PART 4

Clinical Nutrition

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CHAPTER 17

Nutrition Care

KEY CONCEPTS
- Valid health care is centered on the patient and his or her individual needs.
- Comprehensive health care is best provided by a team of health professionals and support staff.
- A personalized health care plan, evaluation, and follow-up care guide actions to promote healing and health.

THE THERAPEUTIC PROCESS

Setting and Focus of Care

Health Care Setting
Modern hospitals are a marvel of medical technology, but medical advances sometimes bring confusion to many patients, whose illnesses place them in the midst of a complex system of care. Various members of the medical staff come and go, and sometimes the day's schedule does not proceed as planned. Patients need personal advocates. Primary health care providers such as the nurse and dietitian provide essential support and personalized care.

Person-Centered Care
Nutrition care must be based on individual needs and be person centered. Figure 17-1 demonstrates the nutrition care process model, with the person-centered approach defining the relationship between patient and dietetic professional. Needs must constantly be updated with the patient's status. Such personalized care demands great commitment from the health care team. Despite all methods, tools, and technologies described in this text and elsewhere, remember this basic fact: therapeutic use of self is the most healing tool a person will ever use. This is a

People face acute illness or chronic disease and treatment in a variety of settings: the hospital, extended-care facility, clinic, and home. Nutrition support is fundamental in the successful treatment of disease and often is the primary therapy. To meet individual needs, a broad knowledge of nutrition status, requirements, and ways of meeting the identified needs is essential. The clinical dietitian, along with the physician, carries the major responsibility for this care. Each member of the health care team plays an important role in developing and maintaining a person-centered health care plan.

This chapter focuses on the comprehensive care of the patient's nutrition needs as provided by the registered dietitian. Nurses are intimately involved in the care process and often identify nutrition needs within the nursing diagnosis. An effective care plan involves all health care members as well as the patient, family, and support system.
simple yet profound truth because the human encounter is where health care workers bring themselves and their skills.

Health Care Team

In the area of nutrition care, the registered dietitian (RD) carries the major responsibility of medical nutrition therapy (MNT). Box 17-1 outlines the qualifications of an RD. Working closely with the physician, the dietitian determines individual nutrition therapy needs and plan of care. Team support is essential throughout this process. Nurses are in a unique position to provide additional nutrition support, referring patients to the dietitian when necessary. Of all the health care team members, nurses are in the closest continuous contact with patients and their families. Patients and caretakers with emotional and social support have a more positive experience with hospitalizations and overall medical care, regardless of clinical status.¹² Such a relationship is important to ensure the most beneficial health care approach. In developing this team relationship, all involved parties need each others’ expertise for a successful outcome.

Physician and Support Staff

The health care team is headed by the physician and may include several other allied health professionals depending on the need of the patient. The team may include some or all of the following members: nurse, dietitian, nurse practitioner, physician’s assistant, and social worker.
BOX 17-1
QUALIFICATIONS OF A REGISTERED DIETITIAN

WHAT IS AN RD?
An RD is a food and nutrition expert who has met minimal academic and professional requirements to qualify for the credential of registered dietitian. In addition to RD credentialing, many states have regulatory laws for dietitians and nutrition practitioners. State requirements frequently are met through the same education and training required to become an RD.

WHAT ARE EDUCATIONAL AND PROFESSIONAL REQUIREMENTS FOR AN RD?
The following criteria must be met to earn the RD credential:
- Receive a bachelor’s degree from an American, regionally accredited university or college and complete coursework approved by the Commission on Accreditation for Dietetics Education of the American Dietetic Association.
- Complete a Commission on Accreditation for Dietetics Education accredited, supervised practice program at a health care facility, community agency, or a food service corporation or in combination with graduate studies. A practice program typically takes 6 to 12 months.
- Pass a national examination administered by the Commission on Dietetic Registration (CDR).
- Complete continuing professional educational requirements to maintain registration.

Some RDs hold additional certifications in specialized areas of practice, such as pediatric or renal nutrition, nutrition support and diabetes education, and sports nutrition. These certifications are awarded through the CDR, the credentialing agency for the ADA and other medical and nutrition organizations, and are recognized within the profession but are not required.

WHAT IS THE DIFFERENCE BETWEEN AN RD OR DIETETIC TECHNICIAN, REGISTERED, AND A NUTRITIONIST?
The credentials RD and DTR (dietetic technician, registered) can only be used by dietetics practitioners who are currently authorized to use the credential by the CDR. These are legally protected titles. Individuals with these credentials have completed specific academic and supervised practice requirements, successfully completed a registration examination, and maintained requirements for recertification.

Some RDs and DTRs call themselves nutritionists. However, the definition and requirements for the term “nutritionist” vary. Some states have licensure laws that define the scope of practice for someone using the designation nutritionist.

Role of the Nurse and Clinical Dietitian
The nurse and dietitian form an important team for providing nutrition care. The dietitian determines nutrition needs, plans and manages nutrition therapy, evaluates the plan of care, and records results. Throughout this entire process the nurse helps develop, support, and carry out the plan of care. Successful care depends on the close teamwork of the dietitian and nurse. The nursing process is a specific process by which nurses deliver care to patients and includes the following steps: assessment, diagnosis, planning, implementation, and evaluation. The nursing diagnosis addresses a human response need that the nurse can assist with. Nursing diagnoses may include several that are nutrition related, such as diarrhea, malnutrition failure to thrive, and fluid volume deficit. Although covering the nursing process is not within the scope of this text, an appreciation of the interconnected work of the nurse and dietitian on the health care team is important.

When necessary, the nurse also may serve as an essential coordinator, advocate, interpreter, teacher, or counselor.

Coordinator and Advocate. Nurses work more closely with patients than do any other practitioners. They are best able to coordinate the patient’s special services and treatments and can consult and refer as needed. Unfortunately, malnutrition is common in hospital settings. Many factors are involved in malnutrition (e.g., lack of appetite because of pain, medicine-induced anorexia, surgery, emotional and psychological distress). However, sometimes patients have reduced food intake because of conflict with medical procedures or appointments during meal time. The nurse may be able to help resolve such conflicts by coordinating meal delivery times in consideration of the patient’s scheduled procedures.

Interpreter. The nurse can help reduce a patient’s anxiety by careful, brief, easily understood explanations about various treatments and plans of care. This may include a basic reinforcement of special diet needs, resulting food choices from menus, and illustrations of needs from foods on the tray. These activities may be difficult with uninterested patients, but efforts to understand such patient behaviors are important. A patient’s psychological and emotional status has a strong influence on his or her overall ability to deal with the medical problem at hand. Patients who are discharged without proper interpreta-
tation of their prognosis or plan of continued care may experience unnecessary stress and confusion. A group of researchers has developed a useful questionnaire that may help identify gaps in patient understanding and help the health care professional address unresolved issues. The questionnaire is short and focuses on communication, emotions, short-term outcome, barriers, and relations with auxiliary staff (Figure 17-2). Such tools may help identify and address the personal needs of each patient.

**Teacher or Counselor.** Basic teaching and counseling skills are essential in nursing. Many opportunities exist during daily care for planned conversations about sound nutrition principles, which will reinforce the dietitian’s work with the patient. Learning about the patient’s nutrition needs should begin with hospital admission or initial contact, carry through the entire period of care, and continue in the home environment, supported by community resources as needed.

### PHASES OF THE CARE PROCESS

The ADA has developed a standardized Nutrition Care Process for RDs (see the Student Resources section on the Evolve Web site). The Nutrition Care Process is defined as “a systematic problem-solving method that dietetics professionals use to critically think and make decisions to address nutrition-related problems and provide safe and effective quality nutrition care.” It is composed of the following four distinct and interrelated nutrition steps: (a) assessment, (b) diagnosis, (c) intervention, and (d) monitoring and evaluation.

### Nutrition Assessment

To assess nutrition status and provide person-centered care, as much information as possible about the patient’s situation must be collected. Family and medical history questionnaires are useful methods of gathering pertinent information on admission or during the initial office visit. Appropriate care considers the patient’s nutrition status, food habits, and living situation as well as his or her needs, desires, and goals. The patient and family are the primary sources of this information (Figure 17-3). Other sources include the patient’s medical chart, oral or written communication with hospital staff, and related research. The ABCD approach to nutrition assessment includes anthropometry, biochemical tests, clinical observations, and dietary evaluations.

#### Anthropometric Data

Anthropometric data include the following:

- Gender
- Height
- Weight
- Body frame
- Body composition

Practice taking correct **anthropometric measurements** to avoid errors. Also maintain proper equipment and careful technique. Three types of measurements are common in clinical practice.

**Height.** Use a fixed measuring stick against the wall if possible. Otherwise, use the moveable measuring rod on the platform clinic scales. Have the person stand as straight as possible, without shoes or cap. Note the growth of children as well as the diminishing height of older adults. BMI is calculated by using both weight and height measurements and is a helpful assessment tool throughout the life cycle.

Children younger than 2 years should be measured while lying down with a stationary headboard and movable footboard (Figure 17-4). Alternative measures for nonambulatory patients provide estimates for persons who are confined to a bed, cannot stand up straight, or have lower body amputations (Box 17-2).
In order to provide better service, we ask for your experience in this medical visit, what it felt like for you and what you think it will mean to you and your health situation.

(Please answer all questions, even if you saw your doctor without any specific ailment or problem in mind)

### Outcome of this specific visit
1. Do you know what to do to reduce your health problem(s)?
   (Or how to prevent problems?)
   - Much more
   - Some more
   - A bit more
   - Not much more
   - No more

2. Do you know what to expect from now on?
   - Much more
   - Some more
   - A bit more
   - Not much more
   - No more

3. Will you be able to handle your health problems differently?
   - No, no at all
   - Not much
   - A bit
   - Some
   - A lot

4. Will it lead to fewer health problem(s)?
   (Or help prevent problems?)
   - No, no at all
   - Not much
   - A bit
   - Some
   - A lot

### Communication experiences
5. We had a good talk
   - Agree completely
   - Agree
   - So-so
   - Disagree
   - Disagree completely

6. I felt reassured
   - Agree completely
   - Agree
   - So-so
   - Disagree
   - Disagree completely

7. The doctor understood what was on my mind
   - Agree completely
   - Agree
   - So-so
   - Disagree
   - Disagree completely

8. I felt I was taken care of
   - Agree completely

### Communication barriers
9. It was a bit difficult to connect with the doctor
   - Agree completely
   - Agree
   - So-so
   - Disagree
   - Disagree completely

10. Too much time was spent on small talk
    - Agree completely
    - Agree
    - So-so
    - Disagree
    - Disagree completely

11. It was a bit difficult to ask questions
    - Agree completely
    - Agree
    - So-so
    - Disagree
    - Disagree completely

12. Important decisions were made over my head
    - Agree completely
    - Agree
    - So-so
    - Disagree
    - Disagree completely

### Experience with the auxiliary staff
13. I sensed that other patients could listen in when I was talking to the staff
    - Agree completely
    - Agree
    - So-so
    - Disagree
    - Disagree completely

14. I felt like one of the crowd
    - Agree completely
    - Agree
    - So-so
    - Disagree
    - Disagree completely

### Emotions immediately after the visit
(Please circle one number for each line)

<table>
<thead>
<tr>
<th></th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
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<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

Figure 17–2 Patient Experience Questionnaire (PEQ). Steine S and others: A new, brief questionnaire (PEQ) developed in primary health care for measuring patients’ experience of interaction, emotion and consultation outcome, Fam Pract 18:410, 2001.
Body Frame. Height (in centimeters) divided by wrist circumference (in centimeters) provides an estimate to body frame size. For an accurate measurement, the patient’s arm should be flexed at the elbow with palm facing up and hand relaxed. With a flexible measuring tape, measure the wrist circumference at the joint distal (toward hand) to the styloid process (bony wrist protrusion). The following example indicates the standards for body frame size, which are useful for interpreting ideal body weight:

Example: Height: 5 ft, 4 in = 64 in × 2.54 cm/in = 162.56 cm
Wrist circumference = 15.4 cm
162.56/15.4 = 10.56 = Medium frame

<table>
<thead>
<tr>
<th>FRAME SIZE</th>
<th>MALE RATIO</th>
<th>FEMALE RATIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>&gt;10.4</td>
<td>&gt;10.9</td>
</tr>
<tr>
<td>Medium</td>
<td>10.4-9.6</td>
<td>10.9-9.9</td>
</tr>
<tr>
<td>Large</td>
<td>&lt;9.6</td>
<td>&lt;9.9</td>
</tr>
</tbody>
</table>

Body Composition. The dietitian usually measures various aspects of body size and composition to determine relative levels of fat versus muscle. Several methods used to measure body composition are covered in Chapter 15. Some methods include skinfold thickness measurement with calipers, hydrostatic weighing, bioelectrical impedance analysis, dual-energy x-ray absorptiometry, and the BOD POD body composition tracking system (Life Measurement, Inc., Concord, Calif.).

Biochemical Tests

Biochemical tests include the following:
- Plasma proteins (serum albumin and prealbumin)
- Liver enzymes (evaluate liver function)
- Blood urea nitrogen, serum electrolytes (evaluate renal function)
- Urinary urea nitrogen excretion
- Creatinine height index (evaluate protein tissue breakdown)
- Complete blood count (evaluate for anemia)
- Fasting glucose (evaluate for high or low blood glucose levels)
- Total lymphocyte count (evaluate immune function)

Laboratory and radiographic tests aid in nutrition status assessment. Such reports generally are available in the patient’s chart. Several of the most frequently used tests are listed above. Additional details for some biochemical tests are described below.

Plasma Protein. Basic measures are serum albumin, prealbumin, and hemoglobin. Additional tests may include serum transferrin or total iron-binding capacity...
and ferritin. These tests help detect protein and iron deficiencies.

**Protein Metabolism.** Basic 24-hour urine tests measure the byproducts of protein metabolism (e.g., urinary creatinine and urea nitrogen). Elevated levels may indicate excess breakdown of body tissue.

**Immune System Integrity.** Lymphocyte count is the ratio of special white cells to the total white blood cell count. Skin testing also may be done to check for sensitivity to common antigens and, hence, the strength of the general immune system.

**Skeletal System Integrity.** Several tests may be used, especially with older patients, to determine the status of bone integrity and possible osteoporosis. Some tests commonly used are x-ray, dual-energy x-ray absorptiometry, and full-body bone scan.

**Gastrointestinal Function.** X-rays also are useful to evaluate GI function and problems, such as peptic ulcer disease and malfunctions along the GI tract.

The medical tests used for nutrition assessment generally are reliable in persons of any age, but some conditions may interfere with test results and should be considered when evaluating laboratory values. For example, laboratory values are affected by hydration status, presence of chronic diseases, changes in organ function, and certain medications.

**Clinical Observations**

Clinical observations include the following:

- Clinical signs of nutrition status
- Physical examination

**Observation.** Careful observation of various areas of the patient’s body may reveal signs of poor nutrition. Table 17-1 lists some clinical signs of nutrition status that should be kept in mind when providing general patient care.

**Physical Examination.** Other members of the health care team, such as the physician, nurse, or physical therapist, may perform physical examinations that are useful for evaluating nutrition status. Such evaluations include inspection of skin for the presence of edema and skin turgor, evaluation of nail integrity, and assessment of body organ sounds in the intestine and lungs.

**Diet Evaluations**

Evaluation of the diet includes the following assessments:

- Usual intake, current intake, restrictions, modifications (use 24-hour recall and food diaries)
- Support system (caregivers to help with nutrition care plan)
- Nutrition supplements, vitamin or mineral supplements
- Food allergies, intolerances
- Activity level (average energy expended per day)

In most cases, the RD is responsible for evaluating the diet. Knowledge of the patient’s basic eating habits may help identify possible nutrition deficiencies. The Clinical Applications box, “Nutrition History: Activity-Associated Food Pattern of a Typical Day,” shows an example of a general guide for gathering a nutrition history. Sometimes a more specific food history is obtained by using a 3-day food record; that is, recording everything consumed, food items used, and amounts and methods of preparation for 3 days. A more extended view of the diet may reveal additional information about food habits or problems as they relate to the individual’s socioeconomic status, family and/or living situation, and general support system.

Clinicians should be aware that underreporting energy intake is quite common and may affect dietary assessment and recommendations.6,7 A recent study of elderly individuals reported that 25% of the participants underreported usual intake.8 A variety of methods are used to collect dietary intake, all of which have strengths and weaknesses (Table 17-2). Specific questioning on various supplements (vitamins, minerals, multivitamin/mineral combinations, and herbs) is more likely to yield accurate answers and give insight to overall consumption. Patients often do not report supplement intake (see the Drug-Nutrient Interaction box, “The Safety of Supplements”). Allergies and intolerances should be noted so that alternative recommendations meet nutrition needs without causing negative reactions.

Physical activity logs are similar to dietary intake logs in that all activity is recorded throughout the day to access energy expenditure. Also similar to diet logs, physical activity reporting tends to be inaccurate relative to fitness in a portion of the population. A recent study found that 10% of men overreported their physical activity and fitness level on a standard questionnaire—another important consideration when providing recommendations.9

**Nutrition Diagnosis**

A nutrition diagnosis is “identification and labeling an actual occurrence, risk of, or potential for developing a nutrition problem that dietetics professionals are responsible for treating independently.” A careful study of all information gathered reveals basic patient needs. Other needs develop and guide the care plan as the hospitalization or consultation continues. The nutrition diagnosis
### TABLE 17-1

**CLINICAL SIGNS OF NUTRITION STATUS**

<table>
<thead>
<tr>
<th>BODY AREA</th>
<th>SIGNS OF GOOD NUTRITION</th>
<th>SIGNS OF POOR NUTRITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>General appearance</td>
<td>Alert, responsive</td>
<td>Listless, apathetic, cachectic</td>
</tr>
<tr>
<td>Weight</td>
<td>Normal for height, age, and body type</td>
<td>Overweight or underweight (special concern for underweight)</td>
</tr>
<tr>
<td>Posture</td>
<td>Erect, straight arms and legs</td>
<td>Sagging shoulders, sunken chest, humped back</td>
</tr>
<tr>
<td>Muscles</td>
<td>Well developed, firm, good tone; some fat under skin</td>
<td>Flaccid, poor tone; underdeveloped; tender, “wasted” appearance; inability to walk properly</td>
</tr>
<tr>
<td>Nervous control</td>
<td>Good attention span, not irritable or restless, normal reflexes, psychologic stability</td>
<td>Inattentive, irritable, confused; burning and tingling of hands and feet (paresthesia); loss of position and vibratory sense; weakness and tenderness of muscles (may result in inability to walk); decrease or loss of ankle and knee reflexes</td>
</tr>
<tr>
<td>GI function</td>
<td>Good appetite and digestion; normal, regular elimination; no palpable (perceptible to touch) organs or masses</td>
<td>Anorexia, indigestion, constipation or diarrhea, liver or spleen enlargement</td>
</tr>
<tr>
<td>Cardiovascular function</td>
<td>Normal heart rate and rhythm, no murmurs, normal blood pressure for age</td>
<td>Rapid heart rate (&gt;100 beats/min, tachycardia), enlarged heart, abnormal rhythm, elevated blood pressure</td>
</tr>
<tr>
<td>General vitality</td>
<td>Good endurance, energetic, sleeps well, vigorous</td>
<td>Easily fatigued, no energy, falls asleep easily, looks tired or apathetic</td>
</tr>
<tr>
<td>Hair</td>
<td>Shiny, lustrous, firm, not easily plucked, healthy scalp</td>
<td>Stringy, dull, brittle, dry, thin, sparse; depigmented; can be easily plucked</td>
</tr>
<tr>
<td>Skin (general)</td>
<td>Smooth, slightly moist, good color</td>
<td>Rough, dry, scaly, pale, pigmented, irritated; bruised; petechiae</td>
</tr>
<tr>
<td>Face and neck</td>
<td>Skin color uniform; smooth, pink, healthy appearance; not swollen</td>
<td>Greasy, discolored, scaly, swollen; skin dark over cheeks and under eyes; lumpiness or flakiness of skin around nose and mouth</td>
</tr>
<tr>
<td>Lips</td>
<td>Smooth, good color; moist, not chapped or swollen</td>
<td>Dry, scaly, swollen; redness and swelling (cheilosis) or angular lesions at corners of the mouth or fissures or scars (stomatitis)</td>
</tr>
<tr>
<td>Mouth, oral membranes</td>
<td>Good pink color, healthy, no swelling or bleeding</td>
<td>Swelling, scarlet and raw, magenta color, beefy (glossitis), hyperemic and hypertrophic papillae, atrophic papillae</td>
</tr>
<tr>
<td>Teeth</td>
<td>No cavities, no pain, bright, straight, no crowding, well-shaped jaw, clean, no discoloration</td>
<td>Unfilled canes, absent teeth, worn surfaces, mottled (fluorosis), malpositioned</td>
</tr>
<tr>
<td>Eyes</td>
<td>Bright, clear, shiny; no sores at corners of eyelids; membranes moist and healthy pink color; no prominent blood vessels or amount of tissue or sclera; no fatigue circles beneath</td>
<td>Eye membranes pale (pale conjunctiva), redness of membrane (conjunctival infection), dryness, signs of infection, Bitot’s spots, redness and fissuring of eyelid corners (angular palpebritis), dryness of eye membrane (conjunctival xerosis), dull appearance of cornea (corneal xerosis), soft cornea (keratomalacia)</td>
</tr>
<tr>
<td>Neck (glands)</td>
<td>No enlargement</td>
<td>Thyroid enlarged</td>
</tr>
<tr>
<td>Nails</td>
<td>Firm, pink</td>
<td>Spoon shaped (koilonychia), brittle, ridged</td>
</tr>
<tr>
<td>Legs, feet</td>
<td>No tenderness, weakness, or swelling; good color</td>
<td>Edema, tender calf, tingling, weakness</td>
</tr>
<tr>
<td>Skeleton</td>
<td>No malformations</td>
<td>Bowlegs, knock-knees, deformity at diaphragm, beaded ribs, prominent scapulas</td>
</tr>
</tbody>
</table>

CLINICAL APPLICATIONS

NUTRITION HISTORY: ACTIVITY-ASSOCIATED FOOD PATTERN OF A TYPICAL DAY

Name ___________________________ Date __________________
Height ________ Weight (lb) ________ (kg) ________ Ideal weight ________ Usual weight ________
Referral:
Diagnosis:
Diet order:
Occupation:
Recreation, physical activity:
Present food intake:

<table>
<thead>
<tr>
<th>Time/location</th>
<th>Food (and method of preparation)</th>
<th>Serving size</th>
<th>Tolerance/comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Snack:</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Lunch:</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Snack:</td>
<td></td>
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<td></td>
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<tr>
<td>Dinner:</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Snack:</td>
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</tbody>
</table>

Summary: Total servings of foods in each category:
Breads/grains:___ Vegetables:___ Fruits:___ Dairy:___ Meat:___ Fat/sugar:___
Dietary supplements and herbs:

<table>
<thead>
<tr>
<th>Name of Supplement</th>
<th>Dose per Day</th>
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TABLE 17-2

STRENGTHS AND LIMITATIONS OF TECHNIQUES USED TO MEASURE DIETARY INTAKE

<table>
<thead>
<tr>
<th>TECHNIQUE</th>
<th>BRIEF DESCRIPTION</th>
<th>STRENGTHS</th>
<th>LIMITATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>24-Hour food record</td>
<td>Trained interviewer asks respondent to recall, in detail, all food and drink consumed during a period in the recent past</td>
<td>Requires &lt;20 min to administer</td>
<td>One recall rarely illustrates typical intake</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inexpensive</td>
<td>Underreporting and overreporting occur</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Easy to administer</td>
<td>Depends on memory</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can provide detailed information on types of foods consumed</td>
<td>Omissions of sauces, dressings, and beverages can lead to low estimates of energy intake</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low respondent burden</td>
<td>Data entry can be labor intensive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>More objective than dietary history</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Does not alter usual diet</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Useful in clinical settings</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does not rely on memory</td>
<td>Requires high degree of cooperation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can provide detailed intake data</td>
<td>Subject must be literate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can provide information about eating habits</td>
<td>Takes more time to obtain data</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Multiple-day data more representative of usual intake</td>
<td>Act of recording may alter usual intake</td>
</tr>
<tr>
<td>1- to 7-day food record or diary</td>
<td>Respondent records, at time of consumption, identity and amounts of all foods and beverages consumed for a period, usually ranging from 1 to 7 days</td>
<td>Reasonably valid up to 5 days</td>
<td>May not represent usual food or portion sizes chosen by respondent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can be self-administered</td>
<td>Intake data can be compromised when multiple foods are grouped within single listings</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Machine readable</td>
<td>Depends on ability of respondent to describe diet</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Modest demand on respondents</td>
<td>Lengthy interview process</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Relatively inexpensive</td>
<td>Requires highly trained interviewers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>May be more representative of usual intake than a few days of diet records</td>
<td>May overestimate nutrient intake</td>
</tr>
<tr>
<td>Food frequency questionnaires</td>
<td>Respondents indicate how many times a day, week, month, or year they usually consume foods by using a questionnaire consisting of a list of approximately 150 foods or food groups important to the intake of energy and nutrients</td>
<td>Reasonably valid up to 5 days</td>
<td></td>
</tr>
<tr>
<td>Diet history</td>
<td>Respondents are interviewed by a trained interviewer about number of meals eaten per day; appetite; food dislikes; presence or absence of nausea and vomiting; use of nutritional supplements and herbal products; cigarette smoking; habits related to sleep, rest, work and exercise</td>
<td>Assess usual nutrient intake</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can detect seasonal changes</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Data on all nutrients can be obtained</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can correlate well with biochemical measures</td>
<td></td>
</tr>
</tbody>
</table>


will change as the patient’s nutrition needs change. An example of a nutrition diagnosis statement is:

Excessive caloric intake (problem) related to frequent consumption of large portions of high-fat meals (etiology) as evidenced by average daily intake of calories exceeding recommended amount by 500 kcal and 12-pound weight gain during the past 18 months (signs).^4

Problem

After careful assessment of nutrition indexes, data are analyzed and a nutrition diagnostic category is assigned. The nutrition diagnostic statement helps identify nutrition problems, which may include nutrient deficiencies (e.g., evidence of iron-deficiency anemia) or underlying disease requiring a special modified diet (e.g., diabetes or liver disease). The diagnosis(es) also “provides a link to setting realistic and measurable expected outcomes, selecting appropriate interventions, and tracking progress in attaining those expected outcomes.”^4

Etiology

The cause or contributing risk factors are identifiable factors directly leading to the stated problem. The ADA defines etiology as the “factors contributing to the existence of, or maintenance of pathophysiological, psychosocial,
**DRUG-NUTRIMENT INTERACTION**

**THE SAFETY OF SUPPLEMENTS**

The Dietary Supplement Health and Education Act was passed by Congress in 1994 and opened the door to what could be called the supplement boom. Since that time some companies have attached claims to supplements that may not have reliable scientific backing. Indeed, many of these claims are based on studies that may not have a control group (placebo), or the study may not be double blinded. The same rigorous testing that must be completed before a pharmaceutical goes on the market is not required for supplements.

Many people do not report supplement intake when asked about current prescriptions simply because they do not consider supplements potentially dangerous. However, side effects and interactions with other medications are a possibility. The following are red flags to look for when determining the efficacy and validity of a supplement claim:

- If it sounds too good to be true, it probably is.
- If it claims to be a cure-all, be on your guard. The human body is complex, and one supplement will probably not relieve a variety of pains or deficiencies.
- If it promises greater weight loss than 2 lb/week, the weight loss will probably not be sustainable and may be harmful.
- If the claim made by using an “inferiority” approach (i.e., claims stating that without supplement X a person will not be as beautiful, intelligent, or active as he or she could be), understand it may be playing on emotion, not logic.

When speaking with clients or patients about supplements, take an objective role. Ask why they use the supplement and discuss reasons why they may or may not need it. If the supplement may be harmful, let the patient know without being confrontational. The decision of starting or ending supplement use is personal and should be respected even if different from what is advised. Always encourage patients to speak with their physicians and pharmacists about possible drug-nutrient interactions.

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Sara Oldroyd

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situational, developmental, cultural, and/or environmental problems.44 Correctly identifying the cause is the only way to design an intervention plan adequately.

**Signs and Symptoms**

Signs and symptoms of nutrition problems are an accumulation of subjective and objective changes in the patient’s health status that indicate a nutrition problem and are results of the identified etiology. Signs of general malnutrition requiring rebuilding of body tissue and nutrient stores may be evidenced.

**Nutrition Intervention**

Objectives of the health care plan are designed to meet identified needs of the patient. This written care plan gives attention to personal needs and goals as well as the identified requirements of medical care. Suitable and realistic actions then carry out the personal care plan. For example, nutrition care and teaching include an appropriate food plan with examples of food choices, food buying, and food preparation. Such activities ideally include family members as well.

Psychological and emotional problems can weigh heavily on the overall outcome of a patient’s prognosis and well-being. For example, geriatric patients in long-term health care facilities often suffer from depression and weight loss, a confounding problem when individuals are already in poor health. The most important link to this type of malnutrition is decreased food intake. Researchers have found everyday emotions to have a significant influence on food intake in the elderly population.45 Thus, by addressing emotional tribulations, energy needs may be better met and complications associated with malnutrition avoided. Unfortunately, such problems often are not discussed with the physician. By inquiring about a patient’s psychological well-being, perhaps some of the confounding factors can be alleviated. Likewise, economic needs are paramount for many persons in high-risk populations. By considering the patient’s personal goals and needs, the health care team and patient can help establish priorities for immediate and long-term care.

**Disease Modifications**

The primary principle of diet therapy is that it is based on a patient’s normal nutrition requirements and is only modified as an individual’s specific condition requires. Nutrition components of the normal diet may be modified in the following three ways:

1. **Energy:** The total energy value of the diet, expressed in kilocalories, may be increased or decreased.
2. **Nutrients:** One or more of the essential nutrients (protein, carbohydrate, fat, mineral, vitamin, and water) may be modified in amount or form.
3. **Texture:** The texture or seasoning of the diet may be modified (e.g., liquid or low-residue diets).

**Personal Adaptation**

Successful nutrition therapy can occur only when the diet is personalized (i.e., adapted to meet individual needs).
This can be done only by planning with the patient or family. Four areas must be explored together, as follows:

1. **Personal needs**: What personal desires, concerns, goals, or life situation needs must be met?
2. **Disease**: How does the patient’s disease or condition affect the body and its normal metabolic functions?
3. **Nutrition therapy**: How and why must the diet be changed to meet needs created by the patient’s particular disease or condition?
4. **Food plan**: How do these necessary nutritional modifications affect daily food choices? How can these needs be met?

## Mode of Feeding

The method of feeding used in the nutrition care plan depends on the patient’s condition. The dietitian and nurse work together to manage the diet by using oral, enteral, or parenteral feeding.

### Routine House Diets

A schedule of routine “house” diets, based on a cycle menu, is typically followed in most hospitals. The basic modification is in texture, ranging from clear liquid (no milk) to full liquid (including milk) and soft food to a full regular diet. *Mechanically altered soft diets* are designed for patients with chewing or swallowing problems. Small amounts of liquid may be added to regular foods to achieve an appropriate consistency when pureed. These diets may be further modified depending on the patient’s needs. For example, low-sodium, low-fat, or high-protein requirements can still be met with mechanically altered diets. *Therapeutic soft diets* are used to transition between liquid and regular diets. Whole foods low in fiber and limited seasoning are included as tolerated. Table 17-3 summarizes details of routine hospital diets.

### Oral Feeding

For as long as possible, regular oral feedings are the preferred method of feeding. If needed, nutrient supplements may be added.

### Assisted Oral Feeding

According to the patient’s condition, the nurse or assistant may need to help the patient eat. Patients usually like to maintain independence as much as possible and should be encouraged to do so with whatever degree of assistance necessary. Plate guards or special utensils to facilitate independence usually are welcomed by both patient and staff. Try to learn each patient’s needs and limitations so that little things (e.g., having the meat cut up or the bread buttered before bringing the tray to the bedside) can be done without making a patient feel inadequate. When complete assistance is needed, the following guidelines may help with the feeding experience:

- Have the tray securely placed within the patient’s sight.
- Sit down beside the bed if this is more comfortable and make simple conversation or remain silent as the patient’s condition indicates.
- Offer small amounts and do not rush the feeding.
- Give ample time for a patient to chew and swallow or rest between mouthfuls.
- Offer liquids between the solids, with a drinking straw if necessary.
- Wipe the patient’s mouth with a napkin during and after each meal.
- Let the patient hold the bread if desired and able to do so.
- When feeding a patient who is blind or has eye dressings, describe the food on the tray so that a mental image helps create a desire to eat. Sometimes the analogy of the face of a clock allows a patient to visualize the position of certain foods on the plate (indicate that the meat is at 12 o’clock, the potatoes are at 3 o’clock, etc.).
- Warn the patient that the soup feels particularly hot when taken through a straw and identify each food being served beforehand.

Assisted feeding times can provide a special opportunity for nutrition counseling and support. Important observations can be made during this time. The nurse can closely observe the patient’s physical appearance and responses to the foods served, appetite and tolerance for certain foods, and the meaning of food to the person. These observations can help the nurse adapt the patient’s diet to meet any particular individual needs. Helping patients learn more about their diets and nutrition needs is an important part of personal care. Persons who understand the role of good food in health (e.g., that it helps them regain strength and recover from illness) are more likely to accept the diet. Patients also feel more encouraged to maintain sound eating habits after discharge from the hospital as well as improve their eating habits in general. Health care providers who are cognizant of personal, cultural, and ethnic needs of their patients will be more effective when helping a patient plan for immediate and long-term nutrition needs (see the Cultural Considerations box, “Cultural Differences in Advanced Care Planning”).

### Enteral Feeding

When a patient cannot eat, but the remaining portions of the GI tract can be used, an alternate form of enteral feeding by tube provides nutrition support. The saying, “if you don’t use it, you lose it” also applies to gut function. Therefore any time the pa-
tient can tolerate feedings through the gut, it is the feed-
ing method of choice. A small tube is placed through the
patient’s nasal cavity, running down the back of the
throat into either the stomach or small intestine (naso-
gastric or nasojejunal tube, respectively) to administer an
appropriate source of nutrients and energy. For long-
term enteral feedings, the tubes may be placed surgically
into the stomach or small intestine through the abdomi-
nal wall. Various commercial formulas are available and
usually are preferred over locally mixed ones. A blended
formula from table food may be calculated and prepared
but carries a greater risk for contamination during prepa-
ration and storage. Enteral feedings, along with diagrams,
are covered in greater detail in Chapter 22.

### Parenteral Nutrition

If a patient cannot tolerate food or formula through the GI tract, intravenous feeding is necessary. Compared with tube feeding, parenteral feedings are more invasive and expensive and introduce more risk. However, for patients in whom part or all of the GI tract or accessory organs (liver, pancreas, etc.) are not functioning, it is necessary. Parenteral nutrition comes in two forms: (1) peripheral vein feeding and (2) central vein feeding. Both forms of parenteral nutrition are covered in detail in Chapter 22, but a brief description follows:

- **Peripheral vein feeding**: Various solutions of dextrose, amino acids, vitamins, minerals, and lipids can be directly administered into peripheral veins. The nutrient

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**TABLE 17-3**

**ROUTINE HOSPITAL DIETS**

<table>
<thead>
<tr>
<th>FOOD</th>
<th>CLEAR LIQUID</th>
<th>FULL LIQUID</th>
<th>MECHANICAL SOFT</th>
<th>REGULAR HOUSE DIET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soup</td>
<td>Clear, fat-free broth, bouillon</td>
<td>Same as clear, plus strained or blended cream</td>
<td>Same as clear and full, plus all cream soups</td>
<td>All</td>
</tr>
<tr>
<td></td>
<td></td>
<td>soups</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cereal</td>
<td>Not included</td>
<td>Cooked refined cereal</td>
<td>Cooked cereal, corn flakes, rice,</td>
<td>All</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>noodles, macaroni, spaghetti,</td>
<td></td>
</tr>
<tr>
<td>Bread</td>
<td>Not included</td>
<td>Not included</td>
<td>White bread, crackers, melba</td>
<td>All</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>toast, Zwieback</td>
<td></td>
</tr>
<tr>
<td>Protein foods</td>
<td>Not included</td>
<td>Milk, cream, milk drinks, yogurt</td>
<td>Same as full, plus eggs (not fried),</td>
<td>All</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>mild cheese, cottage and cream</td>
<td></td>
</tr>
<tr>
<td>Vegetables</td>
<td>Not included</td>
<td>Vegetable juices or pureed vegetables</td>
<td>Potatoes: baked, mashed, creamed, steamed, scalloped;</td>
<td>All</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>tender cooked whole, bland vegetables; fresh</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>lettuce, tomatoes</td>
<td></td>
</tr>
<tr>
<td>Fruit and fruit juices</td>
<td>Strained fruit juices (as tolerated), flavored fruit drinks</td>
<td>Fruit juices</td>
<td>Same as clear and full, plus cooked fruit:</td>
<td>All</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>peaches, pears, applesauce, peeled apricots,</td>
<td></td>
</tr>
<tr>
<td>Desserts and gelatin</td>
<td>Fruit-flavored gelatin, fruit</td>
<td>Same as clear, plus sherbet, ice</td>
<td>Same as clear and full, plus plain</td>
<td>All</td>
</tr>
<tr>
<td></td>
<td></td>
<td>icies and popsicles</td>
<td>cream, puddings, custard,</td>
<td></td>
</tr>
<tr>
<td>Miscella-</td>
<td>Soft drinks (as tolerated), coffee and tea,</td>
<td>Same as clear, plus margarine, pepper, all</td>
<td>Same as clear and full, plus mild</td>
<td>All</td>
</tr>
<tr>
<td>neous</td>
<td></td>
<td>decaffeinated coffee and tea, cereal</td>
<td>supplements</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>beverages such as Postum, sugar,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>honey, salt, hard candy, Polycose (Abbott</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nutrition, Columbus, OH), residue-free</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>supplements</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CULTURAL CONSIDERATIONS

CULTURAL DIFFERENCES IN ADVANCED CARE PLANNING

Advanced care planning is the process in which future treatment of a patient is determined before it is needed. Advanced directives and living wills are examples of documents recognized in the United States by all health care institutions. The Patient Self Determination Act of 1991 was intended to promote the use of advanced care procedures and strengthen the rights of patients during end-of-life medical procedures. Such documents are the only way treatment preferences of the patient can be ensured during times of unconsciousness or otherwise inability to communicate.

MNT, such as enteral and parenteral nutrition, may be considered a life-sustaining intervention by some people. Several recent studies have compared the cultural discrepancy in attitudes about advanced care planning. Researchers suggest significant differences exist between various racial and ethnic patients and their caregivers about advanced care planning and end-of-life decisions. Kwak and Haley summarized the findings of 33 published studies addressing these issues and found trends within certain ethnic groups: (1) Caucasians exhibited more knowledge and support of advanced directives than did other ethnic groups, and (2) Hispanics and Asians prefer family-centered decision making. Researchers have also found African-American patients to be more likely than Caucasians to request life-supportive treatments.

By recognizing such cultural differences in desired treatment and knowing the likelihood of patients having advanced care planning, health care professionals can assist the patient with greater awareness and sensitivity. Educate patients about advanced directives and living wills and explain all methods of life support that may be available. Even if the patient has verbally expressed his or her wishes to the family, sometimes family members find making these decisions to be too difficult. Advanced care planning can alleviate the burden on the family and ensure that the patient’s wishes are granted.

‡ Kwak J, Haley WE: Current research findings on end-of-life decision making among racially or ethnically diverse groups, _Gerontologist_ 45(5):634, 2005.

and energy intake is limited in this method of feeding, however, so peripheral vein feeding is used only when the need for nutrition support is not extensive or long term. Patients should be told that this is still a method of “feeding.”

- **Central vein feeding:** When a patient’s nutrition need is great (e.g., for massive injury or debilitating disease) and parenteral nutrition may be necessary for a longer time, a larger central vein is required. Total parenteral nutrition (TPN) through a central line involves a surgical procedure in which a catheter is inserted into the large subclavian vein for easy access. This mode of parenteral feeding allows for higher volumes of nutrients and can be used long term. A team of specialists (physicians, dietitians, pharmacists, and nurses) works closely together in the administration of TPN nutrition. Throughout this procedure, the patient needs special care and support, including instruction for continued TPN use at home as needed (see Chapter 22).

**Nutrition Monitoring and Evaluation**

The nutrition care plan is evaluated in terms of nutrition diagnosis and treatment objectives. Efficacy of the care plan is evaluated and changes are made if necessary. This evaluation continues through the period of care and terminates at the point of discharge or the end of the care period. The questions listed in the following sections are important.

**Nutrition Goals.** What is the effect of the diet or feeding method on the illness or the patient’s situation? Did the diet plan adequately address nutritional concerns?

**Required Changes.** Should any of the nutrition care plan components be changed? Are any changes in the nutrients, energy, meal/snack patterns, or feeding methods necessary? Should the type of food or feeding equipment, environment for meals, counseling procedures, or types of learning activities for nutrition education be changed?

**Ability to Follow Diet.** Does any hindrance or disability prevent the patient from following the treatment plan? What is the effect of the diet on the patient, family, and staff?

**More Information or Resources.** Was all the necessary nutrition information gathered? Do the patient and family understand all the self-care instructions provided? Are needed community resources available and convenient? Have necessary food-assistance programs been sufficient for the patient’s care, if needed?
DRUG INTERACTIONS

Gathering information about all drug use is essential to the care process—including over-the-counter self-medications and prescribed drugs as well as alcohol and street drugs. The nurse should be particularly familiar with drug-food interactions because he or she is most commonly administering both items to patients. Research each drug to determine any possible problems from the interaction of drugs with foods or nutrients (Figure 17–5). Pocket guides, such as "Food-Medication Interactions" (Food-Medication Interactions, PO Box 204, Birchrunville, PA 19421-0204, phone: 800-746-2324), are helpful for on-site references. Many negative reactions can occur with multiple drug use, especially in elderly patients with chronic diseases. A total of 45.3% of the U.S. population takes at least one prescription drug, and 17.7% take three or more prescription drugs at any given time. Patients may respond quite differently from one another depending on normal dietary habits, specific disease, compliance, and other medications or supplements currently taken.

Drug-Food Interactions

Interactions in which food increases or decreases the effect of a drug can adversely influence the health of a patient. Certain foods may affect the absorption, distribution, metabolism, or elimination of a drug, thus altering the intended dose response (Table 17-4). Timing, size, and composition of meals relative to medication administration are all common causes of drug-food interactions. For example, a high-fat meal increases the absorption of some drugs that are lipophilic ("fat loving"), whereas a high-fiber meal may bind other drugs and reduce their absorption. The interaction of grapefruit juice and several drugs has been under critical evaluation in recent years. Researchers have found that a substance called furanocoumarin in grapefruit juice can dramatically alter the bioavailability of certain drugs to a dangerous level.12,13 The anticoagulation medication warfarin is a commonly prescribed drug for patients with heart disease and also is one of the most highly interactive medications with certain foods, specifically those high in vitamin K.14

Drug-Nutrient Interactions

Drug-nutrient interactions primarily refer to reactions that occur when medications are taken in combination with over-the-counter vitamin and mineral supplements (see the Clinical Applications box, "Case Study: Drug-Nutrient Interaction"). Unfortunately, the use of vitamin and mineral supplements is seldom reported to physicians or pharmacists by patients. A recent study published in the Journal of the American Dietetic Association reported that 73% of noninstitutionalized adults in the United States use a dietary supplement.15 Patients must be asked what other medications they are taking, specifically questioning supplement use. Drug-nutrient interactions may result in a depletion of a nutrient (e.g., corticosteroids deplete vitamin C, antibiotics destroy the gut flora and thus microbial production of vitamin K), or the vitamin may induce a change in the rate of metabolism of the drug (e.g., vitamin B6 reduces the effectiveness of the anticonvulsant medication phenytoin but improves the effectiveness of certain tricyclic antidepressants).14

Drug-Herb Interactions

Interactions involving prescription drugs and herbs are the least well-defined drug interactions. St. John’s wort (Hypericum perforatum), one of the most commonly taken herbs (as an antidepressant), has been extensively studied for drug interactions. The exact mechanism by which St. John’s wort interacts with medications is not clear because it is not the same with all drugs. Some researchers have found the herb decreased the activity of key enzymes involved in the metabolism of drugs, whereas others have found the herb increased the enzymatic activ-
## TABLE 17-4

### FOODS AND NUTRIENTS AFFECTING MEDICATIONS

<table>
<thead>
<tr>
<th>DRUG CLASS</th>
<th>EXAMPLES</th>
<th>USE</th>
<th>FOOD/NUTRIENT</th>
<th>ACTION</th>
<th>HOW TO AVOID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol, particularly excessive use</td>
<td>Beer, wine, spirits</td>
<td>Lowers inhibitions, CNS depressant</td>
<td>Food</td>
<td>Slowed absorption</td>
<td>Consume alcohol with food or meals</td>
</tr>
<tr>
<td>Analgesics and non-steroidal antiinflammatory drugs</td>
<td>Salicylates (aspirin), Ibuprofen (Motrin, Advil), naproxen (Anaprox, Aleve, Naprosyn), Acetaminophen (Tylenol)</td>
<td>Pain and fever</td>
<td>Alcohol</td>
<td>Alcohol ingestion increases hepatotoxicity, liver damage, and stomach bleeding</td>
<td>Limit alcohol intake to 2 drinks/day for men, 1 drink/day for women</td>
</tr>
<tr>
<td>Antibiotics</td>
<td>Ciprofloxacin (Cipro)</td>
<td>Infection</td>
<td>Dairy products</td>
<td>Decreased absorption</td>
<td>Avoid dairy products</td>
</tr>
<tr>
<td>Anticoagulant</td>
<td>Warfarin (Coumadin)</td>
<td>Blood clots</td>
<td>Vitamins K and E (supplements) may reduce efficacy, alcohol and garlic may increase anticoagulation</td>
<td>Reduced efficacy, increased anticoagulation</td>
<td>Limit foods high in vitamin K, e.g., broccoli, spinach, kale, turnip greens, cauliflower, Brussels sprouts; avoid high doses of vitamin E (400 IU)</td>
</tr>
<tr>
<td>Anticonvulsants (monoamine oxidase inhibitors)</td>
<td>Phenobarbital (Nardil), tranylcypromine (Pamate)</td>
<td>Seizures, epilepsy, anxiety</td>
<td>Alcohol</td>
<td>Increased sedation</td>
<td>Avoid alcohol</td>
</tr>
<tr>
<td>Antiemetics</td>
<td>Amitriptyline (Elavil), chlorpromazine (Thorazine)</td>
<td>Alcohol</td>
<td>Increased drowsiness and slowed mental and motor performance</td>
<td>Increased drowsiness and slowed mental and motor performance</td>
<td>Use caution when operating machinery or driving</td>
</tr>
<tr>
<td>Antihistamines</td>
<td>Fexofenadine (Allegra), loratadine (Clarin), cetirizine (Zyrtec), astemizole (Hismanal)</td>
<td>Allergies</td>
<td>Alcohol</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antihyperlipidemics</td>
<td>Atorvastatin (Liptor), lovastatin (Mevacor), pravastatin (Pravachol), simvastatin (Zocor)</td>
<td>High serum LDL cholesterol</td>
<td>Food and meals, alcohol</td>
<td>Enhanced absorption, increased risk of liver damage</td>
<td>Lovastatin should be taken with evening meal to enhance absorption, avoid large amounts of alcohol</td>
</tr>
</tbody>
</table>

Continued
### TABLE 17-4

<table>
<thead>
<tr>
<th>DRUG CLASS</th>
<th>EXAMPLES</th>
<th>USE</th>
<th>FOOD/NUTRIENT</th>
<th>ACTION</th>
<th>HOW TO AVOID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antihypertensives</td>
<td>Angiotensin-converting enzyme inhibitors, angiotensin II receptor antagonists, beta-blockers, verapamil</td>
<td>Hypertension</td>
<td>Natural licorice (Glycyrrhiza glabra) and tyramine-rich foods</td>
<td>Reduced effectiveness</td>
<td>Avoid tyramine-containing foods (see list under Antidepressants)</td>
</tr>
<tr>
<td>Antineoplastic drugs</td>
<td>Methotrexate</td>
<td>Cancer</td>
<td>Alcohol</td>
<td>Increased hepatotoxicity with chronic alcohol use</td>
<td>Avoid alcohol</td>
</tr>
<tr>
<td>Antiparkinson agents</td>
<td>Levodopa (Dopar, Larodopa)</td>
<td>Parkinson’s disease</td>
<td>High-protein foods (eggs, meat, protein supplements), vitamin B6</td>
<td>Decreased absorption</td>
<td>Spread protein intake equally in three to six meals/day to minimize reaction; avoid vitamin B6 supplements or multivitamin supplement in doses &gt;10 mg</td>
</tr>
<tr>
<td>Antituberculotics</td>
<td>Isoniazid (INH)</td>
<td>Tuberculosis</td>
<td>Alcohol</td>
<td>Reduced absorption with foods, increased hepatotoxicity and reduced isoniazid levels with alcohol</td>
<td>Take on empty stomach, avoid alcohol</td>
</tr>
<tr>
<td>Antiulcer agents</td>
<td>Cimetidine (Tagamet)</td>
<td>Ulcers</td>
<td>Alcohol, caffeine-containing foods and beverages</td>
<td>Increased blood alcohol levels, reduced caffeine clearance</td>
<td>Limit caffeine intake; limit alcohol intake to ≤2 drinks/day for men, ≤1 drink/day for women</td>
</tr>
<tr>
<td>Bronchodilators</td>
<td>Theophylline (Slo-Bid, Theo-Dur)</td>
<td>Asthma, chronic bronchitis, emphysema</td>
<td>Caffeine, alcohol</td>
<td>Increased stimulation of CNS; alcohol can increase nausea, vomiting, headache, and irritability</td>
<td>Avoid caffeine-containing foods and beverages (chocolate, colas, teas, coffee); avoid alcohol if taking theophylline medications</td>
</tr>
<tr>
<td>Corticosteroids</td>
<td>Prednisone (Pedia-pred, Prelone, Solu-Medrol), hydrocortisone</td>
<td>Inflammation and itching</td>
<td>Food</td>
<td>Stomach irritation</td>
<td>Take with food or milk to decrease stomach upset</td>
</tr>
<tr>
<td>Hypoglycemic agents</td>
<td>Sulfonylurea (Diabinese), metformin (Glucoephage)</td>
<td>Diabetes</td>
<td>Alcohol</td>
<td>Severe nausea and vomiting</td>
<td>Avoid alcohol</td>
</tr>
</tbody>
</table>

HMG-CoA, 3-hydroxy-3-methylglutaryl coenzyme A.

Other common herbs involved in drug interactions include papaya extract (*Carica papaya*), devil’s claw (*Harpagophytum procumbens*), *Ginkgo biloba*, evening primrose (*Oenothera biennis*), valerian (*Valeriana officinalis*), *kelp* (*Fucus vesiculosus*), *ginseng* (*Panax ginseng*), and ginger (*Zingiber officinale*). Many herbs also have clinically documented medicinal properties and should be evaluated on an individual basis to determine appropriateness with the patient’s current dietary habits and prescribed medications.

**CASE STUDY: DRUG-NUTRIENT INTERACTION**

Linda, a 32-year-old woman, reported to her doctor with symptoms including fatigue; headaches; muscle, joint, and bone pain; dry, flaking skin; amenorrhea; nausea and vomiting; and weight loss. After a physical examination and laboratory work, Linda was determined to have liver damage. The only prescription medication Linda takes is isotretinoin (Accutane) for acne. She also reported taking several dietary supplements, including a multivitamin, a fat-soluble vitamin mixture with 50% of the RDA for all fat-soluble vitamins, an antioxidant liquid mix, and an occasional multimineral.

1. Could her dietary supplement use have anything to do with her liver problems? Why?
2. What foods and/or nutrients should be avoided when taking isotretinoin?
3. What would you counsel Linda on regarding to her supplement and medication use?

Linda also mentions that she is trying to become pregnant. Would you recommend she change anything with her supplement or medication use?

**SUMMARY**

The basis for effective nutrition care begins with the patient’s nutrition needs and must involve the patient and family. Such person-centered care requires initial assessment and planning by the dietitian and continuous close teamwork among all team members providing primary care. Careful assessment of factors influencing nutrition status requires a broad foundation of pertinent information (e.g., physiologic, psychosocial, medical, and personal). The patient’s medical record is a basic means of communication among health care team members.

Nutrition therapy is based on the personal and physical needs of the patient. Successful therapy requires a close working relationship among dietetics, medical, and nursing staff in the health care facility. The nurse is in a unique position to reinforce nutrition principles of the diet with the patient and family.

Drug interactions with nutrients, foods, or other medications can present complications with patient care. Careful questioning to determine all prescription and over-the-counter supplements and medications taken will help guide education needs for the patient.

**CRITICAL THINKING QUESTIONS**

1. Identify and discuss the possible effects of various psychosocial factors on the outcome of nutrition therapy.
2. Describe commonly used measures for determining nutrition status in an outpatient setting and a long-term care facility. Include the following measurement tools: (1) anthropometric measures, (2) biochemical tests, (3) clinical observations, and (4) diet evaluation.
3. Describe the roles of the dietitian and nurse in the nutrition care plan. What part of the care plan are nurses closely involved in? In what situation would a nurse refer a patient to the dietitian?
4. When questioning a patient about diet history after bypass surgery, you determine the patient is fond of spinach, kale, and broccoli. The patient reports eating at least two servings of the above foods almost every day. Knowing that most patients undergoing bypass take an anticoagulant medication after surgery, what would you counsel the patient on?
PART 4 Clinical Nutrition

CHAPTER CHALLENGE QUESTIONS

True-False
Write the correct statement for each statement that is false.
1. True or False: Nutrition care is based on the needs of individual patients.
2. True or False: Patients’ housing situations have little relation to their illnesses or continuing care.
3. True or False: History taking is an important skill in planning nutrition care.
4. True or False: Once a diet treatment plan has been established, it should be continuously followed without change.
5. True or False: The involvement of the patient’s family in the diet therapy and teaching usually creates problems and is best avoided.
6. True or False: Patients’ personal goals do not relate to their diet therapy and instruction.
7. True or False: Drug-nutrient interactions only create complications when the patient is taking dietary supplements; they do not occur with whole foods.

Multiple Choice
1. Which of the following personal details help determine a patient’s nutrition needs? (Circle all that apply.)
   a. GI function
   b. Blood protein level
   c. Skinfold thickness
   d. Symptoms of illness
2. A nutrition history should include which of the following items of nutrition information? (Circle all that apply.)
   a. General food habits
   b. Food buying practices
   c. Cooking methods
   d. Food likes and dislikes
3. Knowledge of which of the following items is necessary for carrying out valid nutrition therapy for a hospitalized patient? (Circle all that apply.)
   a. The specific diet and its relation to the patient’s disease
   b. Foods affected by the diet modification
   c. The mode of the hospital’s food service and the patient’s need for any eating assistance devices
   d. The patient’s response to the diet
4. Which of the following actions would be helpful to a disabled patient who needs assistance in eating? (Circle all that apply.)
   a. Learning the extent of the disability and encouraging her to do as much of the feeding as she can herself
   b. Feeding the patient completely, regardless of the problem, because it saves her time and energy
   c. Hurrying the feeding to get in as much food as possible before the patient’s appetite wanes
   d. Sitting comfortably by the patient’s bed, offering mouthfuls of food, with ample time for chewing, swallowing, and rest as needed

Please refer to the Students’ Resource section of this text’s Evolve Web site for additional study resources.

REFERENCES


**FURTHER READING AND RESOURCES**

National Policy and Resource Center on Nutrition and Aging, Nutrition Screening and Assessment: Nutrition Screening Initiative and Mini Nutritional Assessment: [www.fi u.edu/~nutreldr/SubjectList/N/Nutrition_Screening_Assessment.htm](http://www.fi u.edu/~nutreldr/SubjectList/N/Nutrition_Screening_Assessment.htm)

This site provides research, reports, resources, and additional Web links for nutrition assessment tools.

American Society for Parenteral and Enteral Nutrition: [www.clinnutr.org](http://www.clinnutr.org)

This association provides education, publications, conferences, and resources on clinical nutrition therapy for health care professionals. The association is made up of physicians, dietitians, nurses, pharmacists, scientists, and other allied health care professionals.


The authors discuss the development, purpose, model, and future implications for standardized nutrition.


Sorensen presents a thorough review of adverse interactions between drugs and herbs, food, nutrients, and other drugs. Internet resources for additional information on drug interactions are provided.