increased demand of nutrient, e.g., accelerated growth, wound healing, chronic infection

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Decreased cholesterol < 160 mg/dL, albumin, prealbumin, C-reactive protein, indicating increased stress and increased metabolic needs • Electrolyte/mineral (e.g., potassium, magnesium, phosphorus) abnormalities • Urinary or fecal losses of specific or related nutrient (e.g., fecal fat, d-xylose test) • Vitamin and/or mineral deficiency
Anthropometric Measurements	• Growth failure, based on National Center for Health Statistics (NCHS) growth standards and fetal growth failure • Unintentional weight loss of 5% in 1 month or 10% in 6 months • Underweight (BMI < 18.5)

INCREASED NUTRIENT NEEDS (SPECIFY) (NI-5.1)

Physical Examination Findings	• Clinical evidence of vitamin/mineral deficiency (e.g., hair loss, bleeding gums, pale nail beds) • Loss of skin integrity or delayed wound healing • Loss of muscle mass, subcutaneous fat
Food/Nutrition History	Observation or reports of: • Inadequate intake of foods/supplement containing needed nutrient as compared to estimated requirements • Intake of foods that do not contain sufficient quantities of available nutrient (e.g., overprocessed, overcooked, or stored improperly) • Food and nutrition-related knowledge deficit (e.g., lack of information, incorrect information or noncompliance with intake of needed nutrient)
Client History	• Fever • Conditions associated with a diagnosis or treatment, e.g., intestinal resection, Crohn's disease, HIV/AIDS, burns, pressure ulcers, pre-term birth, malnutrition • Medications affecting absorption or metabolism of needed nutrient

References:

1. Beyer P. Gastrointestinal disorders: Roles of nutrition and the dietetics practitioner. *J Am Diet Assoc.* 1998;98:272-277.
2. Position of the American Dietetic Association and Dietitians of Canada: Nutrition intervention in the care of persons with human immunodeficiency virus infection. *J Am Diet Assoc.* 2004;104:1425-1441.

EVIDENT PROTEIN-ENERGY MALNUTRITION (NI-5.2)

Definition

Inadequate intake of protein and/or energy over prolonged periods of time resulting in loss of fat stores and/or muscle wasting

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Physiologic causes, e.g., altered nutrient needs due to prolonged catabolic illness, malabsorption
- Lack of access to food, e.g., economic constraints, cultural or religious practices, restricting food given to elderly and/or children
- Food- and nutrition-related knowledge deficit, e.g., avoidance of high quality protein foods
- Psychological causes, e.g., depression or eating disorders

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Normal serum albumin level (uncomplicated malnutrition) • Albumin < 3.4 mg/dL (disease/trauma-related malnutrition)
Anthropometric Measurements	• BMI < 18.5 indicates underweight • Failure to thrive, e.g. failure to attain desirable growth rates • Inadequate maternal weight gain • Weight loss of > 10% in 6 months or 5% in 1 month • Underweight with muscle wasting • Normal or slightly underweight, stunted growth in children

EVIDENT PROTEIN-ENERGY MALNUTRITION (NI-5.2)

Physical Exam Findings	• Uncomplicated malnutrition: Thin, wasted appearance; severe muscle wasting; minimal body fat; sparse, thin, dry, easily pluckable hair; dry, thin skin; obvious bony prominences, occipital wasting; lowered body temperature, blood pressure, heart rate; changes in hair or nails consistent with insufficient protein intake • Disease/trauma-related malnutrition: Thin to normal appearance, with peripheral edema, ascites or anasarca; some muscle wasting with retention of some body fat; enlarged fatty liver; dyspigmentation of hair (flag sign) and skin • Delayed wound healing
Food/Nutrition History	Reports or observations of: • Insufficient energy intake from diet compared to estimated or measured RMR • Insufficient intake of high-quality protein when compared to requirements • Food avoidance and/or lack of interest in food
Client History	• Chronic or acute disease or trauma, geographic location and socioeconomic status associated with altered nutrient intake of indigenous phenomenon • Severe protein and/or nutrient malabsorption (e.g. extensive bowel resection) • Excessive consumption of alcohol or other drugs that reduce hunger

References:

1. Wellcome Trust Working Party. Classification of infantile malnutrition. *Lancet.* 1970;2:302-303.
2. Seres DS, Resurrection, LB. Kwashiorkor: Dysmetabolism versus malnutrition. *Nutr Clin Pract.* 2003;18:297-301.
3. Jelliffe DB, Jelliffe EF. Causation of kwashiorkor: Toward a multifactoral consensus. *Pediatrics* 1992:90:110-113.
4. Centers for Disease Control and Prevention Web site. Available at: http://www.cdc.gov/nccdphp/dnpa/bmi/bmi-adult.htm. Accessed October 5, 2004.
5. Fuhrman MP, Charney P, Mueller CM. Hepatic proteins and nutrition assessment. *J Am Diet Assoc.* 2004;104:1258-1264.
6. U.S. Department of Health and Human Services. *The International Classification of Diseases,* 9th Revision, 4th ed. Washington DC: USDHSS Publication No. (PHS) 91-1260; 1991.

INADEQUATE PROTEIN-ENERGY INTAKE (NI-5.3)

Definition

Inadequate intake of protein and/or energy compared to established reference standards or recommendations based upon physiological needs of short or recent duration

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems.

- Short-term physiologic causes, e.g., increased nutrient needs due to catabolic illness, malabsorption
- Recent lack of access to food, e.g., economic constraints, cultural or religious practices, restricting food given or food selected
- Food- and nutrition-related knowledge deficit, e.g., avoidance of all fats for new dieting pattern
- Recent onset of psychological causes, e.g., depression or eating disorders

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Normal albumin (in the setting of normal liver function despite decrease protein-energy intake)
Anthropometric Measurements	• Inadequate maternal weight gain (mild but not severe) • Weight loss of 5-7% over past 3 months in adults, any weight loss in children • Normal or slightly underweight • Growth failure in children
Physical Exam Findings	• Slow wound healing in pressure ulcer or surgical patient/client

INADEQUATE PROTEIN-ENERGY INTAKE (NI-5.3)

Food/Nutrition History	Reports or observations of: • Insufficient energy intake from diet compared to estimated or measured resting metabolic rate (RMR) or recommended levels • Restriction or omission of food groups such as dairy or meat group foods (protein); bread or milk group foods (energy) • Recent food avoidance and/or lack of interest in food • Lack of ability to prepare meals
Client History	• Conditions associated with a diagnosis or treatment of mild protein-energy malnutrition, recent illness, e.g. pulmonary or cardiac failure, flu, infection, surgery • Nutrient malabsorption (e.g. bariatric surgery, diarrhea, steatorrhea) • Excessive consumption of alcohol or other drugs that reduce hunger • Patient/client reports of hunger in the face of inadequate access to food supply • Patient/client reports lack of ability to prepare meals • Patient/client reports lack of funds for purchase of appropriate foods

References:

1. Centers for Disease Control and Prevention Web site. Available at: http://www.cdc.gov/nccdphp/dnpa/bmi/bmi-adult.htm. Accessed October 5, 2004.
2. Fuhrman MP, Charney P, Mueller CM. Hepatic proteins and nutrition assessment. *J Am Diet Assoc*. 2004;104:1258-1264.
3. U.S. Department of Health and Human Services. *The International Classification of Diseases*, 9th Revision, 4th ed. Washington DC: USDHSS Publication No. (PHS) 91-1260; 1991.

DECREASED NUTRIENT NEEDS (SPECIFY) (NI-5.4)

Definition

Decreased need for a specific nutrient compared to established reference standards or recommendations based upon physiological needs

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Renal dysfunction
- Liver dysfunction
- Altered cholesterol metabolism/regulation
- Heart failure
- Food intolerances, e.g., irritable bowel syndrome

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Cholesterol > 200 mg/dL (5.2 mmol/L), LDL cholesterol > 100 mg/dL (2.59 mmol/L), HDL cholesterol < 40 mg/dL (1.036 mmol/L), triglycerides > 150 mg/dL (1.695 mmol/L) • Phosphorus > 5.5 mg/dL (1.78 mmol/L) • Glomerular filtration rate (GFR) < 90 mL/min/1.73 m^2 • Elevated BUN, Cr, potassium • Liver function tests indicating severe liver disease
Anthropometric Measurements	
Physical Exam Findings	• Edema/fluid retention • Interdialytic weight gain greater than expected

DECREASED NUTRIENT NEEDS (SPECIFY) (NI-5.4)

Food/Nutrition History	Reports or observations of: • Intake higher than recommended for fat, phosphorus, sodium, protein, fiber
Client History	• Conditions associated with a diagnosis or treatment that require a specific type and/or amount of nutrient, e.g., cardiovascular disease (fat), early renal disease (protein, phosphorus), ESRD (phosphorus, sodium, potassium, fluid), advanced liver disease (protein), heart failure (sodium, fluid), irritable bowel disease/Crohn's disease flare up (fiber) • Diagnosis of hypertension, confusion related to liver disease

References:

1. Aparicio M, Chauveau P, Combe C. Low protein diets and outcomes of renal patients. *J Nephrol.* 2001;14:433-439.
2. Beto JA, Bansal VK. Medical nutrition therapy in chronic kidney failure: Integrating clinical practice guidelines. *J Am Diet Assoc.* 2004;104:404-409.
3. Cupisti A, Morelli E, D'Alessandro C, Lupetti S, Barsotti G. Phosphate control in chronic uremia: don't forget diet. *J Nephrol.* 2003;16:29-33.
4. Durose CL, Holdsworth M, Watson V, Przygrodzka F. Knowledge of dietary restrictions and the medical consequences of noncompliance by patients on hemodialysis are not predictive of dietary compliance. *J Am Diet Assoc.* 2004;104:35-41.
5. Floch MH, Narayan R. Diet in the irritable bowel syndrome. *Clin Gastroenterol.* 2002;35:S45-S52.
6. Kato J, Kobune M, Nakamura T, Kurojwa G, Takada K, Takimoto R, Sato Y, Fujikawa K, Takahashi M, Takayama T, Ikeda T, Niitsu Y. Normalization of elevated hepatic 8-hydroxy-2'-deoxyguanosine levels in chronic hepatitis C patients by phlebotomy and low iron diet. *Cancer Res.* 2001;61:8697-8702.
7. Lee SH, Molassiotis A. Dietary and fluid compliance in Chinese hemodialysis patients. *Int J Nurs Stud.* 2002;39:695-704.
8. Poduval RD, Wolgemuth C, Ferrell J, Hammes MS. Hyperphosphatemia in dialysis patients: is there a role for focused counseling? *J Ren Nutr.* 2003;13:219-223.
9. Tandon N, Thakur V, Guptan RK, Sarin SK. Beneficial influence of an indigenous low-iron diet on serum indicators of iron status in patients with chronic liver disease. *Br J Nutr*. 2000;83:235-239.
10. Zrinyi M, Juhasz M, Balla J, Katona E, Ben T, Kakuk G, Pall D. Dietary self-efficacy: determinant of compliance behaviours and biochemical outcomes in haemodialysis patients. *Nephrol Dial Transplant.* 2003;19:1869-1873.

IMBALANCE OF NUTRIENTS (NI-5.5)

Definition

An undesirable combination of ingested nutrients, such that the amount of one nutrient ingested interferes with or alters absorption and/or utilization of another nutrient

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Consumption of high dose nutrient supplements
- Food- and nutrition-related knowledge deficit
- Harmful beliefs/attitudes about food, nutrition, and nutrition-related information
- Food faddism

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	
Anthropometric Data	
Physical Exam Findings	
Food/Nutrition History	Reports or observations of: • High intake of iron supplements (↓ zinc absorption) • High intake of zinc supplements (↓ copper status) • High intake of manganese (↓ iron status)
Client History	• Diarrhea or constipation (iron supplements) • Epigastric pain, nausea, vomiting, diarrhea (zinc supplements) • Contributes to the development of anemia (manganese supplements)

IMBALANCE OF NUTRIENTS (NI-5.5)

References:

1. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, Zinc*. Washington, DC: National Academy Press; 2001.
2. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Calcium, Phosphorus, Magnesium, Vitamin D, and Fluoride*. Washington, DC: National Academy Press; 1997.

INADEQUATE FAT INTAKE (NI-51.1)

Definition

Lower fat intake compared to established reference standards or recommendations based upon physiological needs. Exception: when the goal is weight loss or during end of life care.

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Inappropriate food choices, e.g., economic constraints, cultural or religious practices, restricting food given to elderly and/or children, specific food choices
- Food- and nutrition-related knowledge deficit, e.g,. prolonged adherence to a very low fat diet
- Psychological causes, e.g., depression or disordered eating

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Triene:tetraene ratio >0.2
Anthropometric Measurements	• Weight loss if insufficient calories consumed
Physical Examination Findings	• Rough, scaly skin that becomes dermatitis with essential fatty acid deficiency
Food/Nutrition History	Report or observation of • Intake of essential fatty acid containing foods consistently providing less than 10% of calories
Client History	• Conditions associated with a diagnosis or treatment, e.g., prolonged catabolic illness (e.g., AIDS, tuberculosis, anorexia nervosa, sepsis or severe infection from recent surgery) • Severe fat malabsorption with bowel resection, pancreatic insufficiency, or hepatic disease accompanied by steatorrhea

References:

1. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids.* Washington, DC: National Academy Press; 2002.

EXCESSIVE FAT INTAKE (NI-51.2)

Definition

Higher fat intake compared to established reference standards or recommendations based upon physiological needs

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Food- and nutrition-related knowledge deficit
- Harmful beliefs/attitudes about food, nutrition, and nutrition-related topics
- Lack of access to healthful food choices, e.g., food provided by caregiver
- Changes in taste and appetite or preference
- Lack of value for behavior change; competing values

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Cholesterol >200 mg/dL (5.2 mmol/L), LDL cholesterol > 100 mg/dL (2.59 mmol/L), HDL cholesterol < 40 mg/dL (1.036 mmol/L), triglycerides > 150 mg/dL (1.695 mmol/L) • Elevated serum amylase and/or lipase • Elevated liver function tests and/or total bilirubin • Triene:tetraene ratio > 0.4 • Fecal fat > 7g/ 24 hours
Anthropometric Measurements	
Physical Exam Findings	• Evidence of xanthomas • Evidence of skin lesions

EXCESSIVE FAT INTAKE (NI-51.2)

Food/Nutrition History	Reports or observations of: • Frequent or large portions of high-fat foods • Frequent food preparation with added fat • Frequent consumption of high-risk lipids (i.e., saturated fat, *trans* fat, cholesterol) • Report of foods containing fat above diet prescription • Inadequate intake of essential lipids
Client History	• Conditions associated with a diagnosis or treatment, e.g., hyperlipidemia, cystic fibrosis, angina, artherosclerosis, pancreatic, liver, and biliary diseases; post-transplantation • Medication, e.g., pancreatic enzymes, cholesterol, or other lipid-lowering medications • Diarrhea, cramping, steatorrhea, epigastric pain • Family history of hyperlipidemia, atherosclerosis, or pancreatitis.

References:

1. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids*. Washington, DC: National Academy Press; 2002.
2. Position of the American Dietetic Association: Weight management. *J Am Diet Assoc*. 2002;102:1145-1155.
3. Position of the American Dietetic Association: Total diet approach to communicating food and nutrition information. *J Am Diet Assoc.* 2002;102:100-108.
4. Position of the American Dietetic Association: The role of dietetics professionals in health promotion and disease prevention. *J Am Diet Assoc*. 2002;102:1680-1687.

INAPPROPRIATE INTAKE OF FOOD FATS (NI-51.3)

Definition

Intake of wrong type or quality of food fats compared to established reference standards or recommendations based upon physiological needs

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Food- and nutrition-related knowledge deficit
- Harmful beliefs/attitudes about food, nutrition, and nutrition-related topics
- Lack of access to healthful food choices, e.g., food provided by caregiver, pediatrics, homeless
- Changes in taste and appetite or preference
- Lack of value for behavior change; competing values

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Cholesterol >200 mg/dL (5.2 mmol/L), LDL cholesterol > 100 mg/dL (2.59 mmol/L), HDL cholesterol < 40 mg/dL (1.036 mmol/L), triglycerides > 150 mg/dL (1.695 mmol/L) • Elevated serum amylase and/or lipase • Elevated liver function tests, total bilirubin, and C-reactive protein
Anthropometric Measurements	
Physical Exam Findings	• Evidence of xanthomas • Evidence of skin lesions

INAPPROPRIATE INTAKE OF FOOD FATS (NI-51.3)

Food/Nutrition History	Reports or observations of: • Frequent food preparation with added fat that is not of desired type for condition • Frequent consumption of fats that are undesirable for condition (i.e., saturated fat, *trans* fat, cholesterol, omega-6 fatty acids) • Inadequate intake of monounsaturated, polyunsaturated, or omega-3 fatty acids
Client History	• Conditions associated with a diagnosis or treatment of diabetes, cardiac diseases, obesity, liver or biliary disorders • Diarrhea, cramping, steatorrhea, epigastric pain • Family history of diabetes-related heart disease, hyperlipidemia, atherosclerosis, or pancreatitis • Client desires to implement a Mediterranean-type diet

References:

1. de Lorgeril M, Salen P, Martin JL, Monjaud I, Delaye J, Mamelle N. Mediterranean diet, traditional risk factors, and the rate of cardiovascular complications after myocardial infarction. Final report of the Lyon Diet Heart Study. *Circulation.* 1999;99:779-785.
2. Franz MJ, Bantle JP, Beebe CA, Brunzell JD, Chiasson J-L, Garg A, Holzmeister LA, Hoogwerf B, Mayer-Davis E, Mooradian AD, Purnell JQ, Wheeler M: Technical review. Evidence-based nutrition principles and recommendations for the treatment and prevention of diabetes and related complications. *Diabetes Care.* 2002;202:148-198.
3. Knoops KTB, de Grott LCPGM, Kromhout D, Perrin A-E, Varela MV, Menotti A, van Staveren WA. Mediterranean diet, lifestyle factors, and 10-year mortality in elderly European men and women. *JAMA.* 2004;292:1433-1439,
4. Kris-Etherton PM, Harris WS, Appel LJ, for the Nutrition Committee. AHA scientific statement. Fish consumption, fish oil, omega-3 fatty acids, and cardiovascular disease. *Circulation.* 2002;106:2747-2757.
5. Panagiotakos DB, Pitsavos C, Polychronopoulos E, Chrysohoou C, Zampelas A, Trichopoulou A. Can a Mediterranean diet moderate the development and clinical progression of coronary heart disease? A systematic review. *Med Sci Monit.* 2004;10:RA193-RA198.
6. Position of the American Dietetic Association: Weight management. *J Am Diet Assoc.* 2002;102:1145-1155.
7. Position of the American Dietetic Association: Total diet approach to communicating food and nutrition information. *J Am Diet Assoc.* 2002;102:100-108.
8. Position of the American Dietetic Association: The role of dietetics professionals in health promotion and disease prevention. *J Am Diet Assoc.* 2002;102:1680-1687.
9. Zhao G, Etherton TD, Martin KR, West SG, Gilles PJ, Kris-Etherton PM. Dietary alpha-linolenic acid reduces inflammatory and lipid cardiovascular risk factors in hypercholesterolemic men and women. *J Nutr.* 2004;134:2991-2997.

INADEQUATE PROTEIN INTAKE (NI-52.1)

Definition

Lower intake of protein-containing foods or substances compared to established reference standards or recommendations based upon physiological needs

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Physiologic causes, e.g., increased nutrient needs due to prolonged catabolic illness, malabsorption, age or condition
- Lack of access to food, e.g., economic constraints, cultural or religious practices, restricting food given to elderly and/or children
- Food- and nutrition-related knowledge deficit
- Psychological causes, e.g., depression or disordered eating

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	
Anthropometric Measurements	
Physical Examination Findings	
Diet History	Report or observation of • Insufficient intake of protein to meet requirements • Cultural or religious practices that limit protein intake • Economic constraints that limit food availability • Prolonged adherence to a very low-protein weight loss diet
Client History	• Conditions associated with a diagnosis or treatment, e.g., severe protein malabsorption such as bowel resection

Reference:

1. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids*. Washington, DC: National Academy Press; 2002.

EXCESSIVE PROTEIN INTAKE (NI-52.2)

Definition

Intake above the recommended level of protein compared to established reference standards or recommendations based upon physiological needs

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Liver dysfunction
- Renal dysfunction
- Harmful beliefs/attitudes about food, nutrition and nutrition-related topics
- Lack of access to specialized protein products
- Metabolic abnormality
- Food faddism

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Altered laboratory values e.g. ↑ BUN, ↓ glomerular filtration rate (altered renal status)
Anthropometric Measurements	• Growth stunting or failure based on National Center for Health Sstatistics growth charts (metabolic disorders)
Physical Exam Findings	
Food/Nutrition History	Reports or observations of: • Higher than recommended total protein intake, e.g., early renal disease, advanced liver disease with confusion • Inappropriate supplementation
Client History	• Conditions associated with a diagnosis or treatment, e.g., early renal disease or advanced liver disease with confusion

EXCESSIVE PROTEIN INTAKE (NI-52.2)

References:

1. Position of the American Dietetic Association: Food and nutrition misinformation. *J Am Diet Assoc*. 2002;102:260-266.
2. Beto JA, Bansal VK. Medical nutrition therapy in chronic kidney failure: Integrating clinical practice guidelines. *J Am Diet Assoc*. 2004;104:404-409.
3. Brandle E, Sieberth HG, Hautmann RE. Effect of chronic dietary protein intake on the renal function in healthy subjects. *Eur J Clin Nutr*. 1996;50:734-740.
4. Frassetto LA, Todd KM, Morris RC Jr, Sebastian A. Estimation of net endogenous noncarbonic acid production in humans from diet, potassium and protein contents. *Am J Clin Nutr*. 1998;68:576-583.
5. Friedman N, ed. *Absorption and Utilization of Amino Acids, Vol. I*. Boca Raton, Fla. CRC Press; 1989:229-242.
6. Hoogeveen EK, Kostense PJ, Jager A, Heine RJ, Jakobs C, Bouter LM, Donker AJ, Stehower CD. Serum homocysteine level and protein intake are related to risk of microalbuminuria: the Hoorn study. *Kidney Int*. 1998;54:203-209.
7. Rudman D, DiFulco TJ, Galambos JT, Smith RB 3rd, Salam AA, Warren WD. Maximum rate of excretion and synthesis of urea in normal and cirrhotic subjects. *J Clin Invest*. 1973;52:2241-2249.

INAPPROPRIATE INTAKE OF AMINO ACIDS (SPECIFY) (NI-52.3)

Definition

Intake that is more or less than recommended level and/or type of amino acids compared to established reference standards or recommendations based upon physiological needs

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Liver dysfunction
- Renal dysfunction
- Harmful beliefs/attitudes about food, nutrition- and nutrition-related topics
- Misused specialized protein products
- Metabolic abnormality
- Food faddism
- Inborn errors of metabolism

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Altered laboratory values, e.g., ↑ BUN, ↓ glomerular filtration rate (altered renal status); increased urinary 3-methyl-histidine • Elevated specific amino acids (inborn errors of metabolism) • Uremia, azotemia (renal patients) • Elevated homocysteine or ammonia
Anthropometric Measurements	
Physical Exam Findings	• Physical or neurological changes (inborn errors of metabolism)

INAPPROPRIATE INTAKE OF AMINO ACIDS (SPECIFY) (NI-52.3)

Food/Nutrition History	Reports or observations of: • Higher than recommended amino acid intake, e.g., early renal disease, advanced liver disease, inborn error of metabolism • Higher than recommended type of amino acids for prescribed EN or TPN therapy • Inappropriate supplementation, as for athletes • Higher than recommended type of protein, e.g., excess phenylalanine intake
Client History	• Conditions associated with a diagnosis or treatment of illness that requires EN or TPN therapy • History of use of amino acids or protein powders for athletic enhancement • History of inborn error of metabolism

References:

1. Beto JA, Bansal VK. Medical nutrition therapy in chronic kidney failure: Integrating clinical practice guidelines. *J Am Diet Assoc*. 2004;104:404-409.
2. Brandle E, Sieberth HG, Hautmann RE. Effect of chronic dietary protein intake on the renal function in healthy subjects. *Eur J Clin Nutr*. 1996;50:734-740.
3. Cohn RM, Roth KS. Hyperammonia, bane of the brain. *Clin Pediatr*. 2004;43:683-689.
4. Frassetto LA, Todd KM, Morris RC Jr, Sebastian A. Estimation of net endogenous noncarbonic acid production in humans from diet, potassium and protein contents. *Am J Clin Nutr*. 1998;68:576-583.
5. Friedman N, ed. *Absorption and Utilization of Amino Acids, Vol. I*. Boca Raton, Fla:CRC Press; 1989:229-242.
6. Hoogeveen EK, Kostense PJ, Jager A, Heine RJ, Jakobs C, Bouter LM, Donker AJ, Stehower CD. Serum homocysteine level and protein intake are related to risk of microalbuminuria: the Hoorn study. *Kidney Int*. 1998;54:203-209.
7. Position of the American Dietetic Association: Food and nutrition misinformation. *J Am Diet Assoc*. 2002;102:260-266.
8. Rudman D, DiFulco TJ, Galambos JT, Smith RB 3rd, Salam AA, Warren WD. Maximum rate of excretion and synthesis of urea in normal and cirrhotic subjects. *J Clin Invest*. 1973;52:2241-2249.

INADEQUATE CARBOHYDRATE INTAKE (NI-53.1)

Definition

Lower intake of carbohydrate-containing foods or substances compared to established reference standards or recommendations based upon physiological needs

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Physiologic causes, e.g., increased energy needs due to increased activity level or metabolic change, malabsorption
- Lack of access to food, e.g., economic constraints, cultural or religious practices, restricting food given to elderly and/or children
- Food- and nutrition-related knowledge deficit
- Psychological causes, e.g., depression or disordered eating

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	
Anthropometric Measurements	
Physical Examination Findings	• Ketone smell on breath
Diet History	Report or observation of: • Carbohydrate intake below recommended amounts • Inability to independently consume foods/fluids, e.g., diminished mobility in hand, wrist, or digits
Client History	• Conditions associated with a diagnosis or treatment, e.g., pancreatic insufficiency, hepatic disease, celiac disease, seizure disorder, carbohydrate malabsorption, or low-carbohydrate diets

Reference:

1. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids*. Washington, DC: National Academy Press; 2002.

EXCESSIVE CARBOHYDRATE INTAKE (NI-53.2)

Definition

Intake above the recommended level and type of carbohydrate compared to established reference standards or recommendations based upon physiological needs

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Physiologic causes requiring modified carbohydrate intake, e.g., diabetes mellitus, lactase deficiency, sucrase-isomaltase deficiency, aldolase-B deficiency
- Cultural or religious practices that interfere with the ability to reduce carbohydrate intake
- Food- and nutrition-related knowledge deficit, e.g., inability to access sufficient information concerning appropriate carbohydrate intake
- Food and nutrition compliance limitations, e.g., lack of willingness or failure to modify carbohydrate intake in response to recommendations from a dietitian or physician
- Psychological causes, e.g., depression or disordered eating

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Hyperglycemia (fasting blood sugar > 126 mg/dL) • Hemoglobin A1C > 6% • Abnormal oral glucose tolerance test (2-hour postload glucose > 200 mg/dL)
Anthropometric Measurements	
Physical Examination Findings	• Dental caries • Diarrhea in response to carbohydrate feeding

EXCESSIVE CARBOHYDRATE INTAKE (NI-53.2)

Food/Nutrition History	Reports or observations of: • Cultural or religious practices that do not support modification of dietary carbohydrate intake • Economic constraints that limit availability of appropriate foods • Carbohydrate intake that is consistently above recommended amounts
Client History	• Conditions associated with a diagnosis or treatment, e.g., diabetes mellitus, inborn errors of carbohydrate metabolism, lactase deficiency, severe infection, sepsis, or obesity • Chronic use of medications that cause hyperglycemia, e.g., steroids • Pancreatic insufficiency resulting in reduced insulin production

References:

1. Bowman BA, Russell RM. *Present Knowledge in Nutrition.* 8th ed. Washington, DC: ILSI Press; 2001.
2. Clement S, Braithwaite SS, Magee MF, Ahmann A, Smith EP, Schafer RG, Hirsch IB, American Diabetes Association Diabetes in Hospitals Writing Committee. Management of diabetes in hospitals. *Diabetes Care*. 2004;27:553-592.
3. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids.* Washington, DC: National Academy Press; 2002.
4. The Expert Committee on the Diagnosis and Classification of Diabetes Mellitus. Diagnosis and classification of diabetes mellitus. *Diabetes Care*. 2004;27:S5-S10.

INAPPROPRIATE INTAKE OF TYPES OF CARBOHYDRATES (SPECIFY) (NI-53.3)

Definition

Intake or the type or amount of carbohydrate that is above or below the established reference standards or recommendations based upon physiological needs

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Physiologic causes requiring careful use of modified carbohydrate, e.g., diabetes mellitus, metabolic syndrome, hypoglycemia, celiac disease, allergies, obesity
- Cultural or religious practices that interfere with the ability to regulate types of carbohydrate consumed
- Food- and nutrition-related knowledge deficit, e.g., inability to access sufficient information concerning more appropriate carbohydrate types and/or amounts
- Food and nutrition compliance limitations, e.g., lack of willingness or failure to modify carbohydrate intake in response to recommendations from a dietitian, physician, or caregiver
- Psychological causes, e.g., depression or disordered eating

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Hypoglycemia or hyperglycemia documented on regular basis when compared with goal of maintaining glucose levels at or below 140 mg/dL throughout the day
Anthropometric Measurements	
Physical Examination Findings	

INAPPROPRIATE INTAKE OF TYPES OF CARBOHYDRATES (SPECIFY) (NI-53.3)

Food/Nutrition History	Reports or observations of: • Diarrhea in response to high refined carbohydrate intake • Economic constraints that limit availability of appropriate foods • Carbohydrate intake that is different from recommended types • Allergic reactions to certain carbohydrate foods or food groups • Limited knowledge of carbohydrate composition of foods or of carbohydrate metabolism
Client History	• Conditions associated with a diagnosis or treatment, e.g., diabetes mellitus, obesity, metabolic syndrome, hypoglycemia • Chronic use of medications that cause altered glucose levels, e.g., steroids, antidepressants, antipsychotics

References:

1. Bowman BA, Russell RM. *Present Knowledge in Nutrition*. 8th ed. Washington, DC: ILSI Press, 2001.
2. Clement S, Braithwaite SS, Magee MF, Ahmann A, Smith EP, Schafer RG, Hirsch IB, American Diabetes Association Diabetes in Hospitals Writing Committee. Management of diabetes in hospitals. *Diabetes Care*. 2004;27:553-592.
3. Franz MJ, Bantle JP, Beebe CA, Brunzell JD, Chiasson J-L, Garg A, Holzmeister LA, Hoogwerf B, Mayer-Davis E, Mooradian AD, Purnell JQ, Wheeler M: Technical review. Evidence-based nutrition principles and recommendations for the treatment and prevention of diabetes and related complications. *Diabetes Care* 2002;202:148-198.
4. Sheard NF, Clark NG, Brand-Miller JC, Franz MJ, Pi-Sunyer FX, Mayer-Davis E, Kulkarni K, Geil P. A statement by the American Diabetes Association. Dietary carbohydrate (amount and type) in the prevention and management of diabetes. *Diabetes Car.e* 2004;27:2266-2271.
5. Gross LS, Li L, Ford ES, Liu S. Increased consumption of refined carbohydrates and epidemic or type 2 diabetes in the United States: an ecologic assessment. *Am J Clin Nutr* 2004;79:774-779.
6. French S, Lin B-H, Gutherie JF. National trends in soft drink consumption among children and adolescents age 6 to17 years: prevalence, amounts, and sources, 1977/1978 to 1994/1998. *J Am Diet Assoc* 2003.103L1326-1331,
7. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids.* Washington, DC: National Academy Press; 2002.
8. Teff KL, Elliott SS, Tschöp M, Kieffer TJ, Rader D, Heiman M, Townsend RR, Keim NL, D'Alessio D, Havel PJ. Dietary fructose reduces circulating insulin and leptin, attenuates postprandial suppression of ghrelin, and increases triglycerides in women. *J Clin Endocrinol Meta.b* 2004;89:2963-2972.
9. The Expert Committee on the Diagnosis and Classification of Diabetes Mellitus. Diagnosis and classification of diabetes mellitus. *Diabetes Care*. 2004;27:pS5-pS10.

INCONSISTENT CARBOHYDRATE INTAKE (NI-53.4)

Definition

Inconsistent timing of carbohydrate intake throughout the day, day-to-day, or a pattern of carbohydrate intake that is not consistent with recommended pattern based upon physiologic or medication needs

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Physiologic causes requiring careful timing and consistency in the amount of carbohydrate, e.g., diabetes mellitus, hypoglycemia
- Cultural, religious practices, or lifestyle factors that interfere with the ability to regulate timing of carbohydrate consumption
- Food- and nutrition-related knowledge deficit, e.g., inability to access sufficient information concerning more appropriate timing of carbohydrate intake
- Food and nutrition compliance limitations, e.g., lack of willingness or failure to modify carbohydrate timing in response to recommendations from a dietitian, physician, or caregiver
- Psychological causes, e.g., depression or disordered eating

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Hypoglycemia or hyperglycemia documented on regular basis associated with inconsistent carbohydrate intake • Wide variations in blood glucose levels
Anthropometric Measurements	
Physical Examination Findings	
Food/Nutrition History	Reports or observations of: • Economic constraints that limit availability of appropriate foods • Carbohydrate intake that is different from recommended types or ingested on an irregular basis

INCONSISTENT CARBOHYDRATE INTAKE (NI-53.4)

Client History	• Conditions associated with a diagnosis or treatment, e.g., diabetes mellitus, obesity, metabolic syndrome, hypoglycemia • Use of insulin or insulin secretagogues • Chronic use of medications that cause altered glucose levels, e.g., steroids, antidepressants, antipsychotics

References:

1. Bowman BA, Russell RM. *Present Knowledge in Nutrition.* 8th ed. Washington, DC: ILSI Press;2001.
2. Clement S, Braithwaite SS, Magee MF, Ahmann A, Smith EP, Schafer RG, Hirsch IB, American Diabetes Association Diabetes in Hospitals Writing Committee. Management of diabetes in hospitals. *Diabetes Care*. 2004;27:553-592.
3. Cryer PE, Davis SN, Shamoon H. Technical review. Hypoglycemia in diabetes. *Diabetes Care.* 2003;26:1902-1912.
4. Franz MJ, Bantle JP, Beebe CA, Brunzell JD, Chiasson J-L, Garg A, Holzmeister LA, Hoogwerf B, Mayer-Davis E, Mooradian AD, Purnell JQ, Wheeler M. Technical review. Evidence-based nutrition principles and recommendations for the treatment and prevention of diabetes and related complications. *Diabetes Care.* 2002;202:148-198.
5. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids.* Washington, DC: National Academy Press; 2002.
6. Rabasa-Lhoret R, Garon J, Langelier H, Poisson D, Chiasson J-L: The effects of meal carbohydrate content on insulin requirements in type 1 patients with diabetes treated intensively with the basal bolus (ultralente-regular) insulin regimen. *Diabetes Care* 1999;22:667-673.
7. Savoca MR, Miller CK, Ludwig DA. Food habits are related to glycemic control among people with type 2 diabetes mellitus. *J Am Diet Assoc*. 2004;104:560-566.
8. The Expert Committee on the Diagnosis and Classification of Diabetes Mellitus. Diagnosis and classification of diabetes mellitus. *Diabetes Care*. 2004;27:S5-S10.
9. Wolever TMS, Hamad S, Chiasson J-L, Josse RG, Leiter LA, Rodger NW, Ross SA, Ryan EA. Day-to-day consistency in amount and source of carbohydrate intake associated with improved glucose control in type 1 diabetes. *J Am Coll Nutr.* 1999;18:242-247.

INADEQUATE FIBER INTAKE (NI-53.5)

Definition

Lower intake of fiber-containing foods or substances compared to established reference standards or recommendations based upon physiological needs

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Lack of access to fiber-containing foods
- Food- and nutrition-related knowledge deficit
- Psychological causes, e.g., depression or disordered eating
- Prolonged adherence to a low-fiber or low-residue diet
- Difficulty chewing or swallowing high-fiber foods
- Economic constraints that limit availability of appropriate foods
- Inability or unwillingness to purchase or consume fiber-containing foods
- Inappropriate food preparation practices, e.g., reliance on overprocessed, overcooked foods

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	
Anthropometric Measurements	
Physical Examination Findings	
Food/Nutrition History	Reports or observations of: • Insufficient intake of fiber when compared to recommended amounts (38 g/day for men and 25 g/day for women; 21 g/d for women >50 years and 31 g/d for men >50 years)

INADEQUATE FIBER INTAKE (NI-53.5)

Client History	• Conditions associated with a diagnosis or treatment, e.g., ulcer disease, inflammatory bowel disease, or short bowel syndrome treated with a low-fiber diet • Low stool volume

References:

1. DiPalma JA. Current treatment options for chronic constipation. *Rev Gastroenterol Disord.* 2004;2:S34-S42.
2. Higgins PD, Johanson JF. Epidemiology of constipation in North America: a systematic review. *Am J Gastroenterol*. 2004;99:750-759.
3. Lembo A, Camilieri M. Chronic constipation. *New Engl J Med.* 2003;349:360-368.
4. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids.* Washington, DC: National Academy Press; 2002.
5. Talley NJ. Definition, epidemiology, and impact of chronic constipation. *Rev Gastroenterol Disord*. 2004;2:S3-S10.

EXCESSIVE FIBER INTAKE (NI-53.6)

Definition

Higher intake of fiber-containing foods or substances compared to recommendations based upon patient/client condition

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Food- and nutrition-related knowledge deficit about desirable quantities of fiber for individual condition
- Harmful beliefs or attitudes about food or nutrition-related topics, e.g., obsession with bowel frequency and habits
- Lack of knowledge about appropriate fiber intake for condition
- Poor dentition, GI stricture or dysmotility
- Food preparation or eating patterns that involve only high-fiber foods to the exclusion of other nutrient-dense foods

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	
Anthropometric Measurements	
Physical Examination Findings	
Food/Nutrition History	Reports or observations of: • Fiber intake higher than tolerated or generally recommended for current medical condition
Client History	• Conditions associated with a diagnosis or treatment, e.g., ulcer disease, irritable bowel syndrome, inflammatory bowel disease, short bowel syndrome, diverticulitis, obstructive constipation, prolapsing hemorrhoids, gastrointestinal stricture, eating disorders, or mental illness with obsessive-compulsive tendencies • Nausea, vomiting, excessive flatulence, diarrhea, abdominal cramping, high stool volume or frequency that causes discomfort to the individual, obstruction, phytobezoar

EXCESSIVE FIBER INTAKE (NI-53.6)

References:

1. DiPalma JA. Current treatment options for chronic constipation. *Rev Gastroenterol Disord.* 2004;2:S34-S42.
2. Higgins PD, Johanson JF. Epidemiology of constipation in North America: a systematic review. *Am J Gastroenterol.* 2004;99:750-759.
3. Lembo A, Camilieri M. Chronic constipation. *New Engl J Med.* 2003;349:360-368.
4. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids*. Washington, DC: National Academy Press; 2002.
5. Position of the American Dietetic Association: Health implications of dietary fiber. *J Am Diet Assoc.* 2002;102:993-1000.
6. Talley NJ. Definition, epidemiology, and impact of chronic constipation. *Rev Gastroenterol Disord.* 2004;2:S3-S10.
7. van den Berg H, van der Gaag M, Hendriks H. Influence of lifestyle on vitamin bioavailability. *Int J Vitam Nutr Res.* 2002;72:53-55.
8. Wald A. Irritable bowel syndrome. *Curr Treat Options Gastroenterol.* 1999;2:13-19.

INADEQUATE VITAMIN INTAKE (SPECIFY) (NI-54.1)

Definition

Lower intake of vitamin-containing foods or substances compared to established reference standards or recommendations based upon physiological needs

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Physiologic causes, e.g., increased nutrient needs due to prolonged catabolic illness, disease state, malabsorption, or medications
- Lack of access to food, e.g., economic constraints, cultural or religious practices, restricting food given to elderly and/or children
- Food- and nutrition-related knowledge deficit concerning food sources of vitamins
- Psychological causes, e.g., depression or eating disorders

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

INADEQUATE VITAMIN INTAKE (SPECIFY) (NI-54.1)

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)*
Biochemical Data	• Vitamin A: serum retinol: < 10 µg/dL (0.35 µmol/L) • Vitamin C : plasma concentrations < 0.2 mg/dL (11.4 µmol/L) • Vitamin D: ionized calcium < 3.9 mg/dL (0.98 mmol/L) with elevated parathyroid hormone, normal serum calcium, and serum phosphorus < 2.6 mg/dL (0.84 mmol/L) • Vitamin E: plasma alpha-tocopherol < 18 µmol/g (41.8 µmol/L) • Vitamin K: elevated prothrombin time; altered INR (without anti-coagulation therapy) • Thiamin: erythrocyte transketolase activity > 1.20 µg/mL/h • Riboflavin – erythrocyte glutathione reductase > 1.2 IU/gm hemoglobin • Niacin: N'methyl-nicotinamide excretion < 5.8 µmol/day • Vitamin B6: plasma pryrdoxal 5'phosphate <5 ng/mL (20 nmol/L) • Vitamin B12: serum concentration < 24.4 ng/dL (180 pmol/L); elevated homocysteine • Folic acid: serum concentration < 0.3 µg/dL (7 nmol/L); red cell folate < 315 nmol/L
Anthropometric Measurements	
Physical Exam Findings	• Vitamin A: night blindness, Bitot's spots, xeropthalmia, follicular hyperkeratosis • Vitamin C: follicular hyperkeratosis, petichiae, ecchymosis, coiled hairs, inflamed and bleeding gums, perifolicular hemorrhages, joint effusions, arthralgia, and impaired wound healing • Vitamin D: widening at ends of long bones, rachitic rosary in children, rickets, osteomalacia • Riboflavin: sore throat, hyperemia, edema of pharyngeal and oral mucous membranes, cheilosis, angular stomatitis, glossitis, seborrheic dermatitis, and normochromic, normocytic anemia with pure erythrocyte cytoplasia of the bone marrow • Niacin: symmetrical, pigmented rash on areas exposed to sunlight, bright red tongue, pellagra • Vitamin B6: seborrheic dermatitis, stomatitis, cheilosis, glossitis, confusion, depression • Vitamin B12: tingling and numbness in extremities, diminished vibratory and position sense, motor disturbances including gait disturbances

* To convert conventional units to *le Systeme Internationale d'Unites (SI)*, Jays Clinical Services, Clinical Laboratory Software and Consulting web site used. Web site address: http://dwjay.tripod.com/conversion.html . Accessed August 12, 2005. See Young DS (Reference #5) for printed factor conversions.

INADEQUATE VITAMIN INTAKE (SPECIFY) (NI-54.1)

Food/Nutrition History	Reports or observations of: • Dietary history reflects inadequate intake of foods containing specific vitamins as compared to requirements or recommended level • Dietary history reflects excessive consumption of foods that do not contain available vitamins, e.g., overprocessed, overcooked, or improperly stored foods
Client History	• Prolonged use of substances known to increase vitamin requirements or reduce vitamin absorption • Conditions associated with a diagnosis or treatment, e.g., malabsorption as a result of celiac disease, short bowel syndrome, or inflammatory bowel • Certain environmental conditions, e.g., infants exclusively fed breast milk with limited exposure to sunlight (vitamin D)

References:

1. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc*. Washington, DC: National Academy Press; 2000.
2. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Thiamine, Riboflavin, Niacin, Vitamin B6, Folate, Vitamin B12, Pantothenic Acid, Biotin, and Choline* Washington, DC: National Academy Press; 2000.
3. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Vitamin C, Vitamin E, Selenium, and Carotenoids*. Washington, DC: National Academy Press; 2000.
4. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Calcium, Phosphorus, Magnesium, Vitamin D, and Fluoride*. Washington, DC: National Academy Press; 1997.
5. Young DS. Implementation of SI units for clinical laboratory data, style specifications and conversion tables. *Ann Intern Med*. 1987;106:114-29. Reprinted, *J Nutr*. 1990;120:20-35.

EXCESSIVE VITAMIN INTAKE (SPECIFY) (NI-54.2)

Definition

Higher intake of vitamin-containing foods or substances compared to established reference standards or recommendations based upon physiological needs

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Physiologic causes, e.g., decreased nutrient needs due to prolonged immobility or chronic renal disease
- Access to foods and supplements in excess of needs, e.g., cultural or religious practices, inappropriate food and supplements given to pregnant women, elderly or children
- Food- and nutrition-related knowledge deficit concerning food and supplemental sources of vitamins
- Psychological causes, e.g., depression or eating disorders
- Accidental overdose from oral and supplemental forms, enteral or parenteral sources

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)*
Biochemical Data	• Vitamin D: ionized calcium > 5.4 mg/dL (1.35 mmol/L) with elevated parathyroid hormone, normal serum calcium, and serum phosphorus > 2.6 mg/dL (0.84 mmol/L) • Vitamin K: slowed prothrombin time or altered INR • Niacin: N-methyl nicotinamide excretion > 5.8 µmol/day • Vitamin B6: plasma pyridoxal 5'phosphate > 5 ng/mL (20 nmol/L) • Vitamin A: serum retinol concentration > 60 µg/dL (2.09µmol/L)
Anthropometric Measurements	

* To convert conventional units to *le Systeme Internationale d'Unites (SI)*, Jays Clinical Services, Clinical Laboratory Software and Consulting web site used. Web site address: http://dwjay.tripod.com/conversion.html . Accessed August 12, 2005. See Young DS (Reference #8) for printed factor conversions.

EXCESSIVE VITAMIN INTAKE (SPECIFY) (NI-54.2)

Physical Exam Findings	• Vitamin A: changes in the skin and mucous membranes; dry lips (cheilitis), early-dryness of the nasal mucosa and eyes; later-dryness, erythema, scaling and peeling of the skin, hair loss, and nail fragility. Headache, nausea, and vomiting. Infants may have bulging fontanelle; children may develop bone alterations. • Vitamin D: elevated serum calcium (hypercalcemia) and phosphorus (hyperphosphatemia) levels; calcification of soft tissues (calcinosis), including the kidney, lungs, heart, and even the tympanic membrane of the ear, which can result in deafness. Headache and nausea. Infants given excessive amounts of vitamin D may have gastrointestinal upset, bone fragility, and retarded growth. • Vitamin K: hemolytic anemia in adults or sever jaundice in infants have been noted on rare occasions • Niacin: histamine release which causes flushing, aggravation of asthma or liver disease
Food/Nutrition History	Reports or observations of: • History or measured intake reflects excessive intake of foods and supplements containing vitamins as compared to estimated requirements, including fortified cereals, meal replacements, vitamin-mineral supplements, other dietary supplements (e.g., fish liver oils or capsules), tube feeding, and/or parenteral solutions • Intake > Tolerable Upper Limits (UL) for vitamin A (as retinol ester, not as β-carotene) is 600 µg/d for infants and toddlers; 900 µg/d for children 4-8 yrs, 1,700 µg/d for children 9-13 yrs, 2,800 µg/d for children 14-18 yrs, and 3,000 µg/d for adults • Intake greater than UL for vitamin D is 25 µg/day for infants and 50 µg/day for children and adults • Niacin: clinical, high-dose niacinamide (NA) use of 1 to 2 g, three times per day can have side effects
Client History	• Conditions associated with a diagnosis or treatment, e.g., chronic liver or kidney diseases, heart failure, cancer

References:

1. Allen LH, Haskell M. Estimating the potential for vitamin A toxicity in women and young children. *J Nutr.* 2002;132:S2907-S2919.
2. Croquet V, Pilette C, Lespine A, Vuillemin E, Rousselet MC, Oberti F, Saint Andre JP, Periquet B, Francois S, Ifrah N, Cales P. Hepatic hyper-vitaminosis A: importance of retinyl ester level determination. *Eur J Gastroenterol Hepatol.* 2000;12:361-364.
3. Krasinski SD, Russell RM, Otradovec CL, Sadowski JA, Hartz SC, Jacob RA, McGandy RB. Relationship of vitamin A and vitamin E intake to fasting plasma retinol, retinol-binding protein, retinyl esters, carotene, alpha-tocopherol, and cholesterol among elderly people and young adults: increased plasma retinyl esters among vitamin A-supplement users. *Am J Clin Nutr.* 1989;49:112-120.
4. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc*. Washington, DC: National Academy Press; 2000.
5. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Thiamine, Riboflavin, Niacin, Vitamin B6, Folate, Vitamin B12, Pantothenic Acid, Biotin, and Choline* Washington, DC: National Academy Press; 2000.
6. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Vitamin C, Vitamin E, Selenium, and Carotenoids*. Washington, DC: National Academy Press;2000.
7. Russell RM. New views on RDAs for older adults. *J Am Diet Assoc.* 1997;97:515-518.
8. Young DS. Implementation of SI units for clinical laboratory data, style specifications and conversion tables. *Ann Intern Med.* 1987;106:114-29. Reprinted, *J Nutr.* 1990;120:20-35..

INADEQUATE MINERAL INTAKE (SPECIFY) (NI-55.1)

Definition

Lower intake of mineral-containing foods or substances compared to established reference standards or recommendations based upon physiological needs

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Physiologic causes, e.g., increased nutrient needs due to prolonged catabolic illness, malabsorption, hyperexcretion, nutrient/drug and nutrient/nutrient interaction, growth and maturation
- Lack of access to food, e.g., economic constraints, cultural or religious practices, restricting food given to elderly and/or children
- Food- and nutrition-related knowledge deficit concerning food sources of minerals; misdiagnosis of lactose intolerance/lactase deficiency; perception of conflicting nutrition messages from health professionals, inappropriate reliance on supplements
- Psychological causes, e.g., depression or eating disorders
- Environmental causes, e.g., inadequately tested nutrient bioavailability of fortified foods, beverages and supplements, inappropriate marketing of fortified foods/beverages/supplements as a substitute for natural food source of nutrient(s)

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)*
Biochemical Data	• Calcium: bone mineral content (BMC) below the young adult mean. Hypocalciuria, serum 25(OH)D < 32 ng/mL • Phosphorus < 2.6 mg/dL (0.84 mmol/L) • Magnesium < 1.8 mg/dL (0.7 mmol/L) • Iron: hemoglobin < 130 g/L (males); < 120 g /L (females) • Iodine: urinary excretion < 100 µg /L (788 nmol/L) • Copper : serum copper < 64 µg /dL (10 µmol/L)
Anthropometric Measurements	• Height loss

* To convert conventional units to *le Systeme Internationale d'Unites (SI)*, Jays Clinical Services, Clinical Laboratory Software and Consulting web site used. Web site address: http://dwjay.tripod.com/conversion.html . Accessed August 12, 2005. See Young DS (Reference #5) for printed factor conversions.

INADEQUATE MINERAL INTAKE (SPECIFY) (NI-55.1)

Physical Exam Findings	• Calcium: diminished bone mineral density, hypertension, polycystic ovary syndrome, premenstrual syndrome, kidney stones, colon polyps, obesity
Food/Nutrition History	Observations/reports of insufficient mineral intake from diet compared to recommended intake: • Food avoidance and/or elimination of whole food group(s) from diet • Lack of interest in food • Inappropriate food choices and/or chronic dieting behavior • Excessive Na intake, inadequate vitamin D intake/exposure
Client History	• Conditions associated with a diagnosis or treatment of, e.g., malabsorption as a result of celiac disease, short bowel syndrome, or inflammatory bowel disease • Other significant medical diagnoses and therapies • Estrogen status • Geographic latitude and history of UVB exposure/use of sunscreen • Change in living environment/independence • Use of popular press/internet as source of medical and/or nutrition information

References:

1. Appel LJ, Moore TJ, Obarzanek E, Vollmer WM, Svetkey LP, Sacks FM, Bray GA, Vogt TM, Cutler JA, Windhauser MM, Lin P-H, Karanja N. A clinical trial of the effects of dietary patterns on blood pressure. *N Engl J Med.* 1997;336:1117-1124.
2. Heaney RP. Role of dietary sodium in osteoporosis. *Am J Clin Nutr* (in press) 2005.
3. Heaney RP. Nutrients, interactions, and foods. The importance of source. In: Burckhardt P, Dawson-Hughes B, Heaney RP, eds. *Nutritional Aspects of Osteoporosis.* 2nd ed. San Diego, Calif: Elsevier. 2004:61-76.
4. Heaney, RP. Nutrients, interactions, and foods. Serum 25-hydroxy-vitamin D and the health of the calcium economy. In Burckhardt P, Dawson-Hughes B, Heaney RP, eds. *Nutritional Aspects of Osteoporosis.* 2nd ed. San Diego, Calif: Elsevier. 2004:227-244.
5. Heaney RP, Rafferty K, Bierman J. Not all calcium-fortified beverages are equal. *Nutr Today*. 2005;40:39-41.
6. Heaney RP, Dowell MS, Hale CA, Bendich A. Calcium absorption varies within the reference range for serum 25-hydroxyvitamin D. *J Am Coll Nutr.* 2003;22:142-146.
7. Heaney RP, Dowell MS, Rafferty K, Bierman J. Bioavailability of the calcium in fortified soy imitation milk, with some observations on method. *Am J Clin Nutr.* 2000;71:1166-1169.
8. Holick MF. Functions of vitamin D: importance for prevention of common cancers, type I diabetes and heart disease. In: Burckhardt P, Dawson-Hughes B, Heaney RP, eds. *Nutritional Aspects of Osteoporosis.* 2nd ed. San Diego, Calif: Elsevier;2004:181-201.
9. Massey LK, Whiting SJ. Dietary salt, urinary calcium, and bone loss. *J Bone Miner Res.* 1996 ;11:731-736.
10. Suaraz FL, Savaiano D, Arbisi P, Levitt MD. Tolerance to the daily ingestion of two cups of milk by individuals claiming lactose intolerance. *Am J Clin Nutr.* 1997;65:1502-1506.
11. Thys- Jacobs S, Donovan D, Papadopoulos A, Sarrel P. Bilezikian JP. Vitamin D and calcium dysregulation in the polycystic ovarian syndrome. *Steroids.* 1999;64:430-435.
12. Thys-Jacobs S, Starkey P, Bernstein D, Tian J. Calcium carbonate and the premenstrual syndrome: Effects on premenstrual and menstrual symptomatology. *Am J Obstet Gynecol.* 1998;179:444-452.
13. Young DS. Implementation of SI units for clinical laboratory data, style specifications and conversion tables. *Ann Intern Med.* 1987;106:114-29. Reprinted, *J Nutr.* 1990;120:20-35.
14. Zemel MB, Thompson W, Milstead A, Morris K, Campbell P. Calcium and dairy acceleration of weight and fat loss during energy restriction in obese adults. *Obesity Res.* 2004;12:582-590.

EXCESSIVE MINERAL INTAKE (SPECIFY) (NI-55.2)

Definition

Higher intake of mineral from foods, supplements, medications or water, compared to established reference standards or recommendations based upon physiological needs

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Food- and nutrition-related knowledge deficit
- Harmful beliefs/attitudes about food, nutrition, and nutrition-related topics
- Food faddism
- Accidental over-supplementation
- Overconsumption of a limited variety of foods
- Lack of knowledge about management of diagnosed genetic disorder that alters mineral homeostasis such as hemochromotosis (iron), Wilson's Disease (copper)
- Lack of knowledge about management of diagnosed disease state that requires mineral restriction such as cholestatic liver disease (copper and manganese) and renal insufficiency (phosphorus, magnesium, potassium)

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

EXCESSIVE MINERAL INTAKE (SPECIFY) (NI-55.2)

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	Changes in appropriate laboratory values, such as: • ↑ TSH (iodine supplementation) • ↓ HDL (zinc supplementation) • ↑ serum ferritin and transferrin saturation (iron overload) • Hyperphosphatemia • Hypermagnesemia
Anthropometric Measurements	
Physical Exam Findings	• Hair and nail changes (selenium)
Food/Nutrition History	Reports or observations of: • High intake of foods or supplements containing minerals compared to DRIs • Decreased appetite (zinc supplementation)
Client History	• GI disturbances (iron, magnesium, copper, zinc, selenium) • Copper-deficiency anemia (zinc) • Liver damage (copper, iron), enamel or skeletal fluorosis (fluoride)

References:

1. Bowman BA, Russell RM, eds. *Present Knowledge in Nutrition.* 8th ed. Washington, DC: ILSI Press; 2001.
2. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, Zinc.* Washington, DC: National Academy Press; 2001.
3. National Academy of Sciences, Institute of Medicine. *Dietary Reference Intakes for Calcium, Phosphorus, Magnesium, Vitamin D, and Fluoride*. Washington, DC: National Academy Press; 1997.
4. Position of the American Dietetic Association: Food and nutrition misinformation. *J Am Diet Assoc*. 2002;102:260-266.

SWALLOWING DIFFICULTY (NC-1.1)

Definition

Impaired movement of food and liquid from the mouth to the stomach

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Mechanical causes, e.g., inflammation, surgery, stricture, or oral, pharyngeal and esophageal tumors
- Motor causes, e.g., neurological or muscular disorders, such as, cerebral palsy, stroke, multiple sclerosis, scleroderma, prematurity

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	
Anthropometric Measurements	
Physical Exam Findings	• Evidence of dehydration, e.g., dry mucous membranes, poor skin turgor
Food/Nutrition History	Observations or reports of: • Coughing, choking, prolonged chewing, pouching of food, regurgitation, facial expression changes during eating, prolonged feeding time, drooling, noisy wet upper airway sounds, feeling of "food getting stuck," pain while swallowing • Decreased food intake • Avoidance of foods • Mealtime resistance
Client History	• Conditions associated with a diagnosis or treatment of dysphagia, achalasia • Radiological findings, e.g., abnormal swallowing studies • Repeated upper respiratory infections and or pneumonia

Reference:

1. Braunwald E, Fauci AS, Kasper DL, Hauser SL, Longo DL, Jameson JL, eds. *Harrison's Principles of Internal Medicine*. 15th ed. New York, NY: McGraw-Hill,.2001.

CHEWING (MASTICATORY) DIFFICULTY (NC-1.2)

Definition

Impaired ability to bite or chew food in preparation for swallowing

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Craniofacial malformations
- Oral surgery
- Neuromuscular dysfunction
- Partial or complete edentulism
- Soft tissue disease (primary or oral manifestations of a systemic disease)
- Xerostomia

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	
Anthropometric Measurements	
Physical Exam Findings	• Missing teeth • Alterations in cranial nerves V, VII, IX, X, XII • Dry or cracked lips, tongue • Oral lesions • Impaired tongue movement • Ill-fitting dentures or broken dentures

CHEWING (MASTICATORY) DIFFICULTY (NC-1.2)

Food/Nutrition History	Reports or observations of: • Decreased intake of food • Alterations in food intake from usual • Decreased intake or avoidance of food difficult to form into a bolus, e.g., nuts, whole pieces of meat, poultry, fish, fruits, vegetables • Avoidance of foods of age-appropriate texture • Spitting food out or prolonged feeding time
Client History	• Conditions associated with a diagnosis or treatment, e.g., alcoholism; Alzheimer's; head, neck or pharyngeal cancer;, cerebral palsy; cleft lip/palate; oral soft tissue infections (e.g., candidiasis, leukoplakia); lack of developmental readiness; oral manifestations of systemic disease (e.g., rheumatoid arthritis, lupus, Crohn's disease, penphigus vulgaris, HIV, diabetes) • Recent major oral surgery • Wired jaw • Chemotherapy with oral side effects • Radiation therapy to oral cavity

References:

1. Bailey R, Ledikwe JH, Smiciklas-Wright H, Mitchell DC, Jensen GL. Persistent oral health problems associated with comorbidity and impaired diet quality in older adults. *J Am Diet Assoc*. 2004;104:1273-1276.
2. Martin WE. Oral health in the elderly. In: Chernoff R, ed.. *Geriatric Nutrition*. 2nd ed. Gaithersburg, Maryl: Aspen Publishers; 1999:107-169.
3. Dormenval V, Mojon P, Budtz-Jorgensen E. Association between self-assessed masticatory ability, nutritional status and salivary flow rate in hospitalized elderly. *Oral Dis*. 1999;5:32-38.
4. Hildebrand GH, Dominguez BL, Schork MA, Loesche WJ. Functional units, chewing, swallowing and food avoidance among the elderly. *J Prosthet Dent*. 1997;77:585-595.
5. Hirano H, Ishiyama N, Watanabe I, Nasu I. Masticatory ability in relation to oral status and general health in aging. *J Nutr Health Aging*. 1999;3:48-52.
6. Huhmann M, Touger-Decker R, Byham-Gray L, O'Sullivan-Maillet J, Von Hagen S. Comparison of dysphagia screening by a registered dietitian in acute stroke patients to speech language pathologist's evaluation. *Top Clin Nutr*. 2004;19:239-249.
7. Kademani D, Glick M. Oral ulcerations in individuals infected with human immunodeficiency virus: clinical presentations, diagnosis, management and relevance to disease progression. *Quintessence Int*.. 1998;29:1103-1108.
8. Keller HH, Ostbye T, Bright-See E. Predictors of dietary intake in Ontario seniors. *Can J Public Health*. 1997;88:303-309.
9. Krall E, Hayes C, Garcia R. How dentition status and masticatory function affect nutrient intake. *J Am Dent Assoc*. 1998;129:1261-1269.
10. Joshipura K, Willett WC, Douglass CW. The impact of edentulousness on food and nutrient intake. *J Am Dent Assoc*. 1996;127:459-467.
11. Mackle T, Touger-Decker R, O'Sullivan Maillet J, Holland B. Registered Dietitians' use of physical assessment parameters in practice. *J Am Diet Assoc*. 2004;103:1632-1638.
12. Mobley C, Saunders M. Oral health screening guidelines for nondental healthcare providers. *J Am Diet Assoc*. 1997;97:S123-126.
13. Morse, D. Oral and pharyngeal cancer. In: Touger-Decker R, Sirois D, Mobley C., eds. *Nutrition and Oral Medicine*. Totowa NJ: Humana Press. 2005.
14. Moynihan P, Butler T, Thomason J, Jepson N. Nutrient intake in partially dentate patients: the effect of prosthetic rehabilitation. *J Dent*. 2000;28:557-563.
15. Position of the American Dietetic Association: Oral health and nutrition. *J Am Diet Assoc*. 2003;103:615-625.
16. Sayhoun NR, Lin CL, Krall E. Nutritional status of the older adult is associated with dentition status. *J Am Diet Assoc*. 2003;103:61-66.
18. Sheiham A, Steele JG. The impact of oral health on stated ability to eat certain foods; finding from the national diet and nutrition survey of older people in Great Britain. *Gerodontology*. 1999;16:11-20.
19. Ship J, Duffy V, Jones J, Langmore S. Geriatric oral health and its impact on eating. *J Am Geriatr Soc*. 1996;44:456-464.

CHEWING (MASTICATORY) DIFFICULTY (NC-1.2)

20. Touger-Decker R. Clinical and laboratory assessment of nutrition status. *Dent Clin North Am.*. 2003;47:259-278.
21. Touger-Decker R, Sirois D, Mobley C, eds. *Nutrition and Oral Medicine*. Totowa NJ: Humana Press. 2005
22. Walls AW, Steele JG, Sheiham A, Marcenes W, Moynihan PJ. Oral health and nutrition in older people. *J Public Health Dent.* 2000;60:304-307.

BREASTFEEDING DIFFICULTY (NC-1.3)

Definition

Inability to sustain infant nutrition through breastfeeding

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

Infant:

- Difficulty latching on, e.g., tight frenulum
- Poor sucking ability
- Oral pain
- Malnutrition/malabsorption
- Lethargy, sleepiness
- Irritability
- Swallowing difficulty

Mother:

- Painful breasts, nipples
- Breast or nipple abnormality
- Mastitis
- Perception of inadequate milk supply
- Lack of social, cultural, or environmental support

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Laboratory evidence of dehydration in infant
Anthropometric Measurements	• Any weight loss or poor weight gain in infant
Physical Exam Findings	• Frenulum abnormality (infant)

BREASTFEEDING DIFFICULTY (NC-1.3)

Food/Nutrition History	Observations or reports of (infant): • Coughing • Crying, latching on and off, pounding on breasts • Decreased feeding frequency/duration, early cessation of feeding, and/or feeding resistance • Infant lethargy • Hunger, lack of satiety after feeding • Fewer than six wet diapers in 24 hours • Infant vomiting or diarrhea Observations or reports of (mother): • Small amount of milk when pumping • Lack of confidence in ability to breastfeed • Doesn't hear infant swallowing • Concerns regarding mother's choice to breastfeed/lack of support • Insufficient knowledge of breastfeeding or infant hunger/satiety signals • Lack of facilities or accommodations at place of employment or in community for breastfeeding
Client History	• Conditions associated with a diagnosis or treatment (infant), e.g., cleft lip/palate, thrush, premature birth, malabsorption, infection • Conditions associated with a diagnosis or treatment (mother), e.g., mastitis, candidiasis, engorgement, history of breast surgery

References:

1. Barron SP, Lane HW, Hannan TE, Struempler B, Williams JC. Factors influencing duration of breast feeding among low-income women. *J Am Diet Assoc.* 1988;88:1557-1561.
2. Bryant C, Coreil J, D'Angelo SL, Bailey DFC, Lazarov MA. A strategy for promoting breastfeeding among economically disadvantaged women and adolescents. *NAACOG's Clin Issu Perinat Womens Health Nurs.* 1992;3:723-730.
3. Bentley ME, Caulfield LE, Gross SM, Bronner Y, Jensen J, Kessler LA, Paige DM. Sources of influence on intention to breastfeed among African-American women at entry to WIC. *J Hum Lact.* 1999;15:27-34.
4. Moreland JC, Lloyd L, Braun SB, Heins JN. A new teaching model to prolong breastfeeding among Latinos. *J Hum Lact.* 2000;16:337-341.
5. Position of the American Dietetic Association: Breaking the barriers to breastfeeding. *J Am Diet Assoc.* 2001;101:1213-1220.
6. Wooldrige MS, Fischer C. Colic, "overfeeding" and symptoms of lactose malabsorption in the breast-fed baby. *Lancet.* 1988;2:382-384.

ALTERED GASTROINTESTINAL (GI) FUNCTION (NC-1.4)

Definition

Changes in ability to digest or absorb nutrients

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Alterations in GI anatomical structure, e.g., gastric bypass, Roux en Y
- Changes in the GI tract motility, e.g., gastroparesis
- Compromised GI tract function, e.g., celiac disease, Crohn's disease, infection, radiation therapy
- Compromised function of related GI organs, e.g., pancreas, liver
- Decreased functional length of the GI tract, e.g., short bowel syndrome

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Abnormal digestive enzyme and fecal fat studies • Abnormal hydrogen breath test, d-xylose test, stool culture, and gastric emptying and/or small bowel transit time
Anthropometric Measurements	• Wasting due to malnutrition in severe cases
Physical Exam Findings	• Decreased muscle mass • Abdominal distension • Increased (or sometimes decreased) bowel sounds

ALTERED GASTROINTESTINAL (GI) FUNCTION (NC-1.4)

Food/Nutrition History	Observations or reports of: • Avoidance or limitation of total intake or intake of specific foods/food groups due to GI symptoms, e.g., bloating, cramping, pain, diarrhea, steatorrhea (greasy, floating, foul-smelling stools) especially following ingestion of food • Food and nutrition-related knowledge deficit, e.g., lack of information, incorrect information or noncompliance with modified diet or medication schedule
Client History	• Anorexia, nausea, vomiting, diarrhea, steatorrhea, constipation, abdominal pain • Endoscopic or colonoscopic examination results, biopsy results • Conditions associated with a diagnosis or treatment, e.g., malabsorption, maldigestion, steatorrhea, constipation, diverticulitis, Crohn's disease, inflammatory bowel disease, cystic fibrosis, celiac disease, irritable bowel syndrome, infection • Surgical procedures, e.g., esophagectomy, dilatation, gastrectomy, vagotomy, gastric bypass, bowel resections

Reference:

1. Braunwald E, Fauci AS, Kasper DL, Hauser SL, Longo DL, Jameson JL, eds. *Harrison's Principles of Internal Medicine*. 15th ed. New York, NY: McGraw-Hill;2001.

IMPAIRED NUTRIENT UTILIZATION (NC-2.1)

Definition

Changes in ability to absorb or metabolize nutrients and bioactive substances

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Alterations in gastrointestinal anatomical structure
- Compromised function of the GI tract
- Compromised function of related GI organs, e.g., pancreas, liver
- Decreased functional length of the GI tract
- Metabolic disorders

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Abnormal digestive enzyme and fecal fat studies • Abnormal hydrogen breath test, d-xylose test • Abnormal tests for inborn errors of metabolism
Anthropometric Measurements	• Weight loss of 5% in 1 month, 10% in 6 months • Growth stunting or failure
Physical Exam Findings	• Abdominal distension • Increased or decreased bowel sounds • Evidence of vitamin or mineral deficiency, e.g., glossitis, cheilosis, mouth lesions

IMPAIRED NUTRIENT UTILIZATION (NC-2.1)

Food/Nutrition History	Observations or reports of: • Avoidance or limitation of total intake or intake of specific foods/food groups due to GI symptoms, e.g., bloating, cramping, pain, diarrhea, steatorrhea (greasy, floating, foul-smelling stools) especially following ingestion of food
Client History	• Diarrhea, steatorrhea, abdominal pain • Endoscopic or colonoscopic examination results, biopsy results • Conditions associated with a diagnosis or treatment, e.g., malabsorption, maldigestion, cystic fibrosis, celiac disease, Crohn's disease, infection, radiation therapy, inborn errors of metabolism • Surgical procedures, e.g., gastric bypass, bowel resection

References:

1. Beyer P. Gastrointestinal disorders: Roles of nutrition and the dietetics practitioner. *J Am Diet Assoc.* 1998;98:272-277.
2. Position of the American Dietetic Association: Health implications of dietary fiber. *J Am Diet Assoc.* 2002;102:993-1000.

ALTERED NUTRITION-RELATED LABORATORY VALUES (SPECIFY) (NC-2.2)

Definition

Changes due to body composition, medications, body system or genetics, or changes in ability to eliminate byproducts of digestive and metabolic processes

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Kidney, liver, cardiac, endocrine, neurologic, and/or pulmonary dysfunction
- Other organ dysfunction that leads to biochemical changes:

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	Findings such as: • Increased AST, ALT, T. bili, serum ammonia (liver disorders) • Abnormal BUN, Cr, K, phosphorus, glomerular filtration rate (GFR) (kidney disorders) • Altered pO_2 and pCO_2 (pulmonary disorders) • Abnormal serum lipids • Abnormal plasma glucose levels • Other findings of acute or chronic disorders that are abnormal and of nutritional origin or consequence
Anthropometric Measurements	• Rapid weight changes • Other anthropometric measures that are altered
Physical Exam Findings	• Jaundice, edema, ascites, itching (liver disorders) • Edema, shortness of breath (cardiac disorders) • Blue nail beds, clubbing (pulmonary disorders)

ALTERED NUTRITION-RELATED LABORATORY VALUES (SPECIFY) (NC-2.2)

Food/Nutrition History	Observations or reports of: • Anorexia, nausea, vomiting • Inability to consume full meals due to shortness of breath or abdominal distention • Intake of foods high in or overall excess intake of protein, potassium, phosphorus, sodium, fluid • Inadequate intake of micronutrients • Food- and nutrition-related knowledge deficit, e.g., lack of information, incorrect information or noncompliance with modified diet
Client History	• Conditions associated with a diagnosis or treatment of, e.g., renal or liver disease, alcoholism, cardio-pulmonary disorders

References:

1. Beto JA, Bansal VK. Medical nutrition therapy in chronic kidney failure: integrating clinical practice guidelines. *J Am Diet Assoc.* 2004;104:404-409.
2. Davern II TJ, Scharschmidt BF. Biochemical liver tests. In Feldman M, Scharschmidt BF, Sleisenger MH, eds. *Sleisenger and Fordtran's Gasrointestinal and Liver Disease, ed 6, vol 2*. Philadelphia, Pa: WB Saunders, 1998:1112-1122.
3. Durose CL, Holdsworth M, Watson V, Przygrodzka F. Knowledge of dietary restrictions and the medical consequences of noncompliance by patients on hemodialysis are not predictive of dietary compliance. *J Am Diet Assoc.* 2004;104:35-41.
4. Kasiske BL, Lakatua JD, Ma JZ, Louis TA. A meta-analysis of the effects of dietary protein restriction on the rate of decline in renal function. *Am J Kidney Dis.* 1998;31;954-961.
5. Knight EL, Stampfer MJ, Hankinson SE, Spiegelman D, Curhan GC. The impact of protein intake on renal function decline in women with normal renal function or mild renal insufficiency. *Ann Intern Med.* 2003;138:460-467.
6. Nakao T, Matsumoto, Okada T, Kanazawa Y, Yoshino M, Nagaoka Y, Takeguchi F. Nutritional management of dialysis patients: balancing among nutrient intake, dialysis dose, and nutritional status. *Am J Kidney Dis.* 2003;41:S133-S136.
7. National Kidney Foundation. Part 5. Evaluation of laboratory measurements for clinical assessment of kidney disease. *Am J Kidney Dis.* 2002;39:S76-S92.
8. National Kidney Foundation. Guideline 9. Association of level of GFR with nutritional status. *Am J Kidney Dis.* 2002;39:S128-S142.

FOOD-MEDICATION INTERACTION (NC-2.3)

Definition

Undesirable/harmful interaction(s) between food and over-the-counter (OTC) medications, prescribed medications, herbals, botanicals, and/or dietary supplements that diminishes, enhances, or alters effect of nutrients and/or medications

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Combined ingestion or administration of medication and food that results in undesirable/harmful interaction(s)

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Alterations of biochemical tests based upon medication effect and patient/client condition
Anthropometric Measurements	• Alterations of anthropometric measurements based upon medication effect and patient/client conditions, e.g., weight gain and corticosteroids
Physical Exam Findings	

Food/Nutrition History	Observations or reports of:
	• Intake that is problematic or inconsistent with OTC, prescribed drugs, herbals, botanicals, or dietary supplements such as:
	  • fish oils and prolonged bleeding
	  • coumadin, vitamin K-rich foods
	  • high-fat diet while on cholesterol-lowering medications
	  • iron supplements, constipation and low-fiber diet
	• Intake that does not support replacement or mitigation of OTC, prescribed drugs, herbals, botanicals, or dietary supplements affects such as potassium-wasting diuretics
	• Changes in appetite or taste

FOOD-MEDICATION INTERACTION (NC-2.3)

Client History	• Multiple drugs (OTC, prescribed drugs, herbals, botanicals, or dietary supplements) that are known to have food medication interactions • Medications that require nutrient supplementation that can not be accomplished via food intake such as isoniazid and Vitamin B6

Reference:

1. Position of the American Dietetic Association: Integration of nutrition and pharmacotherapy. *J Am Diet Assoc*. 2003;103:1363-1370.

UNDERWEIGHT (NC-3.1)

Definition

Low body weight compared to established reference standards or recommendations

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Disordered eating pattern
- Excessive physical activity
- Harmful beliefs/attitudes about food, nutrition, and nutrition-related topics
- Inadequate energy intake
- Increased energy needs
- Limited access to food

Signs/Symptoms (*Defining Characteristics)*

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	
Anthropometric Measurements	• Weight for age less than 5th percentile for infants younger than 12 months • Decreased skinfold thickness and mid-arm muscle circumference (MAMC) • BMI < 18.5 (most adults) • BMI for older adults (over 65 years) < 23 • BMI < 5th percentile (children, 2-19 years)
Physical Exam Findings	• Decreased somatic protein stores, muscle wasting (gluteal and temporal)
Food/Nutrition History	Reports or observations of: • Inadequate intake of food compared to estimated or measured needs

UNDERWEIGHT (NC-3.1)

	• Limited supply of food in home • Dieting, food faddism • Hunger • Refusal to eat • Physical activity greater than recommended amount
Client History	• Malnutrition, vitamin/mineral deficiency • Illness or physical disability • Mental illness, dementia, confusion • Measured resting metabolic rate (RMR) higher than expected and/or estimated RMR • Medications that affect appetite, e.g., stimulants for attention deficit hyperactivity disorder • Athlete, dancer, or gymnast

References:

1. Assessment of nutritional status. In: Kleinman R, ed. *Pediatric Nutrition Handbook*, 5th ed. Chicago, Ill: American Academy of Pediatrics, 2004:407-423.
2. Beck AM, Ovesen LW. At which body mass index and degree of weight loss should hospitalized elderly patients be considered at nutritional risk? *Clin Nutr*. 1998;17:195-198.
3. Blaum CS, Fries BE, Fiatarone MA. Facotors associated with low body mass index and weight loss in nursing home residents. *J Gerontology: Med Sci*. 1995;50A:M162-M168.
4. Position of the American Dietetic Association: Domestic food and nutrition security. *J Am Diet Assoc*. 2002;102:1840-1847.
5. Position of the American Dietetic Association: Addressing world hunger, malnutrition, and food insecurity. *J Am Diet Assoc*. 2003;103:1046-1057.
6. Position of the American Dietetic Association: Nutrition intervention in the treatment of anorexia nervosa, bulimia nervosa, and eating disorder not otherwise specified (EDNOS). *J Am Diet Assoc*. 2001;101:810-819.
7. Schneider SM, Al-Jaouni R, Pivot X, Braulio VB, Rampal P, Hebuerne X. Lack of adaptation to severe malnutrition in elderly patients. *Clin Nutr*. 2002;21(6):499-504.
8. Spear BA. Adolescent growth and development. *J Am Diet Assoc*. 2002 (suppl);102:S23- S29.

INVOLUNTARY WEIGHT LOSS (NC-3.2)

Definition

Decrease in body weight that is not planned or desired

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Physiologic causes, e.g., increased nutrient needs due to prolonged catabolic illness
- Lack of access to food, e.g., economic constraints, cultural or religious practices, restricting food given to elderly and/or children
- Prolonged hospitalization
- Psychological issues
- Lack of self-feeding ability

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	
Anthropometric Measurements	• Weight loss of 5% within 1 month, 7.5% in 3 months and 10% in 6 months
Physical Examination Findings	• Fever • Increased heart rate • Increased respiratory rate • Loss of subcutaneous fat and muscle stores
Food/Nutrition History	Reports or observations of: • Normal or usual intake in face of illness • Poor intake, change in eating habits, skipped meals • Change in way clothes fit, e.g., becoming looser

INVOLUNTARY WEIGHT LOSS (NC-3.2)

Client History	• Conditions associated with a diagnosis or treatment, e.g., AIDS/HIV, burns, chronic obstructive pulmonary disease, hip/long bone fracture, infection, surgery, trauma, hyperthyroidism (pre-or untreated), some types of cancer or metastatic disease (specify) • Medications associated with weight loss, such as certain antidepressants or cancer chemotherapy

References:

1. Collins N. Protein-energy malnutrition and involuntary weight loss: Nutritional and pharmacologic strategies to enhance wound healing. *Expert Opinion Pharmacother*. 2003;7:1121-1140.
2. Splett PL, Roth-Yousey LL, Vogelzang JL. Medical nutrition therapy for the prevention and treatment of unintentional weight loss in residential healthcare facilities. *J Am Diet Assoc.* 2003; 103:352-362.
3. Wallace JL, Schwartz RS, LaCroix AZ, Uhlmann RF, Pearlman RA. Involuntary weight loss in older patients: incidence and clinical significance. *J Am Geriatr Soc.* 1995;43:329-337.

OVERWEIGHT/OBESITY (NC-3.3)

Definition

Increased adiposity compared to established reference standards or recommendations

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Decreased energy needs
- Disordered eating pattern
- Excess energy intake
- Food- and nutrition-related knowledge deficit
- Not ready for diet/lifestyle change
- Physical inactivity
- Increased psychological/life stress

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	
Anthropometric Measurements	• BMI above normative standard for age and gender • Waist circumference above normative standard for age and gender • Increased skinfold thickness • Weight for height above normative standard for age and gender
Physical Exam Findings	• Increased body adiposity
Food/Nutrition History	Reports or observations of: • Overconsumption of high-fat and/or calorically-dense food or beverage

OVERWEIGHT/OBESITY (NC-3.3)

	• Large portions of food (portion size greater than twice than recommended) • Excessive energy intake • Infrequent, low-duration and/or low-intensity physical activity • Large amounts of sedentary activities, e.g., TV watching, reading, computer use in both leisure and work/school • Uncertainty regarding nutrition-related recommendations • Inability to apply nutrition-related recommendations • Inability to maintain weight or regain of weight • Unwillingness or disinterest in applying nutrition-related recommendations
Client History	• Conditions associated with a diagnosis or treatment of, e.g., hypothyroidism, metabolic syndrome, eating disorder not otherwise specified, depression • Physical disability or limitation • History of physical, sexual, or emotional abuse • Measured resting metabolic rate (RMR) lower than expected and/or estimated RMR • Medications that impact RMR, e.g., midazolam, propranalol, glipizide

References:

1. Crawford S. Promoting dietary change. *Can J Cardiol*. 1995;11(suppl A):14A-15A.
2. Dickerson RN, Roth-Yousey L. Medication effects on metabolic rate: a systematic review (Part 2). *J Am Diet Assoc*. 2005;105:1002-1009.
3. Dickerson RN, Roth-Yousey L. Medication effects on metabolic rate: a systematic review (Part 1). *J Am Diet Assoc*. 2005;105:835-841.
4. Kumanyika SK, Van Horn L, Bowen D, Perri MG, Rolls BJ, Czajkowski SM, Schron E. Maintenance of dietary behavior change. *Health Psychol*. 2000;19(1 suppl):S42-S56.
5. Position of the American Dietetic Association: Weight management. *J Am Diet Assoc*. 2002;102:1145-1155.
6. Position of the American Dietetic Association: Total diet approach to communicating food and nutrition information. *J Am Diet Assoc* 2002;102:100-108.
7. Position of the American Dietetic Association: The role of dietetics professionals in health promotion and disease prevention. *J Am Diet Assoc*. 2002;102:1680-1687.
8. Position of the American Dietetic Association: Nutrition intervention in the treatment of anorexia nervosa, bulimia nervosa, and eating disorder not otherwise specified (EDNOS). *J Am Diet Assoc*. 2001;101:810-819.
9. Shepherd R. Resistance to changes in diet. *Proc Nutr Soc*. 2002;61:267-272.
10. U.S. Preventive Services Task Force. Behavioral counseling in primary care to promote a healthy diet. *Am J Prev Med*. 2003;24:93-100.

INVOLUNTARY WEIGHT GAIN (NC-3.4)

Definition

Weight gain above that which is desired or planned

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Illness causing unexpected weight gain because of head trauma, immobility, paralysis or related condition
- Chronic use of medications known to cause weight gain, such as use of certain antidepressants, antipsychotics, corticosteroids, certain HIV medications
- Condition leading to excessive fluid weight gains

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Decrease in serum albumin, hyponatremia, elevated fasting serum lipid levels, elevated fasting glucose levels, fluctuating hormone levels
Anthropometric Measurements	• Weight history – noting any increase in weight greater than planned or desired, such as 10% in 6 months • Noticeable change in body fat distribution
Physical Examination Findings	• Fat accumulation—excessive subcutaneous fat stores • Lipodystrophy associated with HIV medications—increase in dorsocervial fat, breast enlargement, increased abdominal girth • Edema • Shortness of breath • Sensitivity to cold, constipation, and hair loss

INVOLUNTARY WEIGHT GAIN (NC-3.4)

Food/Nutrition History	Reports or observations of: • Intake consistent with estimated or measured energy needs • Changes in recent food intake level • Use of alcohol, narcotics • Extreme hunger with or without palpitations, tremor, and sweating • Physical inactivity or change in physical activity level
Client History	• Conditions associated with a diagnosis or treatment of asthma, psychiatric illnesses, rheumatic conditions, HIV/AIDS, Cushing's syndrome, obesity, Prader-Willi syndrome • Fluid administration above requirements • Change in sleep habits, insomnia • Muscle weakness • Fatigue • Medications associated with increased appetite

References:

1. Lichtenstein K, Delaney K, Ward D, Palella F. Clinical factors associated with incidence and prevalence of fat atrophy and accumulation (abstract P64). *Antivir Ther*. 2000; 5:61-62
2. Heath KV, Hogg RS, Chan KJ, Harris M, Montessori V, O'Shaughnessy MV, Montaner JS. Lipodystrophy-associated morphological, cholesterol and triglyceride abnormalities in a population-based HIV/AIDS treatment database. *AIDS*. 2001;15:231-239.
3. Safri S, Grunfeld C. Fat distribution and metabolic changes in patients with HIV infection. *AIDS*. 1999;13:2493-2505.
4. Sattler F. Body habitus changes related to lipodystrophy. *Clin Infect Dis.* 2003;36:S84-S90.

FOOD- AND NUTRITION-RELATED KNOWLEDGE DEFICIT (NB-1.1)

Definition

Incomplete or inaccurate knowledge about food, nutrition, or nutrition-related information and guidelines, e.g., nutrient requirements, consequences of food behaviors, life stage requirements, nutrition recommendations, diseases and conditions, physiological function, or products

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Harmful beliefs/attitudes about food, nutrition, and nutrition-related topics
- Lack of prior exposure to information
- Language or cultural barrier impacting ability to learn information
- Learning disability, neurological or sensory impairment
- Prior exposure to incompatible information
- Prior exposure to incorrect information
- Unwilling to learn or uninterested in learning information

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	
Anthropometric Measurements	
Physical Exam Findings	

FOOD- AND NUTRITION-RELATED KNOWLEDGE DEFICIT (NB-1.1)

Food/Nutrition History	Observations or reports of: • Verbalizes inaccurate or incomplete information • Provides inaccurate or incomplete written response to questionnaire/written tool, or is unable to read written tool • Demonstrates inability to apply food- and nutrition-related information, e.g., select food based on nutrition therapy or prepare infant feeding as instructed • Relates concerns about previous attempts to learn information • Verbalizes unwillingness to learn or disinterest in learning information
Client History	• Client or caregiver has no prior knowledge of need for food and nutrition-related recommendations • Conditions associated with a diagnosis or treatment of, e.g., mental illness • New medical diagnosis or change in existing diagnosis or condition

References:

1. Crawford S. Promoting dietary change. *Can J Cardiol*. 1995;11(suppl A):14A-15A.
2. Kumanyika SK, Van Horn L, Bowen D, Perri MG, Rolls BJ, Czajkowski SM, Schron E. Maintenance of dietary behavior change. *Health Psychol*. 2000;19(1 suppl):S42-S56.
3. Position of the American Dietetic Association: Weight management. *J Am Diet Assoc*. 2002;102:1145-1155.
4. Position of the American Dietetic Association: Total diet approach to communicating food and nutrition information. *J Am Diet Assoc*. 2002;102:100-108.
5. Position of the American Dietetic Association: The role of dietetics professionals in health promotion and disease prevention. *J Am Diet Assoc*. 2002;102:1680-1687.
6. Shepherd R. Resistance to changes in diet. *Proc Nutr Soc*. 2002;61:267-272.
7. U.S. Preventive Services Task Force. Behavioral counseling in primary care to promote a healthy diet. *Am J Prev Med*. 2003;24:93-100.

HARMFUL BELIEFS/ATTITUDES OR PRACTICES ABOUT FOOD, NUTRITION, AND NUTRITION-RELATED TOPICS (NB-1.2)

Use with caution: Be sensitive to patient concerns.

Definition

Beliefs/attitudes or practices about food, nutrition, and nutrition-related topics that are incompatible with sound nutrition principles, nutrition care or disease/condition (excluding disordered eating patterns and eating disorders)

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Disbelief in science-based food and nutrition information
- Exposure to incorrect food and nutrition information
- Eating behavior serves a purpose other than nourishment (e.g. Pica)
- Desire for a cure for a chronic disease through the use of alternative therapy

Signs/Symptoms *(Defining Characteristics)*

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	
Anthropometric Measurements	
Physical Exam Findings	
Food/Nutrition History	Reports or observations of: • Food fetish, Pica • Food faddism • Intake that reflects an imbalance of nutrients/food groups • Avoidance of foods/food groups (e.g., sugar, wheat, cooked foods)

HARMFUL BELIEFS/ATTITUDES OR PRACTICES ABOUT FOOD, NUTRITION, AND NUTRITION-RELATED TOPICS (NB-1.2)

Client History	• Conditions associated with a diagnosis or treatment, e.g., obesity, diabetes, cancer, cardiovascular disease, mental illness

References:

1. Chapman GE, Beagan B. Women's perspectives on nutrition, health, and breast cancer. *J Nutr Educ Behav*. 2003;35:135-141.
2. Gonzalez VM, Vitousek KM. Feared food in dieting and non-dieting young women: a preliminary validation of the Food Phobia Survey. *Appetite*. 2004;43:155-173.
3. Jowett SL, Seal CJ, Phillips E, Gregory W, Barton JR, Welfare MR. Dietary beliefs of people with ulcerative colitis and their effect on relapse and nutrient intake. *Clin Nutr*. 2004;23:161-170.
4. Madden H, Chamberlain K. Nutritional health messages in women's magazines: a conflicted space for women readers. *J Health Psychology*. 2004;9:583-597.
5. Peters CL, Shelton J, Sharma P. An investigation of factors that influence the consumption of dietary supplements. *Health Mark Psychol*. 2003;21:113-135.
6. Position of the American Dietetic Association: Food and nutrition misinformation. *J Am Diet Assoc*. 2002;102:260-266.
7. Povey R, Wellens B, Conner M. Attitudes towards following meat, vegetarian and vegan diets: an examination of the role of ambivalence. *Appetite*. 2001;37:15-26.
8. Putterman E, Linden W. Appearance versus health: does the reason for dieting affect dieting behavior? *J Behav Med*. 2004;27:185-204.
9. Salminen E, Heikkila S, Poussa T, Lagstrom H, Saario R, Salminen S. Female patients tend to alter their diet following the diagnosis of rheumatoid arthritis and breast cancer. *Prev Med*. 2002;34:529-535.

NOT READY FOR DIET/LIFESTYLE CHANGE (NB-1.3)

Definition

Lack of perceived value of nutrition-related behavior change compared to costs (consequences or effort required to make changes); conflict with personal value system; antecedent to behavior change

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Harmful beliefs/attitudes about food, nutrition, and nutrition-related topics
- Cognitive deficits or inability to focus on dietary changes
- Lack of social support for implementing changes
- Denial of need to change
- Perception that time, interpersonal, or financial constraints prevent changes
- Unwilling or uninterested in learning information
- Lack of self-efficacy for making change or demoralization from previous failures at change

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	
Anthropometric Measurements	
Physical Exam Findings	• Negative body language, e.g., frowning, lack of eye contact, defensive posture, lack of focus, fidgeting (Note: body language varies by culture.)

NOT READY FOR DIET/LIFESTYLE CHANGE (NB-1.3)

Food/Nutrition History	Reports or observations of: • Denial of need for food- and nutrition-related changes • Inability to understand required changes • Failure to keep appointments/schedule follow-up appointments or engage in counseling • Previous failures to effectively change target behavior • Defensiveness, hostility, or resistance to change • Lack of efficacy to make change or to overcome barriers to change
Client History	• New medical diagnosis, change in existing diagnosis or condition, or chronic non-compliance

References:

1. Crawford S. Promoting dietary change. *Can J Cardiol*. 1995;11:14A-15A.
2. Greene GW, Rossi SR, Rossi JS, Velicer WF, Fava JS, Prochaska JO. Dietary applications of the Stages of Change Model. *J Am Diet Assoc*. 1999;99:673-678.
3. Kumanyika SK, Van Horn L, Bowen D, Perri MG, Rolls BJ, Czajkowski SM, Schron E. Maintenance of dietary behavior change. *Health Psychol*. 2000;19:S42-S56.
4. Prochaska JO, Velicer WF. The Transtheoretical Model of behavior change. *Am J Health Promotion*. 1997;12:38–48.
5. Position of the American Dietetic Association: Total diet approach to communicating food and nutrition information. *J Am Diet Assoc*. 2002;102:100-108.
6. Position of the American Dietetic Association: The role of dietetics professionals in health promotion and disease prevention. *J Am Diet Assoc*. 2002;102:1680-1687.
7. Resnicow K, Jackson A, Wang T, De A, McCarty F, Dudley W, Baronowski T. A motivational interviewing intervention to increase fruit and vegetable intake through black churches: Results of the Eat for Life trial. *Am J Public Health*. 2001;91:1686-1693.
8. Shepherd R. Resistance to changes in diet. *Proc Nutr Soc*. 2002;61:267-272.
9. U.S. Preventive Services Task Force. Behavioral counseling in primary care to promote a healthy diet. *Am J Prev Med*. 2003;24:93-100.

SELF-MONITORING DEFICIT (NB-1.4)

Definition

Lack of data recording to track personal progress

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Food- and nutrition-related knowledge deficit
- Lack of social support for implementing changes
- Lack of value for behavior change or competing values
- Perception that lack of resources, e.g., time, financial, or social support prevent self-monitoring
- Cultural barrier impacting ability to track personal progress
- Learning disability, neurological, or sensory impairment
- Prior exposure to incompatible information
- Not ready for diet/lifestyle change
- Unwilling or uninterested in tracking progress
- Lack of focus and attention to detail, difficulty with time management and/or organization

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Recorded data inconsistent with biochemical data, e.g., dietary intake is not consistent with biochemical data
Anthropometric Measurements	• Recorded data inconsistent with weight status or growth pattern data, e.g., dietary intake is not consistent with weight status or growth pattern
Physical Exam Findings	

SELF-MONITORING DEFICIT (NB-1.4)

Food/Nutrition History	Reports or observations of: • Incomplete self-monitoring records, e.g., glucose, food, fluid intake, weight, physical activity, ostomy output records • Embarrassment or anger regarding need for self-monitoring • Uncertainty of how to complete monitoring records • Uncertainty regarding changes that could/should be made in response to data in self monitoring records • No self management equipment, e.g. no blood glucose monitor, pedometer
Client History	• Diagnoses requiring self-monitoring, e.g., diabetes mellitus, obesity, new ostomy • New medical diagnosis or change in existing diagnosis or condition

References:

1. American Diabetes Association. Tests of glycemia in diabetes. *Diabetes Care.* 2004;27:S91-S93.
2. Baker RC, Kirschenbaum DS. Weight control during the holidays: highly consistent self-monitoring as a potentially useful coping mechanism. *Health Psychol.* 1998;17:367-370.
3. Berkowitz RI, Wadden TA, Tershakovec AM. Behavior therapy and sibutramine for treatment of adolescent obesity. *JAMA.* 2003;289:1805-1812.
4. Crawford S. Promoting dietary change. *Can J Cardiol.* 1995;11(suppl A):14A-15A.
5. Jeffery R, Drewnowski A, Epstein L, Stunkard A, Wilson G, Wing R. Long-term maintenance of weight loss: current status. *Health Psychol.* 2000;19:5-16.
6. Kumanyika SK, Van Horn L, Bowen D, Perri MG, Rolls BJ, Czajkowski SM, Schron E. Maintenance of dietary behavior change. *Health Psychol.* 2000;19(1 suppl):S42-S56.
7. Lichtman SW, Pisaska K, Berman ER, Pestone M, Dowling H, Offenbacher E, Weisel H, Heshka S, Matthews DE, Heymsfield SB. Discrepancy between self-reported and actual caloric intake and exercise in obese subjects. *N Engl J Med* . 1992;327:1893-1898.
8. Wadden, TA. Characteristics of successful weight loss maintainers. In: Allison DB, Pi-Sunyer FX, eds. *Obesity treatment: establishing goals, improving outcomes, and reviewing the research agenda*. New York, NY: Plenum Press;1995:103-111.

DISORDERED EATING PATTERN (NB-1.5)

Definition

Beliefs, attitudes, thoughts and behaviors related to food, eating, and weight management, including classic eating disorders as well as less severe, similar conditions that negatively impact health

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Obsessive desire to be thin related to familial, societal, biological/genetic, and/or genetic factors
- Weight regulation/preoccupation significantly influences self esteem

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Elevated cholesterol, abnormal lipid profiles, hypoglycemia, hypokalemia [anorexia nervosa (AN)] • Hypokalemia and hypochloremic alkalosis [bulimia nervosa (BN)] • Hypotension, bradycardia, low body temperature, hyponatremia, anemia, hypothyroid, leucopenia, elevated BUN (AN) • Urine positive for ketones (AN)
Anthropometric Measurements	• BMI < 17.5, arrested growth and development, failure to gain weight during period of expected growth, weight less than 85% of expected weight (AN) • BMI > 29 [eating disorder not otherwise specified (EDNOS)] • Significant weight fluctuation (BN)

DISORDERED EATING PATTERN (NB-1.5)

Physical Exam Findings	• Severely depleted adipose and somatic protein stores (AN) • Lanugo hair formation on face and trunk, brittle listless hair, cyanosis of hands and feet, and dry skin (AN) • Normal or excess adipose and normal somatic protein stores (BN, EDNOS) • Damaged tooth enamel (BN) • Enlarged parotid glands (BN) • Peripheral edema (BN) • Skeletal muscle loss (AN) • Cardiac arrhythmias (AN, BN) • Irritability, depression (AN, BN) • Inability to concentrate (AN) • Positive Russell's Sign (BN) callous on back of hand from self induced vomiting
Food/Nutrition History	Reports or observations of: • Avoidance of food or calorie-containing beverages (AN, BN) • Fear of foods or dysfunctional thoughts regarding food or food experiences (AN, BN) • Denial of hunger (AN) • Food preoccupation (AN, BN) • Knowledgeable about current diet fad (AN, BN, EDNOS) • Fasting (AN, BN) • Intake of larger quantity of food in a defined time period, a sense of lack of control over eating during the episode (BN, EDNOS) • Excessive physical activity (AN, BN, EDNOS) • Eating much more rapidly than normal, eating until feeling uncomfortably full; consuming large amounts of food when not feeling physically hungry; eating alone because of being embarrassed by how much one is eating; feeling disgusted with oneself, depressed, or very guilty after overeating (EDNOS) • Eats in private (AN, BN) • Irrational thoughts about food's affect on the body (AN, BN, EDNOS) • Pattern of chronic dieting • Weight preoccupation • Excessive reliance on nutrition Terming and preoccupation with nutrient content of foods • Inflexibility with food selection

DISORDERED EATING PATTERN (NB-1.5)

Client History	• Bradycardia (heart rate < 60 beats/min), hypotension (systolic <90 mm Hg), and orthostatic hypotension (AN) • Self-induced vomiting, diarrhea, bloating, constipation and flatulence (BN) • Report of always feeling cold (AN) • Misuse of laxatives, enemas, diuretics, stimulants and/or metabolic enhancers (AN, BN) • Muscle weakness, fatigue, cardiac arrhythmias, dehydration, and electrolyte imbalance (AN, BN) • Diagnosis, e.g., anorexia nervosa, bulimia nervosa, binge eating, eating disorder not otherwise specified, amenorrhea • History of mood and anxiety disorders (e.g., depression, obsessive compulsive disorder), personality disorders, substance abuse disorders • Family history of ED, depression, OCD, anxiety disorders (AN, BN) • Avoidance of social events where food is served

References:

1. Anderson GH, Kennedy SH, eds. *The Biology of Feast and Famine*. New York: Academic Press; 1992.
2. American Psychiatric Association. *Diagnostic and Statistical Manual for Mental Disorders (Fourth Edition, Text Revision)*. Washington, DC: APA Press; 2000.
3. American Psychiatric Association. Practice guidelines for the treatment of patients with eating disorders. *Am J Psychiatry*. 2000;157 (suppl):1-39.
4. Cooke RA, Chambers JB. Anorexia nervosa and the heart. *Br J Hosp Med*. 1995;54:313-317.
5. Fisher M. Medical complications of anorexia and bulimia nervosa. *Adol Med*. 1992;3:481-502.
6. Gralen SJ, Levin MP, Smolak L et al. Dieting and disordered eating during early and middle adolescents: Do the influences remain the same? *Int J Eat Disord*. 1990;9:501-512.
7. Harris JP, Kriepe RE, Rossback CN. QT prolongation by isoproterenol in anorexia nervosa. *J Adol Health*. 1993;14:390-393.
8. Kaplan AS, Garfunkel PE, eds. *Medical Issues and the Eating Disorders: The Interface*. New York,NY: Brunner/Manzel Publishers; 1993.
9. Keys A, Brozek J, Henschel A, Mickelson O, Taylor HL. *The Biology of Human Starvation, 2nd vol*. Minneapolis, Minn: University of Minnesota Press; 1950.
10. Kirkley BG. Bulimia: clinical characteristics, development, and etiology. *J Am Diet Assoc*. 1986;86:468-475.
11. Kreipe RE, Uphoff M. Treatment and outcome of adolescents with anorexia nervosa. *Adolesc Med*.1992;16:519-540.
12. Kreipe RE, Birndorf DO. Eating disorders in adolescents and young adults. *Med Clin N Am*. 2000;84(4):1027-1049.
13. Mordasini R, Klose G, Greter H. Secondary type II hyperlipoproteinemia in patients with anorexia nervosa. *Metabolism*. 1978;27:71-79.
14. Position of the American Dietetic Association: Nutrition intervention in the treatment of anorexia nervosa, bulimia nervosa, and eating disorder not otherwise specified (EDNOS). *J Am Diet Assoc*. 2001;101:810-819.
16. Rock C, Yager J. Nutrition and eating disorders: a primer for clinicians. *Int J Eat Disord*. 1987;6:267-280.
17. Rock CL. Nutritional and medical assessment and management of eating disorders. *Nutr Clin Care*. 1999;2:332-343.
18. Schebendach J, Reichert-Anderson P. Nutrition in Eating Disorders. In: Mahan K, Escott-Stump S, eds. *Kraus's Nutrition and Diet Therapy*. New York, NY: McGraw- Hill; 2000.
19. Silber T. Anorexia nervosa: Morbidity and mortality. *Peiatr Ann*. 1984;13:851-859.
20. Swenne I. Heart risk associated with weight loss in anorexia nervosa and eating disorders: electrocardiographic changes during the early phase of refeeding. *Acta Paediatr*. 2000;89:447-452.
21. Turner JM, Bulsara MK, McDermott BM, Byrne GC, Prince RL, Forbes DA. Predictors of low bone density in young adolescent females with anorexia nervosa and other dieting disorders. *Int J Eat Disord*. 2001;30:245-251.

LIMITED ADHERENCE TO NUTRITION-RELATED RECOMMENDATIONS (NB-1.6)

Definition

Lack of nutrition-related changes as per intervention agreed upon by client or population

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Lack of social support for implementing changes
- Lack of value for behavior change or competing values
- Perception that time or financial constraints prevent changes
- Previous lack of success in making health-related changes
- Poor understanding of how and why to make changes
- Unwilling to applyor uninterested in applying information

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Expected laboratory outcomes are not achieved
Anthropometric Measurements	• Expected anthropometric outcomes are not achieved
Physical Exam Findings	• Negative body language, e.g., frowning, lack of eye contact, fidgeting (Note: body language varies by culture)

LIMITED ADHERENCE TO NUTRITION-RELATED RECOMMENDATIONS (NB-1.6)

Food/Nutrition History	Reports or observations of: • Expected food/nutrition-related outcomes are not achieved • Inability to recall agreed upon changes • Failure to complete any agreed upon homework • Lack of compliance or inconsistent compliance with plan • Failure to keep appointments or schedule follow-up appointments • Lack of appreciation of the importance of making recommended nutrition-related changes • Uncertainty as to how to consistently apply food/nutrition information
Client History	

References:

1. Crawford S. Promoting dietary change. *Can J Cardiol*. 1995;11(suppl A):14A-15A.
2. Kumanyika SK, Van Horn L, Bowen D, Perri MG, Rolls BJ, Czajkowski SM, Schron E. Maintenance of dietary behavior change. *Health Psychol*. 2000;19(1 suppl):S42-S56.
3. Position of the American Dietetic Association: Total diet approach to communicating food and nutrition information. *J Am Diet Assoc*. 2002;102:100-108.
4. Shepherd R. Resistance to changes in diet. *Proc Nutr Soc*. 2002;61:267-272.
5. U.S. Preventive Services Task Force. Behavioral counseling in primary care to promote a healthy diet. *Am J Prev Med*. 2003;24:93-100.

UNDESIRABLE FOOD CHOICES (NB-1.7)

Definition

Food and/or beverage choices that are inconsistent with US Recommended Dietary Intake, US Dietary Guidelines, or with the My Pyramid or with targets defined in the nutrition prescription or nutrition care process

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Lack of prior exposure to or misunderstanding of information
- Language, religious, or cultural barriers affecting ability to apply information
- Learning disabilities, neurological or sensory impairment
- High level of fatigue or other side effect of therapy
- Inadequate access to recommended foods
- Perception that financial constraints prevent selection of food choices consistent with recommendations
- Food allergies and aversions impeding food choices consistent with guidelines
- Lacks motivation and/or readiness to apply or support systems change
- Unwilling or uninterested in learning information
- Psychological limitations

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Elevated lipid panel
Anthropometric Measurements	
Physical Exam Findings	• Findings consistent with vitamin/mineral deficiency or excess

UNDESIRABLE FOOD CHOICES (NB-1.7)

Food/Nutrition History	Reports or observations of: • Intake inconsistent with US Dietary Guidelines or My Pyramid (e.g., omission of entire nutrient groups, disproportionate intake such as juice for young children]) • Inaccurate or incomplete understanding of the guidelines • Inability to apply guideline information • Inability (e.g. access) or unwillingness to select, or disinterest in selecting food consistent with the guidelines
Client History	• Conditions associated with a diagnosis or treatment, e.g., mental illness

References:

1. Birch LL, Fisher JA. Appetite and eating behavior in children. *Pediatr Clin North Am.* 1995:42;931-953.
2. Butte N, Cobb K, Dwyer J, Graney L, Heird W, Richard K. The start healthy feeding guidelines for infants and toddlers. *J Am Diet Assoc.* 2004;104:442-454.
3. Position of the American Dietetic Association: Weight management. *J Am Diet Assoc.* 2002;102:1145-1155.
4. Dolecek TA, Stamlee J, Caggiula AW, Tillotson JL, Buzzard IM. Methods of dietary and nutritional assessment and intervention and other methods in the multiple risk factor intervention trial. *Am J Clin Nutr.* 1997;65(suppl):196S-210S.
5. Epstein LH, Gordy CC, Raynor HA, Beddome M, Kilanowski CK, Paluch R. Increasing fruit and vegetable intake and decreasing fat and sugar intake in families at risk for childhood obesity. *Obesity Res.* 2001;9:171-178.
6. Freeland-Graves J, Nitzke S. Total diet approach to communicating food and nutrition information. *J Am Diet Assoc.* 2002;102:100-108.
7. French SA. Pricing effects on food choices. *J Nutr.* 2003;133 (suppl):841S-843S.
8. Glens K, Basil M, Mariachi E, Goldberg J, Snyder D. Why Americans eat what they do: taste, nutrition, cost, convenience and weight control concerns as influences on food consumption. *J Am Diet Assoc.* 1998;98:1118-1126.
9. Hampl JS, Anderson JV, Mullis R. The role of dietetics professionals in health promotion and disease prevention. *J Am Diet Assoc.* 2002;102:1680-1687.
10. Lin SH, Guthrie J, Frazao E. American children's' diets are not making the grade. *Food Rev.* 2001;24:8-17.
11. Satter E. Feeding dynamics: helping children to eat well. *J Pediatr Healthcare.* 1995;9:178-184.
12. Story M, Holt K, Sofka D, eds. *Bright Futures in Practice: Nutrition, 2nd ed*. Arlington, Va: National Center for Education in Maternal Child Health; 2002.
13. Pelto GH, Levitt E, Thairu L. Improving feeding practices, current patterns, common constraints and the design of interventions. *Food Nutr Bull.* 2003;24:45-82.

PHYSICAL INACTIVITY (NB-2.1)

Definition

Low level of activity/sedentary behavior to the extent that it reduces energy expenditure and impacts health

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Financial constraints that may prevent sufficient level of activity
- Harmful beliefs/attitudes about physical activity
- Injury or lifestyle change that reduces physical activity or activities of daily living
- Lack of prior education about need for physical activity or how to incorporate exercise, e.g., physical disability, arthritis
- Lack of role models, e.g., for children
- Lack of social support and/or environmental space or equipment
- Lack of safe environment for physical activity
- Lack of value or competing values for behavior change
- Time constraints

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	
Anthropometric Measurements	
Physical Exam Findings	

PHYSICAL INACTIVITY (NB-2.1)

Food/Nutrition History	Reports or observations of: • Infrequent, low-duration and/or low-intensity physical activity • Large amounts of sedentary activities, e.g., TV watching, reading, computer use in both leisure and work/school • Barriers to physical activity, e.g., time constraints, availability of a safe environment for exercise
Client History	• Low cardio-respiratory fitness and/or low muscle strength • Medical diagnoses that may be associated with or result in decreased activity, e.g., arthritis, chronic fatigue syndrome, morbid obesity, knee surgery • Medications that cause somnolence and decreased cognition • Psychological diagnosis, e.g., depression, anxiety disorders

References:

1. Position of the American Dietetic Association: Weight management. *J Am Diet Assoc.* 2002;102:1145-1155.
2. Position of the American Dietetic Association: Total diet approach to communicating food and nutrition information. *J Am Diet Assoc.* 2002;102:100-108.
3. Position of the American Dietetic Association: The role of dietetics professionals in health promotion and disease prevention. *J Am Diet Assoc.* 2002;102:1680-1687.

EXCESSIVE EXERCISE (NB-2.2)

Definition

An amount of exercise that exceeds that which is necessary to improve health and/or athletic performance

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Disordered eating
- Irrational beliefs/attitudes about food, nutrition, and fitness
- "Addictive" behaviors/personality

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Elevated liver enzymes, e.g., LDH, SGOT • Altered micronutrient status, e.g., decreased serum ferritin, zinc, and IGF-binding protein • Increased hematocrit • Suppressed immune function • Possibly elevated cortisol levels
Anthropometric Measurements	• Weight loss, arrested growth and development, failure to gain weight during period of expected growth (related usually to disordered eating)
Physical Exam Findings	• Depleted adipose and somatic protein stores (related usually to disordered eating) • Frequent and/or prolonged injuries and/or illnesses • Chronic fatigue • Chronic muscle soreness

EXCESSIVE EXERCISE (NB-2.2)

Food/Nutrition History	Reports or observations of: • Continued/repeated high levels of exercise exceeding levels necessary to improve health and/or athletic performance • Exercise daily without rest/rehabilitation days • Exercise while injured/sick • Forsaking family, job, social responsibilities to exercise
Client History	• Conditions associated with a diagnosis or treatment of, e.g., anorexia nervosa, bulimia nervosa, binge eating, eating disorder not otherwise specified, amenorrhea • Evidence of addictive, obsessive, or compulsive tendencies

References:

1. Aissa-Benhaddad A, Bouix D, Khaled S, Micallef JP, Mercier J, Bringer J, Brun JF. Early hemorheologic aspects of overtraining in elite athletes. *Clin Hemorheol Microcirc*. 1999;20:117-125.
2. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*. 4th ed. Washington, DC: American Psychiatric Association; 2000.
3. Davis C, Brewer H, Ratusny D. Behavioral frequency and psychological commitment: necessary concepts in the study of excessive exercising. *J Behav Med*. 1993;16:611-628
4. Davis C, Claridge G. The eating disorder as addiction: a psychobiological perspective. *Addict Behav*. 1998;23:463-475.
5. Davis C, Kennedy SH, Ravelski E, Dionne M. The role of physical activity in the development and maintenance of eating disorders. *Psychol Med*. 1994;24:957-967.
6. Klein DA, Bennett AS, Schebendach J, Foltin RW, Devlin MJ, Walsh BT. Exercise "addiction" in anorexia nervosa: model development and pilot data. *CNS Spectr*. 2004;9:531-537.
7. Lakier-Smith L. Overtraining, excessive exercise, and altered immunity: this a helper-1 vs helper-2 lymphocyte response? *Sports Med*. 2003;33:347-364.
8. Position of the American Dietetic Association: Nutrition intervention in the treatment of anorexia nervosa, bulimia nervosa, and eating disorder not otherwise specified (EDNOS). *J Am Diet Assoc*. 2001;101:810-819.
9. Shephard RJ, Shek PN. Acute and chronic over-exertion: do depressed immune responses provide useful markers? *Int J Sports Med*. 1998;19:159-171.
10. Smith LL. Tissue trauma: the underlying cause of overtraining syndrome? *J Strength Cond Res*. 2004;18:185-193.
11. Urhausen A, Kindermann W. Diagnosis of overtraining: what tools do we have. *Sports Med*. 2002;32:95-102.

INABILITY OR LACK OF DESIRE TO MANAGE SELF-CARE (NB-2.3)

Definition

Lack of capacity or unwillingness to implement methods to support healthful food- and nutrition-related behavior

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Food- and nutrition-related knowledge deficit
- Lack of caretaker or social support for implementing changes
- Lack of developmental readiness to perform self management tasks, e.g. pediatrics
- Lack of value or competing values for behavior change
- Perception that lack of resources (time, financial, support persons) prevent self care
- Cultural beliefs and practices
- Learning disability, neurological or sensory impairment
- Prior exposure to incompatible information
- Not ready for diet/lifestyle change
- Unwilling or uninterested in learning/applying information
- No self-management tools or decision guides

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	
Anthropometric Measurements	
Physical Exam Findings	

INABILITY OR LACK OF DESIRE TO MANAGE SELF-CARE (NB-2.3)

Food/Nutrition History	Reports or observations of: • Inability to interpret data or self-management tools • Embarrassment or anger regarding need for self-monitoring • Uncertainty regarding changes that could/should be made in response to data in self-monitoring records
Client History	• Diagnoses that are associated with self management, e.g., diabetes mellitus, obesity, cardiovascular disease, renal or liver disease • Conditions associated with a diagnosis or treatment, e.g., cognitive or emotional impairment • New medical diagnosis or change in existing diagnosis or condition

References:

1. Position of the American Dietetic Association: Providing nutrition services for infants, children, and adults with developmental disabilities and special health care needs. *J Am Diet Assoc*. 2004;104:97-107.
2. Crawford S. Promoting dietary change. *Can J Cardiol*. 1995;11(suppl A):14A-15A.
3. Falk LW, Bisogni CA, Sobal J. Diet change processes of participants in an intensive heart program. *J Nutr Educ*. 2000;32:240-250.
4. Glasgow RE, Hampson SE, Strycker LA, Ruggiero L. Personal-model beliefs and social-environmental barriers related to diabetes self-management. *Diabetes Care*. 1997;20:556-561.
5. Keenan DP, AbuSabha R, Sigman-Grant M, Achterberg C, Ruffing J. Factors perceived to influence dietary fat reduction behaviors. *J Nutr Educ*.1999;31:134-144.
6. Kumanyika SK, Van Horn L, Bowen D, Perri MG, Rolls BJ, Czajkowski SM, Schron E. Maintenance of dietary behavior change. *Health Psychol*. 2000;19(1 suppl):S42-S56.
7. Sporny, LA, Contento IR. Stages of change in dietary fat reduction: Social psychological correlates. *J Nutr Educ*. 1995;27:191.

IMPAIRED ABILITY TO PREPARE FOODS/MEALS (NB-2.4)

Definition

Cognitive or physical impairment that prevents preparation of foods/meals

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Learning disability, neurological or sensory impairment
- Loss of mental or cognitive ability, e.g., dementia
- Physical disability
- High level of fatigue or other side effect of therapy

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	
Anthropometric Measurements	
Physical Exam Findings	
Food/Nutrition History	Observations or reports of: • Decreased overall intake • Excessive consumption of convenience foods, pre-prepared meals, and foods prepared away from home resulting in an inability to adhere to nutrition prescription • Uncertainty regarding appropriate foods to prepare based upon nutrition prescription • Inability to purchase and transport foods to one's home
Client History	• Conditions associated with a diagnosis or treatment, e.g., cognitive impairment, cerebral palsy, paraplegia, sight impairment, rigorous therapy regimen, recent surgery

IMPAIRED ABILITY TO PREPARE FOODS/MEALS (NB-2.4)

References:

1. Andren E, Grimby G. Activity limitations in personal, domestic and vocational tasks: a study of adults with inborn and early acquired mobility disorders. *Disabil Rehabil*. 2004;26:262-271.
2. Andren E, Grimby G. Dependence in daily activities and life satisfaction in adult subjects with cerebral palsy or spina bifida: a follow-up study. *Disabil Rehabil*. 2004;26:528-536.
3. Fortin S, Godbout L, Braun CM. Cognitive structure of executive deficits in frontally lesioned head trauma patients performing activities of daily living. *Cortex*. 2003;39:273-291.
4. Godbout L, Doucet C, Fiola M. The scripting of activities of daily living in normal aging: anticipation and shifting deficits with preservation of sequencing. *Brain Cogn*. 2000;43:220-224.
5. Position of the American Dietetic Association: Providing nutrition services for infants, children, and adults with developmental disabilities and special health care needs. *J Am Diet Assoc*. 2004;104:97-107.
6. Position of the American Dietetic Association: Domestic food and nutrition security. *J Am Diet Assoc*. 2002;102:1840-1847.
7. Position of the American Dietetic Association: Addressing world hunger, malnutrition, and food insecurity. *J Am Diet Assoc*. 2003;103:1046-1057.
8. Sandstrom K, Alinder J, Oberg B. Descriptions of functioning and health and relations to a gross motor classification in adults with cerebral palsy. *Disabil Rehabil*. 2004;26:1023-1031.

POOR NUTRITION QUALITY OF LIFE (NQOL) (NB-2.5)

Definition

Diminished NQOL scores related to food impact, self image, psychological factors, social/interpersonal factors, physical factors, or self-efficacy

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems.

- Food- and nutrition knowledge-related deficit
- Not ready for diet/lifestyle change
- Negative impact of current or previous medical nutrition therapy (MNT)
- Food or activity behavior-related difficulty
- Poor self-efficacy
- Altered body image
- Food insecurity
- Lack of social support for implementing changes

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	
Anthropometric Measurements	
Physical Exam Findings	

POOR NUTRITION QUALITY OF LIFE (NQOL) (NB-2.5)

Food/Nutrition History	Reports or observations of: • Unfavorable NQOL rating • Frustration or dissatisfaction with MNT recommendations • Inaccurate or incomplete information related to MNT recommendations • Inability to change food- or activity-related behavior • Concerns about previous attempts to learn information • Unwillingness or disinterest in learning information
Client History	• New medical diagnosis or change in existing diagnosis or condition • Recent other lifestyle or life changes, e.g., quit smoking, initiated exercise, work change, home relocation

References:

1. Barr JT, Schumacher GE. The need for a nutrition-related quality-of-life measure. *J Am Diet Assoc*. 2003;103:177-180.
2. Barr JT, Schumacher GE. Using focus groups to determine what constitutes quality of life in clients receiving medical nutrition therapy: First steps in the development of a nutrition quality-of-life survey. *J Am Diet Assoc.* 2003;103:844-851.

SELF-FEEDING DIFFICULTY (NB-2.6)

Definition

Impaired actions to place food or beverages in mouth

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Inability to grasp cups and utensils for self-feeding
- Inability to support and/or control head and neck
- Lack of coordination of hand to mouth
- Limited physical strength or range of motion
- Inability to bend elbow or wrist
- Inability to sit with hips square and back straight
- Limited access to foods conducive for self-feeding
- Limited vision
- Reluctance or avoidance of self feeding

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	
Anthropometric Measurements	
Physical Exam Findings	• Dry mucous membranes, hoarse or wet voice, tongue extrusion

SELF-FEEDING DIFFICULTY (NB-2.6)

Food/Nutrition History	Reports or observations of: • Being provided with foods that may not be conducive to self-feeding, e.g., peas, broth-type soups • Poor lip closure, drooling • Dropping of cups, utensils • Emotional distress, anxiety, or frustration surrounding mealtimes • Failure to recognize foods • Forgets to eat • Inappropriate use of food • Refusal to eat or chew • Dropping of food from utensil (splashing and spilling of food) on repeated attempts to feed • Utensil biting
Client History	• Conditions associated with a diagnosis or treatment of, e.g., neurological disorders, Parkinson's disease, Alzheimer's disease, Tardive dyskinesia, multiple sclerosis, stroke, paralysis, developmental delay • Physical limitations, e.g., fractured arms, traction, contractures • Surgery requiring recumbent position • Dementia/organic brain syndrome • Dysphagia • Weight loss • Shortness of breath • Tremors

References:

1. Consultant Dietitians in Healthcare Facilities. *Dining Skills Supplement: Practical Interventions for Caregivers of Eating Disabled Older Adults*. Pensacola, Fla: American Dietetic Association; 1992.
2. Morley JE. Anorexia of aging: physiological and pathologic. *Am J Clin Nutr*. 1997;66:760-773.
3. Position of the American Dietetic Association: Providing nutrition services for infants, children, and adults with developmental disabilities and special health care needs. *J Am Diet Assoc*. 2004;104:97-107.
4. Sandman P, Norberg A, Adolfsson R, Eriksson S, Nystrom L. Prevalence and characteristics of persons with dependency on feeding at institutions. *Scand J Caring Sci*. 1990;4:121-127.
5. Siebens H, Trupe E, Siebens A, Cooke F, Anshen S, Hanauer R, Oster G. Correlates and consequences of feeding dependency. *J Am Geriatr Soc*. 1986;34:192-198.
6. Vellas B, Fitten LJ, eds. *Research and Practice in Alzheimer's Disease*. New York, NY: Springer Publishing Company; 1998.

INTAKE OF UNSAFE FOOD (NB-3.1)

Definition

Intake of food and/or fluids intentionally or unintentionally contaminated with toxins, poisonous products, infectious agents, microbial agents, additives, allergens, and/or agents of bioterrorism

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Lack of knowledge about potentially unsafe food
- Lack of knowledge about proper food/feeding, storage and preparation, e.g., infant and enteral formula, or breast milk
- Exposure to contaminated water or food, e.g., community outbreak of illness documented by surveillance and/or response agency
- Mental illness, confusion or altered awareness
- Inadequate food storage equipment/facilities, e.g., refrigerator
- Inadequate safe food supply, e.g., inadequate access to markets with safe, uncontaminated food

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Positive stool culture for infectious causes, such as listeria, salmonella, hepatitis A, *E. coli*, *cyclospora* • Toxicology reports for drugs, medicinals, poisons in blood or food samples
Anthropometric Measurements	
Physical Examination Findings	• Evidence of dehydration, e.g., dry mucous membranes, damaged tissues

INTAKE OF UNSAFE FOOD (NB-3.1)

Food/Nutrition History	Observations/reports of intake of potential unsafe foods (e.g., pregnant and lactating women): • Mercury content of fish and in non-food items • Raw eggs, unpasteurized milk products, soft cheeses, undercooked meats (infants, children, immunocompromised persons, pregnant and lactating women, and elderly) • Wild plants, berries, and mushrooms Observations/reports of unsafe food/feeding or storage and preparation practices (enteral and infant formula, or breast milk)
Client History	• Conditions associated with a diagnosis or treatment of, e.g., food borne illness, such as, bacterial, viral, and parasitic infection, mental illness, dementia • Poisoning by drugs, medicinals, or biological substances • Poisoning from poisonous food stuffs or poisonous plants • Diarrhea, cramping, bloating, fever, nausea, vomiting, vision problems, chills, dizziness, headache • Cardiac, neurologic, respiratory changes

References:

1. Centers for Disease Control and Prevention. Diagnosis and Management of Foodborne Illness: A Primer for Physicians. Available at: www.cdc.gov/mmwr/preview/mmwrhtml/rr5304a1.htm. Accessed July 2, 2004.
2. Food Safety and Inspection Service. The Fight BAC Survey Tool and Data Entry Tool. Available at: www.fsis.usda.gov/OA/fses/bac_datatool.htm. Accessed July 2, 2004.
3. Gerald BL, Perkin JE. Food and water safety. *J Am Diet Assoc*. 2003;103:1203-1218.
4. Partnership for Food Safety Education. Four steps. Available at: http://www.fightbac.org/foursteps.cfm?section=4. Accessed July 2, 2004.

LIMITED ACCESS TO FOOD (NB-3.2)

Definition

Diminished ability to acquire food from sources (e.g., shopping, gardening, meal delivery), due to financial constraints, physical impairment, caregiver support, or unsafe living conditions (e.g. crime hinders travel to grocery store). Limitation to food because of concerns about weight or aging.

Etiology (*Cause/Contributing Risk Factors*)

Factors gathered during the nutrition assessment process that contribute to the existence or the maintenance of pathophysiological, psychosocial, situational, developmental, cultural, and/or environmental problems:

- Caregiver intentionally or unintentionally not providing access to food, e.g., unmet needs for food or eating assistance, abuse/neglect
- Community and geographical constraints for shopping and transportation
- Lack of financial resources or lack of access to financial resources to purchase sufficient food
- Limited or absent community supplemental food programs, e.g., food pantry, shelter
- Failure to participate in food programs such as WIC, National School Lunch Program, food stamps
- Physical or psychological limitations that diminish ability to shop, e.g., walking, sight, mental/emotional health

Signs/Symptoms (*Defining Characteristics*)

A typical cluster of subjective and objective signs and symptoms gathered during the nutrition assessment process that provide evidence that a problem exists; quantify the problem and describe its severity.

Nutrition Assessment Category	Potential Indicators of this Nutrition Diagnosis (one or more must be present)
Biochemical Data	• Indicators of macronutrient or vitamin/mineral status
Anthropometric Measurements	• Growth failure, based on National Center for Health Statistics (NCHS) growth standards • Underweight (BMI < 18.5)
Physical Exam Findings	• Findings consistent with vitamin or mineral deficiency

LIMITED ACCESS TO FOOD (NB-3.2)

Food/Nutrition History	Reports or observations of: • Food faddism • Belief that aging can be slowed by dietary limitations and extreme exercise • Hunger • Inadequate intake of food and/or specific nutrients • Limited supply of food in home • Limited variety of foods
Client History	• Malnutrition, vitamin or mineral deficiency • Illness or physical disability • Conditions associated with a diagnosis or treatment, e.g., mental illness, dementia • Lack of suitable support systems

References:

1. Position of the American Dietetic Association: Domestic food and nutrition security. *J Am Diet Assoc*. 2002;102:1840-1847.
2. Position of the American Dietetic Association: Addressing world hunger, malnutrition, and food insecurity. *J Am Diet Assoc*. 2003;103:1046-1057.