



# **Medical Nutrition Therapy**

A Case Study Approach

Marcia Nahikian Nelms • Sara Long Roth



4th Edition





# MEDICAL NUTRITION THERAPY

## A CASE STUDY APPROACH



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FOURTH EDITION

MARCIA NAHIKIAN NELMS, PHD, RD, LD, CNSC

OHIO STATE UNIVERSITY

SARA LONG ROTH, PHD, RD, LD

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**Fourth Edition**  
**Marcia Nahikian Nelms and Sara Long Roth**

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# DEDICATION

Dedicated to our students—past and present—who continue to challenge us, teach us, and guide us as we strive to enhance clinical education.



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# PREFACE

In teaching, we seek to promote the fundamental values of humanism, democracy, and the sciences—that is, a curiosity about new ideas and enthusiasm for learning, a tolerance for the unfamiliar, and the ability to critically evaluate new ideas.

We wish to provide the environment that will support students in their quest for integration of knowledge and support the development of critical thinking skills. Thus, we strive to develop these “laboratories” and “real-world” situations that mimic the professional community to build that bridge to clinical practice.

The idea for this book actually began more than fifteen years ago as we began teaching medical nutrition therapy for dietetic students, and now as this fourth edition publishes we hope that these cases reflect the most recent changes in nutrition therapy practice. Entering the classroom after being clinicians for many years, we knew we wanted our students to experience nutritional care as realistically as possible. We wanted the classroom to actually be the bridge between the textbook and the clinical setting. In fashioning one of the tools used to build that bridge, we relied heavily on our clinical experience to develop what we hoped would be realistic clinical applications. Use of a clinical application or case study is not a new concept; the use of case studies in nutrition, medicine, nursing, and many other allied health fields is commonplace. The case study places the student in a situation that forces integration of knowledge from many sources; supports use of previously learned information; puts the student in a decision-making role; and nurtures critical thinking.

What makes this text different, then, from a simple collection of case studies? The pedagogy we have developed with each case takes the student one step closer as he or she moves from the classroom to the real world. The cases represent the most common diagnoses that rely on nutrition therapy as an essential component of the medical care. Therefore, we believe these cases represent the type of patient with which the student will most likely be involved. The concepts presented in these cases can apply to many other medical conditions that may

not be presented here. Furthermore, the instructor can choose a variety of questions from each case even if he or she chooses not to have the student complete the entire case. The cases represent both introductory and advanced-level practice and, therefore, use of this text allows faculty to choose among many cases and questions that fit the students’ level of expertise.

The cases cross the life span, allowing the student to see the practice of nutrition therapy during pregnancy, childhood, adolescence, and adulthood through the elder years. We have tried to represent the diversity of individual patients we encounter today. Placing nutrition therapy and nutrition education within the appropriate cultural context is crucial.

The medical record provides the structure for each case. With the fourth edition, our format has changed to reflect the components of the electronic medical record. The student will seek information to solve the case by using the exact tools he or she will need to use in the clinical setting. As the student moves from the admission or outpatient visit record to the physician’s history and physical, to laboratory data, and to documentation of daily care, the student will need to discern the relevant information from the medical record.

Questions for each case are organized using the nutrition care process, beginning with items introducing the pathophysiology and principles of nutrition therapy for the case and then proceeding through each component of the process. Questions prompt the student to identify nutrition problems and then synthesize a PES statement. It will be helpful to begin by orienting the student to the components of a case. We have provided an outline of this introduction below (see “Introducing Case Studies”). Teaching needs to be purposeful. If the instructor takes the responsibility of teaching students how to use this book seriously, it is much more likely that student autonomy will be the end result.

To be consistent with the philosophy of the text, each case requires that the student seek information from multiple resources to complete the

case. Many of the articles and online sites provide essential data regarding diagnosis and treatment within that case. We have found that when students learn how to research the case, their expertise grows exponentially.

The cases lend themselves to be used in several different teaching situations. They fit easily into a problem-based learning curriculum, and also can be used as a summary for classroom teaching of the pathophysiology and nutrition therapy for each diagnosis. The cases can be integrated into the appropriate rotation for a dietetic internship, medical school, or nursing school. Furthermore, these cases can be successfully used to develop standardized patient and simulation experiences.

Objectives for student learning within each case are built around the nutrition care process and competencies for dietetic education. This allows an additional path for nutrition and dietetic faculty to document student performance as part of program assessment.

### **New to the Fourth Edition**

Several important factors have prompted the changes to this fourth edition. The first is the transition to the electronic medical record (EMR). For this edition, the case components are formatted to mimic the “screens” one might find in the electronic medical record (EMR). Though the EMRs used in clinics, physician’s offices, and hospitals vary, these cases capture the primary sources of information that the clinician will access to provide a thorough nutrition assessment for her or his patient. The setting for some of the cases has also been changed to reflect outpatient care within the patient-centered medical home.

Secondly, our reviewers requested that the cases be shortened in length. We have streamlined all of the cases so that questions are more precise. Finally, even within a two- to three-year period, medical and nutritional care can change dramatically. These cases reflect the most recent research and evidenced-based literature so that the student moves toward higher levels of practice.

The fourth edition introduces sixteen totally new cases:

- Case 1 Pediatric Weight Management
- Case 2 Bariatric Surgery for Morbid Obesity
- Case 3 Malnutrition Associated with Chronic Disease
- Case 10 Irritable Bowel Syndrome (IBS)
- Case 13 Acute Pancreatitis
- Case 14 Pediatric Type 1 Diabetes Mellitus
- Case 15 Type 1 Diabetes Mellitus in the Adult
- Case 16 Type 2 Diabetes Mellitus—Pediatric Obesity
- Case 17 Adult Type 2 Diabetes Mellitus: Transition to Insulin
- Case 19 Chronic Kidney Disease: Peritoneal Dialysis
- Case 20 Acute Kidney Injury (AKI)
- Case 21 Anemia in Pregnancy
- Case 22 Folate and Vitamin B<sub>12</sub> Deficiencies
- Case 24 Progressive Neurological Disease: Parkinson’s Disease
- Case 30 Nutrition Support for Burn Injury
- Case 31 Nutrition Support in Sepsis and Morbid Obesity
- Case 32 Acute Lymphoblastic Leukemia Treated with Hematopoietic Cell Transplantation

The additional cases you will find in this edition, though they have been included in previous editions, have also been changed to reflect current medical care with appropriate changes in drugs, procedures, and nutrition interventions. For example, the presenting signs and symptoms in the celiac disease case have been changed so they are not the classic gastrointestinal complaints traditionally associated with this disorder. The heart failure case addresses the risk of micronutrient deficiency that is often seen in these patients. Within the open abdomen surgical case, the most recent literature about assessment of these critically ill patients has been incorporated, and the use of nutrition support has been altered to reflect current practice. Incorporation of evidence-based guidelines is encouraged throughout each of the cases and the questions are designed to not only follow the nutrition care process but also require the student to evaluate the most current literature.



# TEACHING STRATEGIES

You can find cases to emphasize specific topics that are part of the curriculum for pathophysiology and medical nutrition therapy (a list of cases by topic is provided below). We have found that when specific questions are selected for each case, they can be modified to assist in the pedagogy for other classes as well.

**Nutrition Assessment:** Case 1 Pediatric Weight Management; Case 4 Hypertension and Cardiovascular Disease

**Fluid Balance/Acid-Base Balance:** Case 27 COPD with Respiratory Failure; Case 29 Metabolic Stress and Trauma: Open Abdomen

**Genetics/Immunology/Infectious Process:** Case 9 Celiac Disease; Case 12 Cirrhosis of the Liver; Case 14 Pediatric Type 1 Diabetes Mellitus; Case 15 Type 1 Diabetes Mellitus in the Adult

**Hypermetabolism/Metabolic Stress:** Case 13 Acute Pancreatitis; Case 20 Acute Kidney Injury (AKI); Case 28 Pediatric Traumatic Brain Injury: Metabolic Stress with Nutrition Support; Case 29 Metabolic Stress and Trauma: Open Abdomen; Case 30 Nutrition Support for Burn Injury; Case 31 Nutrition Support in Sepsis and Morbid Obesity

**Dysphagia:** Case 23 Ischemic Stroke; Case 24 Progressive Neurological Disease: Parkinson's Disease; Case 25 Alzheimer's Disease; Case 33 Esophageal Cancer Treated with Surgery and Radiation

**Nutritional Needs of the Elderly:** Case 3 Malnutrition Associated with Chronic Disease; Case 25 Alzheimer's Disease; Case 27 COPD with Respiratory Failure

**Malnutrition:** Case 3 Malnutrition Associated with Chronic Disease; Case 6 Heart Failure with Resulting Cardiac Cachexia; Case 29 Metabolic Stress and Trauma: Open Abdomen; Case 30 Nutrition Support for Burn Injury; Case 31 Nutrition Support in Sepsis and Morbid Obesity; Case 33 Esophageal Cancer Treated with Surgery and Radiation

**Pediatrics:** Case 1 Pediatric Weight Management; Case 14 Pediatric Type 1 Diabetes Mellitus; Case 16 Type 2 Diabetes Mellitus—Pediatric Obesity; Case 28 Pediatric Traumatic Brain Injury: Metabolic Stress with Nutrition Support

**Nutrition Support:** Case 11 Inflammatory Bowel Disease: Crohn's Disease; Case 13 Acute Pancreatitis; Case 24 Progressive Neurological Disease: Parkinson's Disease; Case 28 Pediatric Traumatic Brain Injury: Metabolic Stress with Nutrition Support; Case 29 Metabolic Stress and Trauma: Open Abdomen; Case 30 Nutrition Support for Burn Injury; Case 31 Nutrition Support in Sepsis and Morbid Obesity; Case 32 Acute Lymphoblastic Leukemia Treated with Hematopoietic Cell Transplantation; Case 33 Esophageal Cancer Treated with Surgery and Radiation



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Maria T. Spicer, Florida State University

Jillian Trabulsi, University of Delaware



# ABOUT THE AUTHORS

## **Marcia Nahikian-Nelms, PhD, RD, LD, CNSC**

Dr. Nahikian-Nelms is currently a professor of clinical health and rehabilitation sciences and director of the dietetic internship in the Division of Medical Dietetics – College of Medicine at The Ohio State University. She has practiced as a dietitian and public health nutritionist for over 25 years. She is the lead author for the textbooks *Nutrition Therapy and Pathophysiology*; *Medical Nutrition Therapy: A Case Study Approach*; and *Food and Culture*. Additionally, she has contributed to the Academy of Nutrition and Dietetics *Nutrition Care Manual* sections on gastrointestinal disorders and is the author of numerous peer-reviewed journal

articles and chapters for other texts. The focus of her clinical expertise is the development and practice of evidence-based nutrition therapy for a variety of conditions including diabetes, gastrointestinal disease, and hematology/oncology for both pediatric and adult populations, as well as the development of alternative teaching environments for students receiving their clinical training. Dr. Nahikian-Nelms has received the Governor's Award for Outstanding Teaching for the State of Missouri, Outstanding Dietetic Educator in Missouri and Ohio, and the PRIDE award from Southeast Missouri State University in recognition of her teaching.

## **Sara Long Roth, PhD, RD**

Dr. Long is a professor and director of the Didactic Program in Dietetics in the Department of Animal Science, Food and Nutrition at Southern Illinois University Carbondale. Prior to obtaining her PhD in health education, she practiced as a clinical dietitian for 11 years. Dr. Long also served as the nutrition education/counseling consultant for Carbondale Family Medicine for 18 years. She has been an active leader in national, state, and district dietetic associations, where she has served in numerous elected and appointed positions including President of the Illinois Dietetic Association, Council on Professional Issues Delegate (Education) in the Academy of Nutrition and Dietetics House of Delegates, member

of the Commission on Accreditation for Dietetics Education, member of the Commission on Dietetic Registration, and member of the Illinois Dietetic and Nutrition Services Practice Board.

Dr. Long is co-author of *Nutrition Therapy and Pathophysiology* and three other nutrition texts. She has received various awards and honors for teaching, including Outstanding Dietetic Education (Academy of Nutrition and Dietetics), SIUC Undergraduate Student Government Outstanding Educator for the College of Agriculture, Outstanding Educator for the College of Agricultural Sciences, and Inter-Greek Council of SIUC Professor of the Year.



# INTRODUCING CASE STUDIES, OR FINDING YOUR WAY THROUGH A CASE STUDY

Have you ever put together a jigsaw puzzle or taught a young child how to complete a puzzle?

Almost everyone has at one time or another.

Recall the steps that are necessary to build a puzzle. You gather together the straight edges, identify the corner pieces, and match the like colors. There is a method and a procedure to follow that, when used persistently, leads to the completion of the puzzle.

Finding your way through a case study is much like assembling a jigsaw puzzle. Each piece of the case study tells a portion of the story. As a student, your job is to put together the pieces of the puzzle to learn about a particular diagnosis, its pathophysiology, and the subsequent medical and nutritional treatment. Although each case in the text is different, the approach to working with the cases remains the same, and with practice, each case study and each medical record becomes easier to manage. The following steps provide guidance for working with each case study.

1. Identify the major parts of the case study.
  - Admitting history and physical
  - Documentation of MD orders, nursing assessment, and results from other care providers
  - Laboratory data
  - Bibliography
2. Read the case carefully.
  - Get a general sense of why the person has been admitted to the hospital.
  - Use a medical dictionary to become acquainted with unfamiliar terms.
  - Use the list of medical abbreviations provided in Appendix A to define any that are unfamiliar to you.
3. Examine the admitting history and physical for clues.
  - Height, weight
  - Vital signs (compare to normal values for physical examination in Appendix B)
  - Chief complaint
  - Patient and family history
  - Lifestyle risk factors
4. Review the medical record.
  - Examine the patient's vital statistics and demographic information (e.g., age, education, marital status, religion, ethnicity).
  - Read the patient history (remember, this is the patient's subjective information).
5. Use the information provided in the physical examination.
  - Familiarize yourself with the normal values found in Appendix B.
  - Make a list of those things that are abnormal.
  - Now compare abnormal values to the pathophysiology of the admitting diagnosis. Which are consistent? Which are inconsistent?
6. Evaluate the nutrition history.
  - Note appetite and general descriptions.
  - Evaluate the patient's dietary history: calculate average kcal and protein intakes and compare to population standards and recommendations such as the USDA Food Patterns.
  - Is there any information regarding physical activity?
  - Find anthropometric information.
  - Is the patient responsible for food preparation?
  - Is the patient taking a vitamin or mineral supplement?
7. Review the laboratory values.
  - Hematology
  - Chemistry
  - What other reports are present?
  - Compare the values to the normal values listed. Which are abnormal?

Highlight those and then compare to the pathophysiology. Are they consistent with the diagnosis? Do they support the diagnosis? Why?

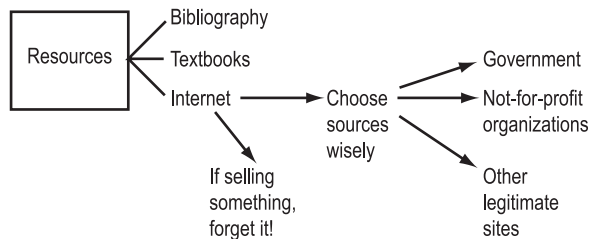
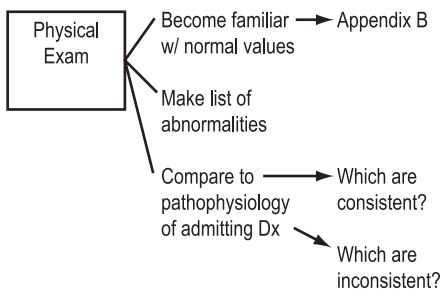
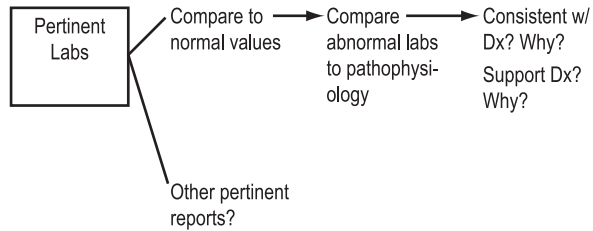
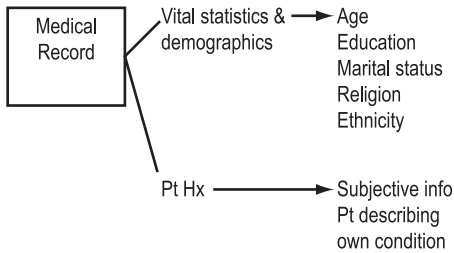
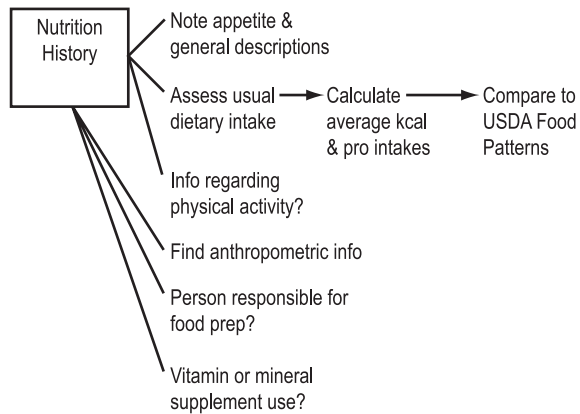
**8. Use your resources.**

- Use the bibliography provided for each case.
- Review your nutrition textbooks.
- Use any books on reserve.
- Access information on the Internet but choose your sources wisely: stick to

government, not-for-profit organizations, and other legitimate sites. A list of reliable Internet resources is provided for each case.

**Mindmap**

A mindmap is a graphic representation of the elements of the case study and the steps in its analysis. This organization can assist in connecting bodies of information and allow for further development of critical thinking skills.





## Unit One

---

# ENERGY BALANCE AND BODY WEIGHT

Unit One introduces nutrition therapy for treatment of disorders of weight balance and draws our attention to these major public health concerns in the United States. The first case uses pediatric obesity as a springboard for a discussion of the implications of the rapidly rising rate of childhood obesity. The incidence of childhood obesity has more than tripled over the past three decades, and the prevalence for children ages 6–11 in the U.S. has risen to 20%. The child featured in Case 1 is representative of children ages 6–11. Pediatric obesity treatment requires complex interventions to address family, environmental, and economic concerns. This case allows the student to explore the current research and the use of evidence-based guidelines to determine appropriate nutrition therapy.

Case 2 uses the record of a bariatric surgery patient as an opportunity to learn about morbid obesity. More than 3 million individuals in the U.S. are considered to be morbidly obese—this is also referred to as Class III obesity or a body mass index (BMI) >40.0. Health consequences of untreated morbid obesity include type 2 diabetes mellitus, coronary heart disease and hypertension, cancer, sleep apnea, and even premature death. Individuals who have failed to lose weight by less invasive means,

and who meet the medical criteria, may consider bariatric surgery as a treatment method for weight control. This case allows the student to research the surgical options used for bariatric surgery and to begin to understand the progression of nutrition therapy used postoperatively.

Case 3 explores the diagnosis of malnutrition. As early as 1979, Charles Butterworth attempted to raise awareness of the increasing incidence of malnutrition in the U.S. health care system with his classic article, “The Skeleton in the Hospital Closet.” Unfortunately, the rate of malnutrition is still considered to be significant today—and is associated with increased hospital costs, increased morbidity and mortality, and decreased quality of life for these individuals. Recently, new definitions of malnutrition have been proposed by the Academy of Nutrition and Dietetics (AND) and the Association for Parenteral and Enteral Nutrition (ASPEN) in an effort to more consistently identify those individuals who are at risk for malnutrition and who are malnourished, so that expedient interventions may occur. This case uses the most recent literature to provide the opportunity to recognize and apply the newly proposed diagnostic criteria for malnutrition.



## Case 1

---

# Pediatric Weight Management

### Objectives

After completing this case, the student will be able to:

1. Describe the physiological effects of overweight/obesity in the pediatric population.
2. Interpret laboratory parameters for nutritional implications and significance.
3. Analyze nutrition assessment data to evaluate nutritional status and identify specific nutrition problems.
4. Determine nutrition diagnoses and write appropriate PES statements.
5. Prescribe appropriate nutrition therapy.
6. Develop a nutrition care plan with appropriate measurable goals, interventions, and strategies for monitoring and evaluation consistent with the nutrition diagnoses of this case.

Jamey Whitmer is taken to see her pediatrician by her parents, who have noticed she appears to stop breathing while sleeping. She is diagnosed with sleep apnea related to her weight and referred to the registered dietitian for nutrition counseling.

## 4 Unit One Energy Balance and Body Weight

**Whitmer, Jamey**, Female, 10 y.o.

**Allergies:** No known allergies

**Pt. Location:** University Clinic

**Code:** FULL

**Physician:** Lambert, S. David

**Isolation:** None

**Appointment Date:** 9/22

---

**Patient Summary:** 10-year-old female is here with parents who describe concerns that their daughter appears to stop breathing while she is sleeping.

### History:

*Onset of disease:* Parents describe sleep disturbance in their daughter for the past several years, including: sleeping with her mouth open, cessation of breathing for at least 10 seconds (per episode), snoring, restlessness during sleep, enuresis, and morning headaches. They also mention that Jamey's teacher reports difficulty concentrating in school and a change in her performance. She is the second child born to these parents—full-term infant with birthweight of 10 lbs 5 oz; 23" length. Actual date of onset unclear, but parents first noticed onset of the above-mentioned symptoms about one year ago.

*Medical history:* None

*Surgical history:* None

*Family history:* What? Possible gestational diabetes; type 2 DM; Who? Mother and grandmother

### Demographics:

*Years education:* Third grade

*Language:* English only

*Occupation:* Student

*Household members:* Father age 36, mother age 35, sister age 5

*Ethnicity:* Caucasian

*Religious affiliation:* Presbyterian

### MD Progress Note:

Review of Systems

*Constitutional:* Negative

*Skin:* Negative

*Cardiovascular:* Negative

*Respiratory:* Negative

*Gastrointestinal:* Negative

*Neurological:* Negative

*Psychiatric:* Negative

### Physical Exam

*Constitutional:* Somewhat tired and irritable 10-year-old female

*Cardiovascular:* Regular rate and rhythm, heart sounds normal

*HEENT:* Eyes: Clear

Ears: Clear

Nose: Normal mucous membranes

Throat: Dry mucous membranes, no inflammation, tonsillar hypertrophy

*Genitalia:* SMR (Tanner) pubic hair stage 3, genital stage 3



## 6 Unit One Energy Balance and Body Weight

**Whitmer, Jamey**, Female, 10 y.o.

**Allergies:** No known allergies

**Pt. Location:** University Clinic

**Code:** FULL

**Physician:** Lambert, S. David

**Isolation:** None

**Appointment Date:** 9/22

### Laboratory Results

	Ref. Range	9/22
<b>Chemistry</b>		
Sodium (mEq/L)	136–145	142
Potassium (mEq/L)	3.5–5.5	4.3
Chloride (mEq/L)	95–105	101
Carbon dioxide (CO <sub>2</sub> , mEq/L)	23–30	25
BUN (mg/dL)	8–18	8
Creatinine serum (mg/dL)	0.6–1.2	0.6
Glucose (mg/dL)	70–110	112 !↑
Calcium (mg/dL)	9–11	9.2
Bilirubin total (mg/dL)	≤1.5	0.1
Protein, total (g/dL)	6–8	6.2
Albumin (g/dL)	3.5–5	4.8
Prealbumin (mg/dL)	16–35	33
Ammonia (NH <sub>3</sub> , μmol/L)	9–33	9
Alkaline phosphatase (U/L)	30–120	99
ALT (U/L)	4–36	5
AST (U/L)	0–35	6
CPK (U/L)	30–135 F 55–170 M	72
Lactate dehydrogenase (U/L)	208–378	220
Cholesterol (mg/dL)	<170	165
HDL-C (mg/dL)	>55 F, >45 M	34 !↓
LDL (mg/dL)	<110	110
LDL/HDL ratio	<3.22 F <3.55 M	3.23 !↑
Triglycerides (mg/dL)	≤150	114
T <sub>4</sub> (μg/dL)	4–12	5
T <sub>3</sub> (μg/dL)	75–98	78
HbA <sub>1c</sub> (%)	3.9–5.2	4.9
<b>Hematology</b>		
Transferrin (mg/dL)	250–380 F 215–365 M	254

## Case Questions

### I. Understanding the Disease and Pathophysiology

1. Current research indicates that the cause of childhood obesity is multifactorial. Briefly outline the roles of genetics, environment, and nutritional intake in development of obesity in children.
2. Describe health consequences of overweight and obesity for children.
3. Jamey has been diagnosed with obstructive sleep apnea. Define *sleep apnea*.
4. Explain the relationship between sleep apnea and obesity.

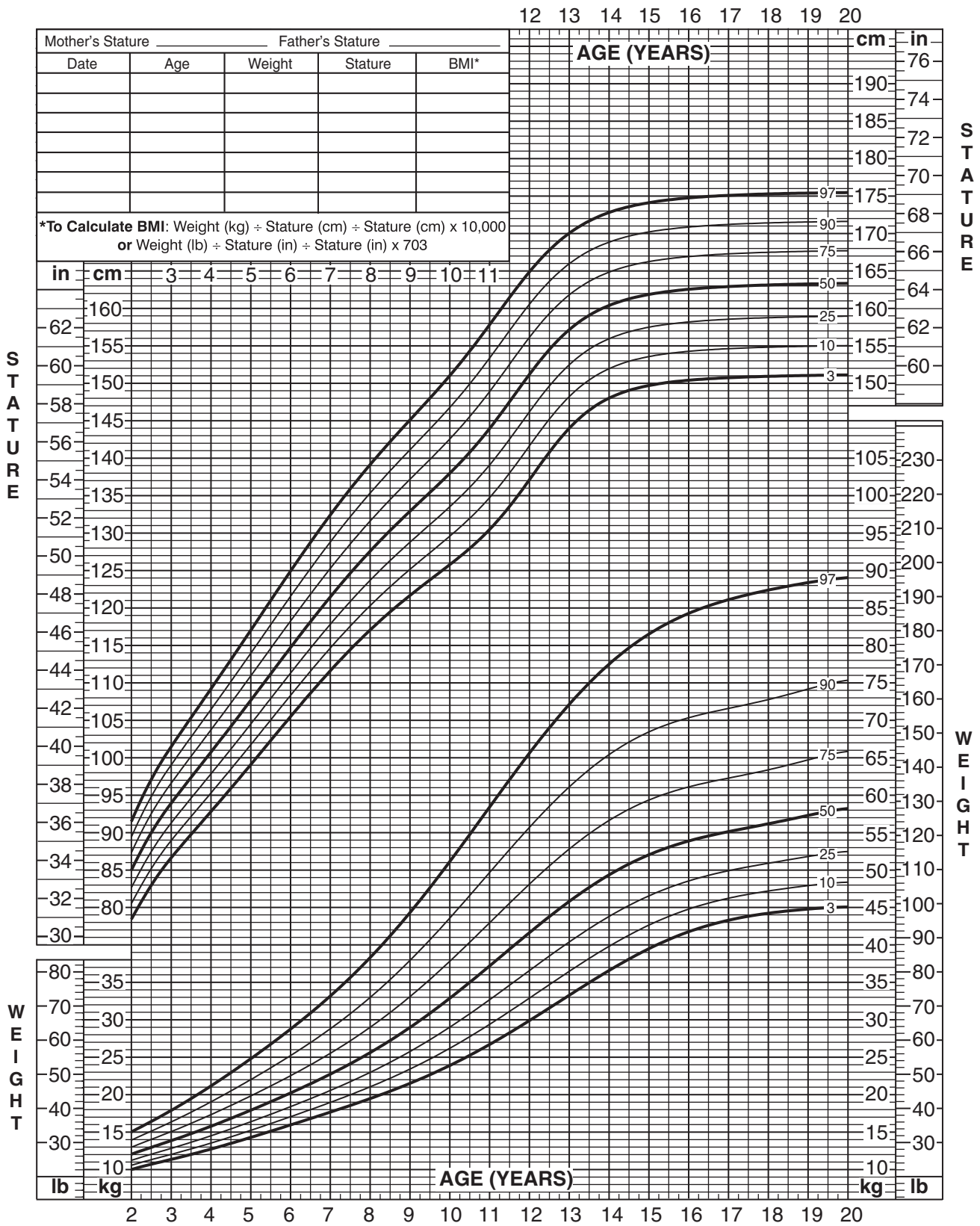
### II. Understanding the Nutrition Therapy

5. What are the goals for weight loss in the pediatric population?
6. Under what circumstances might weight loss in overweight children not be appropriate?
7. What would you recommend as the current focus for nutritional treatment of Jamey's obesity?

### III. Nutrition Assessment

8. Evaluate Jamey's weight using the CDC growth charts provided (p.8): What is Jamey's BMI percentile? How is her weight status classified? Use the growth chart to determine Jamey's optimal weight for height and age.
9. Identify two methods for determining Jamey's energy requirements other than indirect calorimetry, and then use them to calculate Jamey's energy requirements.
10. Dietary factors associated with increased risk of overweight are increased dietary fat intake and increased calorie-dense beverages. Identify foods from Jamey's diet recall that fit these criteria.
11. Calculate the percent of kcal from each macronutrient and the percent of kcal provided by fluids for Jamey's 24-hour recall.
12. Increased fruit and vegetable intake is associated with decreased risk of overweight. What foods in Jamey's diet fall into these categories?
13. Use the ChooseMyPlate online tool (available from [www.choosemyplate.gov](http://www.choosemyplate.gov); click on "Daily Food Plans" under "SuperTracker and Other Tools") to generate a customized daily food plan. Using this eating pattern, plan a 1-day menu for Jamey.

Stature-for-Age and Weight-for-Age Percentiles: Girls, 2 to 20 Years



Source: Centers for Disease Control and Prevention. National Center for Health Statistics. 2000 CDC Growth Charts: United States. Available at <http://www.cdc.gov/growthcharts>. Accessed April 10, 2008.



14. Now enter and assess the 1-day menu you planned for Jamey using the MyPlate SuperTracker online tool (<http://www.choosemyplate.gov/supertracker-tools/supertracker.html>). Does your menu meet macro- and micronutrient recommendations for Jamey?
15. Why did Dr. Lambert order a lipid profile and blood glucose tests? What lipid and glucose levels are considered altered (i.e., outside of normal limits) for the pediatric population? Evaluate Jamey's lab results.
16. What behaviors associated with increased risk of overweight would you look for when assessing Jamey's and her family's diets? What aspects of Jamey's lifestyle place her at increased risk for overweight?
17. You talk with Jamey and her parents, who are friendly and cooperative. Jamey's mother asks if it would help for them to not let Jamey snack between meals and to reward her with dessert when she exercises. What would you tell them?
18. Identify one specific physical activity recommendation for Jamey.

#### **IV. Nutrition Diagnosis**

19. Select two nutrition problems and complete PES statements for each.

#### **V. Nutrition Intervention**

20. For each PES statement written, establish an ideal goal (based on signs and symptoms) and an appropriate intervention (based on etiology).
21. Mr. and Mrs. Whitmer ask about using over-the-counter diet aids, specifically Alli (orlistat). What would you tell them?
22. Mr. and Mrs. Whitmer ask about gastric bypass surgery for Jamey. Using the EAL, what are the recommendations regarding gastric bypass surgery for the pediatric population?

#### **VI. Nutrition Monitoring and Evaluation**

23. What is the optimal length of weight management therapy for Jamey?
24. Should her parents be included? Why or why not?
25. What would you assess during this follow-up counseling session?