Nutrition Interventions for Stage III Pediatric Weight Management:

Consensus of Registered Dietitians on Best Practice

CHILDREN'S HOSPITAL ASSOCIATION

Champions for Children's Health

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INTRODUCTION

Registered Dietitians (RDs) (some professionals may use the credential RDN, or registered dietitian/nutritionist) play an integral role in comprehensive multidisciplinary weight management programs for overweight and obese youth. This level of intervention is classified as a Stage 3 approach in the current paradigm for treatment of pediatric obesity[1] and has been found to be most effective in improving weight status when clinician contact time is provided at a medium (26 to 75 hours) to high intensity (>75 hours) over a 6-12 month period.[2] Pediatric weight management presents a particular challenge for clinicians, who need to consider each child's physical, cognitive, and emotional growth and development within a family environment. As the nation's only profession whose members are trained and certified to perform medical nutrition therapy, RDs can provide evidence-based nutritional interventions across the age span. Working in collaboration with other clinician specialists, RDs help determine and implement evidence-based care for overweight and obese youth and their families.

This document provides a summary of current practices and consensus recommendations for nutrition assessment and treatment provided by RDs in a Stage 3 pediatric weight management (PWM) program. This work was part of the FOCUS on a Fitter Future (FFF) initiative to address the pediatric obesity epidemic. FFF was conducted by the Children's Hospital Association and involved 25 institutions that provide Stage 3 PWM programs in the United States.

Medical Nutrition Therapy (MNT) provided by RDs in Stage 3 PWM programs follow the Academy of Nutrition and Dietetics' Nutrition Care Process (NCP). The four components of the NCP include the following: 1) nutrition assessment and re-assessment; 2) nutrition diagnosis; 3) nutrition intervention; 4) nutrition monitoring and evaluation.[3] The expert guidelines presented here are not meant as a rigid prescription, but as a consensus statement for suggested best practice within the framework of the NCP. Using this approach, RDs can tailor their practice to fit the needs of their patient population and optimize health outcomes.

DIETITIAN EDUCATION AND TRAINING

Training for RDs includes both didactic and supervised practice components. After undergraduate coursework in both basic and applied sciences, management, food services, and medical nutrition therapy, RD candidates complete at least 1200 hours of supervised practice in a dietetic internship or coordinated program at a health care facility, foodservice organization or community agency to fulfill registration standards. After this training period, candidates must pass the national credentialing exam for RDs to be qualified to practice. Many states also require certification or licensure for RDs. Once credentialed, RDs must earn continuing education credits and complete a learning profile through the Commission on Dietetic Registration (CDR) to maintain registration status.[23] RDs can receive further specialized training in pediatric weight management by completing CDR's Certificate of Training in Childhood and Adolescent Weight Management program. Additionally, RDs often choose to earn advanced degrees in nutrition or related fields. Thus, RDs who work with overweight/obese youth may have specialized advanced practice training to provide effective interventions for pediatric weight management and treatment of obesity.

METHODOLOGY

RDs participating in the FFF meetings (III and IV held during 2012-2013) developed a process for establishing consensus on best practice guidelines for RDs providing clinical care in Stage 3 PWM programs. The FFF RDs who are experienced in pediatric nutrition and weight management first reviewed key findings from the literature for evidence-based practice in the management of pediatric obesity. This was followed by a Microsoft Excel electronic survey to gather information on current nutrition assessment practice of FFF RDs. This survey gathered site-specific information on program type (individual, group or combination), targeted age groups, counseling approach/techniques, anthropometric measurements assessed, access and use of biochemical lab values, and topic areas assessed during an initial RD encounter. Eighty percent (20/25) of the pediatric institutions participating in FFF completed the initial survey. To understand treatment practices, a second similar survey was also administered and completed by 68 percent (17/25) of the FFF sites. This follow-up survey assessed the frequency with which RDs use various diet approaches and educational interventions with patient families. The results of the two surveys include both qualitative and quantitative data. Finally, consensus statements were developed by the FFF RDs based on survey results, current evidence and/or research and are presented below.

RESULTS AND CONSENSUS STATEMENTS

The 25 FFF participating sites varied in size, from small hospitals to large centers. These sites represent diverse geographic areas in the country, including urban and rural settings. Fifty-two percent (13/25) are freestanding children's hospitals, 44 percent (11/25) are pediatric hospitals within a larger adult hospital or system and 4 percent (1/25) are specialty hospitals. Ninety-six percent (24/25) offer Stage 3 PWM programs, with 36 percent (8/24) of those programs offering bariatric surgery, a component of a Stage 4 PWM program.[1] Annual clinic visits for PWM programs in 2011 ranged from 128 to 4,924 visits. During 2011, the number of new patients in these programs ranged from 44 to 1,100. Eighty-four percent (21/25) of these programs see children as young as two years old and offer a combination of individual and group programs. In addition, community outreach and prevention programs are offered at 92 percent (23/25) of these institutions. The hospitals offering these programs have a hospital Case Mix index (severity of illness) ranging from 1.4 to 2.8.

ASSESSMENT

Nutrition assessment is the information-gathering phase in which RDs obtain, verify, and interpret data to identify nutrition-related problems and the relative significance of these problems for the management of pediatric obesity.[3] Due to programmatic variables, the RD's process of collecting and reviewing data to complete a nutrition assessment will likely vary among each facility and multi-disciplinary team. For example, some programs always have a medical provider assess a patient before the RD performs the nutrition assessment, while others have a less structured order in which providers see patients. Thus, RDs may begin their nutrition assessment with various levels of information about a patient (e.g., some RDs may have reviewed biochemical lab values and comorbidities prior to their first patient meeting, while other RDs may not have this information available before their first clinical encounter). The RD's approach is tailored to individual patient families, recognizing that a patient's age, developmental stage, psychosocial situation, readiness for change, medical co-morbidities, and other factors need to be considered when determining a care plan.

Specifically, survey results and discussion among FFF RDs indicate that time and available resources influence what elements may be covered in an initial nutrition assessment. Methods of information gathering included:

- Team rounds
- Referral forms
- Patient and family interviews
- Medical records
- Shared dialogues with clinical team members
- Physical exams
- Observations
- Assessment of readiness to change and motivation
- Food recall/records
- Questionnaires

As it applies to the NCP, these data sources can be organized into five domains: 1) client history; 2) anthropometric measurements; 3) biochemical data, medical tests and procedures; 4) nutrition-focused physical findings; and 5) food/nutrition related diet history.[3] RDs review the available data from these five domains to form a nutrition diagnosis and determine areas for nutrition intervention.

Survey Results

Information gathered to conduct a nutrition assessment varies depending on the clinical setting, patient population and the RD's clinical judgment. Using the five domains of the NCP, consensus findings from the first FFF RD are described below.

Anthropometrics: All ≥ 50%
Weight
Height/length
BMI
BMI percentile
Weight change
BMI change
Waist circumference

Anthropometric Measurements

The table to the left shows the anthropometric measurements that at least 50 percent of RDs use for nutrition assessment in some/all patients. It is essential to use calibrated and up to date measuring tools to obtain these measurements. Make sure to obtain measurements multiple times if needed for accuracy. These measurements provide the basis for evaluating growth and weight status.

The following items were options on the survey but were not measured by a majority of the sites: BMI Z-score, BMI changes, Growth pattern indices, Percentile rankings and Body compartment estimates.

Biochemical Data, Medical Tests and Procedures

RDs review available biochemical data and results from medical tests and procedures as part of the nutrition assessment. It is essential for the RD to review and discuss results with the team when determining the plan for intervention. When available and relevant to the patient's nutrition status, the RD documents biochemical values in the nutrition assessment, especially if nutrition diagnosis and intervention (current or future) will include medical nutrition therapy to address abnormal lab values. Although it is the responsibility of the medical provider to explain and discuss lab results with the patient family initially, the RD subsequently provides dietary education and counseling based on abnormal lab values. According to qualitative survey results, RDs often provide nutrition intervention based on abnormal lab values. As part of the nutrition intervention plan, the clinical team decides when to repeat lab values.

The table at right shows the biochemical data that at least 50 percent of RDs use for nutrition assessment in some/all patients.

Biochemical Data: All/Some* patients ≥ 50%	
Glucose/Endocrine	Fasting Serum Glu/Casual Glu Fasting Insulin HbA1c T4* TSH*
Fasting GI Profile	ALT AST
Fasting Lipid Profile	Chol HDL LDL Total Chol Trig
Vitamin Profile	Vit D*
The following options were including in the survey but not selected by a majority of respondents: anemia profile, inflammatory profile, mineral profile, protein profile, renal/electrolyte profile, urine profile, medical tests.	

*some patients

Nutrition-Focused Physical Findings

While they do not perform a medical physical exam, RDs gather information about a patient's current physical status that is/may be related to nutritional status, such as status of teeth and/or current gastrointestinal (GI) symptoms.

The table below shows the nutrition-focused physical findings that at least 50 percent of RDs use for nutrition assessment in some/all patients.

Nutrition-Focused Physical Findings: All/Some patients ≥ 50%	
Catagory	**Specific Findings**
Endocrine/Hormonal	Short Stature
Gastrointestinal	Vomiting
Nerves Cognition	ADHD/hyperactivity/poor attention
Overall Development	Ability to communicate
Skin	Acanthosis
The following categories were including in the survey but not selected by a majority of respondents: ability to communicate, cardiopulmonary, extremities/musculoskeletal, head and eyes, affect, body habitus, body language, body positioning, vital signs.	

Some nutrition-focused physical findings, like short stature, bowel function, menarche, and ability to communicate may be assessed by other clinical providers on a PWM team. Depending on the clinical process, this information may or may not be assessable to the RD during the first nutrition visit.

Food/Nutrition-Related History

RDs gather information about food/nutrition-related history in several different categories, from eating environment to knowledge/attitudes/beliefs. This information is a fundamental part of what RDs assess and address in nutrition education and intervention. Information may be gathered by a written intake tool or a verbal interview, and some pieces may be assessed by another discipline on the team. For example, if a medical or mental health provider learns that a patient acknowledges emotional eating, the RD includes this information in an assessment and considers it when formulating nutrition diagnoses and interventions.

The table on the following page shows the food/nutrition-related history items that at least 50 percent of RDs use for nutrition assessment in some/all patients.

Food and Nutrition-Related History: All/Some Patients >/=50% Responders	
Food and Nutrient Intake (FH-1) /Administration (FH-2)	
Food and Beverage Intake (FH-1.2)	**Fluid/Beverage Intake (FH-1.2.1)** **Oral Fluids (FH-1.2.1.1)** **Assess Beverage Intake:** Water 100% Juice Milk/Milk Alternative Coffee/Tea (Unsweetened) Diet/Low Calorie Drinks Sugar Sweetened Beverages **Food Intake (FH 1.2.2)** **Amount of food (FH-1.2.3.1)** **Balance of Food Groups:** # servings from each group Balance of food groups by day Balance of food groups by week **Types of food/meals (FH-1.2.2.2)** **Balance of Food Groups:** Variety of starchy vs green leafy vegetables Whole vs refined grains High fat/sugar, dairy Lean vs higher fat meats/processed meats Balance of food groups by meal/snack Balance of food groups by day Balance of food groups by week **Meal/Snack Pattern (FH-1.2.2.3)** Skipped Meals **Caffeine Intake (FH-1.4.3.1)**
Micronutrient Intake (FH-1.6)	**Vitamin Intake (FH-1.6.1)** Assess vitamin supplements **Mineral/Element Intake (1.6.2)** Assess mineral supplements
Eating Environment (FH-2.1.3)	**Location (FH-2.1.3.1)** Kitchen/Dining Room Living/TV Room Bedroom Car **Food Service Type/Style (no code)** Family Style (child serves self) Plated by parent 2nd helpings TV on during meal/snack **Place of Eating/Drinking (no code):** (not specified further) **Food Preparation (no code):** Food Preparer/Provider Cooking Method Food Purchaser Separate meals for different family members **Family Meals (no code):** Frequency With whom **Eating Away from Home (no code):** (not specified further)

Food and Nutrition-Related History: All/Some Patients >/=50% Responders	
Medications and Herbal Supplement Use (FH-3)	**Medications and Herbal Supplements (FH-3.1)** Medications, Specify prescription or OTC Medications (Rx and/or OTC) **Herbal/Complementary Products (specify)** Herbal Supplements Weight Loss-Specified Dietary Aids **Misuse of medications (specify)** Diuretics Laxatives
Knowledge/Beliefs/Attitudes (FH-4)	**Belief and Attitudes (FH-4.2)** **Conflict with personal/family value system (FH-4.2.1)** Disagreements/Interactions B/T Child/Parents Re: Eating Habits **Distorted Body Image** Worrying about body image **Emotions (Specify)** Fear of Foods Emotional eating **Household Food Rules (no code)** **Forbidden Foods in the House (no code)** **Restrictive Eating (no code)** **Structure/Timing of Meals/Snacks (no code)** **Food used as Reward/Punishment (no code)** **Teasing by Family/Friends (no code)** **Who initiated visit (child, parent, doctor, other) (no code)** **Readiness/Motivation (no code)** For Child For Parents **Weight Concerns (no code)** For Child For Parent **Dieting History (no code)** **Child on diet in past/present** Diet practices utilized Calorie counting Carb counting **Family members on diet past/present** Who/How **Contributing Factors to weight Gain, Wt Hx: (no code)** **When First Concerned about Weight Gain (no code)** **Previous Success with Diet/Activity/Lifestyle Changes (no code)** **Barriers (no code)** **Self-efficacy Regarding Diet/Activity/Lifestyle Changes: (no code)** **Understanding of Recommendations** For Child For Parent **Perceived Ability to Make Changes:** For Child For Parent

Food and Nutrition-Related History: All/Some Patients >/=50% Responders	
Behavior (FH-5)	**Avoidance Behavior (FH-5.2)** Avoided/Disliked Foods **Mealtime Behavior (FH-5.4)** Willingness to Try New foods Ruminating **Bingeing and Purging Behavior (FH-5.3)** **Disordered Eating:** **Binge Eating** Eating large amounts from food package Eating until uncomfortable **Purging** Vomiting/Afraid food will come back up **Favorite Foods** **Night Eating** **Eating Secretly** **Hoarding Food** **Grazing** **Eating while standing**
Factors Affecting Access to Food and Food/Nutrition-Related Supplies (FH-6)	
Food/Nutrition Program Participation (FH-6.1)	**Eligibility for Government/Community Programs (FH-6.1.1/FH-6.1.3)** **Participation in Government/Community Programs (FH-6.1.2/FH-6.1.4)** Food Insecurity (WIC, Food Stamps)
Safe Food/Meal/Availability (FH-6.2)	**Availability of Shopping Facilities (FH-6.2.1)** **Procurement, Identification of Safe Food (FH-6.2.2)** Food Insecurity (adequate food available)
Physical Activity and Function (FH-7)	
Physical Activity (FH-7.3)	**Physical Activity History (FH-7.3.1)** **Frequency (FH-7.3.3)** **Duration (FH-7.3.4)** **Intensity (FH-7.3.5)** **Type (FH-7.3.6)** **TV/Screen Time (FH-7.3.8)** **Other (FH-7.3.9)** **Gym at School Participation (no code)**
Nutrition Related Patient Centered Measures (FH-8)	
Nutrition Quality of Life (FH-8.1)	**Nutrition Quality of Life Responses (FH-8.1.1)** Patient/client's perception of his or her nutrition intervention and its impact on life.

Client History

Client history includes general information about a client such as religious preference and extracurricular activities that may or may not be directly related to nutrition. Many of these items are likely to be assessed by other team providers and are often important background information for an RD to have when starting an assessment. Some, however, are nutrition-related, such as previous work with an RD and weight history.

The table below shows the client history items that 33 percent or more of RDs consider in a nutrition assessment and the way this information is gathered. As there was much diversity in this data collection, 33 percent was the majority of consensus for this domain.

Client History: * ≥ 33%					
	Verbal	**Intake Form**	**Verbal and Intake Form**	**Undetermined: Verbal, Intake Form or Combination**	**Another Provider**
Personal	Religious Preference Neighborhood/ Community Safety	Race Age-month/ year/month* Ethnicity*	Prim. Language 2nd Language* Media Use*	Religious Preference Neighborhood/ Community Safety Race Age-month/year/ month* Ethnicity* Prim. Language 2nd Language* Media Use*	• Education* • Child Adopted* • Role in Family*
Patient and Family Medical History	Previous work with a RD	None	None	Previous work with a RD	• Physical Conditions Illnesses • Mental Conditions • Substance Abuse • Medications • Assess Location of Usual Medical Care • Sleep Hx • Gender Identity • Previous Counseling for Psychological Conditions • Parents Weight Hx* • Grandparents Weight Hx*
Social	Living Situation/ Constellation* Extracurricular Activities Life goals*	None	None	Living Situation/ Constellation* Extracurricular Activities Life goals*	• Caregiver's Marital Status • Job/Socioeconomic Status • Medical Care Support • Teasing or Bullying/ Harassment • Weight Discrimination • Parenting Style • Family Communication Style • Physical Abuse • Emotional Abuse • Neglect

Consensus Statements for Nutrition Assessment

Nutrition assessment components vary depending on the clinical setting, patient population, physical findings, availability of laboratory values, and the clinical judgment of the RD. Consensus statements for nutrition assessment in Stage III Pediatric Weight Management programs were formulated based on the above results from the two surveys and sub-committee discussion, starting with survey items for which >50 percent of respondents indicated use of the concept. FFF RDs agreed unanimously that these values should be utilized. The statements can be used as guides when assessing a child or adolescent with the medical diagnosis of obesity, in conjunction with other available clinical tools. **Note:** these may be gathered by, or in conjunction with, other providers on the team.

A. Nutrition assessment of anthropometric measures should include the following: (values shown in Appendix ASSESS)
   a. Weight
   b. Height
   c. BMI*
   d. BMI percentile/z-score*
   e. BMI change
   f. Weight change
   g. Height change
   h. Growth pattern indices/percentile ranks

***Note:** The current Centers for Disease Control (CDC) growth charts do not allow for plotting of BMI above the 97th percentile for age. Current practice calculates exact BMI percentile/z-score whenever possible. New growth charts developed at Children's Hospital Colorado define a child's BMI as a percentage of the 95th percentile.[4] These may be used for monitoring a patient's progress over time as well.

B. Nutrition assessment should include assessment of biochemical values shown in Appendix BIO.

C. Nutrition assessment is more comprehensive when it includes the physical findings shown in Appendix PHYS.

D. Nutrition assessment of food and nutrition-related history should include the following: (values shown in Appendix FNRHx)
   a. Food and nutrient intake – meal/snack patterns, nutrient composition, current and previous regimens, food intolerance and allergies
   b. Medication/herbal supplements use – medications, OTC medications, and herbal supplements
   c. Knowledge/beliefs/attitudes – feelings/emotions toward nutrition, readiness to change, understanding of nutrition concepts
   d. Behavior – activities and actions taken to achieve goals
   e. Food and supply availability – factors that affect availability of safe, healthy food and supplies
   f. Physical activity and function – evaluate physical, cognitive, sleep habits and sedentary habits
   g. Nutrition-related patient/client-centered measures – perception of nutrition intervention impact

E. Assessment of client history should include the following: (values shown in Appendix CHx)
   a. Personal – language, age, education, role in family, ethnicity
   b. Client/Family Medical – disease states, conditions, illnesses
   c. Social – socioeconomic status, housing, medical care support

NUTRITION TREATMENT

Using information from the nutrition assessment, RDs provide age-appropriate, individualized treatment, which NCP calls the nutrition intervention.[3] To determine primary areas of intervention, RDs consider readiness to change/motivation, areas of greatest need (i.e. interventions that will produce the most benefit to the patient family), and medical risk/co-morbidities that need to be addressed by medical nutrition therapy. Families may identify behaviors or areas of concern they would like to address first based on level of knowledge and readiness to change. Alternatively, RDs may suggest a starting place based on progress made with previous weight management intervention (e.g. primary care, a community program, or previous nutrition consults).

Based on the literature and consensus, follow-up with an RD to monitor progress and provide further intervention is recommended at least every 1- 2 months. More frequent follow-up is recommended for high-risk patients (serious and/or multiple medical comorbidities, concerning maladaptive eating, or BMI-for-age >99th percentile), with the goal of offering at least medium (26 to 75 hours) intensity contact within the first six months of treatment.[2]

Survey Results

According to the treatment survey, diets that are relatively balanced in macronutrients are the most commonly used nutrition intervention (Table 1). Family-based treatments are more common than individual treatments with children and adolescents (Table 2). As mentioned above, a key determinant of effective treatment is identifying readiness to change for specific dietary interventions. Thirteen commonly cited dietary intervention topics emerged from the survey results. Five areas identified as foundational for treatment are: decreasing sugar-sweetened beverages; eating breakfast; structured meal and snack timing; family meals/feeding dynamics; and improving family eating out strategies (Table 3).

Table 1: Key Intervention Diets from Survey

>50th% frequency	>25th% frequency	0-24th% frequency
Reduced Fat Diet	Carbohydrate Counting	Meal Replacements
Traffic Light Diet	Mediterranean Diet	Protein-sparing Modified Fast (PSMF: 600-800 kcals/day)
Reduced Carbohydrate Diet		Nutrient-balanced Very Low Calorie Diet (VLCD: 800-1000 kcals/day)
Calorie Managed Diet		
Reduced Glycemic Load Diet		
D.A.S.H. (Dietary Approaches to Stop Hypertension)		

Table 2: Nutrition Therapy Formats

>75th% frequency	>50th% frequency
Individual Family-based Counseling/education	Individual Child-based Counseling/education
Group Family-based Counseling/education	Individual Teen-based Counseling/education
	Individual Parent-based Counseling/education
	Group Parent-only-based Counseling/education
	Group-based Counseling/education (<12 years old)
	Group-based Counseling/education (12-18 years old)

Table 3: Key Dietary Intervention Topics
>75th% frequency
Sugar-sweetened Beverages
Breakfast Consumption
Meal and Snack Timing
Family Meals/Feeding Dynamics*
Eating Out
Fruit/Vegetable Consumption
Portion Sizes
"Junk Foods"/Snacks
Making Changes as a Family
Adequate Dairy/Calcium
Reading Food Labels
Energy Balance
Whole Grain/Fiber Intake

**parent/caregiver interaction and relationship with child around feeding*

Consensus Statements for Nutrition Treatment

Treatment of overweight or obese children and adolescents can play an important role in preventing long-term complications from obesity as well as improving quality of life and self-esteem.[1] The following consensus statements provide a basic framework for treatment. General counseling approaches are introduced first, followed by more specific lifestyle-based treatments, and then dietary interventions recognized to be effective for pediatric weight management. The overall treatment goal is to provide a positive experience and an achievable plan of care that will help patients successfully achieve a healthier weight and improve health outcomes.

Nutrition treatment should include the following:

- Use family/patient-centered counseling techniques, with the spirit of motivational interviewing.
- If families have not received recommendations in earlier intervention stages or would benefit from behavior changes in the following areas, address these before advancing to other topics. These five areas are easily identified, have an evidence base for effective weight loss and/or maintenance in the family setting and when addressed, may yield improvements in dietary intake and weight within a relatively short period of time.[1]
    - sugar-sweetened beverages (including juice)
    - breakfast consumption
    - meal & snack timing
    - family meals/feeding dynamics
    - eating out
- Interactions and counseling should be culturally sensitive to maximize success.
- When patients present with concerning maladaptive or disordered eating patterns (boredom/emotional eating, binging, etc.), the RD works with the rest of the team, including mental health professionals, to address these issues. Treatment may need to focus on these eating behaviors and related mental health issues before addressing other problems noted in the nutrition assessment.
- Patients and their families need to be followed at a frequency that will facilitate behavior and lifestyle changes to support attainment and maintenance of a healthier weight.
- Specific plans and goals set with families work best if they are focused on food and diet-related behaviors.

Therapeutic Nutrition Interventions - All Age Groups:

Meal Patterns

Meal patterns: Highlight the importance of structure to reduce non-hunger eating (boredom and other emotional eating) and overeating. Recommend meals and snacks based on growth/developmental stage and physical activity to promote energy balance.

Breakfast: Emphasize that breakfast supports metabolism and increases intake of total daily nutrients. Encourage daily consumption and/or improve choices in breakfast as needed.

Portions: Teach appropriate portions based on age, stage of development and caloric needs. Use age-appropriate teaching tools (MyPlate/plate method, fist/palm/finger guides, or use of measuring cups).[8] Discuss "portion distortion" and its effect on energy balance.[9] See Table 4 for daily food servings by age group guidelines.

Meals away from home: Moderate frequency of "eating out," including fast food, sit-down restaurants and take-out. Encourage limited "fast food" eating which often contains excess calories, saturated fat, sodium, and sugar. Note the role food marketing has in shaping food desires and preferences. Educate on strategies for balanced eating when eating away from home. Establish quick preparation and cost-saving options as needed.

Energy balance: Discuss energy balance related to calories, food and beverage intake, daily activities and physical exercise. Provide guidance with balanced meal patterns to prevent overeating. Consider offering individualized calorie range recommendations (not recommended for patients or families who are overly focused on weight loss). Emphasize a one hour/day screen time limit and the recommendation of 60-90 minutes/day of active play or physical activity.[1]

Food Choices and Nutrition Education

Food choices: Educate patient and family about balanced eating, essential nutrients and how variety contributes to satisfaction and health. Discuss nutrient-dense versus calorie-dense foods. Teach moderate consumption of foods that contribute empty calories (i.e. "junk foods").

Sugar-sweetened beverages: Discuss the role of sugar-sweetened beverages in excessive weight gain. Consider using age-appropriate visual aids in education. See Table 5 for age-specific recommendations for daily water intake. Based on assessment, recommend decreased sugar-sweetened beverages and suggest the following choices with meals:

- Unflavored water
- 1% low-fat or nonfat milk
- Calcium fortified, unsweetened soy or milk substitute beverage
- 0-8 oz. 100% fruit or low sodium vegetable juice per day

Fruit and vegetable intake: Recommend increasing fruit and vegetable intake to half the plate at meals, to total at least five age-appropriate servings per day.[1,7] This ranges from to 1-2 cups total fruit and 1-3 cups total vegetables per day (depending on individual age/calorie needs).[7] Encourage nutrient-dense forms of fruits and vegetables, frequent exposure and variety.[7,8]

Fiber intake: Highlight the value of whole grains, fruits, and vegetables for promoting satisfaction. Emphasize the benefits of fiber, trace minerals, and phytochemicals. See Table 6 for recommendations.[16]

Calcium and Vitamin D: Emphasize the importance of adequate calcium and vitamin D intake. Encourage low-fat or non-fat dairy sources or fortified dairy alternatives to provide protein, calcium, and other nutrients. Counsel to improve intake with food and/or supplements to meet, but not exceed current dietary reference intakes (DRI).[15]

Supplements: Advise safe and appropriate selection and use of nutrient supplements to achieve recommendations and optimize health. Suggest a standard daily multivitamin for children who do not have a nutritionally-diverse/adequate diet, to meet but not exceed current DRI recommendations.[17]

Food labels: Promote understanding and appropriate use of Nutrition Facts labels and ingredients lists.[14]

Family Roles/Support

Family roles/support: Discuss the importance of role-modeling and family-based changes. Tailor advice based on developmental stage and/or special needs. Consider parenting styles (e.g., authoritative, authoritarian, indulgent/permissive, uninvolved) and effects of parent feeding practices on the development of a child's eating habits.[10,11] Discourage food as reward or punishment by caregivers.

Family meals: Recommend frequent family meals (e.g. several times per week) to improve food choices and family dynamics. Maintain a division of responsibility to foster positive mealtime experiences.[5] For division of responsibility, outline that parents are responsible for providing adequate food choices and providing structure around meals and snacks, as well as providing an eating environment that is pleasant, relaxed, and not likely to trigger overeating. Within these parameters, the child or teen is responsible for listening to hunger and satiety cues and determining the amount of food they need to feel satisfied.[5]

Food security: Assess for food security and cooking ability. Address specific concerns with food availability and cooking ability. Provide information on food banks, school meal programs, WIC, Supplemental Nutrition Assistance Programs (SNAP), soup kitchens, farmer's markets, shopping sales, using discount coupons, food budgeting, basic cooking skills.[6] In some programs, social workers may be of assistance in assessing/providing this information.

Self-Regulation, Feeding Relationships and Feeding Dynamics

Self-regulation and the feeding relationship: Work toward division of responsibility as discussed above. Help children/teens learn how to decide when they are hungry or satisfied. Use mindful eating tools that help patients self-regulate between hunger/fullness. Discuss the concepts and potential outcomes of forced feeding and/or over-restriction.[5] Promote adequate sleep to support hormonal function and self-regulation.[12,13]

Sleep: Adequate sleep is key for overall regulation of body needs including eating and therefore weight regulation. See Table 7 for recommendations.[12,13]

The following four tables from current literature/national guidelines summarize recommendations for food intake, fiber intake, water intake, and hours of sleep across all age groups. The RDs surveyed agree these guidelines should be followed for nutrition intervention in Stage 3 PWM programs as appropriate for an individual patient or family.

Table 4: Recommendations for Daily Food Intake[7]

Food Group	AGE		
	Children - 2-4 years	Children - 5-12 years	Teenager - 13-18 years
Fruits	1 to 1.5 cups	1 to 2 cups	1.5 to 2.5 cups
Vegetables	1 to 1.5 cups	1.5 to 3.5 cups	2.5 to 4 cups
Grains	3 to 5 ounces	4 to 9 ounces	6 to 10 ounces
Meat and Beans	2 to 4 ounces	3 to 6.5 ounces	3 cups
Milk	2 cups	2 to 3 cups	3 cups
Oils	3 to 4 tsp	4 to 8 tsp	5 to 11 tsp
Water	4 cups	5-8 cups	8-11 cups

Table 5: Recommendations for Daily Water Intake[18] (in addition to fluids from food)

Age	Water recommendations
1-3 years	4 cups (0.9 L)
4-8 years	5 cups (1.2 L)
9-13 years	7-8 cups (1.6-1.8L)
14-18 years	8-11 cups (1.8-2.6 L)

Table 6: Recommendations for Fiber Intake[16]

Age	Gender	Fiber
1-3 years	Male and female	19 g
4-8 years	Male and female	25 g
9-13 years	Male	31 g
	Female	26 g
14-18 years	Male	38 g
	Female	26 g

As indicated in the sleep guidelines from the National Sleep Foundation below, sleep needs change throughout the lifespan. These are approximate guidelines as individual sleep needs vary.

Table 7: How Much Sleep Do I Need?[19,20]

Age	Number of hours
Newborns (0-2 months)	12-18 hours
Infants (3-11 months)	14-15 hours
Toddlers (1-3 years)	12-14 hours
Preschoolers (3-5 years)	11-13 hours
School-Age Children (5-10 years)	10-11 hours
Teens (10-17 years)	8.5-9.25 hours
Adults	7-9 hours

Patients in Stage 3 Pediatric Weight Management programs often present with BMIs above the 95th percentile for age. The following table from Barlow et al shows the recommended weight change by age group and BMI percentile.[1] RDs with expertise in pediatric weight management agree these guidelines should be used to inform realistic expectations of a safe and healthy rate of weight change, for both families and practitioners. The focus of nutrition intervention, however, should remain on patient/family-specific food and nutrition-related behaviors, attitudes, and knowledge, not on attaining a certain amount of weight change in a certain period of time.

Table 8: Guidelines for Weight Management based on age and BMI percentile for age[17]

	Ages 2-5 years	Ages 6-11 years	Ages 12-18 years
85-94th% BMI	Weight maintenance until BMI <85th or slowing of wt gain	Weight maintenance until BMI <85th or slowing of wt gain	Weight maintenance until BMI <85th or slowing of wt gain
95-99th% BMI	Weight maintenance until BMI <85th or slowing of wt gain	Gradual wt loss of 1 lb/mo max	Wt loss max of 2 lbs/wk
>99th% BMI	Gradual wt loss of no more than 1 lb/month	Wt loss max of 2 lbs/wk	Wt loss max of 2 lbs/wk

Therapeutic Nutrition Interventions - Children Ages 2-5 years:

Parents, guardians, and caregivers are the primary recipients of the nutrition interventions for children in this age category. Awareness of parenting styles, including authoritative, authoritarian, indulgent/permissive, and uninvolved, and the role of parental feeding practices in the development of eating habits, is essential.[10,11] In addition to parenting style, parent-child feeding dynamics may need to be addressed based on the nutrition assessment. Ellyn Satter's division of responsibility is one concept RDs use for addressing sub-optimal feeding dynamics.[5]

Meal Patterns

Meal pattern: Recommend regular meal and snack patterns based on growth/development stage and physical activity to support energy balance. Due to smaller stomach size, children at this age may need three meals and 2-3 snacks each day so they have structured eating times every 2-4 hours. Discuss eating in a high chair or at a table to discourage grazing behaviors.

Portion sizes: Begin serving foods in a portion size of one tablespoon/year of life. A child's fist may also be used to estimate portions.[5]

Meals away from home: Teach parents how to navigate menus for more fruits, vegetables and lean protein sources. If a child attends daycare, discuss strategies to provide healthy meals and snacks.

Energy balance: Promote free play for at least 60-90 minutes every day. Decrease sedentary/screen time to one hour per day or less.[1]

Food Choices and Nutrition Education

Beverages: Encourage beverages, excluding water, to be consumed while sitting at the table for meals and/or snacks. Counsel caregivers to discourage grazing on caloric beverages throughout the day. Wean children from non-spill containers.

> **Milk:** Recommend unflavored, 1% low-fat and non-fat milk and unsweetened soy or milk substitute beverages (calcium and vitamin D fortified) at meals and/or snacks. Counsel caregivers to serve small starting portions (≤ 8 ounces). Based on assessment of calorie needs, consider limiting overall intake to 16-24 ounces per day.[7]
>
> **Juice:** Recommend 0-4 ounces of 100% fruit or vegetable juice or fruit juice (may be diluted with water). Recommend ≤ 70 mg sodium per portion of vegetable juice and no added sweeteners.[1,7]
>
> **Water:** Recommend plain water, with no added sweeteners or carbonation. (This may be any source of safe/treated drinking water, including tap water.)
>
> **Other:** Avoid energy drinks, sports drinks or other beverages with caffeine or artificial flavors or additives.

Fluid needs: Discuss the importance of adequate hydration and the role in hunger management. Thirst may often be inaccurately perceived as hunger. Encourage water between meals and snacks to promote adequate hydration and discourage grazing on caloric beverages.

Fruit and vegetables: Recommend 1-1.5 cups each fruit and vegetable intake per day with frequent exposure and plentiful variety.[7] Encourage creative cooking with fruits and vegetables.

Supplements: Advise safe and appropriate selection and use of nutrient supplements to meet nutrient needs and optimize health. Suggest a standard daily multivitamin for children who do not have a nutritionally-diverse/adequate diet, to meet but not exceed current DRI recommendations.[15]

Label reading: See general recommendation above.

Family Roles/Support

Family meals: Recommend frequent family meals with caregivers to help form a positive relationship with food. Meal times allow for family socialization, monitoring of safety while eating, and opportunities for modeling appropriate mealtime behavior. Encourage self-feeding. Provide guidance related to the introduction of new foods, food refusal and normal variations in a child's intake.[5, 21]

Impact of caregiver food preferences: Explore caregivers' individual food preferences to understand the foods and beverages provided to their children. Help caregivers recognize feeding is an opportunity for modeling appropriate mealtime behavior and encouraging a willingness to explore all foods.

Food introduction: Teach caregivers to introduce new foods in small portions, with one familiar/preferred food on the plate. Note that repetitive introduction (>10 times) may be necessary before a child accepts a new food.[21] Counsel parents to praise children for trying a food, not whether or not the child likes the food.

Self-Regulation, Feeding Relationships and Feeding Dynamics

Variety of foods: Teach families how to expand food choices and add variety, even when children may reject food as part of their autonomy achievement. Recommend provision of healthy meals and snacks without catering to specific likes/dislikes of each child.[5, 21]

Appropriate weight for age: Explore how the family's cultural background impacts the view of the child's weight and health. Discuss current/possible future health concerns to keep the focus on healthy lifestyle and overall healthy growth and development.

Self-regulation and the feeding relationship: Teach division of responsibility as mentioned above: a caregiver's role is providing appropriate food choices and the child decides to eat or not to eat food provided.[5] Encourage a child to decide when he/she is satisfied or hungry. Discuss the concepts and potential outcomes of forced feeding and over-restriction. Discourage the use of food as a reward or punishment.

Meal planning: Teach caregivers how to prepare a meal by selecting one protein, one low-fat dairy, one grain, one vegetable, and one fruit that meets MyPlate guidelines for children.[7,8]

Therapeutic Nutrition Interventions: Children 6-12 years:

Parents, guardians and caregivers of children 6-12 have similar responsibilities as parents of younger children. Ellyn Satter's division of responsibility continues to be a helpful guideline.[5]

Meal Patterns

Meal patterns: As children in this age group begin to show greater autonomy, meal patterns may become more erratic. Recommend meals and planned snacks daily to meet energy demands. Children older than 7-8 years may be able to meet nutrient needs with only one snack (e.g. after school snack).

Portions: Use MyPlate and child's fist/palm size for starting portions.[8] Also see recommendations in Table 1. Encourage smaller repeat portions if desired.

Meals away from home: Teach caregivers and children how to navigate menus (restaurant or school cafeteria) for fruit, vegetable, whole grain and lean protein sources. Brainstorm ways to decrease empty-calorie foods when away from home, including bringing food from home.

Energy balance: Promote free play for at least 60-90 minutes every day. Decrease sedentary/screen time to one hour per day or less. Work with children to add activities they enjoy.

Food Choices and Nutrition Education

Beverages: Encourage beverages, excluding water, be consumed while sitting at the table for meals and/or snacks. Discourage grazing on caloric beverages throughout the day. As more food and drink is consumed away from home, sugar-sweetened beverages may begin to displace water and milk as a beverage of choice. Recommend to keep low-fat, unsweetened dairy (or dairy alternative) and water as the beverages of choice.

Fruit and vegetable intake: Recommend increasing fruit and vegetable intake to half the plate, to a total of at least five servings per day—2 servings (1.5 -2.5 cups) fruit, and 2-3 servings (2-4 cups) vegetables with frequent exposure and plentiful variety.[7,8]

Calcium and Vitamin D: See general recommendations above.

Fiber intake: See general recommendations above.

Label reading: Along with the parent, begin educating the school-aged child about basic information such as a comparison of sugar or fiber in products.[14]

Family Roles/Support

Family meals: Preserve family meal time to allow for social guidance, communication and physical nourishment. Recognize involvement in extra-curricular activities may compromise the amount of time available for family meals, but encourage continued efforts and brainstorm ways to incorporate family meals within the schedule. Recommend family mealtime at least several times per week to improve food choices and promote positive family dynamics.

Food choices: See general recommendations above.

Family changes: Youth in this age group begin to exert more autonomy and are also more susceptible to peer influence which will influence food choices. Teach parents to exert positive influence by planning meals, purchasing healthy food for the family and acting as positive role models.

Therapeutic Nutrition Interventions – Adolescents 13–18 years:

Adolescents in this age category express increased independence with their food environment as an appropriate part of their psychosocial development. School, restaurants, convenience markets, media and peer interactions influence their decisions. Caregivers are responsible for modeling a healthful lifestyle. However, peer involvement often plays a more significant role. The use of motivational interviewing can allow children of this age more input into eating and food decisions best suited for their health.

Meal Patterns

Meal patterns: Teens have more control over their eating patterns throughout the day. Encourage consistency and structure with eating to decrease grazing. Teens may need counseling around how sleep patterns relate to meal patterns.

Breakfast: Teens often have more autonomy with respect to breakfast, and they may skip breakfast for a variety of reasons, including a desire to decrease food intake for weight loss. Emphasize that breakfast supports metabolism and increases intake of total daily nutrients. Discuss positive impact on academic performance, hunger management and maintaining a healthy weight. Brainstorm with the teen and family as needed to improve frequency and quality of breakfast intake.

Portions: Continue to teach appropriate portions based on age, stage of development and caloric needs. Teens may benefit from education about and practice with mindful eating strategies, hunger/fullness awareness and food journaling.

Meals away from home: Encourage limited "fast food" eating which often contains excess calories, saturated fat, sodium, and sugar. Teenagers may benefit from strategies that are often aimed at adults, such as such as using a take-home box to take half a meal home for the next day. Remind that even "healthy foods" in large servings may provide an excess of calories (e.g., large salads with multiple proteins and dressing). It may help to problem-solve how a teen can continue to eat with friends away from home while still improving his/her intake and health.

Energy balance: Promote an active lifestyle with at least 60-90 minutes of activity every day. Decrease sedentary/screen time to one hour per day or less. Include teens in this education process.

Food Choices and Nutrition Education

Beverages: As with all ages, encourage beverages, excluding water, to be consumed while sitting at the table for meals and/or snacks. Discourage grazing on caloric beverages throughout the day. As more food and drink is consumed away from home, sugar-sweetened beverages (e.g. soda, coffee-drinks, energy drinks, alcohol) may displace water and milk as a beverage of choice. Recommend to keep low-fat, unsweetened dairy (or dairy alternative) and water as the beverages of choice. Discuss sugar-free or "diet" beverages to provide a low calorie alternative, but limit to an amount agreed upon by the family and RD. Explain to the teen how sugar-sweetened beverages contribute to excessive weight gain, elevated triglycerides and poor dental health.

Fruit and vegetable intake: See Table 1. Continue to recommend fruit and vegetable intake to half the plate, to total at least five servings per day - 2 servings (1.5 -2.5 cups) fruit, and 2.5 - 4 cups) vegetables.[7] Encourage teens to include these foods in meals and snacks they prepare for themselves and/or eat away from home.

Calcium and Vitamin D: If milk and other sources of calcium and vitamin D are low in a teen's diet, counsel to improve intake with food and/or supplements to meet, but not exceed current DRI recommendations, which are higher for teenagers than young children.[15] Note the need to build bone mass/density in the teenage years.

Fiber intake: See general recommendations above and Table 6.

Label reading: Include teenagers in label reading education as noted in general recommendations above.

Family Roles/Support

Family roles/support: Remember teens are growing in autonomy, specifically with food choices and eating habits. Counsel parents about appropriate support while allowing appropriate independence around eating. For example, parents can allow teens to be in charge of choosing/preparing their own snack on a regular basis, but parents should still plan/provide dinner meals on a regular basis.[5]

Family meals: Encourage families to preserve family meal time to allow for social guidance, communication and physical nourishment. Encourage teens to be more involved in helping plan and prepare meals if desired. Recommend parents continue to provide the family meal and expect regular participation from the teen. At the same time, allow teens time away from home with friends. They will have a chance to practice the skills they are learning and develop autonomy with their eating.[5,22]

Recommendations for comorbid conditions:

Treatment for co-morbid conditions in a Stage 3 program will include the overarching goals of weight stabilization or loss of excess weight, resulting in an improved BMI and BMI percentile/z-score. RDs use medical nutrition therapy to provide specific strategies for dietary and other lifestyle changes according to the specific co-morbidity. In the case of familial hyperlipidemia, healthy lifestyle habits will provide a foundational advantage for additional medical treatment. Thus, RDs provide medical nutrition therapy along with recommendations to support movement toward a healthier weight/BMI.

For additional co-morbid conditions not surveyed in this document, including acanthosis nigricans, insulin resistance, dyslipidemia, hypertension, and fatty liver disease, RDs follow current evidence-based disease-specific treatment protocols for medical nutrition therapy.

CONCLUSION

A successful team allows each professional to practice his/her specialty and uniquely contribute to the whole process. All PWM team members should understand and rely on the RD's scope of practice as discussed here. Due to breadth and depth of training, RDs bring a special skill set to a Stage 3 PWM program. They emphasize patient- and family-centered care, strive to be culturally competent and are aware of the socio-ecological factors affecting a patient and family.

Registered Dietitians follow the steps of the Nutrition Care Process, including evidence-based nutrition interventions and medical nutrition therapy, following a thorough nutrition assessment. As detailed in the consensus statements above, this process of assessment, intervention and re-assessment/monitoring is based on many factors, including the patient's age, medical diagnoses, nutrition knowledge, cognitive functioning, educational level and readiness to change. Additionally, RDs often employ methods such as goal setting and teach-back to verify understanding/agreement to a plan, which supports the efficacy of the entire team intervention. Overall, an RD's skill set addresses specific food and nutrition-related areas while contributing to the patient care provided by the team as a whole. As evidence continues to inform practice, RDs will adapt their practice and consensus guidelines accordingly in the future.

DOCUMENTATION AND REIMBURSEMENT

ELECTRONIC MEDICAL RECORD AND IMPACT ON PRACTICE

Electronic medical record (EMR) systems present an opportunity for dietitians to improve communication that reflects standardized, evidenced-based approach for clinical care. In addition, the EMR is designed to assist clinicians in tracking both process and outcome indicators that can measure clinical effectiveness and patient engagement. With a thorough understanding and familiarity of EMR, RDs will more effectively communicate nutrition care plans with the multidisciplinary team.

DIAGNOSIS AND BILLING

Dietitians need to be familiar with terminology related to diagnosis, billing and reimbursement practices when providing Medical Nutrition Therapy (MNT) for obesity, as there is wide variability in practice. Following is a brief description of the provider diagnosis codes, nutrition diagnosis coding, and current procedural terminology coding, all of which may be used in practice to submit for reimbursement of MNT.

Provider Diagnosis Codes (ICD-9-CM)

The ICD-9-CM [1] is the current clinical version of the World Health Organization's International Classifications of Diseases (ICD-9) and is based on the official version issued by the U.S. Department of Health and Human Services. It is intended to describe the clinical picture of a particular patient. These classifications have become quite detailed and need to be used as specified in the manual. All material listed in the ICD-9-CM includes regulations and manuals issued by the Centers for Medicare and Medicaid Services (CMS), which is also involved in approving any changes in classifications of the diagnosis codes.24

The term "provider" refers to a "physician or any qualified health care practitioner who is legally accountable for establishing the patient's diagnosis." Although RDs have been advised that it is out of their scope of practice to determine a client's medical diagnosis, reporting a diagnosis code on a claim, based on information provided by a physician or health care team, is a normal business practice. If physician information, such as the medical diagnosis, is not available, RDs should use the best available information to determine the diagnosis code to list on the claims form in accordance with payer claims processing policies. The use of a medical diagnosis code on a claim does not constitute a medical diagnosis by an RD for legal purposes; however, RDs should check with providers to see if a policy exists for reporting the medical diagnosis on a claim when a physician-derived diagnosis is unavailable.[25]

ICD-10-CM Codes

The new ICD-10-CM diagnosis coding rules will be implemented on October 1, 2015, which will differ from the current ICD-9s in a variety of ways. A summary of these changes is listed in Appendix H.[26]

Nutrition Diagnosis Coding Terminology

The Academy of Nutrition and Dietetics has developed standardized language for nutrition diagnoses/problems, which are categorized into three nutrition domains: Intake (NI), Clinical (NC), and Behavioral-Environmental (NB). The nutrition diagnosis identifies a specific nutrition problem derived from the nutrition assessment or a medical provider's diagnosis (see above for a description of these provider codes), which informs the nutrition intervention by identifying the Problem, Etiology, and Signs/Symptoms (PES). Within each of the nutrition diagnosis domains, there are classes and, in the case of the Nutrient Intake class, subclasses for specific nutrient groups (e.g., fat and cholesterol, protein, etc.). These codes are not currently used for billing purposes but provide a detailed description of a nutrition problem that the RD is responsible for treating independently.[3] For more information on recommended use of Nutrition diagnoses/PES statements in PWM settings, see the following page.

Variability in billing for weight management

There is wide variability in billing practices for Medical Nutrition Therapy (MNT) services provided by RDs for obesity management due to significant differences in insurance reimbursement for these services. Insurance reimbursement for MNT varies widely, even within a single organization. Moreover, two policies may have different levels of coverage for MNT. Many institutions bill MNT as part of the facility charge or incident to physician billing. We recommend RDs independently research and stay current on MNT reimbursement.

Programs that bill for dietitian visits separately typically bill for these services using CPT (Current Procedural Terminology) codes. The CPT code set is maintained and copyrighted by the American Medical Association (AMA), and adopted by the Secretary of Health and Human Services as the standard for reporting physician and other services for medical billing. CPT codes are widely accepted by most insurance companies (including federal and state programs such as Medicare and Medicaid). Many insurance companies require that RDs use the MNT CPT codes for nutrition services to determine payment by their plans. The number of units for each CPT code should reflect the time spent face-to-face with the patient. See CPT codes for MNT in Appendix I.[28]

As MNT reimbursement varies widely, RDs should advise patients they may be responsible for out-of-pocket costs for individual nutrition services. RDs should continue to advocate for coverage of MNT services, as MNT is an integral part of the treatment of obesity, and RDs are best qualified to provide MNT and dietary counseling.

NUTRITION DIAGNOSIS AND PES STATEMENTS

As mentioned in the previous section, nutrition diagnoses are composed in a "Problem-Etiology-Signs/Symptoms," or PES, format. For each patient encounter, RDs document at least one nutrition diagnosis that is identified as a problem in the nutrition assessment. Dietitians may also document additional diagnoses that indicate problems the RD plans to address with the patient/family in nutrition intervention. In Stage 3 PWM programs, the consensus is to document, at minimum, the "Overweight/obesity" nutrition diagnosis; it is also recommended to document other diagnoses such as "Food & nutrition-related knowledge deficit" or "Excess oral food/beverage intake" that may be directly and independently addressed by the RD in nutrition intervention. Dietitians are expected to update/modify diagnoses based on a patient or family's progress, using information gathered in monitoring and evaluation/re-assessment over time. For example, if a patient's BMI falls below the 95th percentile for age cutoff, the nutrition diagnosis would change from "Overweight/Obesity" to "Overweight." See the example statements as formatted below, and see Table 9 (page 25) for a more complete listing of options for obesity-related PES statements. This list in check-box format is useful for efficient documenting, and may be used to create drop-down menu options in an electronic medical record.[3]

Example PES statements for a Stage 3 encounter:

1) Overweight/Obesity related to excess energy intake and physical inactivity, as evidenced by BMI for age greater than 95th percentile.

2) Excessive oral food/beverage intake related to distorted feeding dynamics and loss of appetite awareness, as evidenced by family report of grazing throughout the day and large servings.

3) Food and nutrition-related knowledge deficit related to lack of prior exposure to information, as evidenced by family's lack of previous knowledge of recommendations for division of responsibility and age- appropriate starting portions for patient.

4) Altered nutrition-related lab values related to endocrine dysfunction, lifestyle/genetic factors, as evidenced by elevated HbA1c at 6.1%.

Table 9: Nutrition Diagnosis/PES Statement Components for Overweight & Obesity

Problem (P)- *What is the problem?*	**Etiology (E)-** *What is causing the problem?*	**Signs & Symptoms (S)-** *What is the evidence?*
Overweight/obesity	• Excess energy intake • Food and nutrition-related knowledge deficit • Not ready for diet/lifestyle change • Physical inactivity • Increased psychological/life stress	• Obesity = BMI for age >95th percentile • Overweight = BMI for age >85th percentile • Overconsumption of high fat or calorically-dense foods/beverages (per report/food record) • Intake of large portions of foods/beverages (per report/food record)
INTAKE (NI) • Excessive oral food/beverage intake • Inappropriate intake of ___ fats • Excessive CHO intake • Inadequate fiber intake • Inadequate vitamin intake (for example vitamin D)	• Lack of access to healthful food choices • Excessive sugar sweetened beverages and fast food • Inappropriate intake of concentrated sweets and refined carbohydrates • Inability to limit or refuse offered foods • Loss of appetite awareness • Medications that increase appetite (steroids/antidepressants) • Unwilling or uninterested in reducing intake • Economic restraints that limit availability of appropriate foods	• Intake of high fat or calorically-dense foods/beverages (per report/food record) • Intake of large portions of foods/beverages (per report/food record) • Frequent, excessive fast food/restaurant intake (per report/food record) • Hemoglobin A1C >6% • Recent labs (i.e. TG, T-chol, LDL, HDL, vitamin D, etc) • Grams of fiber per day (compared with standard)
CLINICAL (NC) • Altered nutrition-related lab value(s) (specify)	• Liver, cardiac, endocrine dysfunction (related to lifestyle and genetic factors)	• Elevated/abnormal recent labs (specify, i.e. AST/ALT, TG, Total chol, LDL, HDL, HgA1c, vitamin D, etc) • Diagnosis of ___ (specify, e.g. fatty liver, diabetes, pre-diabetes, vitamin D insufficiency, etc.)
BEHAVIORAL (NB) **Knowledge and Beliefs (1)** • Food and nutrition related knowledge deficit • Undesirable Food Choices • Harmful beliefs/attitudes about food or nutrition related topics • Not ready for diet/lifestyle change • Disordered eating pattern • Limited adherence to nutrition related recommendations • Limited access to food	• Lack of prior exposure to/misunderstanding of nutrition information • Unwilling or uninterested in learning information • Cognitive deficits or inability to focus on dietary changes • Lack of social support for implementing changes • Lack of value/competing values for change • Denial of need to change • Not ready for diet/lifestyle change • Obsessive desire to be thin • Perception that time or financial constraints prevent changes • Lack of financial resources to purchase healthful foods	• No prior knowledge of need for nutrition-related recommendations • Verbalizes inaccurate or incomplete information • Verbalizes unwillingness/disinterest to learn information • Denial of need for nutrition-related recommendations • Negative body language and resistance to change • Inconsistent compliance with nutrition plan • Request to leave session early • Change in lbs/kgs x ___ (time) • Change in BMI units x ___ (time) • Weight preoccupation • Increased body adiposity: body fat % ___ • Limited supply of food in home • Limited variety of foods
BEHAVIORAL (NB) **Physical Activity and Function (2)** • Physical inactivity	• Lack of prior exposure regarding need for physical activity • Lack of social support and/or environmental space for physical activity • Lack of safe environment for physical activity • Time constraints limit physical activity • Financial constraints limit physical activity	• Infrequent and/or limited duration physical activity ___ hours per week • Excessive amount of sedentary activity (TV, computer, video games) ___ hours per week • Lack of suitable support systems

APPENDICES

Appendix ASSESS: Anthropometrics, Data and Measurements

Anthropometrics, Data and Measurements (Recommended)	
Desired Anthropometrics, Data and/or Measurement	Examples
Weight	
Height/Length	
BMI	BMI Percentile BMI Z-Scores BMI Change
Weight Change	
Growth Pattern Indices/Percentile Ranks	Waist Circumference Waist Circumference Percentile
Body Compartment Estimates	Body Composition

Appendix BIO: Biochemical

Basic Labs (Recommended)	
Lab	Components
Glucose/Endocrine Profile	Fasting Serum Glucose Casual Glucose Fasting Insulin HbA1c T4 TSH
Fasting GI Profile	ALT AST
Fasting Lipid Profile	HDL Cholesterol LDL Cholesterol Non HDL Cholesterol Triglycerides
Vitamin Profile	Vitamin D3

Appendix PHYS: Nutrition Focused Physical Findings

Nutrition Focused Physical Findings (Recommended)	
Findings	Examples
Overall appearance	Short Stature Affect Eyes
Body Language	Fatigue Body Habitus Body Positioning
Cardiopulmonary	Shortness of Breath
Extremities, Muscles and Bones	Change in how clothes fit Muscle Mass
Digestive System	Bowel Function Constipation Diarrhea Vomiting Heartburn Nausea Taste Alteration Teeth
Nerves Cognition	Daytime Sleepiness ADHD Hyperactivity Poor Attention Anxiety Ability to Communicate
Skin	Acanthosis Nigricans Acne Hirsutism Nutrient Deficiency
Vital Signs	Blood Pressure Fluid Intake/Output(s)

Appendix FNRHx: Food and Nutriton Related History

Food and Nutrition-Related History (Recommended)		
FOOD AND NUTRIENT INTAKE		
Domain	Findings	Examples
Food and Beverage Intake	Oral Fluids	Assess beverage intake
	Amount of food	Balance and number of servings from each group, balance per day, balance per week
	Types of food/meals	Variety of starchy vs. non-starchy vegetables, whole vs. refined grains, high fat/sugar, low fat meats and dairy
	Meal and Snack Pattern	Skipped meals, frequency of snacks
	Caffeine Intake	
	Micronutrient Intake	
	Vitamin Intake	Assess vitamin supplements
	Mineral/Element Intake	Assess mineral supplements
FOOD AND NUTRIENT ADMINISTRATION		
Domain	Findings	Examples
Diet Experience	Previously prescribed diets	Diet practices, previous success/ obstacles with lifestyle changes
	Previous diet/nutrition education/ counseling	Previous work with a registered dietitian or nutritionist (e.g. WIC)
	Self-selected diet(s) followed	Diet practices, previous success/ obstacles with lifestyle changes
	Dieting Attempts	Calorie counting, carbohydrate counting
Eating Environment	Location	Kitchen/Dining room, Living/ TV room, Car
	Atmosphere	Family style vs. self-serve, 2nd helpings, TV on/off
	Caregiver/Companion	Plated by parent, eating companion(s)
	Eats Alone	Eating secretly
MEDICATIONS AND HERBAL SUPPLEMENT USE		
Domain	Findings	Examples
Medications and Herbal supplements	Medications, specify prescription or OTC	Fish oil, Vitamin D, Fiber supplement
	Herbal/Complimentary Products	Herbal supplements, weight loss specified dietary aids
	Misuse of medications	Diuretics or laxatives

Food and Nutrition-Related History (continued)		
KNOWLEDGE, BELIEFS AND ATTITUDES		
Domain	Findings	Examples
Food and Nutrition Knowledge	Area(s) and Level of Knowledge	Understanding of recommendations
Belief and Attitudes	Conflict with personal/family value system	Disagreements/interactions between child/caregiver regarding eating habits, food rules, rewards or punishments
	Distorted Body Image	Worrying about body image, weight concerns
	Emotions	Fear of foods, emotional eating, teasing by family/friends
	Food Preference	Forbidden foods, dieting presence in home, religious preference as it may relate to diet
	Readiness to Change	Who initiated visit (child, parent, doctor, other), perceived ability/previous success with lifestyle changes
	Unrealistic Nutrition-Related Goals	Eating until uncomfortable or eating large volumes of food
	Unrealistic Beliefs/Attitudes	Hoarding food, grazing, eating from package
	Motivation	Who initiated visit (child, parent, doctor, other), perceived ability or previous success with lifestyle changes
	Preoccupation with Weight	Weight concerns
BEHAVIOR		
Domain	Findings	Examples
Avoidance behavior	Avoidance	Avoided/disliked foods
	Restrictive Eating	Inadequate calorie intake, skipped meals
Mealtime Behavior	Willingness to Try New Foods	Allows food on plate, tastes food
	Refusal to eat/chew	Restrictive food preferences
Bingeing and Purging Behavior	Binge Eating Behavior	Eating large amounts of food, eating from package, loss of control when eating
	Purging Behavior	Forced emesis, afraid food will come back up

Food and Nutrition-Related History (continued)		
FACTORS AFFECTING ACCESS TO FOOD AND FOOD/NUTRITION-RELATED SUPPLIES		
Domain	Findings	Examples
Food/Nutrition Program Participation	Eligibility for Government Programs	Food insecurity
	Participation in Government Programs	WIC, SNAP
	Eligibility for Community Programs	Food insecurity
	Participation in Community Programs	Varied
Safe Food/Meal Availability	Availability of Shopping Facilities	Food deserts, food insecurity
	Procurement, Identification of Safe Food	Food purchaser
	Food Preparation	Primary cook, cooking methods
PHYSICAL ACTIVITY AND FUNCTION		
Domain	Findings	Examples
Physical Activity	Physical Activity History	Types of activity
	Frequency	How often each week/month
	Duration	Time spent in activity
	Intensity	Perceived exertion
	Type	Team sport, fitness center, home activity
	TV/Screen Time	Any type of media
	Other	Physical Education class

Appendix CHx: Client History

Personal Data/Client History (Recommended)		
Domain	Findings	Examples
Personal	Gender	
	Age	Month/Day/Year
	Race/Ethnicity	
	Language	Primary Language Secondary Language
	Education	Level in School Extracurricular Activities
Patient and Family Medical History	Family Medical History	Caregiver Medical History
Social	Socioeconomic factors	Neighborhood/Community Safety
	Living/Housing Situation	Living Situation/Constellation
	Social and Media Support	Media Use

Appendix H[24]: ICD 9 and 10 codes

ICD 9 and 10 codes	
ICD-9 –CM Diagnosis Codes	ICD-10 -CM
3-5 characters in length	3-7 characters in length
Approximately 14,000 codes	Approximately 69,000 available codes
First digit may be alpha (E or V) or numeric; digits 2-5 are numeric	Digit 1 is alpha; digits 2 and 3 are numeric; digits 4-7 are alpha or numeric
Always at least 3 characters	Always at least 3 characters
Use of decimal after 3 characters	Use of decimal after 3 characters
Limited space for adding new codes	Flexible for adding new codes
Lacks detail	Very specific
Lacks laterality	Has laterality (i.e., codes identifying right vs. left)
ICD-9 –CM Procedure Codes	ICD-10 -PCS
3-4 characters in length	7 characters in length
Approximately 4,000 codes	Approximately 72,000 available codes
All characters are numeric	Each can be either alpha or numeric Digits: 0-9. Letters: A-H, J-N, P-Z
All codes have at least 3 characters	Each code must have 7 characters. Alpha characters are not case-sensitive

Appendix I: Medical Nutrition Therapy (MNT) Coding

Medical Nutrition Therapy (MNT) Coding	
97802	Medical nutrition therapy; initial assessment and intervention, individual, face-to-face with the patient, each 15 minute unit.
97803	Re-assessment and intervention, individual, face-to-face with the patient, each 15 minute unit.
97804	Group [2 or more individual(s)], each 30 minute unit.

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ADDITIONAL RECOMMENDED RESOURCES

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