ASSISTING IN GERIATRICS

SCENARIO

Bill Novelli, CMA (AAMA), works for Dr. Sara Kennedy, a primary care physician in a small town close to where he grew up. Although patients of all ages are seen in the practice, most patients are 65 or older. Bill has learned to recognize the unique communication needs of aging patients and the importance of using family and community resources to maintain optimum health in this special population.

While studying this chapter, think about the following questions:

- Do myths about aging and stereotypes about aging people negatively affect older individuals?
- What are the most common changes that occur in the aging body and what recommendations can be made for health promotion in this age group?
- What suggestions can be made to aging patients and their families to optimize their health and protect them from injury and disease?
- How is Alzheimer's disease diagnosed and what are the stages of its development?
- Why is depression so common in aging individuals and how is it diagnosed and treated?
- How can the medical assistant most effectively communicate with an older person?
- Why is use of community resources such an important factor in the care of aging people?

LEARNING OBJECTIVES

1. Define, spell, and pronounce the terms listed in the vocabulary.
2. Apply critical thinking skills in performing the patient assessment and patient care.
3. Discuss the impact of a growing aging population on society.
4. Role-play the effect of the sensorimotor changes of aging.
5. Explain the changes caused by aging in each of the body systems.
6. Summarize the major diseases and disorders faced by older patients.
7. Describe various screening tools for dementia, depression, and malnutrition.
8. Explain the effect of aging on sleep.
9. Differentiate among independent, assisted, and skilled nursing facilities.
10. Summarize the role of the medical assistant in caring for aging patients.
11. Determine the principles of effective communication with older adults.
12. Identify legal and ethical issues associated with aging patients.
VOCABULARY

**collagen** (kah-uh-jen) The protein that forms the inelastic fibers of tendons, ligaments, and fascia.

**costal** Pertaining to the ribs.

**decubitus ulcers** Sores or ulcers that develop over a bony prominence as the result of ischemia from prolonged pressure; also called **bed sores**.

**elastin** An essential part of elastic connective tissue; when moist, it is flexible and elastic.

**lacrimation** (la-krish-uh-shun) The secretion or discharge of tears.

According to the Administration on Aging, an agency of the U.S. Department of Health and Humans Services, the aging population—those age 65 or older—numbered almost 37.3 million in 2006, the most recent year for which data are available. This represents 12.4% of the total population of the United States, or about 1 in 8 Americans. The most rapidly growing age group is the “oldest old,” those older than 85. Projections indicate that people older than 65 will represent 16% of the population in 2020 and 20% by 2030. This means that by the middle of the twenty-first century, more than 71 million people will be older than 65 (Figure 48-1).

The average life expectancy of an individual who reaches age 65 is an additional 18.7 years (20 years for women, 17.1 years for men). A child born in 2004 has a life expectancy of 77.9 years, about 30 years longer than a child born in 1900. Older women outnumber older men; 21.6 million women are older than age 65, as are 15.7 million men. About 30% of older people who live outside of institutions live alone; half of women over age 75 live alone. Almost half a million grandparents over the age of 65 are the primary caregivers for their grandchildren who live with them. Most older people have at least one chronic medical condition, and many have multiple conditions. Hypertension, arthritis, heart disease, cancer, and diabetes are the health problems most commonly seen in the elderly, and a significant number also suffer from strokes, asthma, emphysema and chronic bronchitis.

What does all this mean to those who have chosen careers in healthcare? As the aging population expands, it will affect all aspects of society. One area in particular will be these individuals’ increased use of health services. To provide better services to the aging patient, the medical assistant must understand the aging process, which includes the physical and sensory changes with which older people must cope (Procedure 48-1). This knowledge enables medical assistants to recognize the special needs of the aged and to develop therapeutic management and communication skills that can help them effectively care for the older patient.

Ongoing research and education about the aging process have dispelled many of the old stereotypes.

Aging is a complex physiologic, psychological, and social process. Old age is not an illness but a normal life process that people experience in different ways. Lack of exercise, poor nutrition, substance abuse, continual stress, and air pollutants all are factors that cause a person to show the effects of aging decades earlier than someone who has practiced healthy living habits.

As people age, changes occur in their physical appearance and abilities, along with sensory changes in vision, hearing, taste, and smell. These changes do not occur at the same time in everyone; however, sensorimotor changes can have a profound effect on the individual’s ability to interact with his or her environment.

### STEREOTYPES AND MYTHS ABOUT AGING

- All aging people become senile.
- Disease is a normal and an unavoidable part of the aging process.
- Older workers are less productive than younger ones.
- Most older people end up in long-term care facilities.
- Most aging people have no interest in or capacity for sexual relations.
- Aging people are resistant to change and cannot learn new things.
- Damage to health because of lifestyle factors is irreversible.

### CRITICAL THINKING APPLICATION 48-1

When Bill first started working with aging patients, he believed many of the stereotypes about people over age 65. Through his work with Dr. Kennedy, he has come to realize that many of these myths have no foundation in actual practice. Based on the myths mentioned in the text, what do you think about these beliefs on aging?

### CHANGES IN ANATOMY AND PHYSIOLOGY

The aging process brings about changes in all of the body’s systems. Table 48-1 summarizes these changes and what can be done to promote healthy aging.

### Cardiovascular System

Cardiovascular disease is the most frequent cause of illness and disability in the aging population, and congestive heart failure...
PROCEDURE 48-1

Instruct Individuals According to Their Needs: Understand the Sensorimotor Changes of Aging

GOAL: To role-play to better understand the needs of aging people.

EQUIPMENT and SUPPLIES
- Yellow-tinted glasses, ski goggles, or laboratory goggles
- Pink, white, yellow "pills" (e.g., various colors of Tic Tacs)
- Vaseline
- Cotton balls
- Eye patches
- Tape
- Thick gloves
- Utility glove
- Tongue depressors
- Ace bandages
- Medical forms in small print
- Penries
- Button shirts
- Walker

PROCEDURAL STEPS

1. Role-play vision and hearing loss:
   - Put two cotton balls in each ear and an eye patch over one eye. Follow your partner's instructions.
   - Partner: Stand out of the line of vision (to prevent lip-reading). Without using gestures or changing your voice volume, tell your partner to cross the room and pick up a book.

2. Role-play yellowing of lens:
   - Line up "pills" of different pastel colors.
   - Partner: Pick out the different colors while wearing the yellow-tinted glasses.

3. Role-play difficulty with focusing:
   - Put on goggles smeared with Vaseline and follow your partner's instructions.
   - Partner: Stand at least 3 feet in front of your partner and motion for him or her to come to you (your partner is deaf, so talking will not help).

4. Role-play loss of peripheral vision:
   - Put on goggles with black paper taped to the sides.
   - Partner: Stand to the side, out of the field of vision, and motion for your patient to follow you.

5. Role-play aphasia and partial paralysis:
   - You are unable to use your right arm or leg. Place tape over your mouth. Let your partner know you need to go to the bathroom.
   - Partner: Stand at least 3 feet away with your back to your partner and wait for instructions.

6. Role-play problems with dexterity:
   - Put thick gloves on your hands and try to sign your name, button a shirt, tie your shoes, and pick up pennies.

7. Role-play problems with mobility:
   - Use the walker to cross the room.
   - Partner: After your partner starts to use the walker, hand him or her a book to carry.

8. Role-play changes in sensation:
   - Put a rubber utility glove on; turn on hot water; test the difference in temperature between the gloved hand and ungloved hand.

9. Summarize and share with the group your impressions of the effect of age-related sensorimotor changes.

(CHF) is the most common reason for hospitalization. Age-related changes occur in the cardiovascular system, but disease and lifestyle habits such as lack of exercise, poor diet, and stress contribute to these changes. Heart disease is ranked as the leading cause of death among men and women; therefore, proper management of cardiovascular disease can help maintain the health of an aging population and reduce mortality rates.

The aging process causes structural changes in the heart. Myocardial cells enlarge, and deposits of fat and connective tissue increase; these combine to make the myocardial wall stiffer and to lengthen the amount of time needed for the relaxation phase of the cardiac cycle. As a result, cardiac output declines, making aging people more susceptible to CHF. The reduction in cardiac output leads to pooling of blood in the legs, cold extremities, and edema (Table 48-2). In addition, the heart cannot respond as quickly or as forcefully to an increased workload, so exercise, sudden movements, and changes in position can result in dizziness and loss of balance. Aging also brings with it an increase in blood pressure, requiring the heart to work harder to pump blood into the systemic circulation. Hypertension increases the workload of the left ventricle, and this may result in hypertrophy of the chamber and weakening of the myocardial wall. The valves of the heart tend to thicken and become more rigid, making it more difficult for blood to circulate through the cardiopulmonary vessels. With these cardiovascular problems, arrhythmias become more common.

Aging causes the walls of the veins to weaken and stretch. This damages the valves in these blood vessels, especially in the veins of the legs, where the walls are subject to greater pressure as blood struggles to return to the heart against the force of gravity. As a result, edema and varicose veins of the lower extremities are common in the elderly, increasing the risk of phlebitis and the formation of thrombi in the deep veins, or deep vein thrombosis (DVT).

Arteriosclerosis is considered part of the aging process. The vessel walls thicken and become less elastic as a result of the calcification and buildup of connective tissue. In addition, the artery's ability to dilate and contract diminishes. To maintain an adequate blood supply throughout the body, the heart must work harder to overcome the resistance caused by stiffened vessels.
### TABLE 48-1 System Changes with Aging and Measures to Promote Health

<table>
<thead>
<tr>
<th>BODY SYSTEM</th>
<th>AGE-RELATED CHANGES</th>
<th>HEALTH PROMOTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular</td>
<td>Arteriosclerosis and atherosclerotic plaque buildup reduces blood flow to major organs; 50% of the aging population have hypertension; CVD is the number one killer of women and men in their 60s.</td>
<td>Regular exercise; weight control; diet rich in fruits, vegetables, and whole grains; cholesterol, blood glucose monitoring</td>
</tr>
<tr>
<td>Central nervous</td>
<td>Brain shrinks by 10% between ages 30 and 90; takes longer to learn new material; attention span and language remain the same; signs and symptoms may be caused by depression, vascular disease, and drug reactions.</td>
<td>Aerobic exercise to increase blood flow to CNS; maintaining mental activities (e.g., reading, interacting with others)</td>
</tr>
<tr>
<td>Endocrine system</td>
<td>After age 50, women have a sharp decline in estrogen; men have a more gradual decline in testosterone.</td>
<td>Possible hormone replacement therapy or natural soy supplements</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>Decline in gastric juices and enzymes by age 60; decreased peristalsis with increased constipation; some nutrients are not absorbed as well.</td>
<td>High-fiber diet and adequate fluid intake; regular exercise to prevent constipation</td>
</tr>
<tr>
<td>Musculoskeletal</td>
<td>Muscle mass decreases; tendency to gain weight; gradual loss of bone density; deterioration of joint cartilage.</td>
<td>Strength training to increase muscle mass; stretching to remain limber; exercise; vitamin D and calcium supplements</td>
</tr>
<tr>
<td>Pulmonary system</td>
<td>At age 55 the lungs become less elastic and the chest wall stiffly flattens, making oxygenation more difficult.</td>
<td>Quit smoking; regular aerobic exercise</td>
</tr>
<tr>
<td>Sensory organs</td>
<td>Hearing is intact through the mid-50s but declines by 25% by age 80; oral problems are common; skin thins and loses elasticity; presbyopia after age 40; cataracts common after age 60.</td>
<td>Avoid exposure to loud noise, use of hearing aids; good dental hygiene; prevention of sun damage to the skin; annual eye examinations; diet rich in dark green, leafy vegetables to prevent cataracts and macular degeneration</td>
</tr>
<tr>
<td>Urinary system</td>
<td>Kidneys become less efficient; bladder muscles weaken; one third of seniors experience incontinence; prostate enlargement is common.</td>
<td>Pelvic exercises, drugs, or surgery for incontinence; annual PSA monitoring for men</td>
</tr>
<tr>
<td>Sexuality</td>
<td><strong>Men:</strong> Impotence is not a symptom of normal aging; men over age 50 may have some altered function. <strong>Women:</strong> Menopause causes vaginal narrowing and dryness, resulting in painful intercourse.</td>
<td><strong>Men:</strong> Maintenance of cardiovascular health with exercise, weight control, no smoking  <strong>Women:</strong> Use of vaginal lubricants or estrogen cream</td>
</tr>
</tbody>
</table>

CNS, Central nervous system; CVD, cardiovascular disease; PSA, prostate-specific antigen.

### TABLE 48-2 Normal Changes in Cardiac Output

<table>
<thead>
<tr>
<th>AGE (years)</th>
<th>BLOOD PUMPED BY RESTING HEART (quarts per min)</th>
<th>MAXIMUM HEARTBEAT DURING EXERCISE (beats per min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>3.6</td>
<td>200</td>
</tr>
<tr>
<td>40</td>
<td>3.4</td>
<td>182</td>
</tr>
<tr>
<td>50</td>
<td>3.2</td>
<td>171</td>
</tr>
<tr>
<td>60</td>
<td>2.9</td>
<td>159</td>
</tr>
<tr>
<td>70</td>
<td>2.6</td>
<td>150</td>
</tr>
</tbody>
</table>

From the American Heart Association.

Older adults have a higher incidence of orthostatic hypotension. The clinical criterion for alterations in blood pressure from sitting to standing is a drop of more than 20 mm Hg in the systolic pressure or more than 10 mm Hg in the diastolic pressure when the position is changed. Such a decrease typically is caused by a decrease in the volume of circulating blood, and it can be an important diagnostic sign in aging patients. The physician may have the medical assistant take orthostatic blood pressures as part of the routine intake protocol for aging patients.

#### Endocrine System

Hormonal changes that occur with aging are related to a general decrease in hormone production combined with changes in tissue receptor binding. The most common endocrine system disorder seen in aging patients is diabetes mellitus (DM) type 2. As a person ages, insulin production by the beta cells in the pancreas decreases and insulin resistance at the tissue level increases. According to the National Institutes of Health, more than half of the 16 million Americans diagnosed with diabetes type 2 are over age 65. Elderly patients with diabetes are at increased risk of developing vascular disease, including renal disorders, retinopathy, neuropathy, myocardial ischemia, angina, myocardial infarction, cerebrovascular accidents, and peripheral vascular disease, such as lower extremity ulcers.
Older patients do not always experience the classic symptoms of diabetes, which are polyuria, polydipsia, and polyphagia. They may show a variety of problems, including unexplained weight loss, slow wound healing, recurrent bacterial or fungal infections, changes in mental state, cataracts, macular disease, muscle weakness and pain, angina, foot ulcers, and uremia. The range of symptoms is largely attributable to the insidious onset of diabetes in older people, who may have gradually developing hyperglycemia for years before diagnosis.

The treatment protocol for aging patients with diabetes is the same as for other age groups; however, special consideration must be given to the patient’s ability to understand and comply with the therapeutic plan. In addition, because the person may have other health problems that are being treated with medications, an aging patient newly diagnosed with diabetes may face a complicated treatment regimen that requires explicit instruction and continual follow-up in the ambulatory care setting.

The medical assistant must be aware of any sensory abnormalities, such as diminished vision or problems with fine motor skills, that may interfere with the patient’s ability to follow treatment guidelines. Teaching and treatment plans must be adapted to meet the individual needs of each patient.

**Factors That Can Affect Diabetes Management in Older People**

- Modifying lifestyle risk factors may be more difficult because of poor nutrition, inability to exercise, and long-standing habits such as smoking and a diet high in fat and calories.
- Previously diagnosed health conditions, such as hypertension and heart disease, and an age-related decline in kidney and liver function increase the challenge of treating diabetes.
- Older people are more likely to be prescribed multiple medications (polypharmacy), which increases the risk of adverse drug interactions.
- Elderly patients with diabetes are more prone to hypoglycemia and may not recognize and respond quickly to the signs of low blood glucose levels.
- Diabetic complications can develop quickly because of a long history of prediabetes before diagnosis.
- Older people may have decreased physical and/or mental abilities that make it difficult for them to understand and adhere to a complicated treatment regimen.
- Older patients may not be able to afford the medications and supplies needed to maintain health.

### Gastrointestinal System

Age-related changes in the gastrointestinal system begin in the mouth with dental problems, a decrease in the number of taste buds and the production of saliva, and a diminishing sense of smell. Older people generally find eating less pleasurable, have a reduced appetite, and are unable to chew and lubricate their food as well as younger people; this makes dysphagia (difficulty swallowing) a common age-related problem. Aging also brings a decrease in the production of hydrochloric acid, which affects the digestion of calcium and iron. Secretion of intrinsic factor, a protein that allows the absorption of vitamin B₁₂, also declines, which affects the function of the nervous system and the formation of red blood cells, resulting in excessive fatigue. It is not unusual for aging patients to be seen in the physician’s office regularly for vitamin B₁₂ injections.

Food passes more quickly through the small intestine, resulting in poorer absorption of vitamins and minerals. Peristalsis in the colon decreases, making aging patients more susceptible to constipation and diverticular disease. Poor eating habits, a reduced fluid intake, and some medications (e.g., antidepressants, diuretics, antacids containing aluminum or calcium, and medications for Parkinson's disease) also contribute to constipation. The liver decreases in size and weight after age 70. It is still able to perform vital functions, but more time is required to metabolize drugs and alcohol. All these factors combine to increase the potential for adverse drug reactions in older adults.

Aging individuals have a higher incidence of several gastrointestinal system diseases, such as gastroesophageal reflux disease (GERD), peptic ulcers, diverticulosis (related to lack of dietary fiber and constipation), cholelithiasis, and colorectal cancer. Dietary counseling and annual screenings should be part of the routine care of aging patients.

### Integumentary System

The skin is the body's first line of protection against infection, and it also is responsible for preventing the loss of body fluid and regulating body temperature. Changes in the appearance and function of the integumentary system usually are caused by a combination of ordinary age-related changes and environmental factors, especially the amount of sun exposure over time. Exposure to ultraviolet light from the sun frequently is the cause of wrinkles, age spots, blotches, and leathery, dry, loose skin, all of which are associated with aging. Changes caused by the ultraviolet light from the sun or by the normal aging process can affect all three layers of the skin: the epidermis, dermis, and subcutaneous tissue.

The cells in the epidermis reproduce more slowly as people age, and this slower regeneration causes the skin to appear thinner. The skin becomes more prone to tearing and blistering. The risk of infections is increased, the healing process takes longer, and older people are more susceptible to blisters. Because the skin can be easily torn, it is important to select an appropriate adhesive when covering a wound or venipuncture site in an older patient. Vitamin D synthesis, a major function of the epidermis, significantly declines in aged skin, and a decrease in the number of melanocytes increases photosensitivity.

The dermis loses 20% of its mass during the aging process, resulting in the paper-thin or transparent skin seen in older adults. The number of collagen cells in the dermis also declines with age, causing the skin to sag and wrinkle. Because both sweat and sebaceous glands decrease, aging people have difficulty tolerating higher temperatures because they perspire less. At the same time, the blood supply to the dermis decreases; this makes it difficult to regulate the body temperature and leads to an increased susceptibility to both hypothermia and heat stroke in
aging individuals. Any situation in which an older adult would be exposed to extremes of cold or heat should be avoided. Make sure a blanket is available in the examining room if the air conditioning is on. Ask the person if he or she is too cold or too hot and take the necessary steps to make the patient feel more comfortable.

Atrophy of the subcutaneous layer increases the skin's susceptibility to trauma, so patients bruise much more easily. The skin is denied natural lubrication, and dry skin is one of the most common complaints among older people. In addition, fat deposits increase in the abdomen in men and in the abdomen and thighs in women as they age.

Suggestions that might help older people prevent and treat dry skin include:

- Using a room humidifier to moisten the air
- Bathing less frequently and using warm rather than hot water
- Using a mild soap or cleansing cream (e.g., Aveeno, Basis, or Dove)
- Wearing protective clothing in cold weather
- Moisturizing dry skin
- Applying creams and moisturizers after getting out of the bathtub or shower to reduce the chance of falls

Pain receptors are distributed throughout the skin. Because of age-related changes in the receptors, older people have a higher pain threshold. They may not notice a cut or burn as quickly as a younger person would, so a more serious burn may occur before it is noticed. In addition, wound healing becomes a problem because of decreased blood flow to dermal tissues.

Other changes occur in the skin’s appendages. Hair changes in color, growth, and distribution. Hair grays because of the decreased rate of melanin production and the replacement of pigmented hair with nonpigmented hair. Women lose hair on the trunk and have increased facial hair. Although alopecia (male balding) is caused by an inherited trait, aging also causes hair loss. Hair on the eyebrows, nose, and ears becomes coarser and longer in men. The nails of older people take longer to grow and are more brittle. Nails, particularly toenails, thicken as a result of trauma or nutritional deficiencies. It is not unusual for nails to split, making them more susceptible to fungal infections.

Seborrheic keratoses, usually referred to as “age spots,” are one of the most common benign skin disorders found in the aging population. They appear as waxy, greasy papules that vary from tan to dark brown (Figure 48-2) and typically are found in areas of sun exposure, such as the trunk, back, face, neck, extremities, and scalp. They are not dangerous but may be removed for cosmetic purposes.

### SHINGLES RISK REDUCTION

The U.S. Food and Drug Administration (FDA) recently approved a new vaccine, Zostavax, to reduce the risk of shingles in people age 60 or older. The varicella-zoster virus causes both shingles and chickenpox. After an active chickenpox infection, the virus lies dormant in a nerve dermatome. As people age, their risk increases that the virus will reactivate, causing the formation of blisters and varying degrees of pain along the affected nerve pathway. It is estimated that 2 out of 10 people will develop shingles in their lifetime. Zostavax, a live virus vaccine, boosts immunity against the varicella-zoster virus. The vaccine is administered as a single subcutaneous injection. Studies have shown that the vaccine reduces the number of shingles cases by 50% in all individuals over age 60, but it is most effective in those age 60 to 69. For individuals who develop shingles even though they were immunized, the duration of symptoms is shorter. It is recommended that all individuals over age 60 receive the Zostavax vaccine.

### CRITICAL THINKING APPLICATION

Rose Deluca, a 71-year-old patient of Dr. Kennedy's, is unhappy about the changes in her skin that have occurred in the past several years. Based on what Bill knows about the normal changes that occur in the skin as people age, how can he explain these changes to Mrs. Deluca, and what can he suggest to help with dryness and other typical aging changes?

### Musculoskeletal System

As the body ages, changes occur in the muscles, bones, and joints that affect the individual’s appearance, strength, and mobility. The amount of change depends on diet, exercise, and heredity. Cartilage loss and degeneration, producing osteoarthritis, commonly occur in the weight-bearing joints of older people. Joint range of motion is affected, and the intervertebral disc spaces are decreased, causing loss of height as a person ages. A breakdown in joint structures may lead to inflammation, pain, stiffness, and deformity.

Aging brings a decrease in the strength and speed of muscle contractions in the extremities but only a slight decline in overall muscle endurance. Muscular changes in the aging patient are directly related to the individual’s activity level. Research shows that musculoskeletal disease is not an inevitable result of the aging process; however, 40% to 50% of women over age 50 have a serious problem with bone demineralization. Men also experience bone loss but at a later age and a much slower rate than women.
**SUGGESTIONS FOR HELPING THE OLDER ADULT WITH MOBILITY, DEXTERITY, AND BALANCE**

- Use assistive devices, such as adaptive silverware, tub seat or shower chair, electric razor, and reaching devices.
- Assist with gripping devices as needed (wait for the patient to place his or her hand around a cup or help him or her with it before letting go).
- Older adults may need more time to complete tasks but prefer to do so independently, so slow down.
- Stroke victims should be supported on the weak side when walking or transferring from a chair to the examination table.
- The physician may recommend physical therapy for range-of-motion exercises.
- Encourage activity; lack of activity causes a decline in the ability to function.

**Osteoporosis**

Osteoporosis (see Chapter 43) is the primary cause of hip fractures, which can lead to a loss of independence and complications that ultimately can end in death. The spinal vertebrae also can collapse, producing the stooped posture associated with "dowager’s hump." Sometimes bones break because of the sheer weight of the body on them. Often people say they fell and broke a bone, when in reality the bone fractured, causing them to fall. Multiple factors contribute to the development of osteoporosis, but it is most common in postmenopausal women. Risk factors for osteoporosis include:

- Female gender (women have a five times greater risk than men)
- Small-boned frame, thin
- Family history of osteoporosis
- Estrogen deficiency before age 45 either from early menopause or oophorectomy
- Estrogen deficiency resulting from an abnormal absence of menses (eating disorders, excessive aerobic exercise, fibrocystic ovaries)
- Racial background (Caucasian and Asian women have the highest risk)
- Aging
- Extended use of anticonvulsant drugs, prednisone, and excessive thyroid hormone medicines
- Sedentary lifestyle, smoking, excessive alcohol intake, lack of calcium and vitamin D when growing up

Weight-bearing exercises and calcium and vitamin D supplements are recommended to prevent demineralization of the bones. Medications used to prevent and/or treat osteoporosis include alendronate (Fosamax) and risedronate (Actonel), which reduce the rate of demineralization; raloxifene (Evista), which slows bone thinning and causes some increase in bone thickness; and calcitonin (Calcimar, Miacalcin), which is either injected or inhaled as a nasal spray and results in a decrease in the rate of bone thinning and relieves the pain associated with spinal compression. The U. S. Food and Drug Administration (FDA) recently approved an intravenous (IV) medication, zoledronic acid (Reclast), for the once-yearly treatment of postmenopausal women with osteoporosis. Reclast helps increase bone density in the spine and hip, thus reducing the risk of fractures.

**Falls**

The risk of injuries from falls increases with age; falls cause the greatest number of injuries in people over age 70. Aging individuals are at greater risk of falling because of sensorimotor changes in vision and mobility, osteoporosis, and cerebrovascular accidents. Falls in older patients usually result in fractures, because a large percentage of them have osteoporosis. Serious fractures, such as those of the hip, require the patient to be immobile for extended periods, and this opens the door to a wide range of debilitating complications, such as decompensation ulcers, pneumonia, placement in long-term care facilities, and even death. Falls are largely preventable. The medical assistant can play an active role in helping family members and patients become aware of risk factors, as well as safety measures. Suggestions that can help patients prevent falls are:

- Have regular hearing and vision tests.
- Understand the side effects of medications, especially those that cause vertigo.
- If you experience orthostatic hypotension, rise slowly and stand still for a moment with support before moving.
- Limit the use of alcohol.
- If needed, consistently use assistive devices, such as a cane or walker, for support.
- Wear low-heeled, rubber-soled shoes with good support.
- Avoid going outside in icy weather.
- Engage in regular weight-bearing exercise for muscle and bone strength.
- Keep hallways, stairs, and bathrooms well lit.
- Assess the home for possible danger areas; remove throw rugs; use handrails on steps and grab bars in bathrooms; keep emergency numbers handy.

**CRITICAL THINKING APPLICATION 48-3**

The family of Rita Schaeffer, a 73-year-old patient, is concerned about the risk of falls. Mrs. Schaeffer recently was diagnosed with osteoporosis, and she lives alone. What information should Bill give the family to help them prevent accidents in their mother's home? Also, Mrs. Schaeffer's 43-year-old daughter is concerned about developing osteoporosis. What steps should the daughter take to prevent the disease?

**Nervous System**

Cognitive ability, the ability of a person to think, is influenced by many factors, including a person's general state of health, educational background, and genetic code. The normal process of aging may contribute to a change in the thinking process. The brain begins to get smaller at approximately age 50 and continues to do so as we age because of a loss of fluid within the neurons and the shrinkage of dendrites. Thinning of the dendrites makes transmitting messages from one neuron to the next more difficult. As a result of all of these factors, the aging brain weighs less,
is smaller, and has started to pull away from the sheath or cortical mantle. Older neurons process information more slowly, so retrieving old information and learning new information takes longer. Reaction time also slows, and aging individuals are distracted more easily; however, recent research shows that the loss of brain cells is minimal and that the older brain is still capable of generating new neurons. Researchers believe that continued, moderate physical and mental activity can maintain the cognitive abilities of aging individuals.

Dementia, the severe loss of intellectual ability, is not an inevitable part of aging but rather the result of an organic disorder. Most men and women remain mentally competent until the end of their lives. Sudden loss of memory, disorientation, and trouble performing the daily tasks of life indicate a problem that should be investigated. Many conditions can cause signs and symptoms of dementia, including depression; reactions to prescription and over-the-counter drugs; alcoholism; malnutrition; thyroid, liver, heart, and vascular disorders; and Parkinson's disease. Multiple factors can interfere with mental judgment and motor skills, giving the impression of decreased mental status.

The best way to ensure mental functioning in later life is to remain mentally and physically stimulated. Exercise improves memory and thinking because of its positive effect on vascular health, increasing the amount of oxygen delivered to the aging brain. Other ways to maintain mental function are to keep socially active; practice stress-reduction activities; quit smoking; drink alcohol in moderation; use hearing aids and glasses if needed to stay in touch with the world; and receive treatment for depression, diabetes, hypertension, and high cholesterol levels. Risk factors for cognitive decline include:

- Hypertension, diabetes, and heart disease (these reduce blood flow to the brain)
- Environmental exposure to lead
- High stress levels
- Sedentary lifestyle and lack of social interaction
- Low education level
- Smoking and substance abuse

One of the most frequently used screening tools for dementia is the Mini-Mental State Examination, a 5-minute test designed to evaluate basic mental function in a number of different areas. The test assesses the patient's ability to recall facts, write, and calculate numbers. It gives the physician a quick way to determine whether more in-depth testing is needed. Each area of the examination is given a score, and these scores show whether the person is functioning within the expected range for his or her age (Figure 48.3) The medical assistant may be expected to administer this examination.

**Alzheimer's Disease**

Alzheimer's disease (AD) is a progressive deterioration of the brain caused by the destruction of central nervous system (CNS) neurons, leading to problems with memory, language, thinking, and behavior. Cellular destruction is related to the buildup of amyloid plaques and neurofibrillary tangles in the brain. Patients who show signs and symptoms of dementia are first evaluated for organic causes, such as systemic disease or depression. AD has no definitive diagnostic test because it can be confirmed only through examination of the brain at autopsy. If the patient shows a gradual onset of progressive difficulty with memory, functional abilities, and behavior and has no evidence of other causes of these disturbances, the physician makes the diagnosis of AD.

Researchers believe that as many as 4.5 million Americans suffer from AD. The disease typically begins after age 60, and the risk of developing the disorder increases with age, although younger people can be diagnosed with AD. An estimated 5% of people age 65 to 74 have AD, and almost half of people age 85 or older are diagnosed with the disease. Despite these statistics, AD is not considered a normal part of the aging process.

**SIGNS AND SYMPTOMS OF ALZHEIMER’S DISEASE**

- Repeatedly asking the same questions
- Inability to remember common words or mixing up words when describing something
- Inability to complete simple tasks and misplacing items
- Becoming lost when driving familiar routes
- Sudden mood swings for no apparent reason
- Difficulty following simple directions

AD is a slowly progressive disease that begins with mild memory problems and ends with severe brain damage. The course the disease takes and how fast changes occur vary among individuals, but on average, patients live for 8 to 10 years after they are diagnosed. Currently, no treatment can stop the progression of the disease. However, a great deal of research on the diagnosis and treatment of AD is underway.

**STAGES OF ALZHEIMER’S DISEASE**

- **First stage**: Occurs during the 2 to 4 years leading up to diagnosis; memory loss affects job performance; confusion and disorientation are common. Patient experiences mood or personality changes, difficulty making decisions, and paying bills; gets lost easily; withdraws from others; loses things.
- **Second stage**: Lasts 2 to 10 years after diagnosis; increased memory loss and confusion, shorter attention span, restlessness. Patient makes constant repetitive statements; has problems with reading, writing, and numbers; may be irritable or suspicious; experiences motor problems; has difficulty recognizing close friends and family members.
- **Terminal stage**: Lasts 1 to 3 years. Patient does not recognize family; experiences weight loss; is unable to care for self; is incontinent of bladder and bowel; requires complete care.

The goal of treatment is to maintain normal activities as long as possible. Cholinesterase inhibitors may be prescribed to improve the production of neurotransmitters in the brain. These drugs include donepezil (Aricept), rivastigmine (Exelon), or galantamine (Reminyl) to help prevent memory loss from becoming worse for a limited time. However, these drugs do not help everyone; as many as 50% of patients show no improvement in
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<th>Maximum Score</th>
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<td>Name three objects: (Apple, Penny, Table) 1 second to say each. Then ask the patient all three after you have said them. Give 1 point for each correct answer. Then repeat them until he or she learns all three. Count trials and record.</td>
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<td>Attention and Calculation</td>
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<td>Serial 7's. 1 point for each correct. Stop after five answers. Alternatively spell &quot;world&quot; backwards.</td>
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<td>Ask for the three objects repeated above. Give 1 point for each correct.</td>
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<td>Name a pencil, and watch (2 points) Repeat the following &quot;No ifs, ands, or buts.&quot; (1 point) Follow a three-stage command: &quot;Take a paper in your right hand, fold it in half, and put it on the floor.&quot; (3 points) Read and obey the following:  &quot;CLOSE YOUR EYES&quot; (1 point) Write a sentence (1 point) Copy design (overlapping pentagons) (1 point)</td>
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<td>ASSESS level of consciousness along a continuum</td>
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**Instructions for Administration of Mini-Mental State Examination**

1. Ask for the date. Then ask specifically for parts omitted, e.g., "Can you also tell me what season it is?" One point for each correct.
2. Ask in turn "Can you tell me the name of this hospital?" (town, country, etc.), One point for each correct.

**Registration**

Ask the patient if you may test his or her memory. Then say the names of three unrelated objects, clearly and slowly, about 1 second for each. After you have said all three, ask him or her to repeat them. This first repetition determines his or her score (0–3), but keep saying them until he or she can repeat all three, up to six trials. If he or she does not eventually learn all three, recall cannot be meaningfully tested.

**Attention and Calculation**

Ask the patient to begin with 100 and count backwards by 7. Stop after five subtractions (93, 86, 79, 72, 65). Score the total number of correct answers. If the patient cannot or will not perform this task, ask him or her to spell the word "world" backwards. The score is the number of letters in correct order, e.g., dlrow = 5, dlrow = 3.

**Recall**

Ask the patient if he or she can recall the three words you previously asked him or her to remember. Score 0–3.

**Language**

**Naming:** Show the patient a wrist watch and ask him or her what it is. Repeat for pencil. Score 0–2.

**Repetition:** Ask the patient to repeat the sentence after you. Allow only one trial. Score 0 or 1.

**Three-stage command:** Give the patient a piece of plain blank paper and repeat the command. Score 1 point for each part correctly executed.

**Reading:** On a blank piece of paper print the sentence "Close your eyes," in letters large enough for the patient to see clearly. Ask him or her to read it and do what it says. Score 1 point only if he or she actually closes his or her eyes.

**Writing:** Give the patient a blank piece of paper and ask him or her to write a sentence for you. Do not dictate a sentence, it is to be written spontaneously. It must contain a subject and verb and be sensible. Correct grammar and punctuation are not necessary.

**Copying:** On a clean piece of paper, draw intersecting pentagons, each side about 1 inch, and ask him or her to copy it exactly as it is. All 10 angles must be present, and 2 must intersect to score 1 point. Tremor and rotation are ignored. Estimate the patient's level of consciousness along a continuum, from alert on the left to coma on the right.

**FIGURE 48-3** Mini-Mental State Examination. (Redrawn from Folstein M et al: Mini mental state, J Psychiatry Res 12:195, 1975.)
mental function. Memantine (Namenda) is the first drug to be approved for the treatment of moderate to severe AD, although it also has limited effects. Individuals with AD frequently experience changes in behavior, so medications may be prescribed to help control sleeplessness, agitation, wandering, anxiety, and depression. Treating these problems helps make the patient more comfortable while easing the burden on caregivers.

Supportive care for family members is absolutely essential, because they are faced with caring for a loved one who is suffering progressive memory loss. The medical assistant can be especially helpful in recommending educational workshops, support groups, and stress management skills for caregivers. Multiple resources are available, including online information and support groups, that family members may find helpful.

CRITICAL THINKING APPLICATION 48-4

Mario Angelone, an 86-year-old patient of Dr. Kennedy, is in the second stage of AD. Her husband and children are showing signs of stress from the continuous care Mrs. Angelone requires. Her family still does not understand what is happening to her and what to expect in the future. What information can Bill share with them about the disease, and what resources could be helpful to the family in dealing with the stress of caring for a loved one with dementia?

### Pulmonary System

Maximum lung function decreases with age. The rate of airflow through the bronchi slowly declines after age 30, and the maximum force one is able to achieve on inspiration and expiration declines. The lungs lose their elasticity because of changes in elastin and collagen. They become smaller and flabbier. The alveoli enlarge, their walls become thinner, and the number of capillaries is reduced. As a result, the effective area for gas exchange in the lungs is reduced. The chest wall may stiffen from osteoporosis of the ribs and vertebral calcification of the costal cartilage. The respiratory muscles become weaker, making it harder to move air in and out of the lungs. To compensate, older adults rely more on accessory muscles, such as the diaphragm. Weakening of the respiratory muscles and stiffening of the chest wall make it harder to cough deeply enough to clear mucus from the lungs. Pulmonary function tests reveal a decrease in vital capacity and an increase in residual volume. The incidence of sleep apnea and sleep disorders increases, causing a potential problem with nocturnal hypoxemia. All these factors combine to put the older adult at greater risk for pneumonia and aspiration, as well as reactivation of tuberculosis.

The larynx also changes with aging, causing a change in the pitch and quality of the voice. The voice sounds quieter and slightly hoarse. The individual's voice may sound weaker, but it should not interfere with the ability to communicate effectively.

### Sensory Organs

#### Vision

By the time a person reaches age 50, structural and functional changes in the eye become noticeable (Table 48-3). The eyebrows and eyelashes start to gray. The skin around the eyelids wrinkles, and the loss of orbital fat allows the eye to sink deeper into the orbit. The cornea increases in thickness and has reduced refractive power. A yellow-gray ring (arcus senilis) may develop on the periphery of the cornea. The iris loses pigmentation, and as a result most older people appear to have gray eyes.

The lens of the eye continues to grow. As new lens fibers grow, old lens fibers are compressed and pushed to the center, causing the lens to become denser. The lens becomes flatter, thicker, less elastic, and more opaque, progressively yellowing with age. By age 70, the lens has tripled in mass. Clouding of the lens causes light rays to scatter, creating glare.

The pupil is designed to adjust to control the amount of light entering the eye. The ciliary muscle that causes the pupil to dilate weakens during the aging process. As a result, a reduction in the size of the pupil occurs, limiting the amount of light available to reach the retina. Tear production normally decreases. Tear glands do not make enough tears, or the tears are of poor quality and do not keep the eyes wet enough. Eye irritation and excessive tearing are a result of decreased lacrimation.

During the fourth decade of life, presbyopia develops, which makes it difficult to focus on detailed objects close at hand. This requires the use of corrective lenses to accommodate age-related farsightedness. The ability to refocus quickly from far to near or near to far decreases. Also, the ability to follow a moving object is decreased. The yellowing of the lens causes it to act like a filter, making it difficult to distinguish certain color intensities. Blues, greens, and violets are hard to differentiate, whereas yellows, reds, and oranges are easier to identify. The loss in the ability to discriminate closely related colors can affect the older person's ability to judge distances or his or her depth perception. This increases an aging person's susceptibility to falls and accidents. Stairs become a potential hazard because the edges of the steps cannot be seen clearly.

Older people need as much as six times more light to read; however, increasing the level of light does not completely com-
penisate for visual decline, because the elderly also experience an increased sensitivity to glare. Glare is probably one of the most painful experiences for the aging eye. Exposed light bulbs, such as those used in chandeliers, and light from highly reflective surfaces, such as glass tables and floors, can produce excessive glare. The eye has a decreased ability to respond to abrupt changes from light to dark or dark to light. Going from a well-lit waiting room into a dim hallway or negotiating the way down dimly lit aisles in a movie theater could be treacherous for an older person.

**Cataracts, Glaucoma, and Macular Degeneration.** Eye diseases and disorders that occur frequently in older individuals are cataracts, glaucoma, and macular degeneration. Cataracts are cloudy or opaque areas in the lens that cause blurring of vision; rings or halos around lights and objects; and a blue or yellow tint to the visual field. Surgical lens extraction and implantation with an artificial lens improves vision in 95% of the cases. The procedure is performed in an outpatient facility using a small incision to remove the lens, laser therapy, or phacoemulsification (ultrasonic vibrations), which breaks up the lens and removes it without the need for an incision. Postoperatively patients must avoid bending or lifting heavy objects for 3 to 4 weeks; wearing an eye shield at night and glasses during the day helps protect the eye until it heals.

Glaucoma is a result of blockage of the outflow of aqueous humor, which causes an increase in intraocular pressure and damage to the optic nerve. If not treated, glaucoma can cause progressive loss of peripheral vision and ultimately lead to blindness; however, it can be treated with medication.

The macula is the part of the eye responsible for sharp vision and color. Damage to or breakdown of the macula is called macular degeneration, which causes progressive loss of the central field of vision. Macular degeneration is the leading cause of blindness in aging people, and at this time there is no effective treatment or cure. (All three of these eye disorders are discussed in more detail in Chapter 37.)

### SUGGESTIONS FOR HELPING THE VISUALLY IMPAIRED OLDER ADULT

- When escorting an older person, regardless of whether he or she is visually impaired, allow the patient to place his or her hand above your elbow. It is easier for the person to follow your movements. This method also provides a source of support and security.
- Use high levels of evenly distributed, glare-free light.
- Ask the pharmacist to use large lettering when labeling medicine bottles.
- Use paper that has a nonglare finish and large print for forms and educational materials.
- Make distinct differences (e.g., size of containers or color coding with bright primary colors) for pills that are similar in size and color.
- Place all objects within the visual field and prevent clutter.

### Hearing

Hearing loss can have a profound psychological effect on aging people, causing depression, social withdrawal, and feelings of isolation. Hearing loss occurs gradually over a long period and may go undetected by the older person and healthcare providers. Lack of attention when addressed, inappropriate responses, asking to have statements repeated, and speaking too loudly or too softly often are signs of hearing loss. Changes in auditory ability begin around age 30; by age 65, 25% of have a hearing impairment, and the number increases to 65% of those over age 80. Age-related hearing loss usually is caused by a dysfunction or loss of cochlear cilia, resulting in an inability to hear high-frequency sounds and difficulty understanding speech. Hearing impairment is compounded by impacted cerumen, otitis media, otosclerosis, Ménière’s disease, long-term exposure to intense noise, and certain ototoxic drugs, such as aspirin.

Presbycusis (see Chapter 37) is associated with normal aging and causes a decreased ability to hear high frequencies and to discriminate sounds. Parts of a conversation may be missed because the sound of the word goes above the 2,000-cycle frequency. Often words that sound similar are difficult to differentiate. Consonants such as g, f, s, th, t, and z produce high-pitched sounds that are more difficult to hear and differentiate. Low-frequency pitched sounds, such as the vowels a, e, i, o, and u, may be more easily heard by people with presbycusis. Inability to hear different frequencies combined with low background noise from groups of people talking, noise from appliances, or busy public places compromises an older person’s ability to hear clearly. Hearing aids, which can be used to amplify speech, may increase background noises, resulting in sensory overload.

Another hearing disorder common among older people is tinnitus, a ringing or buzzing in the ear. It can be caused by impacted cerumen, an ear infection, use of antibiotics, a reaction to a medication, or a nerve disorder. Tinnitus can cause difficulty understanding conversational speech and can make sleeping difficult because of the continuous sensation of ringing in the ears.

Hearing loss, with its resultant isolation, is directly related to the development of depression in older adults. Treatable depression often is overlooked in elderly people because of coexisting physical illnesses that mask the symptoms of depression. The medical assistant may be able to contribute to information about depression in elderly patients through conversations with the individual and family members. The physician may use or may train the medical assistant to use the Geriatric Depression Scale short form, which includes questions for the patient about daily activities, interests, and feelings to help diagnose depression in the ambulatory setting (Figure 48-4).
**Geriatric Depression Scale (Short Form)**

Choose the best answer for how you have felt over the past week:

1. Are you basically satisfied with your life?  YES / NO
2. Have you dropped many of your activities and interests?  YES / NO
3. Do you feel that your life is empty?  YES / NO
4. Do you often get bored?  YES / NO
5. Are you in good spirits most of the time?  YES / NO
6. Are you afraid that something bad is going to happen to you?  YES / NO
7. Do you feel happy most of the time?  YES / NO
8. Do you often feel helpless?  YES / NO
9. Do you prefer to stay at home, rather than going out and doing new things?  YES / NO
10. Do you feel you have more problems with memory than most?  YES / NO
11. Do you think it is wonderful to be alive now?  YES / NO
12. Do you feel pretty worthless the way you are now?  YES / NO
13. Do you feel full of energy?  YES / NO
14. Do you feel that your situation is hopeless?  YES / NO
15. Do you think that most people are better off than you are?  YES / NO

Answers in **bold** indicate depression. Although differing sensitivities and specificities have been obtained across studies, for clinical purposes a score >5 points is suggestive of depression and should warrant a follow-up interview. Scores >10 are almost always depression.

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**Taste and Smell**

During the aging process, in the abilities to taste and smell decline subtly. Deterioration and atrophy of the taste buds are part of the aging process. The ability to taste salt and sweet flavors is reduced, whereas the ability to detect bitter and sour flavors remains relatively the same. As a result, food frequently tastes bland and unappetizing. Patients on salt-restricted diets and patients with diabetes must be cautioned about the use of excessive amounts of salt and sugar. A decrease in the sense of smell accompanies the decrease in taste. Not only does this affect the individual's enjoyment of food; it also exposes the person to environmental dangers, such as gas leaks, smoke, and other dangerous odors that may go undetected. Checking for gas leaks around stoves and heaters and using smoke alarms reduce some of the danger. Also, dating food when it is put in the refrigerator is a good idea.

**Nutritional Status.** Because of the many environmental, social, economic, and physical changes of aging, older people are at greater risk for poor nutrition, which can adversely affect their health and energy level. It is estimated that 25% of the aging population suffers from malnutrition. Nutrition screening should be part of routine primary care to identify nutritional deficiencies and correct them before a disease process develops or to assist in the treatment of chronic disease. Patients with chronic conditions, such as cardiovascular disease, hypertension, and diabetes, can benefit from nutrition assessments and interventions. Malnourished older patients get more infections; their injuries take longer to heal; surgery is riskier for them; and their hospital stays are longer and more expensive.

The most effective method of assessing a patient's nutritional status is through a comprehensive patient interview that considers all potential stumbling blocks to adequate nutrition. The medical assistant can help determine the nutritional status of older patients by considering the following factors when conducting patient interviews:

- **Oral health:** Does the patient wear dentures and if so, do they fit properly? Does the patient have mouth pain? Can he or she swallow without difficulty?
- **Gastrointestinal complaints:** Does the patient have anorexia, nausea, vomiting, diarrhea, or constipation? Is the patient lactose intolerant (the incidence increases with age)?
- **Sensorimotor changes:** Does the patient have loss of vision or hearing or changes in taste and smell? Can the patient feed herself or himself? Does the patient need adaptive utensils?
- **Diet influences:** Can the patient afford, shop for, and prepare food? Are ethnic or religious influences a factor? Does the patient have any disease-related diet restrictions? What is the patient's alcohol consumption?
- **Social and mental influences:** Is the patient depressed, lonely, or isolated? Are support systems available?

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**Critical Thinking Application 48-5**

Multiple sensory changes occur as people age. Dr. Kennedy asks Bill to develop a handout for patients and family members to help them understand these normal, age-related sensorimotor changes, as well as adaptations that can improve communication. What information should Bill include?

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**Urinary System**

As the body ages, structural changes in the kidneys cause the urinary system to become less efficient. Between the ages of 40 and 80, the kidney loses about 20% of its mass. The number of functional nephron units decreases. Blood flow to the kidneys is reduced because of a decrease in cardiovascular efficiency. Because of the reduction of blood flow to the kidneys and the decreased number of nephrons, the kidneys become less efficient at filtering waste from the blood. This results in a more diluted, less concentrated urine. The kidneys require more water to excrete the same amount of waste. Medication takes longer to be removed from the body. Older adults are at increased risk for toxic levels of
medication in the bloodstream because of this reduced filtration rate.

Fibrous connective tissue replaces the smooth muscle and elastic tissue in the bladder. This thickening of the bladder wall reduces the bladder's ability to expand. The bladder's capacity to store fluid comfortably is reduced from 400 to 250 mL. These structural changes lead to increased frequency of urination and urinary retention. Older adults are at increased risk of urinary tract infections because of residual urine. Sleep is interrupted by the need to void during the night. The sensation of bladder fullness is not recognized as quickly by the older brain. Reduced time between awareness of the need to void and involuntary urination can cause anxiety. Often older adults reduce their fluid intake to prevent possible embarrassment. Unfortunately, this causes dehydration and an increased risk of urinary tract infections. Another change is loss of muscle tone in the urethra. In addition, the pelvic floor muscles in an aging woman relax as a result of decreased estrogen levels or previous pregnancy and childbirth.

Despite these changes, the kidneys have great reserve capacity and are able to continue functioning normally. Urinary incontinence, the involuntary loss of urine, is a significant problem for aging patients but is not a normal part of the aging process. Changes in the urinary system make older people more vulnerable to incontinence, but factors such as infection, confusion, difficulty with mobility, and side effects of medications contribute to the development of the problem. Incontinence is both an emotional and a physical problem. To avoid the risk of an embarrassing accident, people with this problem may avoid social occasions or activities they enjoy. Often people are too embarrassed to admit they have this condition, or they believe it is just part of aging. Once the condition has been diagnosed by a urologist, pelvic floor muscle exercises, medication, or surgery may be recommended.

Reproductive System

Menopause is discussed in Chapter 41. Aging brings a decrease in circulating levels of the female hormones estrogen and progesterone, whereas androgen levels increase. The results of this decrease are changes in the genital tract. The vagina diminishes in width and length and becomes less elastic. The cervix, uterus, and ovaries decrease in size. Vaginal secretions decline; therefore lubrication diminishes, resulting in vaginal dryness. Bacterial or yeast infections may occur because vaginal secretions are less acidic. Estrogen cream applied to vaginal tissue may be prescribed by the physician for help with dryness and thinning of the vaginal tissue. The patient should discuss the benefits and risks of estrogen replacement therapy with the physician to determine whether it should be used.

Even though sperm production may decline in men over age 50, men remain virile well into old age. However, they experience a change in hormonal levels of testosterone, and these changes can affect the prostate gland (see Chapter 40). The prostate enlarges over time and presses down on the urethra, causing difficulty with urination. Surgery may be required to remove excess portions of the gland. Unfortunately, the operation may cause impotence, which can be treated medically with erectile dysfunction medications.

Men experience some changes in sexual functioning as they age. It takes longer for the penis to become erect, longer for an orgasm to occur, and longer to recover. Direct stimulation may be required before an erection occurs, and when it does, it may be less firm than in younger years.

Some drugs and illnesses can interfere with sexual function. Drugs used to control high blood pressure, antihistamines, antidepressants, and some stomach acid blockers, as well as the diseases diabetes, arthritis, and arteriosclerosis, can have an adverse effect on sexual function. Often people who have had heart surgery or a heart attack are concerned about sexual activity. Patients need to feel comfortable and should not be embarrassed to discuss their concerns openly with their physician. It is important for healthcare providers to dismiss the myth that older patients have lost the desire for and interest in sexual intercourse.

Sleep Disorders

 Complaints of sleeping difficulties increase with age. The amount of time spent sleeping may be slightly longer than in a younger person, but the quality of sleep declines. Older people often are light sleepers and have periods of wakefulness in bed. Rapid eye movement (REM) sleep is the stage of sleep when people experience dreaming. Non-REM sleep is the period of deepest sleep. The amount of time spent in the deepest stages of sleep decreases with age. Sleep that is disturbed or that leaves the person feeling tired is not part of the aging process and may indicate some underlying emotional or physical problem. Lack of sleep can result in restlessness, disorientation, "thick" speech, and mispronounced words. Often these symptoms are mistaken as signs of dementia. Other factors that might influence sleep patterns are medications, caffeine, alcohol, depression, and environmental or physical changes.

Common sleep problems in older adults include dysomnia, such as periodic limb movement disorder (PLMD), in which periodic jerking of the legs occurs during sleep, and sleep apnea, which is common among overweight individuals and can occur frequently during the night, interrupting sleep. Numerous medical conditions can interfere with sleep, including joint and bone pain; Parkinson's disease (because of difficulty changing positions); CHF; chronic obstructive pulmonary disease; diabetes mellitus, which increases nocturia; depression; and certain medications (e.g., beta blockers can cause nightmares, antidepressants increase PLMD, and barbiturates may result in nightmares or hallucinations).

It is important to be aware of the effect of sleep problems because often these can be confused with dementia. Patients who are experiencing difficulty with sleeping should be encouraged to document their sleeping patterns, napping patterns, medications, diet, exercise routines, and any events that have resulted in a change of lifestyle. They should discuss this problem with their physician. Simple modification of behavioral patterns may resolve the problem. Taking fewer naps, completing exercise several hours before bedtime, changing eating times, reducing the amount of alcohol and caffeine ingested, drinking a glass of milk before bedtime, or changing medications or the time they are taken all are suggestions that might alter the factors responsible for sleep disturbances.
If behavioral approaches are not effective, medications may be considered for short-term use only, because they have a high incidence of physical and psychological dependence. Elderly people are especially susceptible to side effects from these drugs, such as next-day drowsiness and temporary memory loss. Sedatives or hypnotics that may be prescribed include zolpidem (Ambien), eszopiclone (Lunesta), zaleplon (Sonata), and temazepam (Restoril).

Living Arrangements

At any given time, only 5% of the elderly population lives in long-term care facilities. According to information published by the National Institute on Aging, most older people live close to their children and are in frequent contact with them. People prefer to age in place; that is, they want to live in their own home environment as long as possible. Individuals are admitted to nursing homes because they are no longer able to perform activities of daily living, such as bathing, dressing, eating, walking, and maintaining bladder and bowel continence. They also have difficulty with grocery shopping, housekeeping, and money management. Chronic health conditions and accidents interfere with the older person’s ability to perform these tasks.

Many resources are available to help seniors to maintain their independence. Outreach programs, such as Meals on Wheels, deliver nutritious meals to the homes of older adults. Senior centers serve as a focal point for many activities and as a source of information. Transportation services provide rides to doctors’ appointments, day care centers, shopping centers, and community events. Home health agencies provide several types of services, including personal care, shopping, transportation, and meal preparation. Some home health agencies provide a range of activities, from patient education to IV therapy; medical-social services; physical, speech, and occupational therapies; and nutrition and dietary counseling. Advanced technology allows people to receive services at home that formerly were provided only at a hospital or a physician’s office.

Adult day care centers provide socialization, recreation, meals, and, in some centers, physical therapy, occupational therapy, and transportation. These centers provide supervision for older adults who may be taken care of by family members in the evening but need care during the day. They also serve as respite for a caregiver.

Assisted-living facilities can be retirement homes or board and care homes. These facilities are appropriate for older adults who need assistance with some activities of daily living, such as bathing, dressing, and walking. Skilled nursing facilities provide 24-hour medical care and supervision. In addition to medical care, residents receive care that may include physical, occupational, and speech therapies. The objective of treatment is to improve or maintain the person’s abilities.

The Medical Assistant’s Role in Caring for the Older Patient

Elderly patients in the ambulatory care setting present a specific set of needs that require a certain amount of accommodation by the staff. For example, aging patients typically require more time to perform tasks and have questions answered. The office staff may want to hurry them so that the day’s schedule can be maintained. In the best interests of the patient, however, he or she should be treated with respect and given whatever time is needed to prepare for examinations, ask questions and receive answers, and have procedures explained. A system that is sensitive to the needs of older patients schedules longer periods for appointments; has adequate lighting in the waiting room; provides forms in large print; has an examination room equipped with furniture, magazines, and treatment folders especially designed for older adults; and invites a professional in the management of older patients for in-service training.

The primary issue in elder care is effective communication. How you communicate with people is often influenced by what you know or do not know about them. Older people are subject to many changes that affect how they are able to interact with their environment. It is important to recognize these changes and to investigate one’s personal perception of older people to break down the barriers that prohibit effective communication.

As people age, they frequently experience a loss of control over their lives because of physical disabilities, economic constraints, and institutional living. Part of our job is to help aging people maintain their dignity and independence while in the ambulatory care setting. Remember, each patient, regardless of his or her education, socioeconomic status, or age, deserves to be treated with compassion and respect. Ask the patient directly what is wrong rather than discussing the patient with family members. It also is important to listen carefully and to be specific and sincere when responding. When a patient is talking, take time to allow him or her to complete the sentence; do not finish it for the person. Give the patient your full attention rather than continuing with other tasks while he or she is speaking. Older people may take a little longer to process information, but they are capable of understanding. Do not hurry through explanations or questions; rather, take time to review a form or give instructions as needed.

Suggestions for Effective Communication with Aging Patients

- Address the patient by Mr., Mrs., or Miss unless the patient has given you permission to use his or her first name.
- Introduce yourself and explain the purpose of a procedure before performing the procedure.
- Face the aging person and softly touch the individual to get his or her attention before beginning to speak.
- Use expanded speech, gestures, demonstrations, or written instructions in block print.
- If the message must be repeated, paraphrase or find other words to say the same thing.
- Observe the patient’s nonverbal behavior for cues indicating whether he or she understands.
- Provide adequate lighting without glare.
- Allow patients time to process information and take care of themselves unless they ask for assistance.
• Conduct communication in a quiet room without distractions.
• Involve family members as needed for continuity of care.
• When leaving a telephone message, remember to speak slowly and clearly and repeat the message in the same manner. It is difficult to interpret a message, and even more difficult to write it down, if the message was delivered in a hurried manner.
• Use referrals and community resources for support, such as the following:
  • Alzheimer’s Association (1-800-272-3900)
  • American Council of the Blind (1-800-424-8666) — provides referrals to state and other organizations that provide services and equipment for the blind
  • American Speech-Language-Hearing Association (1-800-638-8255) — offers information on hearing aids, hearing loss, and communication problems in older people and provides a list of certified audiologist and speech pathologists.
  • Arthritis Foundation Information Line (1-800-283-7800) — makes referrals to local chapters and provides information
  • Eldercare Locator (1-800-677-1116) — run by the National Association of Area Agencies on Aging; help line provides information on contacting local chapters that oversee services to older adults
  • National Institute on Aging Information Center (1-800-222-2225) — provides information on geriatric health issues
  • National Meals-on-Wheels Foundation (1-800-999-6262)
  • Hospice Helpline (1-800-658-8989) — provides information about hospice care and makes referrals to local hospices

CRITICAL THINKING APPLICATION 48-6

New staff members in the practice are complaining of having to repeat information to older patients, who they say do not pay attention when procedures are explained. Dr. Kennedy has decided to invite a gerontologist from the local university to present an in-service workshop on healthy aging. She asks Bill to coordinate the in-service workshop and prepare materials requested by the guest speaker. What information about caring for the ambulatory aging patient should be included in the workshop?

CLOSING COMMENTS

Patient Education

The medical assistant must keep the sensorimotor changes that accompany aging and respectful patient communication in mind when conducting patient education with older patients. Remember, the aging process does not affect a person’s ability to learn; it just may take longer to process the information, and the material may need to be repeated for understanding. Slowing sensitivity to the needs of aging learners ensures successful patient education and improves compliance with prescribed treatment plans. The current aging population generally is respectful toward authority; therefore, if the medical assistant cannot gain the patient’s cooperation, the physician may be able to provide authoritative reinforcement of material. General guidelines for effective patient education with older adults include the following:

• The patient may have short-term memory loss, so you may need to repeat the information using different words.
• The patient may be distracted more easily, so learning in a group may be difficult.
• The patient may take longer to process information, so teach at a pace that matches the patient’s needs.
• Provide the patient with handouts that have large print and block letters for reviewing information at home.
• Involve family members as needed for continuity of care.

Legal and Ethical Issues

All patients have the right to know about the medications, treatments, and alternatives available to them. The Patients’ Bill of Rights (see Chapter 7) informs the patient of those rights in a healthcare setting. They include the right to privacy about personal and medical information and the right to informed consent, which holds the physician accountable for explaining clearly the advantages and risks of any procedures, tests, or treatments. The patient must give permission for medical care and has the right to refuse treatment. The patient has the right to be informed about his or her condition and treatment and the chances of recovery. The patient also has the right to have advance directives explained to him or her.

Consent must be given by the individual undergoing the procedure as long as he or she is judged to be competent; that is, as long as the patient is able to understand the consequences of the procedure. In an emergency situation or if a court has ruled that the patient is incompetent, someone else must give consent. This may be a person who already was designated to hold the durable power of attorney, a close family member (spouse, adult child, parent, sibling), or a court-appointed guardian.

Most states have legal documents available that provide written instructions specifying the type of medical care a person wants in the event he or she becomes incapacitated; these are called advance directives. The document designates a person who has a durable power of attorney; this is an authorization for making medical decisions on an individual's behalf if he or she is unable to make treatment decisions. The document provides a list of specific instructions for the proxy to follow.

Various issues may be covered in these documents. A “do not resuscitate” (DNR) order allows a patient to refuse attempts to restore a heartbeat. The patient also may decide to withdraw life-sustaining treatment, such as respirators or feeding tubes. A copy of the directive should be kept on file as part of the patient’s medical record. It is important to check the laws of the state in which you practice with regard to advance directives, because they vary from state to state (Figure 48-5).

Another legal issue in the care of aging patients is the possibility of elder abuse. Mistreatment of aging people occurs at all social, racial, and economic levels. The abuse may be physical, mental, sexual, material, or financial; it may involve neglect or failure to provide adequate care, or it may involve self-neglect when aging people are unable or refuse to care for themselves.
Abuse of elders by their caregivers may be difficult to identify. The aging victim feels embarrassed, guilty, or afraid to report the abuse. Indications that a patient may be a victim of elder abuse are:

- Poor general appearance and poor hygiene
- Pattern of changing doctors and frequent emergency department visits
- Skin lesions, signs of dehydration, bruises (signs of new and old bruising together), abrasions, welts, burns, or pressure sores

- Recurrent injuries caused by accidents
- Signs of malnutrition and weight loss without related illness
- Any injury that does not fit the given history

If abuse is suspected, interviewing the caregiver and questioning the demands of care and self-reported perceptions of stress levels may help the physician detect the problem. Many states now have laws requiring reporting of suspected elder abuse. Check your state laws to determine the requirements for healthcare workers.
SUMMARY OF SCENARIO

Through his work with Dr. Kennedy, Bill has learned to understand the special needs of aging patients. He used to think that most older people were chronically sick and would ultimately end up in long-term care facilities. Now he understands that most aging people lead healthy, active lives and that the disorders that occur in later life usually are the result of lifestyle factors, such as diet and lack of exercise. Bill also has learned how to communicate effectively with older patients and to conduct patient interviews so as to evaluate the patient’s physical, mental, emotional, and nutritional health.

SUMMARY OF LEARNING OBJECTIVES

1. Define, spell, and pronounce the terms listed in the vocabulary.
   Spelling and pronouncing medical terms correctly bolster the medical assistant’s credibility. Knowing the definitions of these terms promotes confidence in communication with patients and co-workers.

2. Apply critical thinking skills in performing the patient assessment and patient care.
   Completing the Critical Thinking Application exercises throughout the chapter can help the student medical assistant become more adept at critical analysis of real-life situations.

3. Discuss the impact of an increasing aging population on society.
   Almost 37.3 million Americans are over age 65. The most rapidly growing age group is the “oldest old,” those older than 85. By the middle of the twenty-first century, more than 71 million people will be older than 65. Most older people have at least one chronic medical condition, and many have multiple conditions. The aging population will affect all aspects of society.

4. Role-play the effect of the sensorimotor changes of aging.
   Procedure 48-1 outlines the steps in role-playing the sensorimotor changes that accompany aging.

5. Explain the changes caused by aging in each of the body systems.
   Table 48-1 summarizes changes associated with aging that occur across all body systems. Normal age-related changes are expected, and the individual can compensate for them. However, these changes intensify with poor health habits and chronic disease. Age-related changes can be managed through regular exercise; a healthy diet; prevention of sun damage; and annual physical examinations with health screening.

6. Summarize the major diseases and disorders faced by older patients.
   Major health issues of older people are related to an increase in atherosclerosis and potential cardiovascular disease; hypertension; diabetes mellitus type 2; integumentary system changes; arthritis; osteoporosis; an increased risk of injury from falls; dementia attributable to metabolic or cardiovascular disease or AD; pneumonia, aspiration, and reactivation of tuberculosis; cataracts, glaucoma, and macular degeneration; depression; malnutrition; urinary tract abnormalities; menopausal changes; and sleep disorders.

7. Describe various screening tools for dementia, depression, and malnutrition.
   A commonly used screening tool for dementia is the Folstein Mini-Mental Status Examination, a 5-minute screening test that is designed to evaluate basic mental function. The physician may use the Geriatric Depression Scale short form, which questions the patient about daily activities, interests, and feelings. Nutritional status can be assessed through a comprehensive patient interview that considers all potential problems preventing adequate nutrition.

8. Explain the effect of aging on sleep.
   Complaints of sleeping difficulties increase with age. The amount of time spent in the deepest stages of sleep declines with age. Factors that might influence sleep patterns are medications, caffeine, alcohol, depression, and environmental or physical changes. Common sleep problems in older adults include PLMD and sleep apnea.

9. Differentiate among independent, assisted, and skilled nursing facilities.
   Aging people prefer to remain in their home environment for as long as possible. Adult day care centers can provide supervision for older adults who may be taken care of by family members in the evening but need care during the day. Assisted-living facilities are appropriate for older adults who need assistance with some activities of daily living. Skilled nursing facilities provide 24-hour medical care and supervision.

10. Summarize the role of the medical assistant in caring for aging patients.
    The medical assistant’s role in caring for the older patient is to develop effective communication skills that accommodate age-related sensorimotor changes; to allow time for longer appointments; to provide adequate lighting and forms in large print; and to develop appropriate in-service training as requested by the physician. Examination rooms should have furniture and treatment folders especially designed for the elderly patient. Referrals and community resources should be used for patient and family support.

11. Determine the principles of effective communication with older adults.
    Effective communication with aging patients includes addressing the patient with an appropriate title; introducing yourself and explaining the purpose of a procedure before touching the patient; establishing eye contact and getting the patient’s attention before beginning to speak; using expanded speech, gestures, demonstrations, or written instructions in block print; repeating the message as needed for understanding; observing the patient’s nonverbal behaviors for cues that indicate whether he or she understands; allowing time to process information; preventing distractions; and involving family members as needed.

12. Identify legal and ethical issues associated with aging patients.
    Legal and ethical issues associated with aging patients include adequate informed consent, the use of advance directives, and staying alert for signs of possible elder abuse.
CONNECTIONS

**Study Guide Connection:** Go to the Chapter 48 Study Guide. Read and complete the activities.

**Evolve Connection:** Go to the Chapter 48 link at evolve.elsevier.com/kinn to complete the Chapter Review and Chapter Quiz. Peruse other resources listed for this chapter to increase your knowledge of Assisting in Geriatrics.