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Contact Hours: **10**

Elder Care

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LEARNING OUTCOME AND OBJECTIVES: Upon completion of this continuing education course, you will have increased your knowledge of the unique issues related to caring for older adult patients. Specific learning objectives to address potential knowledge gaps include:

- Summarize the models and goals of care for the older adult.
- Discuss the major age-related physiologic changes impacting older adults and related assessment and management recommendations.
- Describe cognitive and psychosocial changes impacting the health of older individuals and related management recommendations.
- Identify assessment tools and strategies to address functional limitations of the older adult.
- Explain the risks, safety, and management of medications for older adults.
- Relate strategies for supporting family caregivers of elders.
- Discuss legal and ethical considerations in the care of the older adult.
- Review the assessment and management of elder abuse victims.
- Clarify the principles that guide end-of-life care.

INTRODUCTION

In the years following World War II from 1946 to 1964 there was an increase in the number of babies born in both the United States and Europe, and they became known as the “baby boom generation.” During that timeframe, an estimated 78.3 million Americans were born. Currently, most baby boomers are older adults over age 65.

- The U.S. Census Bureau reports that from 1920 to 2020 the population ages 65 or older increased from 4.9 million to 55.8 million—a growth rate of nearly 1,000%.
- By 2022, about 1 in 6 people were age 65 or older.
- By 2030, 1 in 5 Americans will be 65 years or older, and by 2034, older adults will outnumber children for the first time in U.S. history.
- By 2060, the population 85 years and older is expected to grow an additional 200%. (Caplan, 2023; U.S. Census Bureau, 2020)

Longevity is influenced by genetics, environment, and lifestyle. Environmental improvements beginning in the 1900s extended the average lifespan dramatically, with significant improvements in the availability of food and clean water, better housing and living conditions, reduced exposure to infectious diseases, and access to medical care. Most significant were public health advances that reduced premature death by decreasing the risk of infant mortality, increasing the chances of surviving childhood, and avoiding infectious and communicable disease (NIH, 2022a; O'Neill, 2022).

Many healthcare facilities are concerned about the stress this aging population will place on healthcare systems nationwide. Because many members of the older generation require chronic or acute disease care at a higher rate than other major demographics, this is resulting in an increasing demand for qualified, knowledgeable healthcare professionals who possess specialized knowledge and skills in the management of older adults' unique physical, psychological, and social needs. Continuing education of the healthcare community is an essential step toward ensuring the best quality of care is available for this vulnerable population (Avant Healthcare Professionals, 2023).

Demographics of Aging

Generally, the older adult population is defined as 65 years or older and grouped under the category of "old," which may be further categorized as:

- Young-old: 65 to 74 years
- Old: 75 to 84 years
- Oldest old: 85+ years
- Centenarian: 100+ years

In 2023 the CDC reported that the **average life expectancy** for both sexes and all races and ethnic origins was 76.4 years (73.5 for males and 79.3 for females) (CDC, 2023a). In 2020, non-Hispanic Asians had the highest life expectancy (83.6), followed by Hispanics (77.9), non-Hispanic Whites (77.4), non-Hispanic Blacks (71.5), and non-Hispanic American Indian/Alaskan Natives (67.1). Among all ages, races, and ethnicities, non-Hispanic Asian females had the highest life expectancy (85.9).

As of 2023, there were 89,730 centenarians in the United States, double the number of 20 years ago. Of these, 85% are women and 15% are men. Among supercentenarians (110+ years), 90% are females (BUMC, 2023).

Of note is the fact that there has been a recent drop in life expectancy attributed to negative societal trends, such as Western-style diet, sedentary lifestyles, high medical costs, increasing rates of suicide and drug use, and the COVID pandemic (O'Neill, 2022; CDC, 2022a).

The CDC reported in 2020 that 22% of noninstitutionalized persons ages 65 or older were in fair or poor health, and 7% of persons needed help with personal care from others. Persons ages 65 or over comprised 83.2% of nursing home residents and 94.2% of those living in residential care communities.

Leading causes of death among this population in 2021 were:

- Heart disease
- Cancer
- COVID-19
(CDC, 2023b)

The Aging Process

Each person ages at a unique rate. Some systems begin to show signs of aging as early as age 30, and other aging processes are not common until much later in life. Changes occur at different rates and to different extents in each person.

All cells of the body experience change with aging, becoming less able to divide and multiply. There is an increase in pigments and fatty substances inside the cells, and many lose their ability to function or begin to function abnormally. As aging continues, waste products build up, and lipofuscin (a fatty brown pigment, sometimes called the *aging pigment*) collects in many tissues, as do other fatty substances. Connective tissues become stiffer. Cell membranes change, making it more difficult to take in oxygen and nutrients and to remove wastes. Many tissues atrophy, and aging organs slowly lose function (NIH, 2023a).

Aging involves changes in physiology. Some changes result in declines in function of the senses and activities of daily life, and in increases in susceptibility to and frequency of disease or disability. In fact, aging is a major risk factor for a number of chronic diseases, and many diseases appear to accelerate the aging process, manifesting in declines in function and quality of life (NIA, n.d.).

Along with physiologic changes, behavioral and psychological factors—such as physical activity, smoking, cognitive and social engagement, personality, and psychosocial stress—play a major role in health across the lifespan. Along with those changes, increasing age brings changes in cognition and emotions, which can impact subjective well-being, social relationships, decision-making, and self-control (NIA, n.d.).

Aging and Chronic Disease

Nearly 95% of adults ages 60 or older have at least one chronic condition, while nearly 80% have two or more. These conditions have a significant impact on independence and quality of life and are the leading causes of death among this population. The 10 **most common chronic conditions** for adults 65 or older include:

- Hypertension (60%)
- High cholesterol (51%)
- Obesity (42%)
- Ischemic-coronary heart disease (20%)
- Diabetes (27%)
- Chronic kidney disease (25%)
- Heart failure (15%)
- Depression (16%)
- Alzheimer's disease and dementia (12%)
- Chronic obstructive pulmonary diseases (COPD), including emphysema and chronic bronchitis (11%)
  (NCOA, 2023a)

Adults with chronic diseases have a greater prevalence of self-reported cognitive decline, and prevalence increases with age. Adults with a history of stroke have the highest prevalence, followed by COPD and heart disease. Chronic conditions often require close medical management and self-care activities such as taking medications as prescribed. However, managing a chronic condition can be increasingly difficult with the presence of memory loss or confusion (Taylor et al., 2020).

GERIATRIC SYNDROMES

Geriatric syndromes are common health conditions in older adults that affect functionality and quality of life but do not fit into specific disease categories. Some of the most common geriatric syndromes include:

- Falls
- Urinary incontinence or overactive bladder
- Sleep problems
- Cognitive function problems such a delirium and dementia
- Osteoporosis

- Pressure ulcers
- Visual impairment
- Hearing impairment
- Frailty
- Dizziness
- Syncope
- Poor nutrition
- Eating problems
- Gait or balance impairment

(Nathan, 2023)

CHRONIC DISEASE AND POLYPHARMACY

Older patients with multiple comorbidities often require management with more than one medication, which increases the risk of polypharmacy. Polypharmacy has no universal definition; however, it is commonly used to refer to five or more medications being taken each day or taking medications for five or more health conditions. This definition requires awareness that a single pill could contain more than one medication and that more than one medication can be used to treat a single condition.

Patients with polypharmacy have a higher frequency of problems with:

- Mobility/falls with injury
- Self-care
- Involvement in usual activities
- Pain/discomfort
- Anxiety/depression
- Drug interactions/toxicity
- Delirium
- Nonadherence

Studies have found that the rate of falls is 21% higher in people taking four or more medications, and the risk of mortality increases progressively as the number of medications rise from one to four.

Polypharmacy may result in a "prescribing cascade" that occurs when medications are added to treat or prevent side effects of other medications.

Contributors to polypharmacy can include:

- Having multiple prescribers
- Using multiple pharmacies
- Having accessibility to drugs online, in stores, and in herbal shops (VanWilder et al., 2020; Hoel et al., 2021)

CHRONIC ILLNESS AND FUNCTIONAL CAPACITY

Functional decline is an indicator of the negative impact that geriatric syndromes and acute to chronic medical conditions may have on the individual. Common problems leading to functional decline may include medication side effects and difficulties with seeing, hearing, remembering, moving, or performing daily or social activities. Other factors can include social isolation or home environment.

Functional status is determined by an individual's ability to perform basic and instrumental activities of daily living (ADLs and IADLs). Physical decline and cognitive or mental decline can lead to impaired ADLs related to personal care, such as bathing, toileting, walking, and eating. IADLs allow a person to live independently in a community, and they include the ability to use a telephone, perform housework, do the laundry, shop, prepare meals, manage finances, take medications, and arrange for appropriate transportation. More advanced IADLs include taking part in hobbies and leisure activities (Edemekong et al., 2023; Factor, 2023).

Aging and Long-Term Care

Loss of the ability to care for oneself safely and appropriately means further loss of independence and can often lead to the need for care by family and informal caregivers (i.e., unpaid individuals) or formal caregivers (i.e., paid care providers associated with a service system). Long-term care includes a wide range of services and supports available to meet personal care needs. As reported by the CDC, these services and the percentage of individuals ages 65 or older utilizing them include:

- Adult day services centers (63.3%)
- Home health agencies (82.7%)
- Hospice care agencies (94.8%)
- Nursing homes (83.1%)
- Inpatient rehabilitation facilities (87.9%)

- Long-term care hospitals (74.3%)

  (CDC, 2023b)

The costs of long-term care can be very expensive, and many individuals may be financially unprepared for this type of expense (see box below).

AVERAGE U.S. LONG-TERM CARE COSTS PER YEAR (2022)

- Long-term nursing home facility: $35,000–$108,000
- Community assisted living: $54,000
- In-home health aide: $61,776
- Adult day care: $34,675

(Simmons, 2023)

Ageism and Healthcare

Ageism arises when age is used to categorize and divide people in ways that lead to harm, disadvantage, and injustice. It can take many forms, including prejudicial attitudes, discriminatory acts, and institutional policies and practices that perpetuate stereotypes.

Ageism is ingrained in our culture. It remains socially acceptable and is a stubborn prejudice. Ageism messages indicate that being old is something to avoid, and people of all ages show bias against older adults.

In medical settings, stereotypes associated with aging may influence treatment decisions. In the mental health field, age bias and stereotypes can influence attitudes and practices. Many in the mental health field, for example, exhibit a preference against working with older patients, assuming less favorable outcomes for older patients and believing that depression is a natural consequence of older adults (Weir, 2023; WHO, 2021).

Dwelling on negative aspects of aging can have a measurable negative impact on physical health and the ability to respond to stress. Negative self-perceptions of aging are associated with a higher prevalence for chronic health conditions, including hypertension, heart disease, lung disease, diabetes, musculoskeletal disorders and injuries, and loss of cognitive function. Putting a positive "spin" on the aging process can have a real impact on physical and mental well-being (Rosbach, 2022).

Despite the growing need for more providers with geriatrics expertise, many medical and nursing students come to view the care of older adults as frustrating, uninteresting, and less rewarding overall. Attitudes are further shaped by the persistent misconceptions that older patients are demented, frail, and somehow beyond saving.

Other factors that increase the risk for under- and overtreatment include the decline in the number of providers with advanced geriatrics training. Secondly, more practitioners are opting out of participation in the Medicare system. Thirdly, older adults are frequently excluded from clinical trials of medications that are meant to help them, resulting in data that is problematic when caring for those with multiple chronic illnesses (Gutterman, 2023).

GOALS AND MODELS OF CARE FOR THE OLDER ADULT

The U.S. population is aging rapidly, and this growth—along with a slow adaptive policy framework to match situational demands—is creating an urgent need to reengineer and improve the quality, safety, and cost-effectiveness of health systems to meet the needs of older adults. The nation's decision makers are confronting an enormous range of specific challenges in caring for the aging.

- Policies affecting older adults with multiple serious chronic conditions:
    - Costs of care
    - Differential impact of healthcare costs and access by race, ethnicity, gender, and socioeconomic status
    - Improvements in the healthcare system models of care coordination, integrated mental health, and preventive health
- Policies affecting the economic and physical security of vulnerable and disadvantaged older adults:
    - Access to low-income benefits (i.e., Medicare, Medicaid, food stamps, etc.)
    - Pensions and retirement income
    - Employment and work transitions
    - Consumer protections (i.e., predatory lending, telemarketing fraud, etc.)
    - Financial literacy
    - Nutrition education
    - Environmental and transportation issues affecting older adults
- Policies that promote civic engagement (i.e., volunteerism and community engagement) by older adults and caregivers to improve the healthcare system and the well-being of all older adults
(HAPF, 2023)

Models of Care

There is a need to shift from episodic acute illness care to a population health approach in the fields of geriatric and palliative care. Such an approach is an example of a *model of care*, which defines the way health services are delivered and outlines best-practice care and services to

improve access to and quality of healthcare, improve the patient's quality of life, and moderate healthcare costs. Such models must integrate physical and mental health, long-term services and supports, social services, and home- and community-based services. Examples of models of care are described below.

- **Acute Care for Elders (ACE)** is a quality-improvement model designed to prevent loss of independence from hospital admission to discharge. ACE units have been shown to reduce cost, length of stay, readmission rates, delirium, and polypharmacy.
- **AGS CoCare—HELP** is designed to prevent delirium and reduce cognitive decline, functional impairment, and the rate of in-hospital falls.
- **Better Outcomes for Older Adults Through Safe Transitions (BOOST)** optimizes the hospital discharge process, improves communication among healthcare providers, and has been shown to lower 30-day readmissions.
- **Bridge Model** involves a social worker and is a relationship-based, patient-centered approach to intervening with patients during discharge from acute hospital care. It has been shown to decrease readmission rates.
- **Collaborative Care** focuses on delivering mental health care in an integrated format, with primary care providers who lead a team and collaborate with behavioral healthcare managers and psychiatrists. It has been shown to improve mental health outcomes.
- **Geriatric Resources for Assessment and Care of Elders (GRACE)** involves a care team that includes an advanced practice nurse and master's-level social worker and the goal of improving functional status, decreasing ER visits not resulting in hospitalization, and decreasing overall cost of care in community-dwelling older adults.
- **Comprehensive Geriatric Assessment with and without Geriatric Evaluation and Management** places an emphasis on geriatric syndromes. The care team is typically composed of a physician, social worker, dietitian, nurse, physical therapist, occupational therapist, pharmacist, and mental health professional.
- **Home-Based Primary Care (HBPC)** targets homebound older adults with multiple chronic diseases in an ambulatory setting, with the goal of helping at-risk patients stay in their homes and live independently, thereby avoiding emergency room visits and hospital admissions.
- **Program for All-inclusive Care of the Elderly (PACE)** aims to keep nursing home–eligible patients living in the community as long as possible.
(McNabney, 2022)

Geriatric Nursing Models of Care

Geriatric nursing models of care emphasize maximizing the role of nurses and advanced practice nurses in the provision of care to older adults. There are different types of nursing models of care, depending on the setting, population, and goals of care.

- **Nurses Improving Care for Health System Elders (NICHE)** is a nurse-led program designed to improve the quality of care for older adults. Components include:
    - Geriatric resource nurse (GRN) to advance clinical specialization in geriatrics, unit leadership, and evidence-based practice, serving as a peer mentor, coach, and agent of change working to create an environment that promotes optimal care of older adults
    - Nurse-initiated protocols to manage geriatric syndromes, iatrogenic events, and harmful sequelae of hospitalization
    - A physical environment and culture of care that honors older adults' self-determination and promotes quality, safety, and function
    - Nurse-led care transitions that emphasize interprofessional care planning, preparation for patients and family caregivers, and complex symptom management

  (AAN, 2021)

- **Care Transitions Intervention (CTI)** targets older community-dwelling patients who are admitted to the hospital with complex care needs. An advanced practice nurse:
    - Collaborates with the patient, caregiver(s), physician, and other healthcare team members
    - Coaches patients regarding medication self-management
    - Addresses timely follow-up with specialists and primary physicians
    - Provides knowledge regarding red flags

  (McNabney, 2022)

Developing Healthcare Goals for the Individual

Healthcare goals relate to the values and activities that matter most to individuals and that help motivate them to sustain and improve health. There is often a gap between what care team members know about what matters to their patients and what care these patients receive.

Collaborating with patients about goals and preferences informs decision-making. Combining health conditions, function, and health trajectory with these goals and references should focus care for older adults with multiple chronic conditions. Because there are various combinations of conditions and impairments as well as social factors that affect goal achievement, aligning care with patients' priorities requires input from many healthcare professionals as well as the community and other service providers. The variability in goals and preferences supports patients' priorities as the targets for which to aim (Tinetti et al., 2021).

WHAT OLDER ADULTS WANT FROM HEALTHCARE PROVIDERS

Older adults express the following concerns and wants from their healthcare provider(s):

- To be addressed face-to-face
- To be spoken to as an adult and to be addressed as they prefer to be addressed
- To be comfortable and to be assisted with mobility as necessary
- To be spoken to slowly to allow time to process
- To not be interrupted
- To avoid healthcare provider impatience and bias
- To have vision and hearing deficits considered during interactions
- To be spoken to using simple, common language and without medical jargon
- To collaborate in goal setting
- To be asked if clarification is needed
- To be evaluated regarding their understanding of health issues and what steps are to be taken
- To be given clear and specific written notes or printed handouts about their medical conditions
- To have cultural differences considered
- To be provided with professional translation services and written material in different languages when needed
(NIA, 2023a)

Healthcare Reform Initiatives

Healthcare initiatives are planning documents establishing strategic priorities for tackling the nation's most pressing health problems. Initiatives that address issues of concern to older adults include:

- Restructuring healthcare delivery systems (e.g., the medical home concept)
- Regulating nursing homes and long-term care facilities
- Improving quality through financial incentives
- Reauthorizing the Older Americans Act
- Providing strategies for chronic care coordination
- Offering mental health and preventive healthcare
- Providing Medicare benefits
- Engaging consumers in healthcare quality
- Funding for health professionals training
- Setting priorities for biomedical and behavioral research in aging

- Providing care for aging U.S. veterans
- Using strategies for individuals dually eligible for Medicare and Medicaid
- Addressing disparities among various populations
  (HAPF, 2023)

NATIONAL PLAN TO ADDRESS ALZHEIMER'S DISEASE

This plan establishes six goals to prevent future cases of Alzheimer's disease and related dementias:

- Prevent and effectively treat Alzheimer's disease and related dementias (AD/ADRD) by 2025
- Optimize care quality and efficiency
- Expand supports for people with AD/ADRD and their families
- Enhance public awareness and engagement
- Improve data to track progress
- Accelerate action to promote healthy aging and reduce risk factors for AD/ADRD
  (CDC, 2023b)

HEALTHY AGING IN ACTION (HAIA)

HAIA is an initiative that focuses on promoting health; preventing injury; managing chronic conditions; optimizing physical, cognitive, and mental health; and facilitating social engagement. The initiative's aim is to increase the length of people's lives and ensure their lives are healthy and productive. HAIA is an effort to call attention to existing policies and programs that reflect the National Prevention Strategy's approach of targeting prevention and wellness efforts to promote healthy aging and to offer recommendations that can further the strategy for an aging society (CDC, 2023b).

AGE-FRIENDLY HEALTH SYSTEMS

The Age-Friendly Health Systems initiative recognizes that older adults in the United States deserve safe, effective, and patient-centered care that aims to follow an essential set of evidence-based practices, cause no harm, and align with what matters to the older adult and their family caregivers. Age-Friendly Health Systems include a framework referred to as *4 Ms*:

- **Matters**: Know what matters to the older adult concerning specific outcome goals and care preferences, and align care with them across settings of care, including end-of-life issues.

- **Medications**: If medications are necessary, prescribe age-friendly ones that do not interfere with what matters to the older adult, their mentation, or mobility across settings of care.
- **Mentation**: Prevent, identify, treat, and manage delirium across settings of care.
- **Mobility**: Ensure that each older adult moves safely and on a daily basis to maintain function and what matters to them.
  (IHI, 2023)

OLDER AMERICANS ACT (OAA) OF 2020

The reauthorization of the Older Americans Act of 1965 currently supports a significant range of improvements across the country, including:

- Aging and disability resource centers
- Information and referral
- Assistive technology
- Vaccinations
- Screening for malnutrition
- Addressing chronic pain management
- Congregate and home-delivered meals
- Health and wellness programs
- Addressing negative health effects associated with social isolation
- In-home care
- Transportation
  (Philips, 2020)

PHYSICAL CHANGES OF AGING

Physiologic aging may be the most significant factor challenging quality of life. It is not known exactly how and why people change as they get older, and there are many theories about it. Most gerontologists believe that aging is due to the interaction of many lifelong influences, including heredity, environment, culture, diet, exercise, leisure, and past illnesses, to name a few.

Some changes always occur with aging, but they occur at different rates and to different extents. There is no way to predict exactly how any given individual will age.

Musculoskeletal Changes

The musculoskeletal system is comprised of bone, muscle, joints, tendons, ligaments, and cartilage.

During aging, **bones** lose calcium and other minerals, and bone mass or density decline occurs, especially in women who are postmenopausal. The middle of the body (trunk) becomes shorter as the vertebral disks gradually lose fluid and become thinner. Vertebrae also lose some of their mineral content, resulting in thinning of each bone, and bone spurs may form. The spinal column becomes curved and compressed, posture may become stooped, and postural hyperkyphosis may occur, creating what is referred to as a "dowager's hump." The foot arches become less pronounced, contributing to a slight loss of height. Long bones of arms and legs also lose minerals but do not change in length, making them look longer when compared to the shortened trunks.

Joints become stiffer and less flexible, and fluid may decrease. **Cartilage** may start to rub together and wear away. Calcifications may occur, commonly around the shoulder. Hip and knee joints also begin to lose cartilage, as well as the finger joints, which may also develop bony osteophytes.

Muscle changes often begin in the 20s in males and the 40s in females. Muscle tissue is replaced more slowly and may be replaced with tough, fibrous tissue, most noticeable in the hands, making them look thin and bony. Muscles lose tone and are less able to contract as a result of muscle tissue and normal aging changes in the nervous system. Muscles may become rigid and lose tone, even with regular exercise. Lean body mass decreases partly due to atrophy of muscle tissue. The loss of muscle is associated with decreased strength, slower movement, and movement limitations. It also contributes to age-related insulin resistance, age-related changes in body composition, and volumes of distribution for water-soluble drugs.

Lipofuscin (an age-related pigment left over from breakdown and absorption of damaged blood cells) and fat are deposited in muscle tissue. Infiltration of fat (myosteatosis) and connective tissue decreases muscle quality.

Recovery of older muscle after injury is slowed and frequently incomplete, and muscle contractions may occur in those who are unable to move on their own or who do not stretch their muscles with exercise.

Common problems that occur with musculoskeletal aging include:

- Osteoporosis, especially for older women
- Compression fractures of the vertebrae, which can result in pain and reduced mobility
- Muscle weakness, contributing to fatigue, weakness, and reduced activity tolerance
- Joint problems ranging from mild stiffness to debilitating osteoarthritis

- Increased risk of injury due to gait changes, instability, and loss of balance that can lead to falls
- Reduced reflexes, most often due to changes in muscles and tendons, rather than changes in nerves; decreased knee or ankle jerk reflexes; and positive Babinski reflex
- Involuntary movements such as muscle tremors (fasciculations) and fine movements
- Weakness or abnormal sensations (paresthesias)
- Inability to move, or lack of stretching of muscle, resulting in muscle contractures (Brodkey, 2022)

ASSESSMENT

Assessment of the aging musculoskeletal system poses the challenge of distinguishing between the normal effects of aging and the first signs of disease. For example, a problem in one joint can mean trauma, while a problem in more than one can mean a systemic condition.

The joints are examined for tenderness, swelling, subluxation, crepitus, warmth, redness, and other abnormalities and deformities, which may be indicative of a disorder such as osteoarthritis or chronic rheumatoid arthritis and may interfere with functioning or usual activities.

Muscle strength assessment involves testing for weakness. If weakness is symmetrical, does not bother the patient, and does not change function or activity level, it is likely due to disuse. Jerky movements and cogwheel rigidity are abnormal.

Sarcopenia (decrease in muscle mass) is a common age-related finding and is insignificant unless accompanied by a decline or change in function.

Active and passive range of joint motion are determined, and the presence of contractures is noted. Variable resistance to passive manipulation of the extremities sometimes occurs with aging.

Patients are asked about gait-related issues such as difficulty with walking, balance, or both, including whether they have fallen or fear that they might fall. Specific capabilities are assessed and patients asked whether they can:

- Go up and down stairs
- Get in and out of a chair, shower, or tub
- Walk as needed to purchase and prepare food and do household chores

Physical examination of the older adult includes:

- Lower extremity strength: Can the patient get out of a chair without using their arms?
- Gait assessment with and without assistive devices (if applicable), including:

    - Initiation of walking
    - Gait speed
    - Cadence
    - Step length, height, and swing
    - Posture
- Balance assessment and overall postural control, evaluated with an assessment tool such as the Romberg test, with a positive test being an inability to maintain an erect posture over 60 seconds with the eyes closed or an inability to maintain balance with the eyes closed

Gait speed, chair rise time, and ability to successfully maintain tandem stance (standing heel-to-toe without losing balance for 10 seconds) are independent predictors of the ability to perform instrumental activities of daily living as well as the risk of nursing home admission and death. In patients with a gait velocity of <1 meter/second, morality risk is significantly increased.

Aging has little effect on walking cadence or posture; typically, older people walk upright unless a disorder is present (Stefanacci, 2022).

MANAGEMENT AND PREVENTION

Common management strategies for musculoskeletal disorders include physical exercise, either alone or in combination with nutritional intervention. High-intensity resistance training can improve strength and mass of skeletal muscles and may counteract age-related decline in muscle size and function. A balanced program of both endurance and strength exercises performed on a regular schedule is usually recommended. Nutritional supplements may be advised, including vitamin D.

- Management of **tendinopathies** includes exercise, corticosteroid or platelet-rich plasma injections, physical therapy evaluation/treatment, and topical glyceryl trinitrate (nitroglycerin).
- Management of **osteopenia or osteoporosis** involves obtaining bone-density measurements, encouraging exercise, a diet high in calcium and vitamin D, and bisphosphonate medications such as alendronate (Fosamax) orally or zoledronic acid (Reclast) intravenous infusions.
- **Arthritis** alters the joints biochemically, structurally, and physiologically. Recommendations include self-management, weight loss, and an exercise program to strengthen joints and supporting structures, as well as optimizing joint mobility. Physical therapy and supervised progressive exercise programs are often encouraged. Aquatic exercises may be beneficial as well as assistive devices for ambulation, braces, splints, and taping (if indicated) for comfort or to provide mechanical support.

- Interventions for managing arthritis may also include physical modalities, such as heat and cold, techniques to manage or control edema and inflammation, therapeutic activities and exercises, or provision of custom or prefabricated orthotic devices.
- Pharmacological treatment for arthritis varies, the most common being acetaminophen followed by NSAIDS. Interventions for osteoarthritis typically begin with intra-articular injections and can escalate to total joint replacement.
- **Falls** are the most common cause of fractures in older people. Most falls that occur are fragility fractures in those who have multiple comorbidities and functional impairments. Fragility fractures usually occur in the hip, spine, wrist, pelvis, humerus, rib, and ankle. These fractures can lead to functional decline, institutionalization, and death. Management depends on the site of fracture, risks and benefits of nonsurgical vs. surgical intervention, and the patient's goals of care. Most older adults can benefit from targeted programs to prevent falls and optimize bone health (Minetto et al., 2020). (See also "Fall Prevention Interventions" later in this course.)

Integumentary Changes

The integumentary system includes the skin, hair, nails, and glands and is the largest organ of the body.

Skin changes are the most visible signs of aging. Growths such as skin tags, warts, rough patches (keratoses), and other blemishes are more common. Skin cancers are common and usually located in sun-exposed areas. More than 90% of all older people have some type of skin disorder, such as xerosis, pruritus, eczematous dermatitis, and purpura (Brodkey, 2022).

As the skin ages, the epidermal layer thins; however, the number of cell layers remains unchanged. Melanocytes decrease, and the remaining melanocytes increase in size. Aging skin appears thinner, paler, and more translucent. Age spots or "liver spots" (lentigos) may appear in sun-exposed areas.

Changes in the connective tissue reduce the skin's strength and elasticity (elastosis), producing a leathery, weather-beaten appearance. Blood vessels become more fragile, leading to bruising, bleeding under the skin (senile purpura), and cherry angiomas.

Sebaceous glands produce less oil, making it hard to keep the skin moist, resulting in dryness and itchiness. Sweat glands produce less sweat, making it hard to keep cool.

Aging skin repairs itself more slowly, and wound healing may be up to four times slower, contributing to pressure ulcers and infections. Aging skin increases the risk for skin injury, and there may be less ability to sense touch, pressure, vibration, heat, and cold (Brodkey, 2022).

The skin plays a crucial role in the synthesis of vitamin D, triggered by exposure to ultraviolet B radiation from the sun, and aging can influence the skin's ability to produce it. Vitamin D aids

the absorption of calcium and phosphates, which maintain bone health. Along with calcium, vitamin D also helps prevent and treat osteoporosis (Rosen, 2023).

Changes in the **nails** can cause serious symptoms, impairing ability to perform daily activities, and can lead to substantial cosmetic problems with negative psychological effects. Pits, ridges, lines, and changes in shape may be related to iron deficiency, kidney disease, and nutritional deficiencies (Brodkey, 2022).

ASSESSMENT

Assessment begins with collecting data about skin color, temperature, texture, moisture, and integrity and determining the presence of any skin breakdown or wounds. The patient is also assessed for the rate of wound healing, bruising, falls, incontinence, ability to change position without assistance, and self-care abilities. Skin should be examined for:

- Impaired integrity (particularly of the skin covering bony prominences), roughness, sloughing, complaints of pruritis.
- Suspicious lesions such as keratoses and moles. Suspicious lesions should be evaluated for possible premalignancy and malignancy using the ABCDE rule (see table below).

***ABCDE* RULE FOR SKIN LESIONS**		
Label	**Characteristic**	**Description**
A	Asymmetry	Differing shape from side to side (noncancerous skin lesions like moles are typically uniform and symmetrical in shape)
B	Border	Irregular or uneven
C	Color	Irregular, with patches of black, brown, red, blue, or white
D	Diameter	Larger than 1/4 inch (6 mm)
E	Evolving	Any change in size, shape, color, or texture, or any new symptoms such as itching, bleeding, or crusting
(Beaumont Health System, 2023)		

MANAGEMENT AND PREVENTION

Maintaining **skin integrity** in the older adult is essential and requires a holistic and interdisciplinary approach. Skin basics include:

- Educating patients and caregivers
- Performing regular skin assessments
- Maintaining mobility
- Relieving pressure
- Using safe manual handling techniques

- Providing skin care, paying attention to high-risk areas
- Encouraging good nutrition and hydration
- Keeping skin moist with lotions and other moisturizers
- Avoiding soaps that are strongly drying or heavily perfumed
- Avoiding bath oils (to prevents falls due to slipperiness)
(Brodkey, 2022)

Older patients and caregivers are encouraged to **inspect feet daily** for skin color, dryness, swelling or tenderness, blisters, cracks, sores, ulcers, corns, ingrown toenails, paresthesia, or pain. Other common foot problems in older individuals include calluses, foot deformity, fungal infection, and warts. Many of these are often the result of inappropriate or inadequate foot care, mechanical causes, infection, as well as underlying problems such as diabetic vascular disease or congenital foot deformities. A podiatry consult may be recommended (Fraser, 2020; EHS, 2023).

Because many older adults had chicken pox as children, they are at risk for reactivation of the varicella zoster virus, which causes shingles, and they should obtain a vaccine if there are no contraindications (Fraser, 2020; Consultant 360, 2023).

Dry skin, skin tears, moisture-related skin damage, and **pressure injuries** are the most common skin problems experienced by older people. Skin integrity assessment is conducted on admission to any facility and at least daily depending on the individual's circumstances. High-risk patients require skin inspections at least once per shift in addition to admission or transfer to another facility (Fraser, 2020).

Mobility is important for circulation and in reducing prolonged exposure to external forces such as pressure, shear, and friction that are implicated in pressure injury formation. Interventions may be required to limit exposure to such forces if the patient has reduced mobility, has loss of protective sensation (e.g., diabetic neuropathy), is at nutritional risk or malnourished, is acutely ill, or has any condition that decreases the capacity to respond to pressure and/or reduces tissue tolerance to pressure.

Pressure-relieving surfaces may be required, such as pressure-relieving mattresses and pressure-redistribution seating cushions. Other devices might include heel wedges and off-loading shoes or boots to reduce pressure to heels and free-standing self-help poles, overhead trapeze, and/or side bars to assist a person to reposition in bed.

Safe manual handling techniques and use of appropriate manual handling equipment facilitates safe patient/resident transfer, reducing risk of injury. Slide sheets, additional assistance, or an external lifting device (e.g., a Hoyer mechanical lift) can be used to assist with the safest possible transfer of patients.

Skin is cleansed (avoiding hot water), dried thoroughly, and moisturized daily to reduce the risk of excoriation. Using nonsoap cleansers and shampoos with a pH close to 5.5 helps protect the acid mantle and prevent skin from drying out, while moisturizers applied twice a day or more

often hydrate the skin. If the person is incontinent, any continence aid is checked and changed regularly and exposed skin cleansed, carefully dried, and moisturized. Protective skin barriers may reduce associated dermatitis. In patients with high BMI, particular attention is paid to creases and skin folds.

Adequate fluids must be taken to avoid dehydration, which can put the person at risk for compromised skin integrity and reduced tissue tolerance to pressure. A referral to a dietitian may be ordered for determining appropriate nutrition.

Referral to a physical therapist and occupational therapist may also be indicated in order to ensure the best possible functional outcome for the patient (Fraser, 2020).

Cardiovascular Changes

Some cardiovascular changes in the older adult are normal and inevitable, while others are influenced by modifiable factors such as lifestyle and health conditions.

As people age, **heart muscle** thickens and becomes stiffer, reducing the amount of blood the heart can pump with each beat. This can lead to a decline in exercise capacity and a higher risk of heart failure, especially in those with hypertension, obesity, and diabetes.

The **electrical system** of the heart becomes less sensitive and may develop fibrous tissue and fat deposits, resulting in a slower heart rate and abnormal rhythms such as atrial fibrillation, increasing the risk of stroke.

Heart valves become thicker and less flexible, causing a heart murmur or valve stenosis, which can impair blood flow and increase the heart's workload.

The large **arteries,** especially the aorta, stiffen and lose elasticity, causing hypertension, which can damage blood vessels and organs and increase the risk of heart attack and stroke. The walls of the smaller arteries and arterioles also become harder and thicker (arteriosclerosis). Deposits of yellowish plaque containing lipids and cholesterol (atherosclerosis) build up on the artery walls, narrowing the lumen.

Capillaries become thicker and less permeable, slowing down exchange of oxygen and nutrients to the tissues, which can affect wound healing and the function of organs such as the skin and muscle.

Baroreceptors that monitor the blood pressure and adjust it according to the body's needs become less responsive, causing orthostatic hypotension, increasing risk for falls.

Cardiac aging is associated with left ventricle hypertrophy, fibrosis, and diastolic dysfunction, resulting in reduced cardiac output. **Hypertrophy** is an adaptive mechanism to maintain cardiac function in response to age-induced structural changes, causing the heart to enlarge and develop thicker walls and slightly larger chambers mainly due to an increase in the size of individual

muscle cells. These changes result in reduced left ventricular filling, which can lead to heart failure, especially in older people with other diseases such as hypertension, obesity, and diabetes.

Since arteries and arterioles become less elastic, blood pressure cannot adjust quickly when people stand, putting them at risk for dizziness or fainting. And because blood vessels become less elastic with age, they do not relax quickly, causing blood pressure to increase during systole (NIH, 2022b).

ASSESSMENT

Geriatric assessment of the cardiovascular system focuses on common problems among that population. Fatigue and breathlessness are signals that the heart is not functioning as well as it should. Most often heart failure is the result of coronary artery disease or heart attack, but faulty heart valves, long-standing high blood pressure, or genetic disease may also be the cause. The mnemonic *FACES* can be used to quickly spot symptoms of heart failure.

***FACES* MNEMONIC**	
Label	**Description**
F	Fatigue
A	Activity limitation
C	Congestion resulting in coughing, wheezing, breathing difficulty
E	Edema or ankle swelling
S	Shortness of breath

Important tools for diagnosis include an echocardiogram, stress test, and blood test for B-type natriuretic peptide, which is released when the heart is under stress (Harvard Health Publishing, 2023).

Atrial fibrillation (AF) is the most common sustained dysrhythmia affecting the geriatric population. Patients with atrial fibrillation are at increased risk of a number of complications, most notably stroke, heart failure, dementia, and all-cause mortality. Electrocardiogram (ECG) is the primary tool for diagnosing AF. A Holter monitor may be used to assess heart rhythm for 24 hours. Echocardiogram may be used to diagnosis thrombosis.

Age-related changes in **blood pressure** regulation can lead to greater variability in blood pressure and postural changes. Multiple blood pressure readings, including orthostatic measurements, may be part of the assessment to accurately diagnose and safely manage hypertension. Orthostatic blood pressures give clues about fluid status, medication effects, and causes of dizziness or falls.

Peripheral vascular disease is more common in the aging population. Symptoms of peripheral artery disease include claudication, which is pain, achiness, fatigue, burning, or discomfort in muscles of the feet, calves, or thighs that most often appear during walking or exercise and diminish after several minutes of rest.

Chronic venous insufficiency is commonly due to malfunctioning valves in the veins resulting in stasis dermatitis, varicose veins, and ulcers that are slow to heal on legs or ankles (Cascino & Shea, 2022; NIH, 2022b).

MANAGEMENT AND PREVENTION

Management and prevention of cardiovascular issues in the older adult include patient education regarding modifying controllable risk factors such as diabetes, hypertension, overweight, diet, exercise, smoking, and alcohol intake. This includes instructions on signs and symptoms of acute myocardial infarction; routine exercise; and nutrition and low-fat, low-cholesterol, and low-sodium diets.

Hypertension management requires lifestyle changes and pharmaceutical therapy, which is often started low and increased, if indicated. Choice of antihypertensive drugs among older patients include a low-dose thiazide diuretic, long-acting calcium channel blocker, or angiotensin-receptor blocker. Education on stress management and encouragement of some form of relaxation technique are also recommended (Egan, 2023).

The goal of therapy for **atrial fibrillation** is the prevention of thromboembolism, which is often managed with anticoagulation therapy, such as warfarin (Coumadin), dabigatran (Pradexa), rivaroxaban (Xarelto), or apixaban (Eliquis), and antiplatelet drugs such as aspirin or clopidogrel. Each type of medication has a specific function to prevent a blood clot from forming or causing a blocked blood vessel, heart attack, or stroke (AHA, 2023).

Management of **peripheral vascular disease** includes general prevention measures such as avoiding prolonged standing or sitting, exercising on a regular basis, other lifestyle recommendations, and strategies to better manage other chronic medical conditions that directly affect progression of peripheral vascular disease, including hypertension, diabetes, dyslipidemia, and obesity.

Pharmaceutical therapy includes antiplatelet or anticlotting agents, statins, and medications that increase blood supply. Nonpharmaceutical therapy includes extremity elevation, compression stockings, exercise, and wound care for ulcerations caused by chronic venous insufficiency. Treatment for claudication is a supervised exercise program and may include the antiplatelet agent cilostazol (Berger & Davies, 2023).

Thermoregulatory Changes

It can take an older person almost twice the time it takes a younger person to return to normal core body temperature after exposure to temperature extremes. Older adults experience problems with regulation of body temperature due to lower heat production, a decrease in subcutaneous fat, and thinning of the skin, making it difficult to conserve heat.

A decrease in metabolic rate means the body may not be able to generate enough heat to maintain a normal temperature, and slower circulation can make it difficult to retain heat. Older

adults have reduced autonomic and behavioral thermoregulatory responses, attenuated sweat gland output, increased threshold for onset of sweating, decreased skin blood flow, reduced cardiac output, and impaired thermal perception.

These issues place them at high risk for developing potentially life-threatening disturbances of temperature regulation, namely, **hypothermia** and **hyperthermia** (Mauk, 2023).

ASSESSMENT AND MANAGEMENT

For a patient experiencing a thermoregulatory event, history includes time of onset, duration, associated symptoms, and past treatments. Rectal temperatures are preferred if feasible. A thorough examination is performed, looking for conditions that may serve as triggers. Sources of infection are sought as potential causes of fever before making a diagnosis of hyperthermia due to temperature dysregulation.

Management and prevention include avoiding environmental extremes of heat or cold. Patient education includes:

- Wearing proper clothing for environmental conditions
- Maintaining a proper temperature-controlled environment in the home
- Maintaining appropriate hydration
- Using a fan or water spray when exercising or in a hot environment
- Avoiding alcohol intake in cold environments
  (Velez, 2021)

Urinary System Changes

Aging-related changes in the urinary system increase the older person's risk of urinary incontinence and urinary tract infections. Despite age-related changes, however, sufficient kidney function is preserved to meet the needs of the body.

KIDNEYS

Aging-related changes in the kidney include thickening in the Bowman's capsules and impaired permeability, degenerative changes in the tubules, atrophy and decreased number of nephrons, and vascular changes at all levels. As a consequence of aging, renal efficiency in waste disposal is impaired due to halving of the number of nephrons during an average lifespan and halving of renal blood by age 75. Glomerular filtration rate and maximum excretory capacity is reduced by the same proportion. These changes may be associated with an inability to excrete ammonium, sodium, potassium, or medications.

Despite these age-related structural changes, the kidneys have a large reserve capacity, and functional ability remains relatively stable unless stressed. The kidneys can maintain normal

homeostasis mechanisms and waste disposal within limits, but they are less efficient, need more time, and have minimal reserves. Because of these factors, minimal dehydration, infection, or impaired cardiac output may lead to chronic kidney failure (Physiopedia, 2023; Mauk, 2023).

Renal Function Assessment

Physical assessment begins with the patient's overall appearance. Chronic renal disease can cause pallor, a yellow-gray cast, brown nail beds, excoriation from chronic pruritus, and volume excess resulting in edema and distention of blood vessels in the neck. The mouth may show stomatitis, and there may be an ammonia breath odor. Symptoms of kidney failure include weakness, shortness of breath, lethargy, edema, pruritis, loss of appetite, sleep disturbances, and confusion (Babu, 2020).

Laboratory tests may include electrolytes, complete blood count, serum creatinine (the end product of muscle and protein metabolism), and blood urea nitrogen (BUN) (which measures the renal excretion of urea nitrogen, a by-product of protein metabolism).

When liver and kidney dysfunction are both present, the BUN level actually decreases, reflecting liver failure but not kidney failure. BUN level is not always elevated with kidney disease, but an elevated level is highly suggestive of kidney dysfunction (NKF, 2023; UM, 2023).

BLADDER AND URETHRA

With age, the bladder decreases in size, and bladder walls develop fibrous matter, changing its overall stretchability and contractibility. Filling capacity also declines, along with the ability to withhold voiding. The ability of the detrusor muscle to contract declines in both aging men and women, and there is an increase in incidence of detrusor overactivation. This causes involuntary muscle contractions in the bladder and results in a sudden urge to void that is difficult to control, frequent urination, and waking up more than two times a night to void.

In about 50% of men with benign prostatic hyperplasia (BPH), enlargement of the prostate causes obstruction of the bladder outlet and results in urinary dysfunction. In response, the bladder walls become thicker and stronger to compensate for declining function. If untreated, blockage may become nearly complete or complete, causing urinary retention and possibly kidney damage.

In women, the urethra shortens and the lining becomes thinner. These changes decrease the ability of the urinary sphincter to close tightly, increasing the risk of urinary incontinence. The trigger for these changes is attributed to a declining level of estrogen during menopause (Mauk, 2023; Preminger, 2022).

Urinary incontinence (UI) is a significant health problem for older adults, both physically and psychologically. Incontinence can occur due to weak bladder or pelvic floor muscles, overactive bladder muscles, damage to nerves that control the bladder related to diabetes or Parkinson's disease, pelvic organ prolapse, medications, delirium, sensory impairment, and environmental barriers.

Most incontinence in men is related to prostatitis, injury or damage to nerves or muscles from surgery, and benign prostatic hyperplasia (NIA, 2022a).

Bladder and Urethra Assessment

Urinary incontinence is often not adequately assessed and managed in the older adult population. UI is associated with falls, skin impairments, urinary tract infections, limited functional status, depression, impaired cognition, poor self-rated health, social isolation, and increased caregiver burden.

Assessment includes a history and physical. The bladder is palpated for distension. The clinician notes reports of urinary frequency, urgency, burning, incontinence, nocturia, and size or force of the urinary stream. The drug regimen is reviewed, including both prescribed and over-the-counter medications. Medications must always be considered as the cause of new-onset urinary incontinence in older adults. Assessment also includes availability of toileting facilities and barriers that affect toileting as well as the usual pattern of urination and of incontinence. Urinalysis is performed to check for infection or other abnormalities.

Urinary tract infections (UTIs) can cause sudden confusion (delirium) in older people and people with dementia. If the person has a sudden and unexplained change in behavior, such as increased confusion, agitation, or withdrawal, it may be due to a UTI. Dehydration should also be ruled out as a cause for these changes.

Urethral irritation is suspected when the patient reports discomfort with urination. BPH is also common in older men and can cause uncomfortable symptoms such as frequency or urgency, difficulty initiating the urine stream, weak or intermittent urine stream, dribbling at the end of urination, and inability to completely empty the bladder. Postvoid residual measurement may be done to determine the amount of urine remaining in the bladder after urination. If further information is necessary, urodynamic testing and ultrasound may be performed.

Assessment identifies the type of urinary incontinence (acute or chronic), and a bladder diary is recommended for collecting information during both assessment and evaluation. Bladder diaries include: UI episodes, associated activities, void times and volumes, fluid intake, and absorbent product usage. The mnemonic *DIAPPERS* provides a framework for focusing the assessment (see table below) (Dowling-Castronovo, 2023; Wayne, 2023).

TYPES OF URINARY INCONTINENCE

Assessment of a patient with the complaint of incontinence involves determining the type of urinary incontinence that may be present.

- **Stress** incontinence: Urine leaks as pressure is put on the bladder, e.g., during exercise, coughing, sneezing, laughing, lifting heavy objects

- **Urge** incontinence: Sudden need to urinate with inability to hold urine long enough to get to the toilet
- **Overflow** incontinence: Small amounts of urine leak from a bladder that is always full
- **Functional** incontinence: Problem getting to the toilet because of mobility issues; may occur despite normal bladder control
- **Transient** incontinence: Incontinence due to reversible causes (see "*DIAPPERS* Mnemonic" table)

***DIAPPERS* MNEMONIC**	
Label	**Description**
D	Delirium or acute confusion
I	Infection (symptomatic UTI)
A	Atrophic vaginitis or urethritis
P	Pharmaceutical agents
P	Psychological disorders (depression, behavioral disturbances)
E	Excess urine output due to excess fluid intake, alcoholic or caffeinated beverages, diuretics, peripheral edema, congestive heart failure, or metabolic disorders such as hyperglycemia or hypercalcemia
R	Restricted mobility
S	Stool impaction
(Trans & Puckett, 2023)	

Bladder and Urethra Dysfunction Management

Patients presenting with symptoms of **urinary tract infection** are placed on an appropriate antibiotic.

Urinary retention is most commonly caused by **benign prostatic hypertrophy** (BPH), whose main treatments include:

- Active surveillance by a urologist
- Medications: Alpha blocker tamsulosin (Flomax) and 5-alpha reductase inhibitor finasteride (Proscar)
- Less invasive procedures, such as a prostatic urethral lift (PUL) that lifts and compresses the prostate to prevent urethral blockage; water vapor thermal therapy and transurethral microwave therapy (TUMT) that destroys prostate cells; and catheterization, intermittent or indwelling
- Invasive surgical procedures, including transurethral resection of the prostate (TURP) (AUA, 2020)

Management of **urinary incontinence** depends on the type of incontinence, severity, and underlying cause, and a combination of treatments may be used (see table).

INTERVENTIONS FOR URINARY INCONTINENCE	
Type	**Interventions**
Lifestyle changes	• Weight loss • Increased physical activity • Smoking cessation • Alcohol avoidance • Decreased caffeine intake • Prevention of constipation • Avoiding heavy lifting • Reducing intake of acidic foods • Reducing liquid consumption
Behavioral techniques	• Scheduled or delayed timed urination • Double voiding
Physical therapy / occupational therapy	• Pelvic floor exercises (e.g., Kegel's) • Muscle-strengthening exercises • Electrical stimulation • Biofeedback
Medications	• Anticholinergics • Alpha blockers for men (Flomax, Rapaflo) • Antimuscarinic (mirabegron [Myrbetriq]) • Topical estrogen for women
Medical devices	• Vaginal rings and urethral inserts • Pessary (prosthetic device inserted into the vagina for structural purposes)
Surgery	• Single sling procedures • Bladder neck suspension • Prolapse surgery • Artificial urinary sphincter implants
Supportive interventions and devices	• Absorbent pads • Protective undergarments, modified clothing • Intermittent catheterization • Indwelling catheter • Condom catheter for men • Urethral plugs and penile clamps
(Mayo Clinic, 2023a)	

Respiratory Changes

Aging of the respiratory system reduces the capacity of all pulmonary functions, which may lead to decompensation when the system is stressed. The changes contribute somewhat to an older person's reduced ability to do vigorous exercise, especially intense aerobics, but these changes seldom lead to symptoms. They are compounded, however, by the effects of heart and lung disease, especially those that result from smoking.

The effects of aging in other areas of the body affect the lungs. These include changes in the nervous system, bones, and muscles of the chest and spine. Bones become thinner and change shape and can alter the shape of the ribcage, resulting in decreased expansion and contraction while breathing. The diaphragm becomes weakened, and this may impair both inhalation and exhalation. These changes may lower the oxygen level in the body and raise carbon dioxide levels, resulting in tiredness and shortness of breath.

Muscles and other tissues adjacent to the airways may lose the ability to keep airways completely open, and progressive calcification of the walls of the trachea and bronchi causes increasing rigidity, resulting in a gradual decrease in maximum breathing capacity. Aging also causes the walls of the alveoli to deteriorate, lose shape, and become baggy. These changes can allow air to become trapped in the lungs, making it hard to breathe and impairing gas exchange.

The nervous system, which monitors respiratory volume and blood gas levels and regulates respiratory rate, may lose some of its function. Breathing may become more difficult and gas exchange impaired. Nerves in the airways that trigger the protective cough reflex become less sensitive, resulting in contamination of the lower airway through aspiration of particles that may be hard to cough up. Dysphagia or impaired esophageal motility, also common in old age, may exacerbate the tendency to aspirate.

Decline in effectiveness of the immune system means the body is less able to fight lung infections and less able to recover following exposure to smoke or other harmful substances. The onset of pneumonia in the older patient can often be rapid, and prognosis is poor in severe pneumonia (Brodkey, 2022).

ASSESSMENT

When assessing older patients, it is important to be aware of physiologic and anatomic changes and that coexisting medical conditions are much more prevalent. Many of these comorbidities can mimic pulmonary diseases. Both asthma and COPD are common and are associated with increased mortality. Similar to COPD, lung cancer also increases with age, is often diagnosed late, and older patients are less likely to receive appropriate and timely management compared to younger patients.

History can reveal previous illnesses, occupational and environment exposures, history of smoking, family history, travel history, and symptoms of dyspnea, chest pain, wheezing, stridor, hemoptysis, and cough. When more than one symptom occurs concurrently, such as fever, weight loss, and night sweats, the focus is on the primary symptom.

Physical exam includes assessment of general appearance, presence of discomfort, anxiety, alterations in body shape, and chest wall deformities.

When an older person has an infection, the body may not be able to produce a higher temperature, and it is therefore important to check other vital signs as well as look for any symptoms and signs of infection, such as confusion or productive cough. Respiratory infections in older adults include:

- SARS-CoV-2 (COVID 19)
- Influenza
- Respiratory syncytial virus (RSV)
- Human rhinovirus (HRV)
- Human parainfluenza virus (HPIV)

Diagnosis of these conditions is often challenging due to coexisting medical conditions that may present with similar symptoms. Changes in cognition and pulmonary physiology may limit the utility of commonly used tools, such as pulmonary function testing (Watson & Wilkinson, 2021).

MANAGEMENT AND PREVENTION

Because older people are at highest risk of developing pneumonia, both influenza and pneumococcal pneumonia vaccines are highly recommended.

Common respiratory diseases experienced by older persons include COPD and emphysema. There is a greater prevalence of COPD in older adults as a result of smoking. Management can be difficult because of those coexisting medical problems, requiring geriatric care and attention from a team of providers.

Risk for COPD and emphysema can be reduced through lifestyle management that includes encouraging older adults to stop smoking, avoid air pollution, and reduce weight to improve diaphragm function. Pulmonary function does not respond to exercise training, however; aging, therefore, may become an increasingly important limiting factor for physical activity (NIH, 2022c).

COPD affects the well-being of the older adult both physically and socially, increasing disability and dependency. The main treatment for COPD is inhaled medications (bronchodilators, including steroids). Therapies that have a proven impact on mortality include smoking cessation, oxygen therapy, and pulmonary rehabilitation, which combines exercise, education, and counseling (Health in Aging, 2023a).

Emphysema, a form of COPD, can be treated with the Zephyr valve, a one-way valve placed in three to five airways that reduces hyperinflation of a portion of the lung (Dransfield et al., 2020).

Endocrine Changes

Levels of most, but not all, hormones decrease with aging; some may increase. Even when hormone levels do not decline, endocrine function generally declines with age as hormone receptors become less sensitive. Some hormones that decrease with aging include estrogen, testosterone, growth hormone, and melatonin.

Growth hormone secretion and serum **IGF-1** concentrations decrease gradually with age. Compared to young adults, older adults have mild deficiency of growth hormone and IGF-1. Deficiency of IGF can help explain a decrease in muscle mass and an increase in fat mass that occurs in many older people.

Parathormone secretion tends to increase slightly with age, but serum calcium concentrations do not significantly change. Bone mass declines gradually in postmenopausal women, after which rate of loss slows but continues indefinitely, increasing the risk for fractures. Risk factors for bone loss include genetic susceptibility, smoking, lean body build, inactivity, calcium and vitamin D deficiency, and estrogen and testosterone deficiencies.

Older adults experience decreased thirst in response to water deprivation and increased basal serum vasopressin concentration, increasing the risk of dehydration. However, if water is available, increased **vasopressin** can result in water retention and hyponatremia.

Blood glucose concentrations increase after glucose ingestion, and the older the person, the higher the increase. The accompanying increase in **insulin secretion** is not sufficient to maintain blood glucose concentrations in the range found in young adults (Utiger, 2023).

Gonadal function declines with age due to decreased activity of gonadotropin-releasing hormone, with subsequent decreases in luteinizing hormone (LH) and follicle-stimulating hormone (FS), which regulate gametogenesis and menopause in the female. In the male this decline can lead to erectile dysfunction (ED) and loss of libido. The level of estrogen in males also decreases with age, contributing to the gradual loss of bone mass and increase in body fat observed in many older men.

In women, a decrease in ovarian hormone production occurs, and there is an increase in sex hormone-binding globulin (SHBG) that binds to sex hormones before they can be used by tissues such as bone or muscle cells. Menopause results in vascular aging, resulting in a gradual decrease in vessel elasticity, dilation, and stiffening with age (Ravindran, 2023).

Thyroid and **adrenal function** do not significantly change with age, but normal aging results in subtle changes in **adrenal secretion** of both ACTH and cortisol, most significantly an increase in cortisol levels. Glucocorticoid excess can have serious consequences in the integrity of both the structure and function of various areas in the brain, leading to impairment in normal memory, cognitive function, and sleep cycles. The increase also impinges on the normal stress response, leading to an impaired ability to recover from stressful stimuli. In addition to effects on the brain,

cortisol excess is associated with other changes, including loss of muscle mass, hypertension, osteopenia, visceral obesity, and diabetes.

Melatonin is a hormone secreted by the **pineal gland** in response to darkness. A decline in melatonin level is believed to play a role in the loss of normal sleep-wake cycles with aging (NIH, 2022d).

ASSESSMENT

Assessment for endocrine problems may be challenging because of the effects of aging. Manifestations of endocrine disorders in older persons are often atypical and present as nonspecific geriatric syndromes (e.g., weight loss, weakness, functional decline, falls, depression, confusion, and cognitive impairment) that are often attributed to "old age" by patients. These manifestations may also be mistakenly attributed to worsening of comorbid illnesses or medications by clinicians. Older patients with endocrine disorders often have multiple chronic medical conditions that can complicate and confound clinical manifestations, evaluation, and management.

Clinicians use the history, physical examination, and simple laboratory tests (e.g., blood glucose) to actively screen for endocrine-related disorders that occur more commonly in older patients.

MANAGEMENT AND PREVENTION

Taking a history and listening to the patient's presenting complaints is important in guiding management. Treatment of endocrine disorders can be complicated, as changing one hormone level can affect another. Management takes into account coexisting medical illness, medications, alterations in clearance rate of hormones, and changes in target organ sensitivity with older age.

Patient-centered management and goals of care focus on improvement of function and quality of life within the patient's social context and care setting. Interdisciplinary care models provide for optimal care and typically include an endocrinologist, pharmacist, physical therapist, and occupational therapist (NIH, 2022d).

Hyperthyroidism and Hypothyroidism

Patients with hyperthyroidism may be started on antithyroid medications such as methimazole (Tapazole) or beta blockers to help control symptoms. For those with hypothyroidism, thyroid replacement medication such as levothyroxine may be started (Cleveland Clinic, 2020a).

Diabetes Mellitus

Older patients with diabetes should receive individualized counseling regarding lifestyle modification, including a medical nutrition evaluation and exercise counseling. Metformin is often the drug of choice, and insulin can also be considered a first-line therapy. Because of concern for hypoglycemia, some clinicians prescribe insulin only for a short time to ameliorate

glucose toxicity. Once improvement occurs, the insulin may be reduced or replaced with metformin or another oral hypoglycemic agent.

Common geriatric syndromes that may occur with diabetes mellitus include cognitive impairment, depression, urinary incontinence, mobility impairment, falls, and persistent pain (Munshi, 2023).

Hyperparathyroidism

Primary hyperparathyroidism is a common yet overlooked and underdiagnosed endocrine disorder among older adults. It is more common in females. Presentation can include osteoporosis, fractures, and neuropsychiatric symptoms. Management includes parathyroidectomy, a safe and effective modality in aging populations (Rizk et al., 2023).

Excess Adrenal Cortisol Secretion

High cortisol levels can lead to inflammation and a host of mental and physical health problems. Management includes exercise, adequate amounts of sleep, a healthy diet, and mind-body practices such as yoga, tai chi, qi gong, mindfulness meditation, and breathing exercises (Cleveland Clinic, 2020b).

Menopause and Andropause

Many older adults wish to maintain an active, healthy sex life. With the decline in sex hormones, both men and women face organic changes that can affect sexual functioning. For women it may include vaginal dryness, irritation/itching, inadequate lubrication, and dyspareunia (painful intercourse). For men, erectile dysfunction prevalence increases with age, and some men develop testosterone deficiency that can severely reduce libido.

Recommended treatments for the symptoms of menopause include vaginal moisturizers and lubricants, vaginal estrogens, and oral or transdermal hormone therapy. Gabapentin may be prescribed for those who cannot use estrogen.

Signs and symptoms suggestive of low testosterone in the older male include reduced sexual desire and activity, decreased spontaneous erections or erectile dysfunction, infertility, height loss, low bone mineral density, and hot flushes or sweats.

The best way to manage and prevent ED is through healthy lifestyle choices, managing any existing chronic health conditions, and screening for depression or other possible psychological causes of ED. Exercise, especially moderate to vigorous aerobic activity, has been found to improve ED. Other treatments may include oral, rectal, or injected drugs; testosterone replacement; penis pumps; and penile implants.

Testosterone treatment may be considered in men who want to improve their sexual function. Risks include stimulating the growth of metastatic prostate cancer, increased risk of heart attack and stroke, and blood clot formation in the veins.

Other medications may increase blood flow to the penis, including sildenafil (Viagra) and alprostadil self-injection or suppository (Mayo Clinic, 2023b).

Gastrointestinal Changes

Aging has less effect on digestive system function than on other organ systems. Older adults are more likely to develop diverticulosis and to have digestive tract disorders, such as constipation as a side effect of taking certain medications.

Taste and smell gradually begin to diminish, less saliva is produced, and gums recede slightly. Tooth enamel tends to wear away, increasing susceptibility to decay.

Contractions of the **esophagus** and tensions in the upper esophageal sphincter decrease, but the movement of food is not impaired. Some older adults, however, can be affected by diseases or disorders that interfere with esophageal contractions.

The **stomach** lining's capacity to resist damage decreases, which in turn may increase risk of peptic ulcer disease, especially in those who use aspirin or NSAIDs. Aging has little effect on the secretion of digestive juices such as acid and pepsin, but conditions such as atrophic gastritis become more common. These conditions can result in problems such as vitamin B_{12} deficiency or small intestinal bacterial overgrowth.

Aging has only minor effects on the structure of the **small intestine,** but excessive growth of certain bacteria can lead to pain, bloating, and weight loss as well as decreased absorption of nutrients such as iron and calcium.

With age, the **pancreas** decreases in weight, and some tissue is replaced by fibrosis. These changes, however, do not decrease the pancreas's ability to produce digestive enzymes and sodium bicarbonate.

As the **liver and gallbladder** age, structural and microscopic changes occur. The ability of the liver to metabolize many substances decreases, and some drugs are not inactivated as quickly.

The **large intestine** does not undergo much change with aging, but the **rectum** does enlarge somewhat, and constipation becomes more common. Other changes include a slight slowing in the movement of contents, a modest decrease in rectal contractions, and pelvic floor weakness in women, which can contribute to fecal incontinence (Bartel, 2022).

ASSESSMENT

Assessment begins with a thorough history of any abdominal or gastrointestinal complaints, current medications (prescribed, over-the-counter, herbal-based), occurrence of nausea, vomiting, indigestion, or other discomforts.

Appetite is assessed for any changes. Poor appetite with related declines in body weight and energy is associated with frailty.

Mobility, exercise routine, and diet and fluid intake are assessed. Those with insufficient resources may be unable to purchase fresh fruit and vegetables, which can lower ingestion of dietary fiber and natural fluids, contributing to constipation. Older adults residing in nursing homes are especially at risk for dehydration and associated consequences for bowel function.

Oral health assessment includes asking about problems with dry mouth, changes in the sense of taste, difficulty with swallowing, oral health practices, and checking to be sure dentures fit well.

Patients with symptoms may be assessed using blood and diagnostic tests, including fecal occult blood test, lactose tolerance test, as well as GI diagnostic testing, which can include barium enemas and X-rays, stool analysis, and examination of the colon.

GI diseases and disorders can manifest with various signs and symptoms, including changes in appetite, weight gain or loss, dysphagia, intolerance to certain foods, nausea and vomiting, changes in bowel habits, and abdominal pain. Abdominal pain may be chronic or acute and related to inflammation, infection, allergy, or food intolerance. It can also result from trauma or obstruction (Mauk, 2023).

MANAGEMENT AND PREVENTION

It is frequently confusing to know which changes in GI function represent a part of normal aging processes and which are pathological results of a disease process. Management is complicated by the frequent presence of comorbidities and polypharmacy, all of which predispose the older patient to a more complex clinical course and increased probability for development of complications.

Basic management and prevention involve a healthy diet that includes foods high in fiber, reduced salt consumption, adequate fluid intake, and avoiding caffeinated and alcoholic beverages, as well as regular physical exercise.

For those with **dysphagia**, sitting up while eating and small, frequent meals of soft foods high in nutritional value are recommended.

Diverticula may cause bloating, gas, cramping, and constipation and may prompt irregularity and scarring. Symptoms of diverticulitis include fever, nausea, vomiting, cramping, and abdominal pain. Treatment includes pain medication, antibiotics, and a liquid diet. Older adults should avoid laxatives and enemas during treatment.

Gastroesophageal reflux causes heartburn and other painful symptoms. Causes may include eating late at night and consuming fried, spicy, or fast foods as well as some medications.

Stress can contribute to worsening digestive symptoms, and focusing on relieving stress includes regular exercise, which reduces adrenalin and cortisol and releases endorphins.

Constipation is very common in the older adult. Bowel movements may become infrequent or painful, and stools may be hard and dry. Constipation can be triggered as a side effect of medication or a symptom of another disorder. Decreased sensation to defecate can result in constipation and impaction. Interventions that increase the sensation of the need to defecate include a high-fiber diet, maintaining adequate fluid intake, physical activity, regular toilet routine, osmotic laxatives, stool softeners, lubricants or stimulant laxatives, suppositories, or small enemas. Warm prune juice or fruit nectar may also be of benefit (Cleveland Clinic, 2020c; GI Society, 2022).

Sensory Changes

Sensory changes in later life affect how people perceive and experience the world and can have an enormous impact on independence, safety, and quality of life. All five senses—vision, hearing, taste, smell, and touch—diminish in acuity with age. Aging raises the threshold of the amount of stimulation necessary to become aware of a sensation. Sensory changes can affect lifestyle by causing difficulties with communication, enjoyment of activities, and staying involved with others, which can lead to isolation (NIH, 2022e).

VISION/EYES

Vision is affected by changes in all of the eye structures. The cornea become less sensitive, making eye injuries less noticeable. By age 60, pupils may decrease to about one third the size they were at age 20. Pupils react more slowly to darkness and bright light. The lens becomes yellowed, less elastic, and slightly cloudy. Eye muscles become less able to fully rotate the eye.

Eyes become less able to tolerate glare, and problems with glare, brightness, and darkness may lead to impaired night vision and reduced color discrimination.

Visual acuity gradually declines, causing difficulty focusing on close-up objects (presbyopia). Reading glasses, bifocal glasses, or contact lenses are required to help correct acuity. Also, with aging, the vitreous starts to shrink, creating small particles called *floaters* that dart back and forth across the field of vision.

Aging eyes may fail to produce enough tears, leading to dry eyes, and if not treated, infection, inflammation, and scarring of the cornea can occur. Eye drops or artificial tears can alleviate this problem (NIH, 2022e).

Other common eye disorders affect older adults, although they are not considered normal effects of aging. These are described below:

- **Cataracts** are cloudy areas in the lens of the eye that cause blurred or hazy vision and that may require surgical removal.
- **Dry eye** can cause stinging or burning, a sandy feeling in the eye, or other discomforts. Dry eye is common, especially in women. Management may include a home humidifier or air purifier and special eye drops or ointments. For more severe cases, treatment options include prescription medications, tear duct plugs, or surgery (NIA, 2021a).
- **Glaucoma** is a group of eye conditions that damage the optic nerve by increasing ocular pressure. Many forms of glaucoma, which is one of the leading causes of blindness for those over 60, have no warning signs; the effect is so gradual the person may not notice any change in vision until the condition is at an advanced state. Patients also often have no early symptoms of pain. If glaucoma is recognized early, vision loss can be slowed or prevented. Patients with open-angle glaucoma may present with patchy blind spots in peripheral or central vision, often in both eyes, and tunnel vision in the advanced states. Acute-closure glaucoma presents with severe headache, eye pain, nausea and vomiting, blurred vision, halos around the eyes, and eye redness (Mayo Clinic, 2022a).

- **Age-related macular degeneration** (AMD) is caused by damage to the macula of the retina, leading to loss of central vision. It is the leading cause of severe and permanent vision loss in older adults. Early AMD is often asymptomatic, but patients may complain of a gradual loss of vision in one or both eyes, first noticed as difficulty reading or driving, or a need for brighter light or magnifying lens for fine visual acuity. Others may experience distortion of straight lines (e.g., doors or window blinds) (Arroyo, 2023).

- **Retinopathies:** Hypertensive retinopathy is caused by chronic high blood pressure that damages the retina. Diabetic retinopathy occurs when too much glucose damages the blood vessels in the retina, stimulating the growth of scar tissue, which can pull the retina away from the back of the eye (NIH, 2022e).

Assessment, Management, and Prevention

It is important to remind older patients to follow the recommendation of the American Academy of Ophthalmology for a comprehensive **vision exam** every year or every other year, which can assure that the patient has the proper eyeglass or contact lens prescription and to check for common eye disorders (Boyd, 2023).

Vision assessment includes testing visual acuity, often by using a Snellen chart. Tonometry to test for ocular pressure is occasionally done in primary care but normally is done by an ophthalmologist or optometrist as part of a routine eye exam or when a patient is referred for clinically suspected glaucoma. Ophthalmoscopy is performed to check for cataracts; optic nerve or macular degeneration; and evidence of glaucoma, hypertension, or diabetes (Stefanacci, 2022).

Prevention includes a diet rich in vitamins C and E, zinc, lutein, zeaxanthin, and omega-3 fatty acids. Studies have shown that a plant- and seafood-based diet may reduce the risk of AMD, and

a diet rich in antioxidants may delay or slow down oxidation that can lead to cataracts by causing changes to fats and proteins in the lenses, making them cloudy (Gregori, 2023).

Falls are linked to poor eyesight, so it is important to ensure that floors are kept free of clutter, rooms are well-lit, and night lights are installed in strategic locations. Sharp corners of furniture and home fixtures can be covered, railings secured, and rugs and mats made slip-proof. Assistive devices in addition to eyeglasses include magnifiers. It is important to ensure that eyeglasses are kept clean and that the person is wearing them (Hazanchuk, 2022).

HEARING/EARS

Aging results in changes in the structures inside the ear, causing a decline in function and making a major impact on independence, safety, and quality of life. The ears have two functions: hearing and maintaining balance. With aging, the ability of the ear to pick up sounds decreases, and problems with maintaining balance while sitting, standing, and walking may also occur.

Age-related hearing loss (presbycusis) affects both ears. Hearing may decline, particularly the ability to hear high-frequency sounds. There may be problems in differentiating between certain sounds or with hearing a conversation in the presence of background noise.

Persistent abnormal ear noise (tinnitus) is another common problem in older adults. Causes may include cerumen buildup or impaction and medications that damage structures in the ear (NIH, 2022e).

Assessing and Managing Hearing Changes

An examination of the external auditory canal is performed to look for an accumulation of cerumen, especially if a hearing problem was noted during the interview. If the patient is wearing a hearing aid, it should be removed and examined to determine whether the ear mold or plastic tubing is plugged with wax or the battery is dead.

The emotional consequences of the patient's hearing loss and how it interferes with social or family functioning is also included in assessment. This can be done by having the patient complete the Hearing Handicap Inventory for the Elderly (HHIE). If the test score is positive, the patient is referred for formal audiologic testing (Cassarly et al., 2020; NIH, 2023b).

Audiology assessment involves testing, such as a pure-tone test to determine the quietest sounds the person can hear and a speech discrimination test to determine how well a person can hear people talking.

A tympanometry test assesses the eardrum and bones in the middle ear, and an otoacoustic emission test checks for damage in the hair cells in the cochlea. A tuning fork test helps determine whether hearing loss is due to nerve problems (sensorineural) or the presence of fluid or wax (conductive hearing loss).

Management of conductive hearing loss depends on what is blocking sound from reaching the inner ear. This may include removing wax, draining fluid, or surgery involving the eardrum or bones in the ear.

Sensorineural hearing loss cannot be treated, but hearing aids or cochlear implants may be used. Assistive devices may be utilized for phones and devices to alert the person to doorbells, alarms, and other sounds. It is essential when caring for patients with hearing deficits that any hearing aid device be kept clean and functioning and to make certain the hearing device is being worn (NIH, 2022e).

Prevention measures include management of hypertension and diabetes; smoking cessation; limiting alcohol use; avoiding ototoxic drugs whenever possible; eating foods high in vitamins A, C, E, and especially B_{12}; and wearing hearing protection in noisy environments. Noise-induced hearing loss is cumulative and almost always irreversible (Victory, 2022).

VESTIBULAR FUNCTION

Studies have shown that the number of nerve cells in the vestibular system decreases after about age 55. Blood flow to the inner ear also decreases with age.

Benign paroxysmal positional vertigo (BPPV) is the most common vestibular disorder in older adults and causes a sense of true spinning vertigo triggered by a change of position of the head or body. BPPV is a mechanical disorder that occurs when debris called *otoconia* loosen and tumble into the semicircular canals of the inner ear. This causes false signals to be sent to the brain, triggering vertigo. The spinning lasts less than a minute and can provoke nausea, vomiting, and imbalance (VEDA, 2023).

Assessment and Management

Assessment includes evaluation of balance. When the vestibular system is damaged, an individual may experience dizziness and imbalance. The gradual loss of vestibular nerve endings with aging, however, can result in balance problems without any associated dizziness. This type of slow loss of vestibular function may first be noticed as difficulty walking or standing, especially in the dark while on soft or uneven surfaces.

BPPV can be treated by a vestibular therapy that includes the Epley maneuver or canalith repositioning techniques, which help return the otoconia to their correct position in the inner ear (VEDA, 2023).

TASTE AND SMELL

Taste and smell work together to detect the aesthetics and safety of the environment. The number of taste buds declines with age, and each remaining taste bud begins to shrink. In addition, salivary glands produce less saliva, causing dry mouth, which can affect the sense of taste. After age 70, the sense of smell may diminish, possibly due to loss of nerve endings and less mucus

production in the nose. Mucus helps odors stay in the nose long enough to be detected and helps clear odors from the nerve endings.

Factors that can speed up the loss of taste and smell include diseases, such as COVID-19, smoking, exposure to harmful particles in the air, and some medications.

Decreased taste and smell can result in less interest and enjoyment in eating, which can affect overall nutritional status and contribute to depression. Loss of taste and smell might also lead the individual to use excessive salt or sugar on their food to enhance the taste.

Loss of the sense of smell disrupts almost every aspect of life, from concerns about personal hygiene, loss of ability to link smells to happy memories, and loss of interest and enjoyment in eating, subsequently impairing nutritional and immune status. In addition, it impairs ability to detect spoiled foods, gases, and smoke (NIH, 2022b).

Assessment, Management, and Prevention

The clinician assesses for factors that may contribute to the loss of taste and smell, which include certain medications (e.g., beta blockers and angiotensin-converting enzyme [ACE] inhibitors), dental problems, cigarette smoking, head or facial injury, diseases that affect the central nervous system (e.g., Alzheimer's disease and Parkinsons disease), and respiratory illnesses (e.g., COVID-19).

Assessment for taste and smell complaints can involve a variety of tests, including those that directly assess smell and taste as well as more general tests such as imaging and laboratory studies. The majority of patients with loss of smell may be unaware and therefore remain undiagnosed and untreated.

For patients with diminished or absent sense of taste or smell, treatments usually depend on the cause; however, there is no treatment for loss due to the aging process.

Medication regimens are assessed for possible olfactory side effects, and alternative drugs or reduced dosages may preserve the sense of smell. Patients are encouraged to stop smoking.

To help enhance the dining experience, recipes can be altered to include more flavorful spices and herbs. Older adults can also be encouraged to make meals a social time whenever possible. Studies have shown that the presence of others during meals also increases the duration of the meal, resulting in increased intake (NIH, 2022e).

TOUCH

Sense of touch allows for awareness of pain, temperature, pressure, vibration, and body position. With aging, sensations may be reduced due to decreased blood flow to nerve endings or to the spinal cord or brain. Certain health conditions can affect the ability to sense touch, such as lack of certain nutrients, skin or nerve damage caused by diabetes, neurological disorders, mental

illness, and brain disorders or injury. Certain medications and treatments can also affect touch sensation.

With changes in temperature sensitivity, there is an increased risk of injury from frostbite, hypothermia, and burns. Reduced ability to detect vibration, touch, and pressure also increases the risk of injuries, including pressure injuries. After age 50, many people have reduced sensitivity to pain, making it easy to ignore a severe injury. Problems may develop due to reduced ability to perceive where the body is in relation to the floor, increasing the risk of falling.

Peripheral neuropathies can prevent older people from noticing foot infections and injuries and can lead to falls and gait disorders, contributing to loss of autonomy and independence. Causes include physical injury, diabetes, vascular and blood problems, systemic autoimmune disease, hormonal imbalances, kidney and liver disorders, nutritional or vitamin imbalances, alcoholism, exposure to toxins, certain cancers and benign tumors, chemotherapy drugs, or infections (NIH, 2022e; NINDS, 2023).

Assessment, Management, and Prevention

Assessment helps determine whether the problem is in the cerebral cortex, thalamus, sensory pathways in the brain or spinal cord, or peripheral nerves. Sensation assessment includes pain perception, temperature awareness, touch awareness, pressure perception, cortical sensory function (graphesthesia, stereognosis), joint position sense, and ability to stand with feet together and eyes closed (Romberg test) to determine impaired position sense in the lower extremities (Newman, 2023).

Many patients report numbness, weakness, stabbing pain, or tingling (especially in the feet), and many older people lose vibratory sensation below the knees. Peripheral neurology is the result of damaged peripheral nerves and can be due to traumatic injuries, infections, metabolic problems, inherited causes, and exposure to toxins. One of the most common causes is diabetes (Mayo Clinic, 2023c).

Management of changes in sensation often focus on **safety issues**. The following are ways patients can be instructed to manage symptoms:

- When in a new place, look around for likely sources of injury.
- Check the position of arms and legs often.
- If in a wheelchair, check position of hands and feet before moving.
- Prevent burns from heat or cold.
    - Check water temperature of tub or shower (no higher than 120 ˚F).
    - Check thermometer to decide how to dress rather than waiting until overheated or chilled.
    - Cover hands with oven mitts when cooking or using the stove.

    - Wear protective gloves when using products containing harmful chemicals.
    - Use sunscreen.
    - Wear insulated gloves or mittens in cold weather.
    - Protect feet with warm socks and boots in cold weather.
    - Do not use heating pads on areas that have less sensation.
- Prevent pressure injuries by changing positions often and using pressure-relieving aids.
- Check skin daily looking for redness, bruises, cuts, and other irritations, especially over bony areas.
- Check feet daily for wounds and other injuries.
- Wear socks and well-fitting, protective shoes.
- Dry feet well, especially between toes.
  (Health Library, 2022)

CASE

Agnes Miller, age 86, is a widow who has lived alone successfully for years in her small apartment. One day, she slipped and fell in her kitchen, fracturing her hip. The fall also broke her glasses and dislodged her hearing aid, which slid out of reach under the kitchen table. Unable to reach the telephone, Agnes lay on the floor and shouted for help, hoping that a neighbor would hear her. It was a cold day and all windows were closed, so nearly 24 hours passed before someone heard her and dialed 911.

Paramedics whisked Agnes off to the hospital, leaving her broken glasses on the kitchen table and failing to notice her hearing aid underneath the table. Arriving in the emergency department, Agnes was weak, disoriented, and had difficulty hearing and responding to questions. She had been without food or water and was shivering and in pain. After her condition was stabilized with IV fluids and warm blankets, she was prepped for surgery to repair her hip.

A few days later she was moved to a long-term care facility, still without her glasses or her hearing aid. Her medical record indicated “confusion” and “disorientation.” Fortunately, a nurse at the long-term care facility was able to communicate with Agnes about her missing glasses and hearing aid. By contacting Agnes’s neighbor, the nurse was able to get the hearing aid and order new glasses. Over the next week or two, Agnes once again became alert, responsive, and communicative.

Nutritional Changes

Older adults generally require fewer calories because decreased muscle mass contributes to a decline in metabolism and mobility. Gastrointestinal function becomes less efficient, making it

harder to absorb nutrients, and this can lead to deficiencies in certain vitamins and minerals. The body tends to store more fat with aging, which contributes to the risk of overweight, obesity, and weight- and age-related health issues like diabetes and cardiovascular disease.

During menopause women require more calcium and vitamin D to maintain strong bones. In men who are experiencing reduced testosterone, additional protein is required to maintain muscle mass (Cochran, 2023).

Changes that occur with aging that affect the nutrition of the older adult involve a combination of **physical, social, and psychological issues**, including:

- Decline in ability to smell and taste, making it difficult to enjoy food
- Difficulty chewing or swallowing
- Disease-related loss of appetite
- Disease-related complications and inflammation, which can contribute to changes in how the body processes nutrients
- Poor dental health
- Limited ability to handle eating utensils
- Memory or behavioral problems resulting in forgetting to eat, failure to purchase groceries, or other irregular food habits
- Certain medications that affect appetite or the ability to absorb nutrients
- Restricted diet required to manage medical conditions
- Depression and loneliness
- Alcohol use, which can interfere with digestion and absorption of nutrients and contribute to poor decisions about nutrition
- Limited income
- Reduced social contact

Malnutrition in the older adult can lead to problems such as:

- An increased risk of death and/or hospitalization
- A weakened immune system, increasing risk of infections
- Decreased bone mass and muscle weakness, increasing risk of falls and fractures
- Poor wound healing
(Swiner, 2023)

ASSESSMENT

A comprehensive nutritional assessment involves a thorough clinical examination (history and physical), anthropometric measurements, diagnostic tests, and dietary assessments.

Nutritional history includes:

Medical diagnoses

Hospitalizations

Changes in appetite

Availability and preparation of food

Medications

Details regarding weight change

A full-body **physical examination** is performed to identify alterations related to malnutrition. Common signs and symptoms of malnutrition include:

- Unplanned weight loss (5% loss is moderate; 10% is severe)
- Feeling weak or tired
- Loss of appetite
- Fluid accumulation, edema or ascites
- Pallor
- Dry skin, loss of subcutaneous tissue, dull and brittle hair
- Loss of muscle size and tone
- Mouth fissures

Nutritional screening using an assessment tool such as the Mini-Nutritional Assessment (MNA), as well as a 24-hour dietary recall/diet history, is recommended to identify individuals at risk of developing malnutrition. Ideally, a dietary assessment is performed by a qualified, registered dietitian-nutritionist (RDN) to evaluate persons already identified to be at nutritional risk.

Functional assessment should be done to observe whether people are ambulatory and whether they can eat and drink without assistance.

Anthropometric measurements include height, weight, and BMI. Apart from laboratory tests, body composition studies can be performed to estimate the body's composition in terms of water, air, muscle, bone, and fat mass.

Mental assessment is crucial alongside physical assessment. Elderly persons with severe malnutrition may be physically (due to weakness) and mentally (due to dementia) incapable of maintaining healthy nutritional status.

Additional clinical examinations or diagnostic tests may be necessary according to an individual's population group and any underlying pathology (Norman et al., 2021; Serón-Arbeloa et al., 2022).

MINI NUTRITIONAL ASSESSMENT INSTRUMENT	
Assessment Question	**Scoring**
Has food intake declined over past 3 months due to: • Loss of appetite • Digestive problems • Chewing or swallowing difficulties	0 = Severe decrease 1 = Moderate decrease 2 = No decrease
Weight loss during the last three months	0 = Weight loss less than 6.6 pounds 1 = Does not know 2 = Weight loss between 2.2 and 6.6 pounds 3 = No weight loss
Mobility	0 = Bed or chair bound 1 = Able to get out of bed/chair but does not go out 2 = Goes out
Psychological stress or acute disease in past three months	0 = Yes 2 = No
Neuropsychological problems	0 = Severe dementia or depression 1 = Mild dementia 2 = No psychological problems
Body mass index (BMI)	0 = Less than 19 1 = 19 to less than 21 2 = 21 to less than 23 3 = 23 or greater
If BMI not available, calf circumference	0 = Less than 31 cm 3 = 31 cm or greater
Screening Score (maximum 14 points)	12–14: Normal nutritional status

	8–11: At risk of malnutrition 0–7: Malnourished
(Hood, 2020)	

MANAGEMENT AND PREVENTION

Interventions for patients who are **malnourished** are directed at the underlying cause (e.g., treatment for depression) as well as dietary modification. Nutritional restrictions are lifted for patients with diabetes who may do well with a regular diet and adequate monitoring. High-calorie foods are recommended. Oral nutritional supplementation for patients who do not regain weight are also recommended, with adjustments in meal preparation and diet.

Advice regarding weight loss of the **overweight** older person is tailored to the individual, assessing the impact of excess weight on quality of life, and includes the need for regular exercise. It is not recommended that people over the age of 80 who are slightly obese be placed on calorie-restricted diets. The best option is to eat at least three meals a day that provide 30 grams of protein each and to engage in two or three weekly sessions of resistance training that taxes all the large muscle groups in order to preserve muscle mass (Ritchie & Yukawa, 2023).

Micronutrient deficiencies are common:

- Vitamin B_{12} deficiency can result in anemia, neurological symptoms, and psychological problems ranging from mild depression to confusion or dementia.
- Vitamin D and calcium deficiency are also common in the older population and can result in osteoporosis, reduced muscle strength, and increased risk for falls.
- Magnesium deficiency has been linked to sleep disorders, impaired cognition, cardiovascular disease, stroke, type 2 diabetes, asthma, and depression.
- Vitamin B_6 (pyridoxine) deficiency can weaken the immune system and cause anemia, skin rashes, and numbness of hands or feet.
- Dietary fiber deficiency can result in constipation/bloating, blood sugar fluctuations, high cholesterol, fatigue, postprandial hunger, inflammation, and some cancers.
  (AARP, 2023)

Recommendations for those who are having difficulty meeting nutritional needs can include:

- Sharing meals with family and friends
- Experimentation with food from all food groups to help identify textures that are acceptable, appealing, and enjoyable, especially for those with chewing and swallowing issues
- Maintaining good dental health
- Eating healthy snacks during the day to increase nutritional intake

- Drinking plenty of fluids when eating to aid in swallowing
- Accessing government resources such as:
    - Congregate Nutrition Services
    - Supplemental Nutrition Assistance Program (SNAP)
    - Commodity Supplemental Food Program (CSFP)
    - Home-Delivered Nutrition Services
    - Child and Adult Care Food Program

(DeSilva, 2022)

Sleep Changes

Sleep patterns tend to change with aging, causing difficulty falling asleep and waking often during the night and earlier in the morning. Total sleep time stays the same or is slightly decreased (6.5 to 7 hours per night).

Older people wake up an average of three or four times each night because they spend less time in dreamless deep sleep. Other causes include needing to get up to urinate, anxiety, discomfort, or pain from chronic illnesses. Because older people sleep more lightly and wake up more often, they may feel deprived of sleep even when their total sleep time has not changed.

Transition from sleep to waking up is often abrupt, making older people feel like they are a lighter sleeper than when they were younger.

Common problems include insomnia, restless legs syndrome, narcolepsy or hypersomnia, and sleep apnea. Sleep deprivation can eventually cause confusion and other mental changes (NIH, 2022f).

ASSESSMENT

Assessment includes a history and physical examination to assess for **medical causes**, including:

- Acid reflux
- Depression
- Diabetes
- Enlarged prostate
- Heart disease
- Lung disease
- Menopause
- Multiple sclerosis

- Obesity
- Parkinson's disease
- Thyroid disorder
- Substance abuse

Assessment is also made for **other matters that can impact sleep**, including:

- Daytime energy
- Concentration levels
- Nocturia
- Medications
- Exercise habits
- Mood
- Use of caffeine or alcohol before bedtime
- Use of a sleep aid
- Restless less syndrome
- Sleep apnea

Evaluation of sleep among older adults begins with a complete sleep history. Patients may be asked to create a sleep diary, or a sleep study (polysomnography) may be obtained. A **sleep diary** tracks sleep habits for one to two weeks and includes:

- Typical sleep pattern
- Daytime functioning and napping
- Intake of caffeine, alcohol, drugs, or food before bedtime
- Use of sleep aid
- History of psychiatric and mood disorders

(Mount Sinai, 2023; SD, 2020)

Review of Medications

The geriatric population is the largest age group to use hypnotic drugs. The use of these medications has been associated with falls, hip fractures, and daytime carryover symptoms. When evaluating a patient for sleep problems, a review of medications is performed to help determine causes of insomnia. Such medications can include:

- Cold and allergy decongestants

- Short-acting beta-2 agonists (bronchodilators)
- ACE inhibitors
- Beta blockers
- Oral diabetes medication (biguanides)
- Acetylcholinesterase inhibitors
- SSRI antidepressants
- Opioid pain relieves
- Alpha blockers
- Stimulants
  (Garling, 2023)

Iron status (ferritin blood level) may be required for patients with restless leg syndrome and appropriate oral or intravenous iron therapy considered (Silber et al., 2021).

MANAGEMENT AND PREVENTION

If initial history and physical exam do not reveal a serious underlying cause, a trial of improved **sleep hygiene** is recommended:

- Sleep in a quiet room that is at a comfortable temperature.
- Have a relaxing bedtime routine.
- A light bedtime snack may be helpful; a glass of warm milk increases sleepiness.
- Avoid large meals shortly before bedtime.
- Avoid caffeine, nicotine, and alcohol before bedtime.
- Exercise at regular times each day, but not within 3 hours of bedtime.
- Go to bed and wake up at the same time every day.
- Decrease or eliminate napping.
- Do not watch television or use computer, cell phone, or tablet in the bedroom.
- Use the bed only for sleep or sexual activity.
- If still awake after 20 minutes, get out of bed and do a quiet activity such as reading or listening to music.
  (Mount Sinai, 2023).

Patients diagnosed with sleep apnea may need to sleep with a continuous positive airway pressure (CPAP) device and are advised to keep a regular routine of use. Regular maintenance of the machine and evaluation of its effectiveness are also important considerations. Common problems include a leaky mask, trouble falling asleep, stuffy nose, and dry mouth. When patients

are first introduced to this device, it is helpful for them to wear it for short periods while awake. Once the patient is used to how it feels, the device is worn for sleeping, including naps (Mayo Clinic, 2021).

COGNITIVE CHANGES OF AGING

Some changes in the ability to think are considered a normal part of the aging process. Normal age-related cognitive declines affect mainly the speed of thinking and attention. Many thinking abilities appear to peak around age 30 and very subtly decline with age in most people. These declines most commonly include overall slowness in thinking and difficulties sustaining attention, multitasking, holding information in mind, and word-finding. Age-related changes in brain structure are a common aspect of aging, contributing to some of the changes in thinking.

However, not all thinking abilities decline with age. Vocabulary, reading, and verbal reasoning remain unchanged or even improve during the aging process.

Normal age-associated changes include difficulties with memory, but:

- They do not noticeably disrupt daily life.
- They do not affect ability to complete tasks as usual.
- There is no difficulty learning and remembering.
- There is no underlying medical condition causing the difficulties.

In **abnormal aging**, declines in cognition are more severe and may include other thinking abilities, such as confusion; rapid forgetting; or difficulties navigating, solving common problems, expressing oneself in conversation, or behaving outside of social rules. Abnormal changes result in mild cognitive impairment (MCI) and dementia. MCI does not affect the person's ability to carry out everyday tasks, while dementia indicates cognitive difficulties are impacting those abilities.

Risk factors for cognitive declines include:

- Type 2 diabetes
- Hypertension
- Midlife obesity
- Elevated cholesterol
- Smoking
- Depression
- Decreased or absent stimulating mental activity
- Little or no exercise

The most common **causes** of mild cognitive impairment (MCI) and dementia are:

- Alzheimer's disease
- Vascular disease
- Frontotemporal degeneration
- Lewy body disease
(UCSF, 2023)

Delirium

Delirium is a reversible acute state of confusion. It is a decline from a previous baseline level of mental function that develops quickly, within hours or days, and is typically the result of a medical problem. It is the most common acute disorder of cognitive function in older persons and is life-threatening and often underrecognized. Causes of delirium often relate to acute medical illness, adverse drug reactions, or medical complication. Delirium is a medical emergency associated with increased morbidity and mortality rates.

Core **symptoms** of delirium include impaired cognition and consciousness, inability to direct attention, and limited perception of environmental stimuli and inadequate reaction to them, as well as perceptual and memory disorder, paranoid symptoms, and hallucinations. Symptoms of delirium usually fluctuate over time and often aggravate in the early evening hours. There is often a considerably increased startle response.

Symptoms of delirium are sometimes confused with symptoms of dementia. Differences are described in the table below.

COMPARING DELIRIUM AND DEMENTIA		
	Delirium	**Dementia**
Onset	Occurs within a short time	Usually begins with minor symptoms that worsen over time
Attention	Impaired ability to maintain focus	In early stages, generally alert; sluggishness or agitation not typical
Change in symptoms	May come and go rapidly several times during the day	Better and worse times of day, but memory and thinking skills typically constant
(Mayo Clinic, 2022b; Iglseder et al., 2022)		

Predisposing factors include:

- Advanced age
- Neurocognitive deficit, delirium in the medical history
- Underlying dementia

- Functional impairment (physical, vision, hearing, frailty)
- Lower educational attainment
- Multimorbidity
- Sensory disorders
- Anemia
- Malnutrition (vitamin deficiencies)
- Substance abuse
- Depression
- Anxiety
- Diabetes
- Pain
- Anemia
- Social isolation
- Use of restraints
- Presence of indwelling catheter
- Use of three or more medications

Triggers of delirium may include:

- Surgical intervention
- Anticholinergic drugs
- Psychoactive drugs (antipsychotics, antidepressants, tranquilizers)
- Intensive care unit stay
(Mayo Clinic, 2022b; Iglseder et al., 2022).

REVERSIBLE CAUSES OF DELIRIUM

The mnemonic *delirium* is a tool to remember the reversible causes of delirium.

- **D**rugs, including new medications, increased dosages, drug interactions, over-the-counter drugs, alcohol
- **E**lectrolyte disturbances, especially dehydration and thyroid problems
- **L**ack of drugs, such as long-term sedatives
- **I**nfection, most commonly urinary or respiratory tract

- **R**educed sensory input related to decreased hearing and vision
- **I**ntracranial processes, such as an infection, hemorrhage, stroke, or tumor (rare)
- **U**rinary problems or intestinal problems, such as constipation or inability to urinate
- **M**yocardial and respiratory issues, including myocardial infarction, arrhythmias, worsening heart failure, or chronic obstructive lung disease

(AGS, 2023)

ASSESSMENT AND DIAGNOSIS OF DELIRIUM

Delirium should be considered when a person abruptly demonstrates reduction in awareness of the environment. The person may have difficulty with orientation: first to time, then to place, and last to person, although orientation to person usually remains intact. The person's level of consciousness may range from lethargy to stupor or from semicoma to hypervigilance.

When assessing an older adult for possible delirium, it is helpful to establish the person's usual level of cognition by interviewing family or other caregivers. This can include inquiring about past cognitive impairments, especially if the individual has an existing dementia diagnosis.

A diagnosis of delirium is made on the basis of careful observation and mental status testing. Evaluation of thinking and attention span can be done using a simple set of tests and standardized questions similar to those used to diagnose dementia, such as:

- Perform a simple math calculation
- Spell a short word backward
- Repeat a series of four or five numbers in order and then in reverse order
- Name the days of the week backward

Tests to assess cognitive health can include the:

- Mini–Mental State Examination (MMSE)
- Confusion Assessment Method (CAM)
- Delirium Symptom Interview (DSI)

When the causes of delirium are not clear, a complete history and physical exam are performed. The history includes a review of all medications, including over-the-counter and herbal remedies. Blood tests and other studies may also be appropriate, including:

- Neurological exams, such as tests of feeling (sensation), thinking (cognitive function), and motor function
- Psychological tests evaluating for depression or acute psychiatric syndromes

- Blood tests (such as a comprehensive metabolic panel, toxicology screen)

Other tests based on the person's symptoms may include:

- Chest X-ray
- Urinalysis
- Electrocardiogram
- Cerebrospinal fluid test
- Electroencephalogram (EEG)
- CT or MRI scans of the head
(AGS, 2020)

MANAGEMENT OF DELIRIUM

Medical management of a patient with delirium involves treating the underlying organic cause, and the goal of management is to keep the patient safe and free from falls and injury while attempting to identify the cause.

An individual experiencing delirium has difficulty processing stimuli in the environment, and confusion magnifies their inability to recognize reality. It is helpful to make the physical environment as simple and clear as possible.

Supportive care is aimed at preventing complications. Such measures may include:

- Protecting the airway
- Providing fluids and nutrition
- Assisting with movement
- Treating pain
- Addressing incontinence
- Avoiding use of physical restraints and urinary catheters
- Avoiding change in surroundings and caregiver whenever possible
- Encouraging the involvement of family members or familiar people

Psychotropic medications may be necessary if symptoms make it difficult to perform a medical exam or provide treatment, put the person in danger or threaten the safety of others, or do not lessen with other forms of management (Mayo Clinic, 2022b).

Mild Cognitive Impairment

Mild cognitive impairment is the stage between expected cognitive decline due to aging and dementia. It is characterized by problems with memory, language, thinking, or judgment. These changes, however, are not severe enough to significantly interfere with daily living and one's usual activities (Mayo Clinic, 2023d).

There is no single cause of MCI and no single outcome for the disorder. MCI may increase the chances of later development of dementia, but some people never get worse and a few eventually improve. People with MCI may experience:

- Forgetting things more often
- Forgetting important events such as appointments or social engagements
- Losing the train of thought or the thread of conversations, books, or movies
- Being increasingly overwhelmed by making decisions, planning steps to accomplish a task, or understanding instructions
- Difficulty finding one's way around familiar environments
- Becoming more impulsive or showing increasingly poor judgment

People may also experience:

- Depression
- Irritability and aggression
- Anxiety
- Apathy
  (Mayo Clinic, 2023d)

Experts classify MCI based on the thinking skills affected:

- **Amnestic MCI** primarily affects memory. A person may start to forget important information that they would previously have recalled easily.
- **Nonamnestic MCI** affects thinking skills other than memory, including ability to make sound decisions, judge the time or sequence of steps needed to complete a complex task, or visual perception.
  (AS, 2023a)

PREVALENCE OF MCI

MCI is common in older adult populations.

- Approximately 12%–18% of people ages 60 or older are living with MCI.

- An estimated 10%–15% of people living with MCI develop dementia each year.
- One third of people living with MCI due to Alzheimer's disease develop dementia within five years.

(AA, 2023a)

ASSESSMENT AND DIAGNOSIS OF MCI

There is no specific test to confirm a diagnosis of mild cognitive impairment. The information provided by the patient and the results of various tests can help determine the diagnosis. The workup includes:

- A thorough medical history and family history of significant memory problems or dementia
- Assessment of independent function and daily activities
- Input from a family member or friend to provide information on how function may have changed
- Assessment of mental status using brief tests designed to evaluate memory, planning, judgment, ability to understand visual information, and other key thinking skills
- In-office neurological examination to assess function of nerves, reflexes, movement, coordination, balance, and senses
- Evaluation of mood to detect depression
- Laboratory tests including blood tests for vitamin B_{12} or thyroid hormone
- An MRI or CT scan to check for a brain tumor, stroke, or bleeding

As part of the physical, basic **neurological testing** may be done to rule out signs of Parkinson's disease, stroke, tumors, or other medical conditions. If workup does not create a clear clinical picture, neuropsychological testing may be recommended, such as the Wechsler Adult Intelligence Scale (WAIS) to assesses intelligence, cognitive ability, memory, and processing speed.

Review of the patient's **medications** is an essential part of the assessment, as certain medications may contribute to the risk of cognitive impairment and development of dementia. These may include:

- Benzodiazepines
- Anticholinergics
- Antihistamines
- Opioids

- Proton pump inhibitors

Lab tests that help rule out physical problems that can affect memory are done, including vitamin B_{12} deficiency or hypothyroidism. An MRI or CT scan may be ordered to rule out brain tumor, stroke, or bleeding.

Mental status testing shows a mild level of impairment for age and education. Brief tests such as the Short Test of Mental Status, the Montreal Cognitive Assessment (MoCA), or the Mini–Mental State Examination (MMSE) may be used (see table) (Mayo Clinic, 2023d).

MINI–MENTAL STATE EXAMINATION		
Category	**Points**	**Questions**
1. Orientation to time and place	10	• The patient is asked to provide information on the time (e.g., year, season, month, date, and day of week). (1 point each) • The patient is asked to provide information on the present location (e.g., state, county, city, hospital, and floor). (1 point each)
2. Registration	3	The patient is asked to repeat three named prompts (apple, table, penny). (1 point each)
3. Attention and calculation	5	The patient is asked to spell the word *WORLD* backwards. (Points given up to first misplaced letter, e.g., 2 points for "DLORW")
4. Recall	3	The patient is asked to recall the three objects memorized in "registration" above. (1 point each)
5. Language	2	The patient is asked to name two objects when they are displayed (pencil and watch). (1 point each)
6. Repetition	1	The patient is asked to speak back a phrase ("No ifs, ands, or buts"). (1 point)
7. Complex commands	6	The patient is asked to follow complex commands, which may involve drawing a shown figure. (6 points)

MANAGEMENT AND PREVENTION OF MCI

Treatment may include cholinesterase inhibitors for those with MCI whose main symptom is memory loss. They are not, however, recommended for routine treatment of MCI, haven't been found to affect progression to dementia, and can cause side effects.

Lifestyle interventions that promote good overall health may also play a role in good cognitive health, help preserve mental function, and slow mental decline. These include:

- Exercising regularly at a moderate to vigorous intensity
- Eating a Mediterranean-style diet
- Reducing alcohol intake
- Controlling blood pressure
- Managing blood sugar
- Maintaining a healthy weight
- Treating hearing problems
- Management of chronic health issues such as depression or high cholesterol
- Preventing head injury
- Discontinuing tobacco use
- Getting consistent, good-quality sleep
- Engaging in mentally stimulating activities and having a higher level of education
- Being social to make life more satisfying
- Engaging in memory training and other cognitive training
  (Harvard Health Publishing, 2021).

Recommendations for patients in the management of mild cognitive impairment can include:

- Following a daily routine
- Using memory tools such as calendars, to-do lists, and notes
- Putting commonly used objects in the same place each day
- Learning a new skill
- Volunteering in the community
- Spending time with friends and family
- Getting seven to eight hours of sleep each night
- Exercising and eating well
- Reducing or eliminating alcohol intake
- Being socially interactive
  (Alzheimer's Society, 2023)

Occupational Therapy and Cognitive Decline

Occupational therapists treat cognitive impairments by using everyday task performance to identify impairment and inform the plan of care. To assess whether a person can safely and effectively participate in essential ADLs, occupational therapists use performance-based testing (PBT), utilizing everyday activities that have high potential to engage patients in a limited amount of time. PBT is also used to determine postdischarge level of functioning in valued roles, routines, and self-care activities. The occupational therapist's assessment assists in establishing necessary environmental and personal care supports required for the person to function in both treatment and discharge environments.

To assess ability to perform tasks, occupational therapists determine how or whether the person initiates a task, avoids and/or corrects errors, sequences, and executes task steps. In addition, therapists evaluate awareness of attention to environmental stimuli throughout the activity. These evaluations can help individuals identify strategies to compensate for cognitive loss when possible and adapt the environment to improve independence in participating in ADLs and IADLs. In addition, occupational therapy contributes to identifying appropriate levels of care and appropriate resources to reduce caregiver burden, reduce hospital readmissions, and increase safety at discharge (AOTA, 2021).

Physical Therapy and Cognitive Decline

Physical therapists design functional mobility and exercise programs for those with cognitive decline that can play a role in preventing further decline. Physical therapists help people stay mobile so they can continue to perform their roles at home and in the community, as well as help them keep doing daily activities for as long as possible. As a patient's condition deteriorates, physical therapists may shift attention to practicing simple task-specific activities, such as transferring in and out of bed or sitting in a chair. Fall prevention remains an important focus throughout treatment.

Physical therapists can instruct caregivers and family on how to improve safety and can perform a home assessment to help make the home environment safer. Physical therapy can help improve quality of life and may delay the need for facility-based care (Tervort, 2023).

Dementia

Dementia is an umbrella term for a collection of symptoms of cognitive decline, including disruptions in short-term memory, learning new information, planning, problem-solving, decision-making, language, orientation, visual perceptual skills, mood, and behavior, all of which interfere with daily activities. Dementia, however, is not a result of normal aging of the brain (CDC, 2023c).

COMPARING NORMAL COGNITIVE CHANGES AND DEMENTIA		
Ability	**Normal cognitive changes**	**Dementia**
Short-term memory and learning new information	• Sometimes forgetting people's names or appointments but remembering them later • Occasionally forgetting something you were told • Misplacing things from time to time (e.g., mobile phone, glasses, or the TV remote) but retracing steps to find them • Taking longer to work out new tasks	• Forgetting the names of close friends or family • Forgetting recent events • Asking for the same information over and over (e.g., "Where are my keys?") • Putting objects in unusual places (e.g., putting house keys in the bathroom cabinet) • Being unable to learn new tasks
Planning, problem-solving, and decision-making	• Being a bit slower when planning but able to think things through • Becoming less able to juggle multiple tasks, but being able to focus on a single task • Making a bad decision once in a while • Occasionally making a mistake when doing family finances but able to manage overall budget	• Getting very confused when planning or thinking things through • Having a lot of difficulty concentrating on a single task • Not making informed, careful decisions when dealing with money or when assessing risks • Having trouble keeping track of a budget or paying monthly bills
Language (speech and conversation)	• Sometimes having a bit of trouble finding the right word • Needing to concentrate harder to keep up with a conversation • Losing the thread if distracted or if many people are speaking at once	• Having frequent problems finding the right word or frequently referring to objects as "that thing" • Having trouble following or joining a conversation • Regularly losing the thread of what someone is saying even without distractions
Orientation	• Getting confused about the day or the week but figuring it out later	• Losing track of the date, season, and passage of time

	• Getting lost in an unfamiliar place but being able to figure out how to find one's way	• Getting lost in a familiar place where it should be easy to find one's way around
Visual perceptual skills	• Vision changes related to cataracts or other changes in the eyes	• Problems interpreting visual information (e.g., having difficulty judging distances on stairs, misinterpreting patterns such as a carpet, or reflections) • Recognizing an object but being unable to remember what it is used for
Mood and behavior	• Sometimes feeling reluctant to join in at work, family, and social meetings • Sometimes feeling a bit low or anxious • Becoming irritable when a routine is disrupted but being able to cope with the change	• Becoming withdrawn and losing interest in work, socializing, or hobbies • Getting unusually sad, anxious, frightened, or low in self-confidence • Becoming irritable or easily upset at home, at work, with friends, or in comfortable or familiar places
(Alzheimer's Society, 2022)		

STAGES OF DEMENTIA

There are three stages of dementia: early, middle, and severe.

During the **early stage**, the person has problems managing medicines, finances, and driving. Memory worsens, as does judgment, and the person has mood changes. During this stage, people may only require a bit of assistance with daily living.

During the **middle stage**, the person develops problems with walking and performing daily activities, the memory worsens, and the person has a tendency to get lost or wander and become repetitive. The person may become agitated, aggressive, depressed, or anxious. People in this stage may not be able to remain in their homes.

During the **severe stage**, the person has increasing problems with personal care, including dressing, bathing, and eventually eating. There may be difficulty talking or recognizing loved ones.

In general, the more severe the symptoms, the shorter the life expectancy (AGS, 2023).

Causes and **types** of dementia in older adults include:

- Alzheimer's disease, the most common cause of dementia
- Vascular dementia, caused by damage to the vessels that supply blood to the brain
- Lewy body dementia, which involves balloon-like clumps of protein in the brain
- Frontotemporal dementia, characterized by breakdown of nerve cells and connections to these lobes of the brain
- Mixed dementia, characterized by more than one type of dementia at the same time, most commonly Alzheimer's disease and vascular dementia
- Huntington's disease
- Traumatic brain injury (TBI), most often repetitive
- Creutzfeldt-Jakob disease (also known as subacute spongiform encephalopathy or neurocognitive disorder due to prion disease)
- Parkinson's disease

Dementia-like **conditions that can be reversed** include:

- Infections and immune disorders
- Metabolic or endocrine problems
- Low level of certain nutrients
- Medication side effects
- Subdural bleeding
- Brain tumors
- Normal-pressure hydrocephalus
  (Mayo Clinic, 2023e)

ASSESSMENT

To diagnose dementia, a healthcare professional must recognize the pattern of loss of skills and function. Assessment includes:

- A review of the person's medical and social history and changes in the person's physical and mental abilities and behavior
- Review of all medications, including prescription drugs, herbal remedies, vitamins, and supplements
- A complete physical examination
- Blood tests and other lab tests to check for underling problems and reversible causes, such as infections, vitamin B_{12} deficiency, and thyroid problems

- Testing for attention, memory, thinking, language, and decision-making skills
- Brain scans, if necessary, to assess for problems such as brain tumors
- Evaluation for other health problems that could affect cognitive abilities, such as obstructive sleep apnea
(AGS, 2023)

MANAGEMENT

There is no cure for dementia, but there are medications, treatments, and strategies that can slow decline and help patients with dementia utilize their abilities to function as well as possible in order to have the highest possible quality of life. These involve:

- Identifying, treating, and monitoring underlying problems that increase the risk of dementia and can worsen symptoms (e.g., heart disease and diabetes)
- Checking for and treating problems that can contribute to mental health changes (e.g., depression, pain, or hearing or vision loss)
- Monitoring for development of new medical problems
- Limiting polypharmacy and avoiding medications, particularly those with anticholinergic problems, that can affect cognition
- Monitoring for medication side effects
- Teaching caregivers how best to manage symptoms and behavioral problems and to find caregiving, financial, and legal support
- Assessing driving ability as necessary
- Advance care planning (since diminished capacity is inevitable)
(Press & Bush, 2023; AGS, 2023)

Medications

Medications that are often prescribed for those with dementia include cholinesterase inhibitors such as donepezil (Aricept, Adlarity), galantamine (Razadyne), and rivastigmine (Excelon).

Memantine (Namenda) is approved by the U.S. Food and Drug Administration (FDA) for treatment of moderate to severe Alzheimer's disease. Memantine is in a class of medications called MNDA receptor antagonists and works by decreasing abnormal activity in the brain. It is not effective in earlier stages, and there is no information on its effectiveness for other dementias. The most common side effects are constipation, dizziness, headache, and agitation.

Antipsychotic drugs, antidepressants, and mood stabilizers may help control specific behaviors that may present in the patient diagnosed with dementia, but effectiveness is limited and they are associated with an increased risk of death.

In 2023, the FDA approved lecanemab (Leqembi) for those with mild Alzheimer's disease. Aducanumab (Aduhelm) has also been approved for treatment of Alzheimer's disease in some people but is not widely used (Mayo Clinic, 2023e).

Nonpharmaceutical Treatments

Nondrug interventions are tailored to the person's symptoms and needs in collaboration with the patient and caregiver and may include:

- **Environmental** interventions to provide an area for safe wandering, comfortable room temperature, alternating activities, and rest periods
- **Reality orientation** to remind the person with words and other clues
- **Validation therapy** to communicate systematically to reduce anxiety, restore a sense of self-worth, and improve function
- **Reminiscence therapy** to promote adjustment and integrity through structured remembering and reflecting on the past, often done in groups
- **Dementia support groups** to help develop useful, supportive networks
- **Exercise programs,** including both aerobics and strength training, to improve memory and slow down mental decline
- **Occupational therapy**, including ADL training and environmental adaptation, to improve function through compensation or adaptation and to help manage behavior
- **Pet therapy** t**o** promote improved mood and behaviors
- **Aromatherapy** using fragrant plant oils to stimulate olfactory receptors that in turn stimulate the part of the brain linked to regulation of emotions and to relieve symptoms of anxiety and depression
- **Massage therapy** to help manage symptoms such as anxiety, agitation, and depression
- **Music therapy** to improve cognitive function and quality of life
- **Art therapy** and artistic engagement to help ease common behavioral symptoms of dementia such as anxiety, agitation, and depression; to boost mood and self-esteem; and possibly to help stimulate memory
  (Mayo Clinic, 2023e; Mauk, 2023; DA, 2022)

Communicating with the Patient with Dementia

Language and speech become progressively impaired due to dementia, and maintaining communication is critical in order to provide effective care. It is helpful to remember that behavior is a form of communication, and as dementia progresses, it becomes more important to analyze and interpret behaviors.

It is important not to patronize older people with dementia. People with dementia retain the ability to interpret tone and body language, which is very important for them in making sense of

the world. If a caregiver talks to them as if they were children, they will likely know they are being talked down to. It is best to avoid using "elderspeak," which is similar to baby talk, calling the person "Dear" or "Sweetie" or speaking in a high-pitched, sing-song voice. This is likely to result in irritation and contribute to aggressive and uncooperative behavior and to the patient being labeled as "difficult." It is always best to call the person by name (Mauk, 2023).

Recommendations for effective communication include:

- Communicate in a dignified adult manner, using short sentences and speaking slightly more slowly and clearly; allow sufficient time for responses.
- Maintain eye contact, being aware of cultural preferences for such.
- Lower the tone of voice to accommodate age-related hearing changes.
- Use nonverbal cues; point to or demonstrate what is wanted.
- Do not resort to simple or easier words by assuming the patient has lost a more sophisticated vocabulary.
- Repeat instructions as often as necessary.
- Observe carefully for a person's nonverbal cues.
- Try to communicate in a conversational way.
- Avoid asking question after question. As the disease progresses, ask questions that require a yes or no answer, and break down requests into single steps.
- Offer choices when making a request for which the patient might resist. For example, "Do you want to take a shower before breakfast or after breakfast?" instead of, "It's time to take a shower."
- Whenever possible, avoid distractions such as background noise that can make it difficult to hear, listen attentively, or concentrate.
- Avoid criticizing, correcting, and arguing. When listening to someone with dementia, it is pointless and counterproductive to argue about what the person is saying.
- **Avoid** the following, which require concentration and memory:
    - Asking "Remember when…?" questions
    - Saying, "I just told you that."
    - Telling a patient, "Your husband died 10 years ago."
    - Asking, "What did you do this morning?"
    - Asking, "Do you recognize me?"
    - Using long, complex sentences such as, "Let's go for a short walk, and then we can go to lunch before we meet George."

  (Alzheimer's Society, 2023; Mauk, 2023)

Individuals with dementia are often living in an alternate reality, and it may do more harm than good to attempt to orient them to the current reality. The caregiver must **enter the patient's reality** and work on that level. For example:

- With a patient who repeatedly asks for his wife who has been dead for several years, rather than trying to remind him of that fact, it is more helpful to redirect the conversation by asking him to talk about his wife. If the patient will not remember what he is told, say, "She called and said she would be here later for a visit." Although it appears to be a fib, this statement is really a way of reassuring instead of distressing the patient.

- With a patient who resists an activity, saying, "I have to go to the barn and feed the chickens," telling her she does not have chickens can result in a distressed response and feelings of anger, defiance, or frustration. Instead say, "Tell me about your chickens." This distraction allows for a more positive outcome, as the person diverts attention from the task she believes must be accomplished to a more pleasant discussion about her long-gone chickens (Quinn-Szcesuil, 2020).

Physical Therapy for Dementia

Anxiety, aggression, and depression are common among patients with dementia. Physical therapy can help the patient be more active, which reduces anxiety, improves mood, and reduces the need for medication. Studies have found that physical therapy can reduce depression as well as help with control of restlessness, irritability, and aggression.

Physical therapy involves regular physical activity that improves the flow of blood to the brain. A research study found that 40 minutes of physical activity, four times a week over one year, led to growth in the hippocampus, the part of the brain responsible for memory. There was also shown to be increases in both the gray and white matter of the brain (Erickson et al., 2011). Damage to the gray and white matter is a common symptom of Alzheimer's.

Physical therapy can give patients a sense of purpose to achieve a goal and, as the disease progresses, can provide opportunities to practice daily activities during therapy with the goal of maintaining independence as long as possible. Physical therapy helps achieve improved balance, greater physical function, and higher walking endurance, as well as improved cardiovascular health and sleep (OurParents Staff, 2023).

PSYCHOSOCIAL ISSUES IN AGING

The physiologic changes of aging can also have major effects on an individual's psychological and social well-being. Whether life changes are slow or sudden, the result often affects both physical and mental health.

Transitions

People in later life must navigate through many transitions, including:

- Retirement
- Relocation or downsizing and moving from one's home
- Losses, grief, and bereavement
- Loneliness and isolation
- Alterations in intimacy

These transitions can result in profound changes to routines, roles, and responsibilities, leading to mental health challenges (MHF, 2023).

RETIREMENT

Retirement is often the first major transition for the older adult, and about one third have problems adjusting to different aspects of retirement, including loss of professional identity, altered social roles, and reduced income. Also, some people choose to retire while others may be forced to retire due to health problems or job loss. Appropriate preparation for retirement and counseling for retirees and families who experience difficulties may help (Kaplan, 2023).

RELOCATION

Relocation may occur several times during older age. Physical and mental status are significant predictors of relocation adjustment. People who respond poorly to relocation are more likely to live alone after their move and/or to be isolated, poor, and/or depressed. Men respond less well than women. For the cognitively impaired, a move can exacerbate functional dependence and disruptive behavior (Kaplan, 2023).

LOSSES, GRIEF, AND BEREAVEMENT

Losses, grief, and bereavement bring a decline in social interactions, companionship, and social status. The death of a spouse affects men and women differently. In the two years following the death of a wife, the mortality rate for men increases, especially if the wife's death was unexpected. The same is not true, however, for women.

With bereavement some sleep disturbance and anxiety are normal and usually resolve in months without use of medications. In contrast, grief that is prolonged and overwhelming is considered pathologic. When people experience many losses, grief can be overwhelming. Caregivers and healthcare professional should be aware that bereaved patients are at high risk of major depressive disorder, declining health, and suicide (Kaplan, 2023).

LONELINESS AND ISOLATION

As of 2020, about one quarter of community-dwelling older adults lived alone, including 21% of older men and 34% of older women. Men are more likely to die before their wives, and widowed

or divorced men are more likely to remarry than are widowed or divorced women. Many older adults who live alone report feelings of loneliness, and many are socially isolated.

Loneliness causes or increases depression, anxiety, risk for suicide, and dementia. Loneliness can disrupt sleep, raise blood pressure, increase stress levels, and be a predictor of functional decline. Social isolation causes deep loneliness and increases the risk for several health conditions. A person may be more likely to die prematurely from conditions such as a heart attack, stroke, or diabetes (Begum, 2023).

INTIMACY

The desire for intimacy does not decrease with age, and there is no age at which intimacy, including physical intimacy, is inappropriate. A healthy sexual relationship, particularly physical intimacy, can help prevent depression and improve self-esteem and physical health. However, disorders and emotional changes occurring with aging can interfere with developing and maintaining an intimate relationship. Aging can also change the way intimacy is expressed.

Changes in intimacy may be the result of factors such as:

- Loss of a partner, which is the most common barrier to intimacy
- Vascular disorders and diabetes, which can cause erectile dysfunction
- Arthritis and other conditions that cause chronic pain and can limit movements
- Cognitive impairment, which can affect how one feels about sex and intimate relationships
- Obesity, which can increase the risk of erection problems
- Alcohol use, which can cause erection problems in men and delay orgasm in women
- Medications, which can cause problems affecting intimacy, such as erectile dysfunction and reduced libido
- Menopause, which can cause vaginal atrophy and reduced vaginal lubrication and make sexual intercourse uncomfortable or difficult

Some couples shift to other forms of intimacy that express familiarity, caring, or engagement with their partner, such as touching, massaging, kissing, and verbal expressions of affection (Begum, 2023).

People who identify as part of a **sexual and gender minority (SGM) group**, such as lesbian, gay, bisexual, transgender, or queer, may experience additional difficulties with sexuality in later life.

- They are more likely than heterosexual older adults to experience conditions that could interfere with sex and intimacy, such as increased mental distress and higher rates of various health conditions such as cardiovascular disease, obesity, and disability. This may

be linked to a lifetime spent on the receiving end of discrimination. As a result, older SGM adults are more likely to delay care.

- SGM older adults may be less open about their sexual orientation in assisted living, nursing homes, or other long-term care environments out of fear of being mistreated and discriminated against.
- Many SGM older adults don't disclose their sexual orientation to their healthcare providers, and some people have reported negative reactions when they do. (NIA, 2022b)

AGING AND HIV/AIDS

A growing number of older people are living with HIV/AIDS. Reasons include improved treatments that are helping those with the disease live longer. Nearly half of the people living with HIV in the United States are age 50 or older. Many were diagnosed in their younger years.

Thousands of older people become infected with HIV every year, and they are less likely than younger people to get tested. Signs of HIV/AIDS can be mistaken for aches and pains of normal aging. Some older people may feel shame and are fearful of being tested. In addition, healthcare providers many not always think to test older people for the virus.

By the time the older person is diagnosed, the virus may be in the late stages and more likely to progress to AIDS. Older people living with HIV have an increased risk of dementia, diabetes, osteoporosis, frailty, and some cancers. They are also more likely to experience falls and mental illness, especially depression and addiction, and they tend to be more isolated (NIA, 2021d).

Depression

Depression is the most common mental health condition in adults ages 65 and older, but only 10% receive treatment. This may be due to the fact that older people often display symptoms of depression differently. Depression is also frequently confused with the effects of multiple illnesses and the medications used to treat them.

Older people may not have the obvious **signs and symptoms** of depression. Instead, they may:

- Feel tired
- Have trouble sleeping
- Be grumpy or irritable
- Feel confused
- Struggle to concentrate

- Fail to enjoy activities they used to
- Move more slowly
- Have a change in weight or appetite
- Feel hopeless, worthless, or guilty
- Endure aches and pains
- Think of suicide or attempt suicide

Because of changes in an older person's circumstances and the expectation that older people are expected to slow down, healthcare providers and family may miss the signs of depression, and effective treatment may be delayed.

Some of the most common **risk factors** for depression in this age group include:

- Being female
- Being single, unmarried, divorced, or widowed
- Lack of supportive social network
- Certain medicines or combinations of medicines
- Damage to body image (e.g., amputation, cancer surgery)
- Fear of death
- Social isolation
- Presence of chronic or severe pain
- Recent loss of a loved one

Brain scans of people who develop their first depressive episode at old age often reveal spots in the brain that may not get enough blood flow, believed to result from years of high blood pressure (Bruce, 2022).

ASSESSING DEPRESSION

Assessment of depression among older adults starts with a thorough history and a comprehensive medical and psychosocial assessment. It also includes a suicide risk assessment, cognitive screening, and functional evaluation.

Standardized **screening instruments** to assist in diagnosing depression and screening for suicide include the Geriatric Depression Scale (GDS) (see below), the Cornell Scale for Depression in Dementia (CSDD), and the Hamilton Rating Scale for Depression (HAM-D). The Psychiatric Rating Scale is the most commonly used scale to detect and rate the severity of psychopathology among older adults with depression and psychotic symptoms (Tampi & Tampi, 2022).

GERIATRIC DEPRESSION SCALE (SHORT FORM)

Choose the best answer for how you 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

Score 1 point for each response that matches the bolded **yes** or **no** answer after the question. A score of 5 or more may indicate depression.

MANAGEMENT OF DEPRESSION

Treatment for depression may include the following:

- **Antidepressants**
  - Selective serotonin reuptake inhibitors (SSRIs)
  - Serotonin and norepinephrine reuptake inhibitors (SNRIs)
- **Psychotherapy**
  - Cognitive behavioral therapy (CBT) and group cognitive therapy
  - Interpersonal psychotherapy

    - Group life-review/reminiscence therapy
- **Complementary therapies**
    - Acupuncture
    - Aromatherapy
    - Biofeedback
    - Dietary supplements (e.g., omega 3 fatty acids)
    - Hypnosis
    - Massage therapy
    - Meditation
    - Yoga
    - Exercise
    - St. John's wort (in mild to moderate, but not severe, depression)
- Electroconvulsive therapy (ECT) for severe depression that is very difficult to treat and does not respond to medication or psychotherapy
- Stimulation techniques, including repetitive transcranial magnetic stimulation (rTMS), which is approved by the FDA for use in adult patients who have failed to respond to medications and/or ECT treatment
(APA, 2023; NIA, 2021c)

Suicide

Older adults make up approximately 18% of suicide deaths. Men 65 and older face the highest overall rate of suicide. Older adults plan suicide more carefully and are also more likely to use more lethal methods. Among those who attempt suicide, 1 in 4 older adults will die by suicide, compared to 1 in 200 youths. Even if an older adult fails a suicide attempt, they are less likely to recover from the effects.

Suicidal behavior is common in older adults. Loneliness has been found to be at the top of the list of risk factors. Many older adults are homebound and live on their own. If a spouse has recently died and there are no family members or friends nearby, they may lack the social connections they need to thrive. Other reasons for suicidal intent include:

- **Grief** over lost family members and friends to old age and illness. They may also be focused on their own mortality and experience anxiety about dying. This can result in intense feelings of loneliness and hopelessness.
- **Loss of self-sufficiency.** They may be coping with loss of identify and may mourn the independent person they once were.
- **Chronic illness and pain,** as well as loss of vision and other senses, such as hearing, make it harder to do the things they love.

- **Cognitive impairment.** Adults with mild cognitive impairment and dementia have a higher risk for suicide. Declines in cognitive function can affect decision-making abilities and increase impulsivity.
- **Financial issues.** For someone who is struggling with health issues or grief, financial stress can be a trigger for suicidal thoughts.
- **Depression.** Having clinical depression increases the risk for suicide.
  (NCOA, 2022)

It is important to recognize that older adults also may use less aggressive and less visible methods. This may include voluntarily stopping eating and drinking (VSED), a means of hastening death (also referred to as *silent suicide*), which may occur with explicit commitments of support from family or other caregivers and clinicians or be concealed to avoid objections from caregivers. Reasons reported for choosing VSED include:

- Readiness to die
- Poor quality of life or fear of it
- Viewing continued existence as pointless
- Desire to die at home
- Desire to control the circumstances of death
- Somatic issues, such as pain, fatigue, or dyspnea
  (Lowers et al., 2021)

Risk factors for suicide among older persons often differ from those among the young. Suicidal risk factors and warning signs in older persons include:

- Male
- Marital status (risk is nearly two times greater in nonmarried than married)
- Living alone
- Sexual orientation
- Psychiatric disorders, such as depression, especially when accompanied by psychosis or anxiety
- A sense of hopelessness; lack of interest in future plans
- Painful or disabling medical conditions that significantly limit functioning or life expectancy
- Chronic neurologic disorders
- Financial concerns
- Depression or persistent sadness even when other symptoms of depression have lessened
- A history of drug or alcohol misuse or abuse

- A history of suicide in family members
- Traumatic experiences, including physical or sexual abuse
- Well-defined plans for suicide
- Verbal suicide threats such as, “You’d be better off without me” or “Maybe I won’t be around”
- Giving away prized possessions
- Daring or risk-taking behavior
- Prior suicide attempts
- Feelings of loss of independence or sense of purpose
- History of military service
- Impulsivity due to cognitive impairment
- Sudden personality changes
- Social isolation
- Family discord or losses (e.g., recent death of a loved one)
- Inflexible personality or marked difficulty in adapting to change
- Access to lethal means (i.e., firearms, other weapons, etc.)
  (MHA, 2023; Schreiber & Culpepper, 2023)

Suicide **protective factors** include:

- Family and community support
- Reasons for living, such as family, friends, pets, etc.
- A strong sense of cultural identity
- Feeling connected to others
- Support from ongoing medical and mental healthcare relationships
- Reduced access to lethal means
- Skills in problem solving, conflict resolution, and nonviolent ways of handling disputes and coping with stress
- Cultural and religious beliefs that discourage suicide and support instincts for self-preservation
  (CDC, 2022b)

ASSESSMENT OF SUICIDE RISK

The goal of suicide risk assessment is not to predict whether or not an older person will die by suicide but to determine the most appropriate actions to take to keep the person safe. It is also important to remember that older adults are less likely to spontaneously report suicide ideation, and it is up to clinicians to ask. Healthcare providers have a great number of opportunities to identify and intervene with suicidal patients; it is helpful to remember that a majority of people who die by suicide had visited a healthcare provider in the month prior to their suicide (GeroCentral, 2023).

The **Columbia Suicide Severity Rating Scale** (C-SSRS) is considered the "gold standard" tool used to facilitate suicide assessments. It stratifies patients accordingly into three levels of risk and comprises only yes/no questions:

1. Have you wished you were dead or wished you could go to sleep and not wake up?
2. Have you had any actual thoughts of killing yourself?
3. Have you been thinking about how you might do this?
4. Have you had these thoughts and had some intention of acting on them?
5. Have you started to work out or already worked out the details of how to kill yourself? Do you intend to carry out this plan?
6. Have you ever done anything, started to do anything, or prepared to do anything to end your life?

Positive responses to all six questions indicate the need for behavioral health referral, and positive responses to questions 3, 4, 5, and 6 indicate the need for taking patient safety precautions.

Tools for assessing both passive and active ideation also include the **Patient Health Questionaire-9 (PHQ-9)** depression screening tool, which assesses nine symptoms of depression and how often persons have had thoughts that they would be better off dead or wish to hurt themselves in some way, and the **Geriatric Suicide Ideation Scale (GSIS)** that can be used to monitor changes in suicide risk across the course of treatment (Tan et al., 2021).

MANAGEMENT OF SUICIDE RISK

If an individual reports having passive or active suicide ideation, it is important to follow up to determine whether the individual has current intent to act on their thoughts. **Passive** suicidal thoughts include thinking that one would be "better off dead." These thoughts are not necessarily associated with increased risk for suicide but are a sign of significant distress and should be addressed immediately.

In contrast, **active** suicidal thoughts include thinking of taking actions toward hurting or killing oneself. These thoughts require immediate clinical assessment and intervention by a mental health professional.

For those categorized as **low risk**, intervention includes:

- Outpatient referral
- Creating a safety plan
- Urging removal of means for suicide from the home
- Providing emergency/crisis numbers (e.g., the National Suicide Prevention Lifeline, 1-800-273-TALK [8255])

For those with **moderate risk**:

- Possible hospitalization
- Developing a crisis plan
- Taking suicide precautions
- Providing emergency/crisis numbers

Those who have specific plans and the means to carry out their plans are at **high** risk, and inpatient admission should be offered. Where available, treatment options may also include intensive outpatient treatment or partial hospitalization programs.

When in doubt about the need for admission, inpatient care is the wisest option. Ensuring patient safety is a primary concern regardless of the treatment setting. The most suitable intervention is hospitalization. It is necessary to remain with the patient until appropriate actions have been taken and emergency services are in place. These actions may include calling 911 to obtain emergency department care or contacting a mobile crisis team (Norris & Clark, 2021).

Substance Use in Older Adults

Despite the known trends of increasing substance use disorder among older adults, geriatric addictions remain underidentified and undertreated. In general, primary care physicians do not routinely assess or screen older adults for substance use disorders. Ageism may contribute to a pattern of underdiagnosis; behaviors considered a problem in younger adults often do not engender the urgency for care in older adults (Reimers, 2021).

Older adults may be more likely to experience mood disorders, lung and heart problems, or memory issues, and drug and alcohol use can worsen these conditions. Additionally, some drugs can impair judgment, coordination, or reaction, which can result in accidents, including falls and auto crashes. Little is known, however, about the effects of drugs and alcohol on the older brain. Older adults typically metabolize substances more slowly, and their brains can be more sensitive to drugs.

Regular **marijuana** use for medical or recreational reasons at any age is associated with chronic respiratory conditions, depression, impaired memory, adverse cardiovascular function, and altered judgment and motor skills. Marijuana can interact with a number of prescription drugs and complicate existing health issues.

Regular **nicotine** use via smoking increases the risk for heart disease and cancer. About 8 in 100 adults ages 65 and older smoke cigarettes. Older people who smoke have an increased risk of becoming frail, though smokers who have quit do not appear to be at higher risk.

Alcohol is the most frequently used substance among older adults, with approximately 65% reporting high-risk drinking, defined as exceeding daily guidelines at least weekly in the past year. More than one tenth of older adults currently binge drink, defined as five or more drinks on the same occasion for men and four or more for women. Alcohol use disorder increases the risk for a range of health problems, including diabetes, hypertension, congestive heart failure, liver and bone problems, memory issues, and mood disorders.

Between 4% and 9% of adults ages 65 and older use prescription **opioid pain medications** for pain relief. The proportion of older adults using the illicit opioid heroin has more than doubled since 2013 in part due to the fact that some people who misuse prescription opioids switch to this less costly drug (NIDA, 2020).

Physical risk factors for substance use disorders can include:

- Chronic pain
- Physical disability or reduced mobility
- Transitions in living or care situations
- Change in income
- Forced retirement
- Chronic illness
- Loss of loved ones

Psychiatric risk factors include:

- Avoidance coping style
- History of substance use disorders
- Previous or current mental illness
- Feeling socially isolated
  (NIDA, 2020)

ASSESSMENT FOR SUBSTANCE USE

Signs of substance use in the older adult may include:

- Losing interest in hobbies and activities
- Depression
- Anxiety
- Memory loss
- Spending more time alone
- Hostility
- Aggression
- Forgetfulness
- Confusion
- Changes in sleep habits
- Secretive behaviors
- "Losing" prescriptions
- Doctor shopping
- Drastic changes to appearance
- Drop in personal hygiene
- Chronic health complaints
  (Gilmore, 2023)

When assessing individuals about substance use, it is important to use language that does not further stigmatize. It is recommended to use wording such as *substance use disorder*, *unhealthy use*, and *harmful use*.

Several screening instruments for substance use are available for a range of substances (alcohol, tobacco, illicit drugs, and prescription drugs), but only a few are designed specifically for and validated in older adults.

The U.S. Preventive Services Task Force recommends that all adults be screened for alcohol using the **Short Michigan Alcoholism Screening Test-Geriatric Version (SMAST-G)**, a screening instrument tailored to the needs of older adults that asks the following 10 questions:

1. When talking with others, do you ever underestimate how much you drink? (yes/no)
2. After a few drinks, have you sometimes not eaten or been able to skip a meal because you did not feel hungry? (yes/no)
3. Does having a few drinks help decrease your shakiness or tremors? (yes/no)
4. Does alcohol sometimes make it hard for you to remember parts of the day or night? (yes/no)

5. Do you usually drink to relax or calm your nerves? (yes/no)
6. Do you usually take a drink to take your mind off your problems? (yes/no)
7. Have you ever increased your drinking after experiencing a loss in your life? (yes/no)
8. Has your doctor or nurse ever said they were worried or concerned about your drinking? (yes/no)
9. Have you ever made rules to manage your drinking? (yes/no)
10. When you feel lonely, does having a drink help? (yes/no)

A score of two or more yes responses to this screening is an indication of a problem with alcohol (Naegle, 2023).

Alcohol, Smoking, and Substance Involvement Screening Tests (ASSIST) screens across all substances, including tobacco, alcohol, and illegal drug use. The ASSIST is widely used in clinical practice after a screening has been done and found positive (JSI, 2023).

MANAGEMENT AND PREVENTION OF SUBSTANCE USE

Management for substance abuse in the older adult may consist of:

- Brief intervention: a structured, patient-centered therapy that aims to change unhealthy or risky behavior
- Cognitive behavioral therapy: a short-term focused approach that helps people identify negative and self-defeating thoughts and actions that can contribute to substance use
- Contingency management: recognizes and reinforces positive behavioral change as evidenced by drug tests that are negative
- Motivational enhancement therapy: an approach that is aimed at helping individuals identify and resolve ambivalence about alcohol and other drug use
- Community-based treatment (CBT): a program that coordinates health, social, and other services to meet a patient's needs
- Twelve-step therapy: a set of guiding principles in alcoholism recovery that outline a course of action for recovering from alcohol or drug abuse
- Residential treatment facilities: the highest level of rehab services for those who are diagnosed with alcohol or other drug addiction

Barriers to treatment for older people include lack of transportation, physical disabilities, reluctance to go out in the evening, and greater dependence on their spouse (Reimers, 2021).

One of the difficulties with asking about drug and alcohol use is that many older people who are engaging in a dangerous level of substance use do not recognize it. Prevention involves screening yearly for drug and alcohol problems and being aware that older adults may have life transitions that increase their risk of problems with drug and alcohol use. These may include

coping with chronic medical problems, a lack of enjoyable activities after retirement, loneliness, grief, or social pressure associated with living in retirement communities in which drinking offers a means of interacting with others (Woodhead, 2022).

FUNCTIONAL CHANGES WITH AGING

Physical functioning, to a great degree, is a requirement for many facets of day-to-day life. For older adults, physical functioning may impact their ability to live alone, where they are able to live, and what amount of assistance is required regardless of living setting. Older adults often define their level of health in terms of how they are physically functioning, i.e., their ability to carry out their normal daily functions.

Alterations in coordination (the ability to execute smooth, accurate, controlled motor responses) occur with aging, including:

- Diminished strength, with greater loss in the muscles of the back and lower extremities and greater loss in the proximal rather than distal muscles
- Slowed reaction time and speed decreases in order to ensure greater accuracy
- Decreased range of motion for multiple joints
- Postural changes that are involved in fall avoidance and successful task engagement

Age-related sensory changes also include altered postural stability and control, diminished response to tactile stimuli, and proprioceptive acuity. These may create a variety of activity limitations in older adults due to:

- Postural instability
- Exaggerated body sway
- Balance problems
- Wide-based gait
- Diminished fine-motor coordination
- Tendency to drop items
- Difficulty in recognizing body position in space

Activity limitations are difficulties an individual may have executing tasks or actions. These can include:

- Cognitive and learning skills
- Communication skills
- Functional mobility skills

- Activities of daily living (ADLs) that include basic self-care
  (O'Sullivan et al., 2019)

Participation restrictions are problems with being involved in daily life situations and societal interactions, including those referred to as *instrumental activities of daily living (IADLs)*, and may include:

- Home management
- Work
- Community/leisure

Performance restrictions involve what a person is able to do in their current living environment, which may require the use of assistive devices or personal assistance (O'Sullivan et al., 2019).

LEVELS OF FUNCTIONAL STATUS

Activities of Daily Living (ADLs)

- Bathing/showering
- Dressing
- Eating and swallowing
- Feeding
- Functional mobility
- Personal hygiene and grooming
- Sexual activity
- Toileting and toilet hygiene

Instrumental Activities of Daily Living (IADLs)

- Care of others
- Care of pets and animals
- Child rearing
- Communication management
- Driving and community mobility
- Financial management
- Home establishment and management
- Meal preparation and cleanup

- Religious and spiritual expression
- Safety and emergency maintenance
- Shopping

Health Management Occupations

- Social and emotional health promotion and maintenance
- Symptom and condition management
- Communication with the healthcare system
- Medication management
- Physical activity
- Nutrition management
- Personal care and device management

(AOTA, 2023a)

Functional Assessment

Functional assessment is a vital part of a comprehensive geriatric assessment, and various components of the evaluation are completed by different members of the healthcare team. A complete geriatric functional assessment includes:

- Assessing the patient's physical ability to perform daily activities required to meet basic needs, fulfill usual roles, and maintain health and well-being
- Screening for cognitive impairment
- Screening for depression
- Evaluating gait instability and/or fall risk
- Evaluating for communication barriers
- Assessing urinary and fecal continence
- Assessing oral health
- Assessing skin for bruises, wounds, and other signs of skin breakdown
- Assessing nutritional status
- Evaluating for pain
- Addressing polypharmacy
- Assessing social and financial support

- Evaluating for vision or hearing difficulties
(Ward & Reuben, 2022)

PHYSICAL ASSESSMENT TOOLS

SPICES and FANCAPES are two assessment tools that are part of a comprehensive geriatric physical assessment.

The acronym ***SPICES*** refers to six common geriatric syndromes that require interventions (see table).

SPICES PHYSICAL ASSESSMENT	
Label	**Geriatric syndrome**
S	Sleep disorders
P	Problems with eating or feeding
I	Incontinence
C	Confusion
E	Evidence of falls
S	Skin breakdown
(Rafters et al., 2021)	

FUNCTIONAL ASSESSMENT TOOLS

The purpose of functional assessment is to focus on identification of pertinent activities and measurement of the person's ability to successfully engage in them. It is important to know the person's baseline functional status and to make comparisons over time.

Functional testing is used to measure how a person does certain tasks or fulfills certain roles. It includes performance-based tests that involve observing the patient performing an activity and self-reports in which the patient is asked directly.

The **Functional Status Questionnaire (FSQ)** is a functional assessment tool that provides information about the patient's physical, psychological, social, and role functions. Areas of assessment include:

- Activities of daily living
- Mental health
- Negative affect
- Depression
- Stress and coping
- Occupational performance
- Social support

- Social relationships
- Life participation
- General health
- Quality of life
  (Abilitylab, 2020)

The Functional Independence Measure (FIM) has been the gold standard for assessing patient's function in rehabilitation for many years. However, the Centers for Medicare and Medicaid Services (CMS) replaced the FIM with Section GG, to be utilized across all postacute care (PAC) settings. **Section GG** assesses activities of daily living and mobility. Assessment of activities of daily living includes:

- Eating
- Oral hygiene
- Toileting hygiene
- Washing upper body
- Showering/bathing
- Upper and lower body dressing
- Putting on/taking off footwear

Assessment of mobility includes:

- Ability to roll left and right
- Ability to move from sitting to lying flat
- Ability to move from lying to sitting on side of the bed
- Ability to go from sitting to standing
- Chair/bed-to-chair transfer
- Toilet transfer
- Car transfer
- Ambulation
- Wheelchair mobility
  (AOTA, 2023b)

Examples of **performance tests** include:

- 6-Minute Walk Test, an exercise test used to assess aerobic capacity and endurance

- Functional Reach Test, a single-item test developed as a quick screen for balance problems in older adults
- Timed Up and Go (TUG) Test, an assessment conducted as part of a routine evaluation of older persons in order to assess mobility and both static and dynamic balance
- Berg Balance Scale, an assessment that determines a patient's ability or inability to safely balance during a series of predetermined tasks
  (APTA, 2020)

Examples of **self-reports** include:

- Functional Independence Measure Self-Report (FIM-SR)
- Functional Status Questionnaire
- Activity Measure for Post and Acute Care (AM-PAC), a measure of difficulty, assistance, and limitation in ADLs
- Life Space Questionnaire, a measure of the extent of mobility of older adults
- Late-Life Function and Disability Instrument (LLFDI), an evaluative outcome instrument for community-dwelling older adults that assesses function and disability
- Instrumental Activities of Daily Living Scale (IADL)
  (Prost, 2022)

PLAN OF CARE

The plan of care is an essential element of the functional assessment process. Once an assessment is completed, a plan of care can be developed that specifies the type of support services and equipment that might be appropriate, including home care and/or modification of the home (i.e., occupational therapy) or possible placement in assisted living or other long-term care facility (i.e., social work). Those who need assistance only with IADLs may continue to live independently with the help of family caregivers; a financial/legal consultant (accountant, attorney, or family member with durable power of attorney); a cleaning service; and/or someone to drive, shop, and run errands.

Healthcare planning goals include asking patients about their goals and preferences and obtaining responses that can inform decision-making. Combining patients' health conditions, function, and health trajectory with these goals and preferences becomes the focus of care for older adults. There are various combinations of medical conditions and impairments as well as social issues that can affect the achievement of these goals. Aligning care with patients' priorities requires input from many healthcare professions as well as community and other services. The goals and preferences that support a patient's priorities are the targets at which health and support services must aim (Tinetti et al., 2021).

CASE

George is an 85-year-old man with chronic health problems that include hypertension, bilateral cataracts, osteoarthritis, and mild cognitive impairment. He has been living on his own in an apartment since the death of his wife five years ago. He has attentive family and friends but no formal support services. He is brought to the clinic by his son, who feels that George is "struggling to cope around the house." His nurse practitioner recognizes the need for a basic functional assessment.

George's son reports that he takes two medications for hypertension each day and that he prepares his pill box for his father. He reports that George occasionally misses a dose or two on a weekly basis.

George reports that he has family members who do his shopping. He states that his appetite is not what it used to be and that he eats only two small frozen meals a day. The son reports that George does not use the stove, only his microwave, since he sometimes forgets to turn burners off. He snacks on crackers, cheese, and peanut butter in between meals. George reports he is able to shower on his own and dress himself, with some difficulty bending to put on his pants, shoes, and socks. He has no difficulties with toileting, and he is continent of both bowel and bladder. However, he says he sometimes misses the toilet bowl because his eyesight "is not so good."

George indicates that he has been experiencing pains in his knees and hands for quite some time and that his joints feel stiff and achy. Sometimes the pain keeps him awake at night.

When asked about any difficulties transferring from a chair to a bed, he says he sometimes has problems rising and tends to pitch forward when trying to get out of his favorite living room chair. George states that he is afraid he might "fall someday," but he doesn't remember if he has had any recent falls. The nurse notices that he needed to use both hands to assist himself from the chair in the examination room and required assistance and support to stand on the scale.

George's son indicates that his father has a great deal of trouble climbing the few stairs to the entrance to his home and that he avoids steps whenever possible. He is having more and more difficulty keeping his apartment clean and is no longer able to do his own laundry. His family members help him as much as they are able to.

George says he does not use a cane or a walker, but the nurse noted that he moved quite slowly and needed to hang on to furniture and walls when entering the exam room. He walks with an antalgic gait as a result of his osteoarthritis. His son reports there are no grab bars installed in his home: "He always says he doesn't need those things."

George states he is no longer able to comfortably read anymore, saying, "I can't see very well these days." He does not show any indication of hearing loss and states he is able to hear what people are saying without any difficulty. He says, "It would be nice to get out more, but I can't see worth a darn, and I don't walk so good now." His son reports that George refused to go to the eye doctor the past year and said, "I can't afford new glasses."

George is unable to give the correct date and day of week when asked and answers many questions with "I don't remember." He is unable to recall what he had eaten that morning. He is cheerful and cooperative throughout the assessment.

The nurse practitioner creates a problem list that includes:

- Visual impairment affecting reading and socialization
- Pain from osteoarthritis impairing mobility, socialization, and sleep
- Impaired ADLs and IADLs related to vision, mobility, and cognitive problems
- Impaired locomotion due to osteoarthritis
- Memory loss affecting medication adherence

A plan of care is developed along with George and his son that includes:

- Referral to both physical and occupational therapies for comprehensive functional evaluations and treatment guidance
- Prescription for appropriate analgesic
- Referral for complete visual examination
- Referral to the local Area Agency on Aging to enlist assistance that will help George remain in his home and to assess George's financial status and available benefits

Management of Functional Deficits

Management of older adults with functional deficits requires knowledge and input from an interdisciplinary team of practitioners, with a focus on maintaining functional status and intervening when signs of decline become evident.

An interdisciplinary approach can improve patient outcomes, healthcare processes, and level of satisfaction. It can reduce length of hospital stays and avoid duplication of assessment and services. Management addresses the ability to remain at home, the need for homecare services, or placement in a care facility for promotion of safety and assistance with self-care (VDOH, 2021).

THERAPY APPROACHES TO FUNCTIONAL DEFICITS

Occupational therapy focuses on activities that are essential for basic survival and well-being, as well as more complex types of tasks, and plays a primary role in assisting patients to:

- Maintain the ability to perform activities of daily living

- Compensate for functional deficits and make recommendations for assistive devices to make daily activities easier, including use of mobility devices such as walkers, canes, or wheelchairs
- Function safely in their home by performing home assessments
- Achieve the greatest possible degree of independence
(Cabeza, 2021)

Physical therapy goals are to maximize mobility, strength, coordination, balance, and gait. Therapists:

- Assess and make the home as safe as possible
- Design a personalized plan for fall-prevention needs
- Teach patients appropriate strength and balance training exercises
- Work with other healthcare providers to address underlying medical conditions that could increase falls risk
- Recommend and train in the use of assistive devices for mobility
- Recommend appropriate community programs to help patients maintain strength and balance
(APTA, 2023)

AMBULATION AND MOBILITY INTERVENTIONS

While many mobility issues in older adults cannot be treated medically or surgically, they sometimes can be compensated for by the use of ambulatory assistive devices. There are a number of assistive devices available that may be of value to older adults with mobility impairments. Physical therapists provide selection of and training on the use of assistive devices, and nurses supervise their correct use.

Assistive mobility devices offer a wide range of levels of support based on a patient's individual needs. When fitted correctly and used properly, assistive devices may increase base of support, improve stability with standing or walking, and increase activity and independence level.

- Standard/straight cane: Lightweight and inexpensive, generally crafted from wood or aluminum. A cane may help improve stability in a patient who does not need the upper extremity to bear weight.
- Offset cane: This type of cane distributes the patient's weight over the cane's shaft. An offset cane is often indicated for patients who require their upper extremity to bear weight at times (i.e., due to gait problems caused by pain from knee or hip osteoarthritis).
- Quadripod ("quad") cane: A four-legged cane that provides a larger base of support. This type of cane can stand freely if the patient needs to use upper extremities for other tasks

momentarily and may be useful for some patients with hemiplegia. For safe and proper use, all four points of the cane must contact the ground at the same time.

- "Smart" canes: A cane that is capable of sensing movement, position, orientation, and force that provides feedback to the user through the use of electronic sensors.
- Crutches: Useful for a patient who must use their upper extremities for purposes of both weight bearing and propulsion. Due to the significant energy requirements for their use, as well as the level of arm and/or shoulder strength needed, crutches are infrequently indicated for the majority of older adults, particularly frail elders.
- Standard walker: The most stable walker. However, since the patient must completely lift the walker off ground with each step, it results in a slower gait. This may be challenging for frail older patients with decreased upper body strength.
- Front-wheeled walker (two-wheeled walker): Less stable than a standard walker but maintains a more natural gait pattern. This is an alternative for older adults who cannot lift a standard walker.
- Four-wheeled walker (rollator): Potentially useful for higher-functioning patients who do not require a walker to serve weight-bearing purposes. This type of walker is easy to propel but not generally appropriate for patients with significant balance or cognitive impairment because it may roll forward unexpectedly. It may include a seat and basket but must be used with caution. Brakes should always be engaged and the rollator positioned against a wall or other solid object before the patient sits.

Selection of an appropriate assistive device for mobility is contingent on a patient's strength, endurance, balance, cognitive status, and environmental demands. All ambulatory assistive devices are fitted to the individual patient, who will likely need training in using the device. However, not all older adults are candidates for ambulatory assistive devices. For example, those with serious impairments in cognition, judgment, vision, or upper body strength may not be able to use one of these devices safely.

It is important to bear in mind that a wheelchair may be the safest mobility option for patients who can no longer ambulate safely or who have severe lower extremity weakness that does not respond to therapeutic interventions (Odebiyi & Adeagbo, 2020; Arefin et al., 2020).

FALL PREVENTION INTERVENTIONS

Each year, millions of older people fall. More than 1 in 4 older people fall each year, but less than half notify their healthcare provider. Falling once doubles the chances of falling again.

A comprehensive geriatric assessment for older adults includes assessment of risk for falls. A set of tasks (fall assessment tools) that test strength, balance, and gait, may include:

- Timed Up and Go (TUG) Test to assess risk for falling
- 30-second chair stand test to test leg strength and endurance

- 4-stage balance test to evaluate static balance based on the ability to hold four progressively more challenging positions

The CDC's **STEADI** tool can be used to screen, assess, and intervene to reduce fall risk among community-dwelling adults 65 and older. Recommendations include screening for fall risk yearly or any time the patient presents with an acute fall and prevention measures, including:

- Education on fall prevention
- Assessing vitamin D intake
- Referral to community exercise or fall prevention program
- Annual reassessment (or any time the patient has an acute fall)

For those who screen as "at risk":

- Assess modifiable risk factors and fall history.
- Evaluate gait, strength, and balance.
- Identify medications that increase fall risk.
- Ask about potential home hazards.
- Measure orthostatic blood pressure.

Interventions to identified risk factors include:

- Develop an individualized patient care plan.
- For those with poor gait, strength, and/or balance, refer for physical therapy and/or an evidence-based exercise or fall prevention program.
- Optimize medications by stopping, switching, or reducing dosage of medications that increase fall risk.
- Refer to physical therapy to evaluate home safety.
- Provide education on shoe fit, traction, insoles, and heel height.
- Recommend daily vitamin D supplement.
- Assess and refer for visual impairment assessment.

For those with orthostatic hypotension:

- Stop, switch, or reduce dosage of medications that increase risk of falls.
- Educate about the importance of exercises (including those which can be done sitting or lying down, such as ankle pumps).

- Establish a blood pressure goal.
- Encourage adequate hydration.
- Consider compression stockings.
(CDC, 2023d)

Falls and Traumatic Brain Injury (TBI)

Trauma is a leading cause of morbidity and mortality among older patients. Elderly patients tend to have a higher number of chronic medical conditions, which increases the risk of death. Elderly patients with traumatic head injuries are more likely to die or require long-term care.

Anatomical changes that occur with aging lead to progressive brain atrophy, leaving more room for increased bleeding within the cranial cavity. This can lead to delayed onset of symptoms, which may cause older patients to seek care later. The higher incidence of chronic dementia may also cause delays in presentation and treatment, which contribute to higher morbidity and mortality in the older adult.

Older adults who require special consideration include those on anticoagulation therapy. As high as 10% of older adults presenting with trauma are taking coumadin or dabigatran, the most commonly used anticoagulants. These medications increase the amount and rate of bleeding, increasing the chance of long-term disabilities and possible death.

Traumatic brain injuries have physical, sensory, and cognitive or mental signs and symptoms that appear immediately after a traumatic event, but some may not appear until days or weeks later (Yee & Jain, 2023).

Mild TBI symptoms are usually temporary and clear within hours, days, or weeks. They include:

- Loss of consciousness for 30 minutes or less
- Confusion and disorientation
- Difficulty remembering new information
- Problems finding words
- Headache
- Dizziness
- Blurry vision
- Sensitivity to light and/or sound
- Change in energy or motivation
- Nausea and vomiting
- Ringing in the ears

- Trouble speaking clearly

Moderate TBI causes unconsciousness lasting more than 30 minutes but less than 24 hours, and **severe TBI** causes unconsciousness for more than 24 hours. Symptoms of moderate and severe TBI are similar to those of mild TBI but more serious and longer-lasting. The more severe injuries may also lead to hemorrhages or other brain injuries that are associated with focal neurologic symptoms, such as localized weakness or sensory loss (AA, 2023).

The **Glasgow Coma Scale** is the most widely used clinical assessment tool to determine TBI severity at the time of initial presentation. It is based on eye opening, verbal response, and best motor response. The lowest total score (3) indicates likely fatal damage, especially if both pupils fail to respond to light and oculovestibular responses are absent. Higher initial scores tend to predict better recovery. Scoring ranges are indicated below:

- Mild TBI: 13–15
- Moderate TBI: 9–12
- Severe TBI: 3–8

Prediction of severity and prognosis can be further refined by considering CT findings and other factors (Mao, 2023).

CASE

Violet is an 82-year-old retired professor who lives independently in her own home. Violet has a prior history of spinal stenosis and underwent a lumbar fusion five years ago. As a consequence of the surgery, she has residual L-sided foot drop (for which she wears an ankle-foot orthosis [AFO] during the day) and persistent pain. She underwent postoperative physical and occupational therapy and currently walks with a single-point cane. Since her surgery, Violet has required assistance with cleaning her house and gardening but has remained independent in ADLs, including bathing, dressing, and light meal preparation. Violet is able to drive independently.

In the past six months, Violet has fallen several times in her home. One of these incidents resulted in a fractured rib. Today, she is seeing her primary care provider, who is concerned about her increased incidence of falls and their potential consequences to Violet's independence. Violet wears glasses and does not report any dizziness, lightheadedness, or other cardiac-related symptoms. Her medications include atenolol, trazodone, and aspirin.

In the initial interview, Violet states that she sometimes has problems climbing the eight steps into the main level of her house and is sometimes not able to ascend the stairs without holding on to the rail for support. She states that she generally uses her cane when she goes out but does not always do so when she is at home. Violet states that she would like to feel steadier on her feet and stop having falls so that she can continue to live independently in her home. The

primary care provider makes a referral to physical therapy for a functional mobility evaluation.

The physical therapist completes an initial evaluation of Violet's functional status, which reveals the following pertinent information:

- Range of motion, gait, and strength are assessed. Violet states that she has not been wearing her AFO as often as she should because it has been hurting her leg lately.
- Violet's straight cane is too long for her height, causing her to hold her arm at an unnatural angle to grasp the handle.
- Violet is able to maintain balance with her feet together on a foam surface for about 3 seconds without wearing her AFO and for about 10 seconds while wearing her AFO.
- Violet displays mild to moderate difficulty ascending stairs, mild difficulty descending stairs, and use of one handrail for support.

Together, the physical therapist and Violet develop a set of goals to address both her current functional deficits and her long-term personal objectives. Additionally, the physical therapist recommends a plan of care to address Violet's current deficits and to allow her to return to the highest possible level of physical function. The plan includes:

- Outpatient physical therapy twice weekly for a period of six to eight weeks
- Assistive device fitting and compliance training
- Static and dynamic balance training
- Household and community safety awareness training
- Structuring and tailoring of an overall, long-term functional mobility plan
- Recommendation for a follow up with the orthotist to have Violet's AFO checked and refitted

HOME SAFETY INTERVENTIONS

Older adults are at greater risk for various home safety issues. The majority of **fall injuries** (55%) among older people occur inside the house, and an additional 23% happen outside but near the house. Falls account for 25% of all hospital admissions and 40% of all nursing home admissions. About 40% of those admitted will never return to independent living, and 25% will die within one year.

In comparison to the population at large, people ages 65 to 74 are nearly twice as likely to die in a **fire**, those between 75 to 84 nearly four times, and those ages 85 and older more than five times as likely. Careless smoking is the leading cause of fire deaths and second leading cause of injuries among people 65 and older. Heating equipment is the second leading cause of fire death

and the third leading cause of injury. Cooking is the third leading cause of fire deaths and the leading cause of injury (Age Safe America, 2023).

Older adults are also at a higher risk for **accidental poisoning**. Most (>90%) happen in the home, specifically the kitchen, bathroom, and bedroom. Medication mishaps are a major cause of poisonings, and older adults are twice as likely to visit the emergency department for problems related to their medicines and seven times more likely to be hospitalized after such a visit. Other sources of accidental poisoning include chemicals, household cleaners, and sprays (Pathways, 2023).

Home safety interventions to address a variety of risks are described below:

Keeping emergency numbers handy:

- Call 911 for emergencies.
- Call poison control at 800-222-1222.
- Keep a list of family members' and friends' numbers.
- Keep a list of all healthcare providers' phone numbers.

Preventing falls:

- If balance or walking is difficult, complete a risk assessment and evaluation.
- Use special alarms, such as a bracelet or necklace that can be worn continually, to call for emergency services in the event of a fall.
- Do not rush to answer the phone; let the answering machine or voicemail answer, or carry a cordless or cell phone.
- When walking on smooth floors, wear rubber-soled, nonslip footwear that fits well.
- If using a cane or walker, use it at all times.
- Remove throw rugs, decrease clutter, and keep electrical cords out of pathways.
- Assure hallways, stairs, and pathways are well lit and clear of objects.
- Have rails and banisters installed on all stairways.
- Tape area rugs to the floor so they do not move when walked upon.

Protecting against fire and related dangers:

- If a fire occurs, escape the area and then call 911.
- Know at least two ways to get out of the apartment or home.
- For those who smoke, smoke outside and extinguish butts in a can of water or sand.
- Check furniture and places where people smoke before leaving home or going to bed.
- Do not wear loose clothes or long sleeves when cooking.

- Replace appliances that have frayed or damaged cords.
- Do not put too many electric cords into one socket or extension cord.
- Install a smoke detector and replace the battery twice a year.
- Never smoke in bed or leave candles burning in an empty room, even for a short time.
- Make sure heaters are at least 3 feet away from anything that can burn; turn off space heaters when leaving the room.

Avoiding bathroom hazards:

- Set the water heater to 120 °F to prevent scalding.
- Install grab bars in the shower and near the toilet.
- Use rubber-backed rugs to prevent slipping.
- Place nonslip mats in the shower.
- For those having trouble getting in and out of the tub, install a special tub chair or bench.
- For those having trouble getting on or off the toilet, install a raised toilet seat.

Preventing poisoning:

- Never use a stove, oven, or grill to heat the home since these can give off carbon monoxide.
- Make sure there is a working carbon monoxide detector near all bedrooms, and replace its batteries twice yearly.
- Keep medications in the original containers, and make sure they are labeled properly.
- Store medicines and household products away from food.
- Ask the pharmacist to use large print on medication containers.
- Take medications in a well-lit room in order to see the labels clearly.
- Bring all pill bottles to healthcare appointments for verification that they are being taken correctly.
- If forgetful, set alarms as medication reminders.
- Use pill separators and containers to keep track of daily doses.
- Never mix bleach, ammonia, or other cleaning liquids together, as they can form deadly gases.

Protecting against victimization:

- Keep windows and doors locked.
- Never let a stranger into the home when alone.

- Talk over offers made by telephone salespeople with a friend or family member before acting.
- Do not share personal information, such as Social Security number, credit card numbers, bank information, or account passwords, with unknown people.
- Always ask for written information about any offers, prizes, or charities and wait to respond until reviewing the information thoroughly.
- Do not succumb to pressure to make purchases or donations over the phone; it is never rude to wait to discuss such decisions with a family member or friend.
- Keep phone numbers for consumer resources, the local police, bank (if money has been taken from your accounts), etc.

(Health in Aging, 2023b)

FINANCIAL SCAMS TARGETING OLDER ADULTS

Financial scams targeting older adults are prevalent, often go unreported, and are difficult to prosecute. They are, however, devastating to many older adults and can leave them in a very vulnerable position. Such scams may include:

- Medicare/health insurance scams
- Funeral and cemetery scams
- Telemarketing/phone scams for charity
- Internet fraud such as email/phishing scams
- Investment schemes
- Sweepstake and lottery scams
- "Grandparent" phone scam (in which scammer pretends to be a grandchild in need of money)
  (NCOA, 2021)

SAFE DRIVING AND TRANSPORTATION INTERVENTIONS

Age-related changes may impact the older adult's ability to drive safely. Motor vehicle crashes are more harmful for older adults because they are more likely to have conditions of frailty and fragility, increasing the risk for serious injury and extended recovery time. Changes in vision, physical fitness, and reflexes may be a cause for safety concerns.

Determining when driving is a risk and whether driver retraining is indicated is best done by occupational therapists with specialized training. This training helps to optimize and prolong an older driver's ability to drive safely but also can ease the emotional transition to other forms of transportation if limiting or stopping driving becomes necessary (AOTA, 2023b).

Talking with an older person about driving is often difficult. For many, giving up the car keys means a loss of freedom of choice and movement, dependence on others, inability to participate in activities they enjoy, and becoming socially isolated.

It can be difficult for people to recognize or admit when it's no longer safe to drive. **Signs** that one should no longer be driving include:

- Multiple vehicle crashes, near misses, or new dents or scrapes on the car
- Two or more traffic tickets or warnings within the last two years
- Comments from others about erratic, unsafe, or aggressive driving
- Anxiety about driving at night
- Health issues that might affect driving, including vision, hearing, and movement problems
- Complaining about the actions of other drivers
- Recommendations from a healthcare provider to modify driving habits or quit driving entirely

Patient and family **strategies** for managing the older adult's transportation and driving needs include:

- Seeking a referral to occupational therapy for a comprehensive driving examination
- Asking a friend or neighbor for a ride and/or carpooling
- Utilizing religious and civic groups who arrange for volunteers to provide transportation
- Using taxis and public transportation
- Using mobile apps for services such as meals, grocery, or prescription deliveries
- Attending a CarFit event (see box below)
(NIA, 2022c)

OLDER DRIVER STATE LICENSING POLICIES

Licensing policies for older adults vary from state to state. Almost every state has a process for reporting a potentially unsafe driver to its licensing office or the Department of Motor Vehicles. Law enforcement officers and physicians represent the majority of individuals submitting reports, although concerned citizens may also do so.

Clinicians are required to determine if a medical condition falls within the functional or cognitive impairment that triggers mandatory reporting to the state driving licensing authority. Medical conditions can include:

- Cardiovascular disease
- Cognitive conditions
- Dementia
- Diabetes
- Functional conditions
- Physical limitations
- Seizures
- Sleep disorders
- Visual impairment
(NHTSA, 2022)

Some states also have programs for senior drivers such as **AAA RoadWise Driver** and the **CarFit** educational program that offers older adults an opportunity to check how well their personal vehicles "fit" them and that offer specific, practical community resources to help older drivers maintain and strengthen their ability to extend their safe, independent driving years (AAA, 2023; CarFit, 2023).

MEDICATION USE IN OLDER ADULTS

Prescription and over-the-counter medications and herbal preparations are widely used by older adults. Surveys show at least one prescription medication is used by 87% of older adults, five or more medications by 36%, and over-the-counter medications by 38%. A sample of Medicare patients discharged from an acute hospital to a skilled nursing facility found that patients were prescribed an average of 14 medications, including over one third with side effects that could exacerbate underlying geriatric syndromes (Rochon, 2023).

Many older adults take herbal preparations; however, they often do not inform their healthcare provider, and many clinicians do not ask. Herbal medicines may interact with prescribed medications, leading to adverse events (e.g., ginkgo biloba taken along with warfarin [Coumadin] can increase risk of bleeding; St. John's wort taken with SSRI antidepressants can increase the risk of serotonin syndrome).

Prescribing medications for older patients is challenging for several reasons:

- Premarketing drug trials often exclude geriatric patients, and approved doses may not be appropriate for them.
- Many medications must be used with caution due to age-related changes in pharmacokinetics (absorption, distribution, metabolism, and excretion) and pharmacodynamics (physiological effects of the drug).

- Hepatic function also declines with advancing age and may account for great variability in metabolism of a drug, especially when taking multiple medications.
  (Rochon, 2023)

Polypharmacy and Medication Assessment

Polypharmacy refers to receiving five or more appropriate medications for treatment of various chronic conditions. Medication-related adverse effects associated with polypharmacy may include falls, cognitive decline, and increased healthcare utilization. Polypharmacy increases the potential for drug-drug interactions and for prescription of inappropriate medications.

Polypharmacy also increases the risk for "prescribing cascade," which develops when an adverse drug event is misinterpreted as a new medical condition and additional drug therapy is prescribed to treat it. Use of multiple medications can also lead to problems with adherence, especially in the presence of visual or cognitive impairment (Rochon, 2023).

In order to avoid errors—such as omissions, duplications, dosing errors, or drug interactions—a process of comparing a patient's medication orders to all of the medications that the patient has been taking is recommended. This is referred to as a ***medication reconciliation***. It is performed at every transition of care in which new medications are ordered or existing orders are rewritten. Transitions include changes in setting, services, practitioner, or level of care (USIHS, n.d.).

MEDICATION RECONCILIATION PROCESS

1. Obtain a list of all current medications, including prescription, OTC, herbal therapy, and dietary supplements.
2. Develop a list of medications currently prescribed by all healthcare providers.
3. Compare the lists from Steps 1 and 2.
4. Make clinical decisions to continue, modify, or stop each medication based on the comparison from Step 3.
5. Communicate the recommendations and revised medical plan to the patient, caregivers, and other healthcare providers.
   (USIHS, n.d.)

Determining the appropriateness of prescribed medication is a more complex form of assessment. The American Geriatrics Society **Beers Criteria** for Potentially Inappropriate Medication Use in Older Adults contains a list of medications considered potentially inappropriate for use in older patients, mostly due to high risk for adverse events. (See "Resources" at the end of this course.)

Other available tools include:

- Screening Tool of Older People's Prescriptions (STOPP)

- Screening Tool to Alert to Right Treatment (START)
- Fit FOR the Aged (FORTA)
  (Rochon, 2023)

Medication deprescribing refers to a process of medication withdrawal, supervised by a healthcare professional, with the goal of managing polypharmacy and improving outcomes. Common goals for deprescribing include:

- Reducing overall medication burden
- Reducing risk of specific geriatric syndromes such as falls and cognitive impairment
- Reducing risk of hospitalization and death
- Improving quality of life

Deprescribing is done in **three phases**:

1. Compiling a list of all regular and as-needed medications, including over-the-counter and complementary medications, their dosages and frequency, duration of use, indication, patients' experience of each medication, and adherence.
2. Identifying and deciding on drugs to deprescribe. Each medication should be evaluated for potential to be reduced in dose or discontinued, considering the balance of current and potential future benefits and harms.
3. Planning, implementation, monitoring, and follow-up.
   (Steinman & Reeve, 2023)

Medication Adherence

Medication adherence remains a significant challenge in older patients with chronic diseases. Only 50% of older patients with chronic diseases follow the treatment recommendations. Nonadherence can lead to treatment failure, increased hospital readmissions related to medications, additional medical/surgical procedures, and excess healthcare costs. It can also result in mortality.

Several factors influence medication adherence, including cognitive status, ability to self-administer medications, polypharmacy, and potentially inappropriate medication use. Drug-related factors include the number of medications, drug costs, and adverse drug reactions. The use of potentially inappropriate medications in older patients is widespread and is associated with adverse drug events, which affects medication adherence (Yongpei et al., 2023).

Geriatric patients with chronic illnesses are receiving at least five drugs on average. The compliance to such a medication regimen is adversely affected by this complexity, ignorance about the disease and complications, purposeful omission of drugs, loss of memory, and

physical, economic, and logistic problems. Older patients especially have a tendency to stop taking drugs on their own when their symptoms improve.

Studies have shown that adherence to medications can be improved by referral to an occupational therapist; simplifying regimens and encouraging the use of a pill box; educating the patient about disease processes, drugs, and drug interactions; and making medications easily available and at less cost (Punnapurath et al., 2021).

CASE

Carol is an 80-year-old widowed woman who currently takes prescribed medications, including low-dose aspirin, a beta-blocker, a thiazide diuretic, and warfarin. Her over-the-counter medications include a multivitamin, vitamin C, vitamin E, calcium tablets, and Bayer PM for sleep. She occasionally takes Tums for an upset stomach and either aspirin or acetaminophen for a headache. She reports that she has recently developed constipation and has also been taking a laxative.

She arrives to see her primary care provider for her annual exam. The nurse, Sharon, has asked Carol to bring in all of her medications so that they can review all of her prescriptions, supplements, and OTC medications together. As the nurse greets her and asks how she is doing, Carol states that she is "feeling washed out, very tired, but not sleeping well lately." Because of the fatigue, she has not been able to do her daily 30-minute walk.

During her visit with Sharon, Carol has her medication bottles as well as OTC and supplement bottles with her. For each medication, Carol is asked to identify what the medicine is, how she takes it, and the reason she is taking it. Carol is able to recall all medications and indications. She can't remember exactly when she started taking the vitamin E, but states that a friend of hers told her that it was good for her heart, so she decided to start taking it. After all, she says, "It's just a vitamin."

Sharon also asks Carol about her usual diet for a day. Carol states that she ate the following items the previous day:

- Breakfast: tomato juice, blueberry muffin, coffee with cream
- Lunch: grilled cheese and tea
- Snack: glass of milk with two cookies
- Dinner: cheese with crackers, a glass of wine, broiled chicken, peas, carrots, mashed potato with butter, chocolate ice cream
- Bedtime snack: coffee-flavored yogurt

Sharon reviews all of this information and goes on to provide feedback and education with Carol based on her nursing assessment. Sharon suspects that Carol's recent symptoms of constipation may be a side effect of the beta-blockers as well as her intake of calcium (from

her diet of cheese, yogurt, and ice cream as well as taking Tums). Long-term use of beta-blockers can also cause depression and may be affecting Carol's ability to exercise.

Carol's use of the sleep aid may be causing a hangover effect, causing her symptoms of lack of energy. She may also be experiencing hypokalemia from the thiazide diuretic. Sharon reinforces eating foods that contain potassium, such as bananas, oranges, apricots, or prune juice.

Because Carol is taking an anticoagulant, they discuss when she last had her international normalized ratio (INR) checked. They review symptoms of bleeding, such as blood in the urine or stool. Sharon spends time educating Carol on the interactions of other supplements and OTC items that should be avoided in patients who take warfarin. This includes items that contain aspirin (the Bayer PM) and vitamin E (which prolongs bleeding).

Regarding sleep, Sharon discusses Carol's caffeine intake and recommends that she avoid caffeine in the afternoon and evening hours. They talk about drinking decaffeinated tea and coffee instead, as well as trying a warm glass of milk prior to bedtime to induce a sleep effect.

Sharon discusses all of these factors with Carol's primary care provider. Carol is scheduled for an INR as well as a check of her electrolytes, with a follow-up visit to go over results scheduled in a week.

SUPPORTING FAMILY CAREGIVERS

Caregiving allows recipients to retain their quality of life and independence, avoid the need for institutionalization, avoid depression, and improve self-management of chronic conditions. Informal or unpaid family caregivers are the primary source of long-term care provided in people's homes. While some aspects of caregiving may be rewarding, caregivers can also be at increased risk for negative health consequences.

Millions of older adults would not be able to maintain independence without the help of these unpaid caregivers. Caregivers help with routine tasks including shopping, bill paying, bathing, dressing, and managing medications, and they are often the course of emotional support and companionship for care recipients.

Of these caregivers, 58% are women and almost one third of them provide care at least 20 hours a week. Caregivers typically are not formally trained, and most often learn as they go. Seventy-one percent of caregivers care for adults ages 50 or older, and 76% are ages 65 and older. One in six family members expect to become a caregiver within two years.

Caregiving is a public health concern because it can lead to physical, emotional, psychological, and financial strain. Providing personal care and helping with behavioral and cognitive issues can be stressful for caregivers and result in depression and anxiety. Nearly 1 in 5 caregivers

reports fair or poor health. Caregivers often neglect their own health needs, increasing risk of multiple chronic conditions. Nearly 2 in 5 caregivers have at least two chronic diseases.

Caregiving can also have a negative financial effect for caregivers. Many caregivers who are employed outside the home have had to leave work early or take time away from work, resulting in lost wages. Family caregivers may pay out-of-pocket for caregiving services that may be required, meals, medical supplies, and other expenses. The average annual out-of-pocket cost for caregivers is $7,200, and this cost rises to nearly $9,000 per year for caregivers of someone with dementia (CDC, 2023e).

Caregiver Stress

Caregiver stress—the emotional and physical stress of caregiving—is common. **Risk factors** for caregiver stress include:

- Caring for a spouse
- Living with the person who needs care
- Caring for someone who needs constant care
- Feeling alone
- Feeling helpless or depressed
- Having money problems
- Spending many hours caregiving
- Having too little guidance from healthcare professionals
- Having no choice about being a caregiver
- Not having good coping or problem-solving skills
- Feeling pressure to provide care at all times

Caregivers may not see how caregiving affects their health and well-being. **Signs** of caregiver stress include:

- Feeling burdened or worried all the time
- Feeling tired often
- Sleeping too much or not enough
- Gaining or losing weight
- Becoming easily irked or angry
- Losing interest in activities once enjoyed
- Feeling sad

- Having frequent headaches or other pains or health problems
- Misusing alcohol or drugs, including prescription medicines
- Missing their own medical appointments
- Inadequate physical activity
- Eating an unbalanced diet

Caregiving roles and demands are further impacted by factors such as:

- Caring for a person with a dementia (e.g., Alzheimer's disease) or brain-impairing disorder
- Long-distance caregiving requiring coordinating services and putting together a team of unpaid and paid help
- Being in rural settings with fewer available healthcare services
- Cultural expectations (e.g., daughters or daughters-in-law are expected to assume the primary caregiver role)
  (Mayo Clinic, 2023f)

TIPS FOR MANAGING CAREGIVER STRESS

- Ask for and accept help from others.
- Focus on what you can provide, not on what you feel you are not doing.
- Set realistic goals.
- Follow a daily routine.
- Get connected to resources in the community.
- Join a support group with others who can cheer you on and help you solve problems.
- Seek social support from family and friends.
- Set personal health goals.
- Get recommended vaccinations and regular health screenings.
- Consider in-home respite care.
- Consider adult day care centers and programs.
- Consider short-term nursing homes.
  (Mayo Clinic, 2023f)

Assessing Caregivers

Most caregivers are ill-prepared for their role and provide care with little or no support. Evidence indicates that the most effective support begins with an assessment of caregivers' risks, needs, strengths, and preferences. Assessment includes:

- Context in which the caregiver will be providing care and the caregiver's relationship to the recipient
- Caregiver's perception of health and functional status of the care recipient
- Caregiver's perceived obligation/willingness to assume the role of caregiving and recipient's willingness to receive care
- Caregiver's well-being
- Caregiver's perceived challenges and benefits.
- Caregiver skills/abilities/knowledge to provide care
- Caregiver confidence and competency
- Caregiver resources
  (FCA, 2023)

Supporting Caregivers

Caregivers benefit from education and training by professionals to perform minor medical procedures, which can empower their confidence. With the increasing complexity of care and the trend for prolonged survival, family caregivers must also have a comprehensive understanding of end-of-life issues.

Communication and interpersonal skills are essential for family caregivers to effectively interact with healthcare professionals and advocate for their loved ones. Often caregivers may not see or define themselves as such and are not aware of their own need for help. Professionals can make a significant contribution both by helping caregivers identify as such and by referring them to facilities and authorities that can support them. Furthermore, professionals can help by providing information and by training caregivers in the types of care the recipient requires (Raananu & Ledany, 2022).

LEGAL AND ETHICAL CONSIDERATIONS FOR ELDER CARE

Legal issues in healthcare are set by federal and state laws, and ethical issues are concerned with what is the "right" thing to do. Primary ethical principles in healthcare include:

- Autonomy: The right to control one's own destiny
- Beneficence: The duty to do good for others and avoid harm

- Nonmaleficence: Doing no harm and avoiding negligence that leads to harm
- Justice: Fairness in the treatment of others

Acknowledging and acting on the wishes of an older adult are a critical component of legal and ethical care (Shah et al., 2023).

Informed Consent

Informed consent is both an ethical and legal obligation of medical practitioners in the United States. The right to consent originates from the patient's right to direct what happens to their body. Implicit in providing informed consent is an assessment of the patient's understanding, making an actual recommendation, and documentation of the processes.

Some **exceptions** to the requirement for informed consent include:

- Incapacitated patient
- Life-threatening emergencies with inadequate time to obtain consent
- Voluntarily waived consent

If a patient's ability to make decisions is questioned or unclear, an evaluation by a psychiatrist to determine competency may be requested.

A situation may arise in which a patient cannot make a decision independently but has not designated a decision-maker. In this instance, the hierarchy of decision-makers, determined by each state's laws, must be sought to determine the next legal surrogate decision-maker. If this is unsuccessful, a legal guardian may need to be appointed by the court.

Age-related factors of concern in obtaining informed consent may include:

- Hearing and visual impairments
- Impaired communication (written and verbal)
- Fluctuating or diminished decision-making capacity

Implicit in providing informed consent is an assessment of the patient's understanding, making a recommendation, and documentation of the process. The following are the **required elements for documentation** of the informed consent discussion:

1. Nature of the intervention
2. Risks and benefit of the intervention
3. Reasonable alternatives
4. Risks and benefits of alternatives

5. Assessment of the patient's understanding of elements 1 through 4
(Shah et al., 2023)

Healthcare Proxies, Living Wills, and Advance Directives

A **healthcare proxy** is a document that names someone to act as a substitute for another person (proxy). This individual is granted the legal authority to express a patient's wishes and make healthcare decisions if the patient is unable to do so for themself. A proxy may also be called a *durable medical power of attorney*, *healthcare agent*, or *healthcare surrogate*.

A **living will** is a written record of the type of medical care the patient would want to receive under specific circumstances.

An **advanced directive** often refers to a combination of the living will and healthcare proxy documents (Medicare Interactive, 2023).

Both advance directives and living wills are written legal documents giving instructions to family members, healthcare providers, and others about the kind of care the person may want if incapacitated by a temporary or permanent injury or illness. Specific requirements for advance directives are covered under state law and may differ from state to state (Medicare Interactive, 2023).

Advance directives should address possible end-of-life care decisions and may include any of the following medical decisions:

- Cardiopulmonary resuscitation (CPR)
- Intubation/mechanical ventilation (do not intubate, or DNI)
- Artificial nutrition/hydration (ANH)
- Dialysis
- Antibiotic or antiviral medications
- Comfort care (palliative care)
- Organ and tissue donations
- Donating one's body for scientific study

It is not necessary to have an advance directive or living will in order to have do not resuscitate (DNR), do not attempt resuscitation (DNAR), and do not intubate (DNI) orders. To establish these preferences, the patient must inform the provider, who will write the orders and place them in the patient's medical record.

Once advance directives or living wills are completed, people are advised to:

- Put the original in a safe but easily accessible place

- Give a copy to their provider
- Give a copy to their healthcare representative
- Keep a record of who has the advance directives
- Carry a wallet-sized card that indicates advance directives have been made and where a copy can be found
- Carry a copy when traveling
  (Mayo Clinic, 2022c)

Orders for Life-Sustaining Treatment

In some states, advance healthcare planning includes documents referred to as *physician orders for life-sustaining treatment (POLST)*. These may also be called *medical orders for life-sustaining treatment (MOLST).*

Such documents are intended for those who have already been diagnosed with a serious illness; A POLST does not replace other directives; instead, it serves as physician-ordered instructions (similar to a prescription) to ensure that, in case of an emergency, the patient receives the treatment preferred.

The POLST remains with the person and is prominently displayed in the person's home or the facility in which the patient is receiving care or residing. Such a document may address:

Cardiopulmonary resuscitation (DNR)

Intubation/mechanical ventilation (do not intubate/DNI)

Artificial nutrition/hydration (ANH)

Use of antibiotics

Requests not to transfer to an emergency room

Requests not to be admitted to the hospital

Pain management

The document also indicates which advance directives have been created and who is the legal healthcare representative. Like advance directives, POLSTs/MOLSTs can be canceled or updated (Mayo Clinic, 2022c).

ELDER ABUSE

Various types of elder abuse include:

- **Physical abuse:** use of force to threaten or physically injure an older person, including acts such as hitting, kicking, pushing, slapping, and burning

- **Emotional/psychological abuse:** verbal or nonverbal attacks, threats, rejection, isolation, or belittling acts that cause mental anguish, fear, or distress
- **Sexual abuse:** sexual contact that is forced, tricked, threatened, or otherwise coerced, including sexual harassment
- **Exploitation:** theft, fraud, scams, misuse or neglect of authority, and use of undue influence as a lever to gain control over an older person's money or property
- **Neglect:** failure or refusal to provide for an older person's basic needs of food, water, shelter, clothing, hygiene, essential medical care, safety, or emotional needs
- **Abandonment:** leaving an older adult who needs help alone without planning for their care

  (NCEA, 2020)

Elder abuse can lead to early death, harm one's physical and psychological health, destroy social and family ties, and cause devastating financial loss. Those who may commit elder abuse include children, other family members, and spouses, as well as staff at nursing homes, assisted living, and other care facilities (CDC, 2021; Mauk, 2023).

Risk Factors for Elder Abuse

A combination of individual, relational, community, and societal factors contribute to the **risk of becoming a victim** of elder abuse.

- Individual risk factors:
  - Current diagnosis of mental illness/cognitive impairment
  - Current or past abuse of drugs or alcohol
  - Current physical health problem
  - Past experience of disruptive behavior
  - Past experience of traumatic events
  - High levels of stress
  - Poor or inadequate preparation or training for caregiving responsibilities
  - Inadequate coping skills
  - Exposure to or witnessing abuse as a child
  - Social isolation
- Relational risk factors:
  - High financial and emotional dependence upon a vulnerable elder
  - Past family conflict

    - Inability to establish or maintain positive prosocial relationships
    - Lack of social support
- Community risk factors:
    - Lack of institutional support
- Societal risk factors:
    - Isolation

Likewise, a combination of individual, relational, community, and societal factors contribute to the **risk of becoming a perpetrator** of elder abuse.

- Individual risk factors:
    - Current diagnosis of mental illness
    - Current or past abuse of alcohol
    - Current physical health problem
    - Past experience of disruptive behavior
    - Past experience of traumatic events
    - High levels of stress
    - Poor or inadequate preparation or training for caregiving responsibilities
    - Inadequate coping skills
    - Exposure to or witnessing abuse as a child
- Relational risk factors:
    - High financial and emotional dependence upon a vulnerable adult
    - Past family conflict
    - Inability to establish or maintain positive prosocial relationships
    - Lack of social and/or formal support
- Community risk factors:
    - Limited, inaccessible, or unavailable formal services such as respite care
- Societal risk factors:
    - High tolerance and acceptance of aggressive behavior
    - Family members are expected to care for elders without seeking help from others
    - Persons are encouraged to endure suffering and remain silent
    - Negative beliefs about aging and elders

Specific characteristics of institutional settings (such as nursing homes and residential facilities) can increase the risk for elder abuse, including:

- Chronic staffing problems
- Lack of qualified staff
- Staff burnout and stressful working conditions
  (CDC, 2021)

Assessment for Elder Abuse

Routine screening for elder abuse is not recommended by the U.S. Preventive Services Task Force, but it is recommended that ongoing awareness of this growing problem be considered during all patient care interactions.

SCREENING QUESTIONS

Office or emergency room visits may be the only time the patient can have safe, confidential contact with someone other than the abuser. If the patient is able to understand and respond to questions, the patient can be interviewed alone in a quiet, private location. Interviewing can be difficult if the patient is cognitively impaired or if the caregiver is the suspected abuser. It is best performed by someone with expertise in geriatrics and/or a social worker or other mental health professional.

Examples of **indirect screening questions** include:

- Do you feel safe where you live?
- Who prepares your food?
- Does someone help you with your medication?
- Who takes care of your checkbook?

Examples of **direct screening questions** include:

- Does anyone at home hurt you?
- Do they scold or threaten you?
- Do they touch you without your consent?
- Do they make you do things you don't want to do?
- Do they take anything that's yours without asking?
- Have you signed documents that you did not understand?
- Are you afraid of anyone at home?

- Are you alone a lot?
- Has anyone ever failed to help you take care of yourself when you needed help?

Follow-up questions assess safety issues and explore mistreatment, asking what, how, when, how often, etc.

- Who is the perpetrator?
- How do you (the patient) cope?
- What are your alternative living options?
- Who are alternative caregivers?
- What can be done to prevent future abuse?
  (Stanford Medicine, 2023)

In cases of suspected or known abuse, further screening can be done with validated tools such as the **Elder Assessment Instrument (EAI)**, a 41-item tool comprised of seven sections that evaluates social habits and medical history and reviews signs, symptoms, and subjective complaints of elder abuse, neglect, exploitation, and abandonment. The questionnaire takes approximately 15 minutes to complete. There is no actual scoring done, but the person is referred to social services for the following:

- Evidence of mistreatment
- Subjective complaint of mistreatment by the older adult
- Clinician belief there is a high risk for probable abuse
  (Fulmer, 2023)

ELDER ABUSE SCREENING TOOLS:

- California Undue Influence Screening Tool (CUIST)
- Elder Assessment Instrument (EAI)
- Elder Abuse Risk Assessment and Evaluation (EARAE)
- Elderly Abuse Decision Support System (EADSS)
- Weinberg Center Risk and Abuse Prevention Screen

“RED FLAGS” FOR ABUSE

Clinicians must be aware of the signs and symptoms that signal an older adult may be experiencing abuse.

Below are some signs of possible **physical abuse** (especially if there has been a delay in seeking treatment):

- Unexplained or implausible injuries
- Multiple ED visits; healthcare "shopping"
- Broken bones, dislocations, sprains
- Multiple injuries in various stages of healing
- Traumatic, patchy hair loss
- Broken glasses
- Swelling, pinch marks, hand slap or finger marks
- Bruises, especially when not over bony prominences
- Scratches, cuts, lacerations, punctures
- Burns from a cigarette, immersion line, or in the shape of a hot object such as an iron
- Restraint marks on axilla, wrists, or ankles
- Aspiration/choking from forced feeding

Signs of possible **sexual abuse** include:

- Bruises on breasts or genital area
- Genital infections or venereal disease
- Vaginal or anal bleeding

Possible signs of **neglect** (also self-neglect) are:

- Pressure injuries, especially if not cared for
- Indicators of suboptimal living conditions, such as poor hygiene, torn or dirty clothes, inappropriate or inadequate clothing, flea bites
- Poor state of dentition
- Malnutrition, weight loss, temporal wasting, low serum albumin and cholesterol
- Dehydration, cracked lips, sunken eyes, impaction (water withheld to decrease incontinence episodes), poor skin turgor, elevated BUN and sodium
- Contractures
- General deterioration in health
- Failure to keep medical appointments
- Physical or laboratory evidence of over- or underdosing

- Lack of needed healthcare appliances or supplies
- Lack of physical aids such as dentures, glasses, or hearing aids
- Failure to address issues of safety
- Inability to manage activities of daily living

Possible indicators of **economic abuse** include:

- Caregiver refusal to spend money on care items or services
- Lack of appropriate clothing or grooming for the level of income
- Patient complains of missing clothing, jewelry, or valuable items
- Lonely patient with new "best friend" at office visits
- Sudden appearance of previously uninvolved relatives
- Unpaid medical bills when caregiver is supposed to be handling them
- Checks, new will, power of attorney, or healthcare directives "signed" by a patient who is incapable of doing so
  (Stanford Medicine, 2023)

Caregiver red flags include:

- Patient does not want to be left alone with caregiver
- Patient hesitance to talk around caregiver
- Conflicting accounts of incidents by patient and caregiver
- Caregiver's refusal to allow patient to be seen alone
- Caregiver's reluctance to cooperate with care plan
- Caregiver seems to isolate patient from family, friends, activities, information
- Caregiver denies patient right to make decisions about living arrangements, privacy, personal matters, or healthcare choices
- Caregiver anger or indifference to patient
- Caregiver verbal abuse to patient or healthcare provider
- Caregiver substance abuse or mental illness
- Caregiver history of violence
- Caregiver financial dependence on patient
  (Stanford Medicine, 2023)

Reporting

If suspicions are strengthened through the assessment, a collaborative approach to management and prevention is required. Team members include Adult Protective Services (APS), social workers, psychiatrists, lawyers, and law enforcement officers. It is important to determine whether the elderly person is in immediate danger, in which case law enforcement should be contacted to help remove the person from the situation.

While it varies by state, abuse and neglect should typically be reported within 48 hours of the time when the healthcare provider becomes aware of the situation.

Elder abuse that occurs in nursing homes and assisted-living facilities must be reported to the long-term care ombudsman program in most states.

Many states have enacted specific older adult abuse laws. There is a range of misdemeanor and felony charges, and penalties can include county jail time or state prison.

Examples include New York State's "Granny Law," which makes elder abuse a second-degree assault, a felony carrying a possible 2- to 7-year prison sentence; Florida's law makes elder abuse a third-degree felony punishable by 5 years in prison, 5 years' probation, and a $5,000 fine (Coble, 2022).

END-OF-LIFE CARE

End-of-life care describes the support and medical care given during the time surrounding death. Older people often live with one or more chronic illnesses and may need care for days, weeks, and even months before death. The goals are to prevent or relieve suffering as much as possible and to improve quality of life while respecting the dying person's wishes.

A patient who can defend their judgments has the right to make decisions that do not coincide with what the physician believes is beneficial to that patient. Physicians are obligated to comply with the refusal of life-sustaining treatment by a competent patient who has been adequately informed of the consequences of refusal and has applied their own values in making a decision to refuse or who have prepared an advance directive or living will.

Likewise, clinicians may refuse to provide care if:

- There is no medical rationale for the treatment
- The treatment has proven ineffective for the person
- Expectation of survival is low
- The person is unconscious and will likely die in a matter of hours or days even if treatment is given

Treatments that have been started can also be stopped. This is appropriate if the treatments are not beneficial or are not consistent with an individual's wishes and priorities. Even if life-sustaining treatments have been refused or stopped, the individual can still receive care to treat symptoms such as pain or shortness of breath (Health in Aging, 2020; Olejarczyk & Young, 2023).

Preparing older adults and their families to plan and anticipate making decisions regarding end-of-life care and treatment is important, especially in the event that the older adult is not able to make decisions for themself. Older adults should plan and discuss their preferences with significant others, family, and healthcare providers to communicate their wishes through planning advance directives, a living will, and appointing a healthcare proxy (see above under "Legal and Ethical Considerations").

Palliative Care

Palliative care is the active, holistic care of individuals across all ages with serious health-related suffering due to severe illness, and especially of those near the end of life.

The **goals** of palliative care are to:

- Provide relief from pain and other physical symptoms
- Maximize the quality of life
- Provide psychosocial and spiritual care
- Provide support to help the family during the patient's illness and in their subsequent bereavement

The ideal core **clinical team** consists of:

- Physician(s)
- Nurses (inpatient and community care)
- Social worker
- Physical therapist
- Occupational therapist
- Speech-language therapist
- Chaplain or pastoral care counselors
- Dietitians/nutritionists

Other professionals may include:

- Clinical psychologists

- Clinical pharmacists
- Massage therapists
- Music and/or art therapists
  (IAHPC, 2023)

Hospice Care

Hospice care focuses on care, comfort, and quality of life of a person with a serious illness who is approaching the end of life. When it is recognized that it may not be possible to cure a serious illness, or a patient may choose not to undergo certain treatments, a patient may decide to enter hospice care. The patient beginning hospice care understands that his or her illness is not responding to medical attempts to cure it or to slow the disease process.

Hospice provides comprehensive comfort care as well as support for the family, but attempts to cure the persons' illness are discontinued. Hospice is provided for those with a terminal illness whose physician believes they have six months or less to live if the illness runs its natural course.

Hospice can be offered at home or in a facility such as a nursing home, hospital, or a separate hospice center.

Hospice care includes a team of people with certain skills, including nurses, doctors, social workers, spiritual advisors, and trained volunteers. They work together with the dying person, the caregiver, and/or family to provide medical, emotional, and spiritual support. A member of the hospice team visits regularly, and someone is usually always available by phone. Along with coaching family members on how to care for the dying person, it provides respite care when caregivers need a break. Respite care can be for as short as a few hours or for as long as several weeks (NIA, 2021b).

HOSPICE AND VETERANS

Hospice is a benefit that the Veteran's Administration offers to qualified veterans who are in the final phase of their lives, typically the last six months or less. The VA invites hospices, state hospice organizations, Hospice-Veteran Partnerships, and VA facilities to join a program focused on helping veterans live fully until they die. This program, called We Honor Veterans, benefits the vast majority of veterans who are not enrolled in VA and may not be aware of end-of-life services and benefits available to them. The VA also works very closely with community and home hospice agencies to provide care in the home (WHV, 2023).

CASE

Robert is a 76-year-old man who lives independently with his wife, 74-year-old Ella. Robert experienced a stroke a week ago and is currently hospitalized on a neurology floor and is minimally conscious. In accordance with Robert's wishes, Ella and their two adult children have chosen not to pursue aggressive medical treatment for Robert and have declined the insertion of a feeding tube.

Knowing that Robert's diagnosis is terminal, the family asks the nurse, "What should we do now?" The nurse replies, "What do you know about hospice care?"

Ella looks concerned and says, "Robert did not want to be put someplace like a hospice or nursing home. He always wanted to be at home." The nurse then explains that hospice is not a place but a type of care, and that hospice services can assist Ella and her family in taking Robert home in order to receive care for him there. Ella is relieved to learn this.

The nurse explains to the physician that Robert's family would like to care for the patient at home and obtains an order for hospice care from both the geriatrician and the neurologist. The nurse then makes arrangements for a conference with the family, social worker, and a hospice coordinator of Ella's choice to discuss discharge plans.

(See also the Wild Iris Medical Education course "End-of-Life, Palliative, and Hospice Care.")

CONCLUSION

As America ages, healthcare organizations and healthcare professionals must rethink approaches to healthcare in general, since caring for the older population will soon take up a bigger portion of healthcare resources than caring for the health needs of the young. At the same time, there is a major deficit in adequately prepared healthcare professionals involved in providing geriatric care.

Healthcare professionals today must recognize that older people are a diverse group with different values, functional levels, and illnesses. They must begin to appreciate the need for improving and optimizing the older adult's functioning rather than just focusing on diseases. This is, of course, challenging.

Effective management that engages older adults, family caregivers, and clinicians in collaboratively identifying the older adult patient's needs and goals is necessary in order to implement an individualized care plan, while recognizing that health changes due to aging, together with multiple chronic illnesses, can make creating a personalized health strategy more

RESOURCES

AGS Beers Criteria (American Geriatric Society)
https://www.elderconsult.com/wp-content/uploads/PrintableBeersPocketCard.pdf

Administration on Aging
https://www.acl.gov/about-acl/administration-aging

Caregiver Self-Assessment (Veterans Affairs)
https://www.va.gov/geriatrics/docs/Caregiver_Self_Assessment.pdf

Eldercare locator (Administration on Aging)
https://eldercare.acl.gov/Public/Index.aspx

Family Caregiver Alliance
https://www.caregiver.org

National Association of Area Agencies on Aging
https://www.usaging.org/

National Institute on Aging
https://www.nia.nih.gov/health

POLST participating programs (by state)
https://polst.org/programs-in-your-state/

Readiness Ruler (for change) (Indiana University)
https://iprc.iu.edu/sbirtapp/mi/ruler.php

We Honor Veterans (National Hospice and Palliative Care Organization)
https://www.wehonorveterans.org/

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TEST

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1. Which model of care is designed to prevent delirium and reduce cognitive decline, functional impairment, and the rate of in-hospital falls?

a. Bridge model
b. Collaborative care
c. AGS CoCare—HELP
d. Home-based primary care

2. In which way does aging of the integumentary system affect bone health?

a. Inactivity and immobility
b. Decreased muscle mass and function
c. Poor nutrition and dehydration
d. Decreased vitamin D synthesis

3. Which dysrhythmia is **most** commonly sustained in the geriatric population?

a. Premature atrial contractions
b. Sick sinus rhythm
c. Atrial fibrillation
d. Premature ventricular contractions

4. Which cognitive change is **least** associated with the normal aging process?

a. Difficulty sustaining attention
b. Slower thinking process
c. Inability to complete tasks as usual
d. Decreased verbal reasoning

5. Which factor is assessed in the Mini–Mental State Examination?

a. Orientation to place
b. Normal spelling of a word
c. Activities of daily living
d. Puzzle solving

6. Which communication strategy is recommended when caring for patients with dementia?

a. Remind them of the truth when they have forgotten.
b. Enter the patient's reality.
c. Call them by affectionate names such as "Dear" or "Sweetie."
d. Do not offer choices when asking questions.

7. Which statement is **correct** concerning suicide among older adults?

a. Members of the "baby boom" generation have the lowest suicide rate.
b. Risks for suicide in older adults are the same as in younger people.
c. Older adults attempt suicide less but are more successful than younger adults.
d. Females ages 85 and older have the highest rate of dying by suicide.

8. Which instrument is used to assess a person's level of disability and changes in status in response to rehabilitation or medical intervention?

a. Section GG
b. Life Space Questionnaire
c. Functional Reach Test
d. Timed Up and Go (TUG) Test

9. Which assistive device would be appropriate for a patient with acute and severe loss of bilateral lower extremity strength and inability to functionally bear weight due to a stroke?

a. Wheelchair
b. Standard cane
c. Standard walker
d. Front-wheeled walker

10. For which condition does the clinician assess a patient who is taking warfarin (Coumadin) and experiences a fall?

a. Diabetes
b. A vision disorder
c. Traumatic brain injury
d. An adverse medication reaction

11. Which action is part of medication reconciliation?

a. Conducting a pill count
b. Comparing medication orders to all medications being taken
c. Discontinuing all herbal and dietary supplements
d. Deprescribing unused medications

12. Which factor is **least** likely to be a sign of caregiver stress?

a. Eating an unbalanced diet
b. Sleeping too much or too little
c. Living separately from the person needing care
d. Engaging in inadequate physical activity

13. Which document names someone else as an agent to express a patient's wishes?

a. Living will
b. Healthcare proxy
c. Do not resuscitate order
d. Informed consent

14. Which factors increase the risk for becoming a victim of elder abuse?

a. Having adequate social support and good health
b. Having access to public assistance and resources
c. Being cognitively impaired and socially isolated
d. Being physically active and staying strong and fit

15. Which statement describes palliative care?

a. Is provided once a patient is determined to have six months or less to live
b. Focuses on managing pain, symptoms, and maximizing quality of life
c. Replaces primary treatment modalities
d. Does not support the family in their subsequent bereavement