

ADVANCED PRACTICE

NURSING in the **Care of Older Adults**

Kennedy-Malone • Groenke-Duffy

THIRD EDITION



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I dedicate this book to my husband Chris, my son Brendan, and Clover for their unwavering support during the writing of this book. To my parents, Nancy and Edward Kennedy, you continue to be models of successful aging that motivate me to continue to be passionate about advanced practice gerontological nursing. To graduates that I have worked with over the years, your continued dedication and expertise in working with older adults is appreciated and admired; thanks especially to those who also served as contributors to this edition.

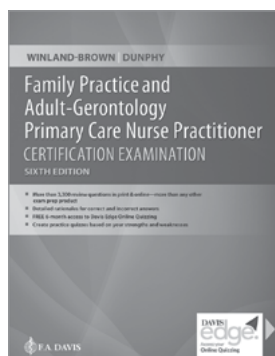
—L.K.-M.

To my husband Mark who supported me as I worked on this book during the COVID-19 pandemic. To my children, Patrick, Colin, and Caitlin, you bless me every day. To my in-laws, Shirley and Art Duffy, who continue to live vital lives in their 90s. To my aunt, Karleen Groenke Sime who inspired me to become a nurse. Finally, to all my patients who challenge me to be the best provider I can be and my students who motivate me to constantly be better.

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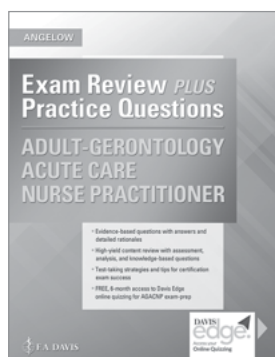
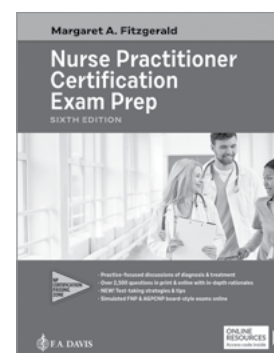
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Preface

With the continued rapid growth of the older adult population, there remains an increased demand for health-care providers to deliver age-specific care and direct disease management. *Advanced Practice Nursing in the Care of Older Adults* will serve as a guide for advanced practice nurses who are privileged to provide care to older adults. Designed as a text for students, as well as a reliable source of evidence-based practice for advanced practice nurses, this book contains information on healthy aging, comprehensive geriatric assessment, and common symptoms and illnesses that present in older adults. Given the complexity of prescribing for older adults taking multiple medications, a chapter on polypharmacy is included. The book concludes with a chapter on care delivery for patients with chronic illnesses who face end-of-life care.

Throughout the book, case studies are included to provide further practice and review. An important feature of this book is the use of the Strength of Recommendation Taxonomy (SORT) (Ebell et al., 2004), which provides a direct reference to evidence-based practice recommendations for clinicians to consider in the care of older adults.

In Unit I, “The Healthy Older Adult,” the first chapter, “Changes With Aging,” addresses the normal changes of aging, expected laboratory values in older adults, presentation of illness, atypical disease presentation, bimodal conditions, and the impact of chronic illness on functional capacity. In the second chapter, “Health Promotion,” updated information pertaining to health promotion and disease prevention strategies for older adults from *Healthy People 2030* and the U.S. Preventive Services Task Force (USPSTF) is provided, including information on immunizations and the Welcome to Medicare and Medicare Annual Wellness Visits. Also covered is an overview of physical activity, sexual behavior, dental health, and substance use, as well as a section pertaining to the older traveler. Recommendations for exercise, safe physical activity, and nutrition are provided in this unit. New to the book in this edition is Chapter 5, “Settings of Care,” which addresses the special needs older adults require if the setting is acute or primary, in the community or in an institutional setting.

Unit II, “Assessment,” opens with a detailed chapter on comprehensive geriatric assessment. Information on physical, functional, and psychological health is delineated, and information on social determinants of health is included. The chapter on assessment also includes an introduction to the Age-Friendly Healthcare Systems and the 4Ms Framework. Chapter 7, “Symptoms and Syndromes,” provides the clinician with a concise description of more than 20 symptoms prevalent in older adults. New topics in this edition include muscle cramps and weakness, two very frequent chief concerns. A rapid reference detailing common contributing

factors and associated symptoms and clinical signs that should be worked up for each presenting condition is included. Recommendations for diagnostic tests with accompanying results are used to form a differential diagnosis.

Unit III, “Treating Disorders,” provides 13 chapters of concise, updated information pertaining to disease management of illnesses common in older adults, presented by body systems. New chapters in this edition include a comprehensive chapter on gynecological conditions, often underaddressed in geriatric texts. Each chapter opens with an assessment section that provides the reader with a focused review of systems and the physical examinations needed to obtain pertinent information for diagnosis and treatment of the older adult. Signal symptoms indicating atypical presentation of illness are highlighted at the beginning of each condition. The discussion of each problem and disorder follows a consistent monograph format:

- Signal symptoms
- Description
- Etiology
- Occurrence
- Age
- Ethnicity
- Contributing factors
- Signs and symptoms
- Diagnostic tests
- Differential diagnosis
- Treatment
- Follow-up
- Sequelae
- Prevention/prophylaxis
- Referral
- Education

Unit IV, “Complex Illness,” addresses complex management of patients requiring chronic illness management, palliative care, and supportive care at end of life, and includes a chapter on polypharmacy. The text concludes with two appendices—“Physiological Influences of the Aging Process” and “Laboratory Values in the Older Adult”—both of which are ready references for the busy practitioner.

In addition to the content of the book, a Bonus Chapter, “Infectious Disease,” is available on fadavis.com. This chapter includes COVID-19; HIV, a growing concern in older adults; Antibiotic Resistant Organisms; and MRSA. Also available online are selected references and additional case studies, which are provided to support critical thinking and are available for users to complete on their own or for educators to incorporate into their course requirements.

For the faculty, there are PowerPoint presentations and a well-developed test bank located on fadavis.com. The Active

Classroom Instructors' Guide is an online faculty resource that maps the resources available with the text and includes lecture notes and suggested answers for case studies.

This book is written by and for advanced practice nurses involved in the care of older adults across multiple settings of care. While this book is intended as a guide for the management of care for older adults, clinicians are encouraged to deliver individualized, patient-centered care considering the latest clinical practice guidelines on prevention and management of conditions common in older adults.

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unit |

The Healthy Older Adult

Changes With Aging

Laurie Kennedy-Malone

FUNDAMENTAL CONSIDERATIONS

The aged population continues to be incredibly diverse; it includes some individuals who are nearly twice as old as others and is reflective of growing cultural diversity as well. Knowing what is expected in aging, what diseases are prevalent in aging, and what constitutes successful aging is an immense challenge even for the most skillful advanced clinician. When assessing the aged individual, the advanced practice nurse should be familiar with the range of common and expected changes associated with aging so that older persons falling outside this range may be identified and interventions taken appropriately and expeditiously.

In the past, wellness was considered the mere absence of disease, but with more information from longitudinal studies of aging, we are learning a great deal about the characteristics of successful agers (Beard et al., 2016). What constitutes successful aging is beginning to emerge, and the illness–health continuum continues to expand to include adults living into old age. This chapter focuses on familiarizing the advanced practice nurse with fundamental underpinnings that serve to guide the approach to assessment and management of the older adult. In addition to appreciating the physiological changes that come with aging, the advanced practice nurse needs to understand how the changes that accompany aging influence reference laboratory values. Recognizing that presenting features of disease/illness may be different and having a greater awareness of the impact of chronic illness on functional capacity and quality of life provide the advanced practice nurse with a perspective in approaching the older adult that is different from that of younger adults.

PHYSIOLOGICAL CHANGES WITH AGING

The physiological changes associated with the usual aging process detailed by system and the impact of these changes are delineated in Appendix A. The clinician must be aware,

however, that all the systems interact and, in doing so, can increase the older person's vulnerability to illness/disease. For example, the risk of respiratory infection in the older adult population is considerable, and the physiological influences may include limited chest wall expansion, cilia atrophy, and alterations in the immune system. During the clinical decision-making process, the clinician knowledgeable about physiological changes with aging will be less likely to undertreat a treatable condition. For example, the astute clinician will use the diagnostic process to differentiate the more benign seborrheic keratosis from the more serious melanoma in the aged individual. While educating the older patient, the informed professional will be less likely to attribute a finding to the aging process alone. Without knowledge of the physiological changes with aging, an age bias can lead to undertreatment, impacting the individuals' health and contributing to a growing cost of health care for older adults (Levy et al., 2020).

The major impact of these physiological changes can be highlighted with four primary points. First, there is a reduced physiological reserve of most body systems, particularly the cardiac, respiratory, and renal systems. Second, there are reduced homeostatic mechanisms that fail to adjust regulatory systems such as temperature control and fluid and electrolyte balance. Third, there are the changes in the sympathetic response, which contribute to orthostasis and falls, as well as lack of hypoglycemic response. Fourth, there is impaired immunological function: infection risk is greater and autoimmune diseases are more prevalent. The clinician is advised not to be complacent in that some processes previously considered normal, age-related changes are now being refuted. Historically, normal aging studies were conducted using a cross-sectional study method. Today, results are becoming increasingly available from longitudinal studies of aged populations, some of which began in the 1930s (Besdine, 2019).

This more-reliable methodology provides some challenges to previously held conclusions. The clinician is encouraged to stay informed regarding the research in expected and successful aging so that this information may be carefully considered, interpreted, and translated quickly into the clinical setting.

LABORATORY VALUES IN OLDER ADULTS

Healthy individuals of all ages often have asymmetrical distribution of test results. Normality in a statistical sense may be extrapolated incorrectly to normality in terms of health. In addition, the standards with which to compare normal laboratory values that were previously available to the health-care worker have been based on randomly collected samples of younger healthy adults. Many factors can influence laboratory value interpretation in the older adult, including the physiological changes with aging, the prevalence of chronic disease, changes in nutritional and fluid intake, lifestyle (including activity), and the medications taken (Vásárhelyi & Debreczeni, 2017).

Clinicians may find reference ranges, therefore, to be preferable. Reference ranges or intervals, such as age or sex, can be defined demographically. For example, the reference range for older adults might be the intervals within which 95% of persons older than age 70 fall. These may be further defined physiologically (e.g., fasting or activity status) or pharmacologically (e.g., medication, tobacco, or alcohol use). Even this more precise method does not ensure a healthy sampled population as the standard and using the reference range method may not differentiate normal aging from disease. The reference values presented for older adults are presented in the Appendix B. Longitudinal chemical studies support the concept of biochemical individuality—that is, each individual's variation is often much smaller than that of the larger group. Biochemical individuality is of particular importance in detecting asymptomatic abnormalities in older adults. Significant homeostatic disturbances in the same individual may be detected through serial laboratory tests, even though all individual test results may lie within normal limits of the reference interval for the entire group.

The clinician must determine whether a value obtained reflects a common aging change, a disease, or the potential for disease. Although abnormal laboratory findings are often attributed to old age, rarely are they true aging changes. Misinterpretation of an abnormal laboratory value as an aging change can lead to underdiagnosis and undertreatment in some situations (e.g., anemia or urinary tract infection) and overdiagnosis and overtreatment in others (e.g., hyperglycemia or asymptomatic bacteriuria). At times, the result of a laboratory value may be within the appropriate reference range yet indicate pathology for the older adult (Vásárhelyi & Debreczeni, 2017).

The serum creatinine level may be within the normal range yet indicate renal impairment in a patient with inadequate protein stores, and different measures might need to be considered. One value of significance to the practitioner with prescriptive privileges is the calculation of creatinine clearance in the estimation of renal function—for instance, when dosing enoxaparin (Shaikh & Regal, 2017). Reduced renal function, particularly the glomerular filtration rate (GFR), affects the clearance of many drugs, and creatinine clearance provides an index of renal function for use in choosing doses of renally eliminated or nephrotoxic drugs (such as digoxin, H₂ blockers, lithium, and water-soluble antibiotics).

Finally, when considering which laboratory tests to order, it is worth remembering the doctrine *primum non nocere*, “first,

do no harm.” Excessive blood sampling may lower the hematocrit; repeated fasting tests may provoke nutritional compromise; and extensive use of tests often requires drugs that may cause adverse reactions. Any risks involved in laboratory testing must be considered with respect to the patient's clinical condition and weighed against the test's expected benefits. The clinician should plan in advance the use for each test result value obtained, especially for less specific or less sensitive tests such as sedimentation rate and serum alkaline phosphatase levels. “Ordering a test requires assessing the likelihood that a patient has specific conditions prior to the order, along with an understanding of the accuracy of test and as to how it will change management” (Dharmarajan & Pitchumoni, 2012, p. 267). Once laboratory tests are available for review, test results should be discussed with the patients, with abnormal test results interpreted for the aging individual and addressed with the patient and/or caregivers. In addition to understanding the fundamental changes that accompany aging and their influence on interpreting laboratory values and medication management, the advanced practice nurse needs to understand the presenting features of illness/disease in older adults (Jaul & Barron, 2017).

PRESENTING FEATURES OF ILLNESS/DISEASE IN THE OLDER ADULT

The manifestations of illness and disease in the older adult can be very different, even if the underlying pathological process is the same as in younger individuals. The advanced practice nurse should be aware of what can influence the presentation. It has long been understood that underreporting of symptoms by older adults may occur if they attribute the new sign or symptom to age itself (Fried et al., 1991; Levkoff et al., 1988). By erroneously associating aging with disease, disuse, and disability, older adults perceive this change as inevitable and either fail to present to the health-care provider or, if they do, fail to challenge the assumption that this represents normal aging. At times an acute symptom such as pain or dyspnea is superimposed on a chronic symptom, and the older adult may not recognize that it represents a new or exacerbated pathology (Bell et al., 2016). The advanced practice nurse is well advised to never attribute something to common aging without doing a careful and methodical search for a treatable condition.

Certain diseases are more common in the older adult and an understanding of the epidemiology is critical in the interpretation. Certain neoplasms and malignancies such as basal cell carcinoma, chronic lymphocytic leukemia, and prostate cancer have a high prevalence beginning in older adulthood. Neurological conditions such as Parkinson's disease, dementias, stroke, normal pressure hydrocephalus, and complex partial seizures are more common to have initial onset in older age. Polymyalgia rheumatica along with giant cell arteritis almost exclusively begins in patients older than age 50 (Narayan et al., 2017).

Complicating the care of older adults are those patients who develop geriatric syndromes that often involve multiple body systems and have more than one underlying cause (Fried et al., 1991). For patients presenting with one or more

of the new geriatric giants—frailty, anorexia of aging, sarcopenia, and cognitive impairment—the risk escalates for falls, delirium, injuries, and depression, subsequently placing these patients at risk for iatrogenic events that could lead to hospitalization, institutionalization, and subsequently, death (Morley, 2017).

Altered Presentation of Illness

Advanced practice nurses managing the care of older adults are challenged to recognize altered, atypical, vague, or even nonspecific signs and symptoms of common conditions in older adults (Auerhahn & Kennedy-Malone, 2010). It is well documented that disease presentation may be different for the older adult, especially the frail older adult (Hofman et al., 2017). The failure to develop an elevated temperature or fever with an underlying infectious process differs greatly from presentation of illness in a younger patient. The patient with depression may not present with a dysphoric mood but rather agitation and psychotic features (Vonnes & El-Rady, 2021). The older adult may present with cardiac manifestations (atrial fibrillation, heart failure) of undiagnosed thyroid disease (Barbesino, 2019). Additional illustrative examples include jaundice, which is suggestive of viral hepatitis in younger individuals but may represent gallbladder disease or a malignancy in the older adult, and delusions or hallucinations, which are suggestive of bipolar disorder in younger individuals but may represent dementia or medication side effects in the older adult (Williams, 2009).

Because the symptoms or signs of illness or disease may be vague and nonspecific, possibly the opposite presentation than what is typically expected (Hofman et al., 2017), even a modest change in functional level or behavior should alert the clinician to carefully explore the potential for a treatable condition. Family members or caregivers may report that a patient may no longer be cooperating or participating in individual care. Unusual changes such as these become red flags to the beginning of an atypical presentation of illness. In

many cases the progression of the condition is insidious, often presenting as a change in cognition or an alteration in functional status (Vonnes & El-Rady, 2021). Other significant changes in patients with altered presentation of illness often include new onset of falls, weakness, fatigue, anorexia, urinary incontinence, lack of pain, and unexplained tachypnea (Auerhahn & Kennedy-Malone, 2010; Hofman et al., 2017). Table 1-1 depicts common conditions that often have altered presentation of illness in older adults.

Bimodality of Age of Onset of Clinical Conditions

Understanding of the epidemiology of clinical conditions includes having the knowledge of etiology of the disease, prevalence and incidence rates, risk factors, age of onset, and distribution between the sexes. There are a number of conditions that are known or suggested to have a bimodal age of onset. In some conditions, the difference is not only the decade(s) in life that the disease more likely presents but the dominance of the sex in which the condition presents. Myasthenia gravis is one condition that tends to present initially in younger females, with a preponderance in older males (Dresser et al., 2021).

Often the presentation of the same illness is different for older adults as compared to their younger counterparts. The onset of the condition may be acute versus progressive, with different symptomatology and clinical signs. For instance, in patients with late onset rheumatoid arthritis, the joint involvement is more often in the larger joints such as the shoulder and they experience constitutional symptoms such as fever, malaise, weight loss, and depression (Kobak & Bes, 2018; Targońska-Stępnia et al., 2021). Knowledge of the bimodality of age onset of certain disease conditions will aid the advanced practice nurse in avoiding misdiagnosis or delay in diagnosis due to lack of recognition. Table 1-2 describes medical conditions that present differently in younger versus older adults.

TABLE 1-1 Atypical Presentation of Illness in Older Adults	
ILLNESS	ATYPICAL PRESENTATIONS
Acute abdomen	Absence of symptoms or vague symptoms Acute confusion Alternation in function Change in appetite or anorexia Change in bowel habits Mild discomfort and constipation Some tachypnea and possibly vague respiratory symptoms Appendicitis pain may begin in right lower quadrant and become diffuse. Urinary urgency may also occur in appendicitis
Depression	Anorexia, vague abdominal complaints, new onset of constipation, insomnia, hyperactivity, lack of sadness, agitation, somatic complaints, change in bowel habits
Heart failure	Anorexia, change in function, confusion, nocturia, orthopnea, sacral edema in bedrest patients
Hyperthyroidism	Hyperthyroidism presenting as “apathetic thyrotoxicosis,” i.e., lethargy, fatigue, and weakness; patients report palpitations, tachycardia, and new onset of atrial fibrillation; heart failure may occur with undiagnosed hyperthyroidism; resolution of chronic constipation; weight loss
Hypothyroidism	Hypothyroidism often presents with confusion and agitation; new onset of anorexia, ataxia, depression, and arthralgias may occur. In addition to elevated thyroid-stimulating hormone level in tandem with a low free or total T4 level, additional laboratory findings may be indicative of hyponatremia and hypercholesterolemia.

TABLE 1-1 Atypical Presentation of Illness in Older Adults—cont'd

ILLNESS	ATYPICAL PRESENTATIONS
Malignancy	New or worsening back pain secondary to metastases from slow growing breast masses Silent masses of the bowel
Myocardial infarction (MI)	Absence of chest pain Vague symptoms of fatigue, nausea, and a decrease in functional and cognitive status. Anxiety, dyspnea, palpitations, discomfort, weakness, syncope, and vomiting are often experienced. A new onset of abdominal or upper extremity pain may be reported. Heart failure exacerbation or stroke Higher prevalence in females versus males Non-Q-wave MI
Infectious diseases process	Absence of fever or low-grade fever Malaise Sepsis without usual leukocytosis and fever Falls, anorexia, new onset of confusion and/or alteration in change in mental status, decrease in usual functional status
Peptic ulcer disease	Absence of abdominal pain, dyspepsia, early satiety Weight loss, anorexia, confusion, emesis, and melena New onset of confusion, unexplained tachycardia, and/or hypotension
Pneumonia	Absence of fever; mild coughing without copious sputum, especially in dehydrated patients; tachycardia and tachypnea; anorexia, decreased oral intake, myalgias, hemoptysis, lethargy, malaise, generalized weakness, and alteration in cognition Chest x-rays often unremarkable, especially in dehydrated patients, without the typical lobar consolidation
Pulmonary edema	Lack of paroxysmal nocturnal dyspnea or coughing; insidious onset with changes in function, food, or fluid intake, or confusion
Tuberculosis	Weakness, chronic fatigue, dyspnea, anorexia, impaired cognition, hepatosplenomegaly, abnormalities in liver function tests, and anemia.
Unstable angina	Fainting, weakness, dyspnea, pain in shoulder and neck, palpitation, nausea/vomiting, mid-back pain, numbness/tingling in the chest, loss of consciousness and nausea
Urinary tract infection	Absence of fever; worsening mental or functional status to include instrumental activities of daily living (ADLs), dizziness, anorexia, fatigue, weakness

Sources: Barbesino, 2019; Bhatia & Naik, 2013; Breining et al., 2018; Das et al., 2007; Dumic et al., 2019; Gajendran et al., 2019; Grosmaître et al., 2013; Hofman et al., 2017; Jiménez et al., 1997; Jung et al., 2017; Kim, 2018; Laborde et al., 2021; Pour et al., 2015; Spangler & Manning, 2021; Vannes & El-Rady, 2021.

TABLE 1-2 Select Bimodal Presentations of Illness in Younger Adults Versus Older Adults

TYPE OF CONDITION	YOUNGER ADULTS	OLDER ADULTS
Dermatological		
Psoriasis	• Late teens to 20s • Irregular course, which tends to generalize • Hereditary factors	• 50s—males • 60s—females • Sporadic onset
Gastrointestinal		
Inflammatory bowel disease	• 20–40 years old • Right lower UC	• >60–75 years old a second peak occurs • More often older women
Ulcerative colitis (UC)	• Insidious onset	• Proctitis
Crohn's disease (CD)	• Generally absence of perineal lesions	• Left-sided UC • Higher rates of anemia • May present as chronic diarrhea • Fistula development • Increased cases of associated malnutrition • Extraintestinal manifestations including arthritis, spondylitis, uveitis, and erythema nodosum • More comorbid conditions • May be confused with other forms of colitis
Malignancies		
Hodgkin's lymphoma	• 20–30 years old • Possible infectious etiology	• >50 years old • Increased mortality

Continued

TABLE 1-2**Select Bimodal Presentations of Illness in Younger Adults Versus Older Adults—cont'd**

TYPE OF CONDITION	YOUNGER ADULTS	OLDER ADULTS
Musculoskeletal Conditions		
Rheumatoid arthritis	• Peak onset 30–50 years old • More common in females • Rheumatoid factor (RF) positive	• 65 years of age • Equal distribution among the sexes • Acute onset • More involvement of larger joints (shoulder) at the same time as smaller joints • Weight loss, myalgias • Polymyalgia rheumatica–like form • Comorbidities • Can present as RF negative • Lower platelet to lymphocyte ratio • Radiographic erosive changes
Neurological Conditions		
Myasthenia gravis (MG)	• 20–40 years old; predominately in females • Thymic hyperplasia frequently develops; thymoma uncommon	• 55–75 with late onset beginning ≥ 75, predominately in men • Dysphonia; dysphagia • More frequent ocular form MG
Seizures	• Can begin at a very young age, different types of seizures can begin in young childhood. Contributing factors include high fever, head injury, infections such as malaria • Auras that include fear, epigastric distress and déjà-vu phenomena	• Increased rate of acetylcholine receptor antibody seropositivity • Increased secondary autoimmune comorbidities such as thyroiditis, systemic lupus erythematosus, rheumatoid arthritis, diabetes mellitus • Thymoma more common presentation; thymic hyperplasia is less common • 60 years focal seizures with impaired awareness, with or without secondary evolution to tonic-clonic seizures, shorter in time duration. • Aura may present as dizziness; contributing factors include stroke, dementia, and brain tumors
Psychological Conditions		
Bipolar disorder	• 30 years old • Often presents with elation • Unlikely to present with cognitive impairment • Family history of bipolar disorder	• >50 years old • Irritability more common than elation • Common for cognitive impairment to be present • Rare that there is a family history

Sources: Dresser et al., 2021; Hernandez Fustes et al., 2020; Kobak & Bes, 2018; Lee, 2019; Mustafa et al., 2018; Singh et al., 2015; Smith et al., 1993; Smith, 2013; Targórska-Stępnik et al., 2021.

CHRONIC ILLNESS AND FUNCTIONAL CAPACITY

Approximately 80% of those 65 or older have one chronic disease, and 50% have two or more. The most common of these are related to heart disease, arthritis, respiratory problems, cancer, diabetes, and stroke (National Council on Aging, 2021). Treating patients with multimorbidities can be very complex and can result in polypharmacy. Patients with multimorbidities are known to have a treatment burden in terms of understanding and self-care management of their conditions. This burden entails patients not only managing the conditions but also attending multiple appointments and comprehending and affording complex drug regimens (van Merode et al., 2018).

These conditions often impair functional capacity and limit the person's ability to perform activities of daily living (ADLs)

such as bathing and dressing, and instrumental activities of daily living (IADLs) such as managing medications and traveling. In 2018, it was found that 22% of the population aged 65 and older reported having a disability defined as having a lot of difficulty or having limited functional capacity with their vision, hearing, mobility, ability to communicate, impairment with cognition, or limitations with their self-care abilities (Federal Interagency Forum on Aging Related Statistics, 2020).

SUMMARY

Assessment and management of older adults is different from that of younger adults, and it is of critical importance that the advanced practice nurse working with the older adult have the knowledge, skill, and ability to recognize these differences and take them into consideration. This chapter highlighted how the approach of the clinician might be different based on an understanding of the physiological changes of aging and the impact

of these changes on medication management and laboratory interpretation; how the presenting features of disease and illness may be different in the older adult; and how the older adult is disproportionately affected with chronic disease and functional impairments.

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CHAPTER 2

Health Promotion

Lori Martin-Plank

Health promotion in older adults occurs on a global population level through the World Health Organization (WHO) and the United Nations, in conjunction with other international partners who have declared 2021–2030 as the Decade of Healthy Aging. Within this platform, they are dedicated to building infrastructures for health promotion and health equity for older adults, as well as advocating for the elimination of ageism worldwide. In the United States, government agencies such as the Centers for Disease Control and Prevention (CDC), Administration on Aging (AoA), and Centers for Medicare and Medicaid (CMS), among others, champion the charge of health promotion in older adults. As providers, we work with patients and families, but it is important to be aware of these resources and to utilize them when appropriate.

Health promotion for older adults consists of proactive commitment to health and wellness, taking control of one's health and initiating lifestyle changes, following preventive screening and counseling recommendations, and maintaining healthy social contacts. Health-care providers are in a unique position to influence their older adult patients to embrace health promotion and preventive health maintenance at every visit but particularly at the Welcome to Medicare and Annual Wellness Visits (AWVs). Strategies for health promotion in older adults include prevention and focus on maintaining and building functional capacity, expanding social networks, and preserving and enhancing self-care.

PRIMARY, SECONDARY, AND TERTIARY PREVENTION

Prevention is divided into primary, secondary, and tertiary areas.

- **Primary prevention:** Intervene before there is injury or a health problem. For example, Mr. P is a 62-year-old man presenting to your office for care. When reviewing his health history, you establish that he had chickenpox as a child. You know that the varicella virus lies dormant in the body but can reactivate in the form of varicella zoster or “shingles.” You order Shingrix vaccine, a 2-dose series to prevent painful varicella zoster in nerve endings.

- **Secondary prevention:** Detection of a preclinical or an asymptomatic health condition. For example, Ms. J is a healthy 68-year-old woman seen in your office for a physical examination. You recommend a mammogram to screen for signs of breast cancer.
- **Tertiary prevention:** Intervention in known disease or health condition to slow progression and prevent condition from worsening. Mr. G is a 76-year-old man with type 2 diabetes mellitus. His current A1c is 6.5, but he is reporting two episodes of feeling sweaty, clammy, shaky, and dizzy after exercising in the morning. He checked his blood sugar, and it was 70 both times. He is currently on glipizide 5 mg once daily and metformin 500 mg, 2 tablets twice daily. You recognize that glipizide could be causing hypoglycemia and you tell him to stop the glipizide at this time, continue the current metformin regime, and recheck his blood glucose daily in the morning for 5 days. You instruct him to call your office immediately if he experiences symptoms again.

HEALTHY LIFESTYLE COUNSELING

Healthy lifestyle counseling is part of every clinician encounter with an older adult, although it is often superseded by the focus on chronic disease management or an acute, limited health problem. A quick question, “I know that you are not feeling well today, and we are addressing that now. I’m just wondering if you have been able to follow up on my suggestions about changing your diet since we last met. How is that going?” can change the focus to healthy lifestyle counseling and open the conversation for further dialogue (O’Connor et al., 2020; Troutman-Jordan, 2017). During a chronic disease management visit for hypertension and diabetes, “Your blood pressure is improved today, and I see that you have lost 2 pounds since your last visit. Are you following up on the diet and exercise recommendations we agreed on in [month]? How is that going for you?” shifts the conversation to healthy lifestyle counseling. Training a staff member at the office in motivational interviewing and lifestyle counseling can save

clinician time and give the patient individual attention, or you can do the counseling yourself and use the added time feature for billing the visit. Placing handouts in the office with links to resources such as the CDC Healthy Aging, National Council on Aging (NCOA), National Institute on Aging (NIA), WebMD Healthy Aging, and links to phone apps for exercise or nutrition in older adults, can assist with health promotion. Most Medicare Advantage plans employ health coaches who will work one-on-one with older adults; have your office manager investigate these and share with patients or even contact the plan and request a health coach for an older patient that needs individual guidance. Office staff can also connect with the local hospital or community health center and post information in the office about upcoming events related to healthy aging, such as Senior Games or a mobile mammography unit. When seeing older adults who require a family caregiver, include them in part of the visit and lifestyle counseling. Contact the Area Agency on Aging or local health department for sources of assistance in the home and low literacy materials for older adults or handouts in other languages than English if this fits your patient population. In general, keep it simple, engage the patient/family—what are their priorities for healthy lifestyle—and individualize (Cheung et al., 2019; Evans et al., 2020; Whitehead, 2017).

Aging in Place

The concept of aging in place refers to the desire and ability of older adults to continue living in their home or in a supportive home-like community environment, regardless of physical or cognitive barriers (NIA, 2017). This was the primary model for aging in past decades when multigenerational families lived together, and women stayed at home and cared for family members. Societal changes, including industrialization, women in the workplace, globalization, relocation of families, decline in numbers of children in families, and extended life years for older adults, have resulted in challenges for older adults desiring to age in place. Simultaneously, health care acquired a corporate model, and the nursing home industry grew rapidly, providing an alternative living arrangement for older adults who were unable to remain at home due to disability, frailty, lack of support, or absence of family. The costs associated with long-term care are borne by the patient/family, with Medicaid assuming responsibility when patients have exhausted their financial resources. Many older adults are dissatisfied with the nursing home environment, desiring a more home-like place. Legislation (Credit for Caring, 2021; Supporting Our Direct Care Workers and Family Caregivers Act, 2021) has been introduced to pay family caregivers and to give tax credits to family caregivers. This may promote the return of care in the home.

One of the major factors facilitating aging in place comes from the technology sector, which has introduced “smart” home technology for safety and monitoring of older adults in their homes (Choi et al., 2021; Combs et al., 2021). From passive safety features such as motion sensors illuminating the path to the bathroom at night and use of video doorbells that display the faces of visitors to more sophisticated artificial intelligence that monitors the movement patterns of older adult inhabitants through wearables and sensors, smart technology has revolutionized aging in place (Agbadjé et al., 2020).

Voice-activated smartphone or smart speaker assistants can keep a calendar with appointments and remind the older adult, set up alarms for medication management, and order groceries and other essentials to support aging in place. Social robots can keep older adults with dementia engaged and service robots help with bathing and activities of daily living (ADLs) (Jensen et al., 2019). Granny cams afford family caregivers access to the older adult remotely, and a phone app can turn lights, heat, and air conditioning on and off at a distance as well as lock doors for safety at night (Choi et al., 2019). Although all of this innovation comes with trade-offs, including loss of privacy and (in some cases) loss of freedom, studies show that older adults are willing to accept this for the ability to age in place (Carroll et al., 2021; Choi et al., 2021; Chung et al., 2016; *Dermody et al., 2021; Tural et al., 2021). Cost is a factor, although vendors work with the American Association of Retired People (AARP) and offer discounts. Medicaid is the first third-party payor to reimburse for passive remote monitoring in the home (Berridge, 2018); however, costs can be prohibitive and result in excluding older adults of lower socioeconomic status.

In addition to the traditional aging in place model, there are some aging in community models initiated by older adults for support and social interaction and by public entities for older adults with lower income; there are also university-based retirement communities for those with an interest in teaching and learning (Hou & Cao, 2021). Some of these are intergenerational whereas others are limited to older adults. Challenges of aging in community are sustainability, inclusion of lower socioeconomic groups, and balance of independent members who can assist those who need help (Hou & Cao, 2021).

Nutrition

The importance of good nutrition in older adults cannot be overemphasized, yet it is often overlooked by clinicians. The Welcome to Medicare visit, subsequent AWWs, or chronic health maintenance visits are all opportunities to address nutrition. Height and weight should be measured at each encounter and tracked to assess for evidence of involuntary weight loss or excessive weight gain, and clinicians should ask about appetite and food intake patterns. Visual inspection may provide clues through ill-fitting clothing, although this may not be accurate in low-income communities where donated clothing is the norm. Asking about food insecurity can uncover financial problems that require referral to the Area Agency on Aging or a local food bank. Questions about difficulty chewing or swallowing, feeling of fullness or lack of appetite, stomach pain associated with eating, nausea or vomiting, choking, constipation, or diarrhea are helpful in uncovering problems with eating. Assessing dentition during physical examination may reveal ill-fitting dentures or an edentulous patient (Clegg & Williams, 2018). Inquiring about changes in ADLs and physical activity is also relevant because a sedentary lifestyle can dampen the appetite, or conversely, lead to excessive snacking on salty or sugary finger foods. Inability to go grocery shopping will also limit food options. Meal patterns and types of food eaten should be obtained from the patient. Medications and over-the-counter (OTC) supplement usage is also important. Does the patient live alone? Is the patient able to prepare meals and do they

have access to cooking facilities? These questions are helpful in assessing both anorexia of aging and obesity (Landi et al., 2017; Mangels, 2018; Reber et al., 2019; van der Meij et al., 2017). Use of a mnemonic such as DETERMINE

Diseases
Eating poorly
Tooth loss/mouth pain
Economic hardship
Reduced social contact
Multiple medications
Involutionary weight loss/gain
Needs assistance in self-care
Elder years/above age 80

is recommended for screening community-dwelling older adults by the *Proceedings of the Nutrition Society* (Corish & Bardon, 2019) in the European Union, whereas most authorities in the United States use the Mini-Nutrition Assessment-Short Form (MNA-SF), a six-question document that can be completed in advance (available at https://mna-elderly.com/forms/mini/mna_mini_english.pdf).

In long-term care settings, nutrition assessment is performed by a dietitian in conjunction with nursing and direct care staff; the screening tool used frequently is the MNA. Weight is typically monitored on a regular basis, and the dietary department is tasked with individualizing interventions. In residents who require assistance with feeding, it is important to monitor the efforts of direct care staff to ensure that the resident is not rushed or just set up and abandoned when unable to feed themselves.

Obesity presents another problem with nutrition. Although there is a decline in the prevalence of overweight and obesity after age 60 years, it remains a problem for many older adults. It is a major risk factor for decreased mobility and functional impairment as well as a cardiovascular risk. Overweight and obesity are associated with heart disease, certain types of cancer, type 2 diabetes, breathing difficulties, stroke, arthritis, and psychological problems.

Counseling on nutrition should be individualized to the need of each older adult. When appropriate, consider referring to a dietitian or recommend contacting the health coach at the insurance company. Home-delivered meals may also provide needed nutrition for those who are unable to cook their own meals. General guidelines for dietary counseling include the following:

- Limit fat and cholesterol.
- Maintain a balanced caloric intake.
- Emphasize the inclusion of grains, fruits, and vegetables daily.
- Ensure an adequate calcium intake, especially for women.
- Limit alcohol, if used, to one drink daily for women and two drinks daily for men: one drink = 12 oz beer, 5 oz wine, or 1.5 oz of 80-proof distilled spirits.
- Combine dietary interventions with regular physical activity for optimal results.

Oral Health

Oral health is closely aligned with nutrition and overall physical and mental health. Older adults have more problems with oral health, including xerostomia, dental caries,

periodontal disease, tooth or mouth pain, mouth infections, or missing teeth (CDC, 2021b; Coll et al., 2020c). Recent estimates show that 26% of adults aged 75 and older have lost all their teeth; 68% have periodontal disease, and one in five older adults have dental caries (CDC, 2021). Periodontal disease is associated with type 2 diabetes mellitus, cardiovascular disease, and endocarditis. There is also concern in patients who have had joint replacements or heart valve replacement that transient bacteremia occurring with periodontal treatment or caries repair can infect prosthetics (Coll et al., 2020c). Although all older adults need to be screened for oral health issues, those with diabetes and dementia are considered high risk for complications, as are long-term care residents and lower socioeconomic groups. Dental care is excluded from Medicare coverage and is expensive for most retirees. Emphasizing prevention as cost-effective to older adults may help to motivate them for self-care.

Many clinicians lack education about oral health problems. The American Dental Association (2021) has information available and the European College of Gerodontology has partnered with the European Geriatric Medical Society to create guidelines for oral care in older adults, particularly those who are frail or lack access to dental care (Kossioni et al., 2018). Older adults should have an oral inspection by a clinician at least annually, at which time the need for oral care can be addressed and options for seeing a dental health professional discussed. Interventions for a dental abscess should serve as a red flag to the clinician to identify dental care as a priority. Older adults should be seen every 6 months by a dental hygienist and a supervising dentist for routine oral health maintenance (*American Dental Association, 2021; *Coll et al., 2020c). For those with limited means, some community college dental hygiene programs offer free screening and cleaning; dental school clinics and community health agencies may also have services available. Studies have been done with those with dementia and their care partners demonstrating that older adults with mild-moderate dementia can be trained to use an electric toothbrush for 2 minutes daily (Anderson et al., 2019). Another clinical trial compared two interventions to improve oral hygiene in low-income senior housing residents—one was face-to-face, individual meetings demonstrating brushing and flossing; the other was peer-managed group meetings with a health fair theme. Both groups successfully improved their oral hygiene; the face-to-face participants scored higher on measurements of gingival and plaque indices (Schensul et al., 2021; Schensul et al., 2018). Both studies show encouraging results in hard-to-reach older adult populations.

Xerostomia is a significant problem in older adults. Aging, certain medications, uncontrolled diabetes, toxicity from cancer chemotherapy or radiotherapy for head and neck cancer, and autoimmune conditions such as Sjögren's disease, contribute to dry mouth (American Dental Association, 2021). More than 100 medications are implicated in xerostomia; those that are anticholinergic have higher risk. Examples include antihistamines, decongestants, antidepressants, antipsychotics, diuretics, NSAIDs, benzodiazepines, muscle relaxants, antimuscarinics, analgesics, and Parkinson's drugs; inhaled steroids are implicated in another oral condition—candidiasis (Coll et al., 2021c). Clinicians should review medications periodically and substitute those that are efficacious

but do not cause dry mouth when possible. Educate patients to brush with a fluoridated toothpaste and floss regularly, avoid high-sugar foods, and seek regular dental care.

Physical Activity

Although the level of physical activity in older adults has increased slightly, they remain the least active population group in the United States, with approximately 16% of older adults between 65 and 74 years of age meeting the standard for physical activity set by *Physical Activity Guidelines for Americans* (2nd ed.) in 2018 (2018 Physical Activity Guidelines). The recommendation for older adults age 65 and older is to perform a minimum of 150 minutes weekly of moderate-intensity aerobic activity or 75 minutes weekly of vigorous-intensity aerobic physical activity, or an equivalent combination of both. Further requirements include muscle-strengthening activities using all major muscle groups, with at least moderate-intensity, two or more days weekly. If older adults cannot achieve 150 minutes of moderate-intensity aerobic exercise due to chronic health issues, they should be as active as their health conditions and abilities permit (USDHHS, 2018). Additional focal areas for older adults are balance training and safety to prevent falls. In short, any physical activity is better than none.

Since the COVID-19 pandemic, many creative ideas have emerged, including exercise classes on Zoom or YouTube, virtual exercise support groups for seniors, e-health instructions, and intergenerational programs (Callahan et al., 2021; Howell et al., 2021; King et al., 2020; Stonerock & Blumenthal, 2017; Talley et al., 2019). The NIA (2021), NCOA (2021), and AARP (2020) have fitness program resources for older adults. Many Medicare Advantage programs subscribe to Silver Sneakers programs in conjunction with a local gym or YMCA. These and similar programs offer various physical activities, such as Zumba for seniors, yoga, resistance training, and cardio. The challenge for clinicians is to learn about these resources and share them with their patients. The Welcome to Medicare visit and AWP provide a dedicated space for meeting with older adults and discussing health promotion, including physical activity, and working on a plan. A written exercise prescription is recommended by the American College of Sports Medicine in their Exercise is Medicine program for older adults. The most recent research on optimizing physical activity in older adults endorses multi-component programs that stimulate both brain and body simultaneously (Pothier et al., 2018).

Before embarking on an exercise program, all patients should have an evaluation of health history, including medications, present physical activity and functional level, potential barriers to exercise, and a physical examination. Older adults with known or suspected cardiac risk factors should have a stress test before engaging in vigorous exercise. All participants should be reminded of the need for adequate hydration and use of caution during extreme weather conditions.

The importance of continuous physical activity in maintaining function and preventing debility in long-term care residents is often overlooked. A recent follow-up study by Rodriguez-Larrad et al. (2021) highlighted the decline in both physical function and cognitive status in the 6-month period after completion of a randomized controlled trial implementing a progressive multicomponent physical fitness program in a select group of residents.

Safety

Quality of life and function are highly dependent on safety and injury prevention in older adults. Counseling involves reinforcement of extant recommendations, including wearing lap and shoulder seat belts in a motor vehicle, avoiding drinking and driving, having working smoke detectors in the residence, and keeping hot water set below 120°F. For older adults who drive a motor vehicle, periodic assessment of their ongoing ability to drive safely is vital to the older adult and the public at large. Most motor vehicle accidents involve young drivers and older drivers. Safe storage and removal of firearms is another important area to address. Possession of a firearm combined with depression, caregiver stress, irreversible illness, or decline in functional abilities can invite self-inflicted injury, suicide pacts, or other acts of violence. Counsel patients to avoid firearms in the home and to use alternative means for self-protection such as alarm systems and pepper mace spray.

According to the World Health Organization (2021), falls are the second cause of unintentional injury deaths worldwide; adults aged 60 years and older experience the most fatal falls. Many falls are preventable with education, training, and environmental modifications for safety. Because older adults are often embarrassed by a fall, most will not volunteer information to clinicians about falls, so clinicians need to be proactive and ask about any falls in the past 6 months, any changes in mobility, ADLs, or cognition. The AWP and chronic health maintenance visits are good opportunities to address safety and falls and to reinforce this information with a basic handout. There are also fall assessments and games on the Internet that can be used (Dispennette et al., 2019). The Timed Get Up and Go can also be used for an objective measure of a patient's mobility and balance. Emphasizing the need to be physically active to maintain strength and flexibility aligns with fall education. Patients who have recently fallen or had a change in mobility should be referred to physical therapy, which is a cost-effective preventive intervention. Occupational therapy will also make a home visit (with a clinician's order) for an environmental safety assessment (Georlee et al., 2020). If a patient is deemed at risk for falling, a team-based intervention may be the optimal approach, including a caseworker evaluation from the Area Agency on Aging; physical therapy to treat and evaluate the need for assistive devices and stable footwear; occupational therapy to evaluate vision, hearing, home environment, and modifications for optimizing function and ADL ability; and nursing to assess the patient and medications as part of a fall-risk evaluation (Miranda-Duro et al., 2021). Clinicians should review medications at every visit and consider their potential to impair cognition (psychotropics, narcotic analgesics, anticholinergics) or contribute to incontinence due to slow mobility (diuretics, laxatives), adjusting when necessary (Guirguis-Blake et al., 2018). The use of smart home technology should also be considered for environmental modification.

Research has identified patient perspective as a barrier or facilitator for fall education programs (Chen et al., 2016; Tzeng et al., 2020). One program implemented a brief home hazard reduction program through the Area Agency on Aging, with a control group and intervention group in those at high risk of falling (Stark et al., 2021). Although there was a reduction in the number of falls in the intervention

group, it did not reach significance. Programs that are multifactorial in nature and consider patient perspectives, motivation, health literacy, and available resources are most likely to be beneficial in reducing future falls (Lach & Noimontree, 2018; *Tzeng et al., 2020).

Sexuality

The topic of sexuality and sexual behavior in older adults is rarely discussed. Many clinicians lack knowledge of how to approach the topic and consequently remain silent. They may have preconceived ageist biases and view older adults as asexual. Several research studies demonstrate that most older adults are still sexually active, although health issues may limit frequency or type of sexual expression (Gewirtz-Meydan et al., 2019; Srinivasan et al., 2019). Incorporating a sexual health history into an annual wellness visit or chronic health maintenance check adds a holistic element to care and personalizes the approach, leading to a healthy, trusting relationship (Johnson et al., 2019; Kuhle et al., 2021). The PLISSIT model offers a structured way for clinicians to introduce questions about sexual health—giving the patient **P**ermission to ask about sexual concerns, then proceeding to share **L**imited **I**nformation, targeting their concerns, sharing **S**pecific **S**uggestions for treatment of symptoms if known, and referring for **I**ntensive **T**reatment to the appropriate specialist (Palisano, 2017); for an older adult this could be a urologist, urogynecologist, psychologist, or sex therapist depending on the concern. This approach preserves the clinician/patient relationship and facilitates counseling and interventions to promote healthy sexual behavior. Studies have uncovered that a variety of stereotypes exist related to older adult sexuality and particularly the role of the older woman (Ricoy-Cano et al., 2020); many of these are fueled by religious or societal norms that no longer stand. With the help of the appropriate consultant, old myths can be dispelled.

Other areas of sexual health that need to be addressed are self-protection from sexually transmitted infections (STIs) and HIV when dating, and avoiding predators. In 2018, 17% of newly diagnosed HIV patients were aged 50 and older (CDC, 2018). Many older adults mistakenly believe that barrier protection is not needed because there is no risk of pregnancy. STIs, including genital herpes, human papilloma virus, gonorrhea, syphilis, and hepatitis are omnipresent threats, as is HIV. Patients need to be educated to ask partners about their sexual history, including past STIs and HIV, and to always use barrier protection. Education about pre-exposure prophylaxis and postexposure prophylaxis is also necessary for those in a sexual relationship with a person with HIV or at high risk of HIV (U.S. Food and Drug Administration [FDA], 2021).

LESBIAN, GAY, BISEXUAL, TRANSGENDER, QUEER AND OTHER SEXUAL AND GENDER DIVERSE PEOPLE (LGBTQ+)

At the present time, between 3% and 6% of older adults identify as LGBTQ+ on public health surveys—around 3 million people (Fredriksen-Goldsen et al., 2017). The largest group is the oldest old—those 80 years and older. Approximately one-fifth of LGBTQ+ older adults do not share their sexual

orientation and/or gender identity with health-care providers out of concern related to inadequate care (Caceres, 2019; Fredriksen-Goldsen et al., 2011). Common health problems in LGBTQ+ older adults include mental health issues, cardiovascular disease, obesity, HIV, and substance use (Fredriksen-Goldsen et al., 2019).

It is worth noting that some LGBTQ+ older adults (especially among the oldest old) may be more familiar with the terminology “homosexual.” In addition, because “queer” has historically been used as a pejorative term they may find the term offensive (Travis, 2017). However, the term started being “reclaimed” in the 1960s by some members of the LGBTQ+ community as an act of resilience and defiance and may be a relevant term among people in the Baby Boomer generation and younger (Tamanna, 2018).

Although knowledge of the existence of LGBTQ+ persons is not new, recent initiatives in diversity, equity, and inclusion have heightened awareness, raising issues such as implicit bias and outright discrimination in caring for this population among health professionals. Most LGBTQ+ older adults desire respect, dignity, and professionalism from health clinicians (Caceres, 2019; Fredriksen-Goldsen et al., 2019). In the case of transgender older adults, whose gender identity may not be congruent with their sex assigned at birth, clinicians and allied health personnel need to use the correct name and pronoun and realize that driver’s license and health insurance documents may not match. When one’s legal documentation and identity do not ‘match’ and facilities or rooms are segregated by sex at birth, policies should be implemented to support rooming based on gender identity (e.g., man, woman) (Lambda Legal, 2016).

Fredriksen-Goldsen and colleagues (2017, 2019) have conducted a survey of LGBTQ+ older adults with high response rates, looking at specific time stamped and longitudinal data on LGBTQ+ older adults. One theme that emerges is resilience in the face of adversity; many LGBTQ+ older adults are highly educated, with graduate degrees, but their socioeconomic status is low due to employment discrimination; many are still working into their 80s. LGBTQ+ older adults of color experience the worst living situations and health disparities (Kim et al., 2017). Clinicians providing services to LGBTQ+ older adults need to learn about their specific health-care needs and concerns, how to best communicate with them, and identify important people who should be included in their care (Redcay et al., 2019). The National Resource Center on LGBT Aging (<https://www.lgbtagingcenter.org/>) is a unique source of information and training for those working with LGBTQ+ older adults as well as older adults, their families and caregivers, and the public. Guidelines for the provision of primary and gender-affirming treatment to for transgender and nonbinary individuals are available through the University of California, San Francisco’s The Department of Family and Community Medicine (<https://transcare.ucsf.edu/guidelines>). Professional continuing education providers also offer programs in cultural aspects of LGBTQ+ communities.

The LGBTQ+ older adult population is comprised of multiple heterogeneous groups (Caceres, 2019; Kim et al., 2017; Fredriksen-Goldsen et al., 2019) with a variety of sexual, social, and health-care needs. LGBTQ+ older adults may be more likely to live alone and have fewer options for informal

caregiving from biological family members (Choi & Meyer, 2016). “Chosen” family members (e.g., an individual’s partner or other LGBTQ+ adults) may be a source of care, but may lack any legal recognition provide care to their partner or others in the community who do not have a partner or children (Stewart & Kent, 2017). LGBTQ+ older adults who are caregivers may also have fewer social supports and be at higher risk for caregiver burnout (Stewart & Kent, 2017).

The oldest old tend to be more dependent, often requiring long-term care. LGBTQ+ older adults may feel the need to conceal their sexual orientation or gender identity from other residents and staff to avoid mistreatment. Transgender adults who need a high level of personal care may find it impossible to conceal their gender history, making them among the most vulnerable to inadequate or inequitable care, including elder abuse (Movement Advancement Project and Services and Advocacy for Gay, Lesbian, Bisexual, and Transgender Elders, 2010). Feeling the need to conceal one’s identity may mean disconnecting from the larger LGBTQ+ community, increasing feelings of isolation. Experiences such as direct and indirect (e.g., implicit bias and microaggressions) discrimination and rejection by other residents, direct care workers, and other professionals in this setting increase LGBTQ+ older adults’ vulnerability to depression, substance use, and other chronic health conditions. As such, clinicians in these settings need to be alert to subtle discriminatory practices from staff such as ignoring call lights and not toileting on schedule, leading to the need for incontinence care, which can entail rough handling of the patient. It is also important for clinicians to recognize individuals important to the LGBTQ+ older adult and facilitate completion of Advanced Directives and other legal documents to ensure the older adult’s medical decision-making wishes are known (Stewart & Kent, 2017). Social workers can support LGBTQ+ older adults and/or their caregivers by arranging for a group for socialization.

Substance Use

Substance misuse remains a silent epidemic in older adults; its prevalence is growing, and the character of the substance use is changing from primarily alcohol to alcohol and other drugs (Chhatre et al., 2017; Tucker et al., 2021; Yarnell et al., 2020). With the influx of the Baby Boomer generation (those born between 1946 and 1964) into older adulthood, there is a trend of earlier exposure to alcohol and drugs such as cocaine, crack cocaine, heroin, marijuana, and prescribed or illicit opioids. Inpatient admissions for substance abuse by older adults have doubled between 2002–2012, although outpatient treatment remains the primary model (Suntai et al., 2020). Most older adults complete treatment for substance misuse; there is a markedly lower completion rate by Black patients compared to Hispanic and White patients. This may reflect socioeconomic disparities in which insurers do not cover the entire treatment, there is lack of availability of treatment facilities, or individuals are experiencing homelessness and have no treatment options (Suntai et al., 2020). Clinicians who refer older adults for treatment need to follow up to encourage completion. Opioid abuse or opioid use disorder has more severe effects on older adults, including death. Some opioid abuse is unintentional due to forgetting about a

dose already used; some results from altered cognitive status or even delirium (Dufort & Samaan, 2021).

Clinicians can use the Welcome to Medicare visit and the AWWs to ask about substance misuse. Counseling regarding alcohol or other drug use can be preventive or interventional, depending on the initial assessment. Use the Michigan Alcohol Screening Test (MAST), the CAGE questionnaire, or the Alcohol Use Disorders Identification Test (AUDIT) to assess risk. For opioid misuse, the Opioid Risk Tool (<https://www.drugabuse.gov/nidamed-medical-health-professionals/screening-tools-resources/opioid-risk-tool-oud-ort-oud>) can be used (Ducharme & Moore, 2019). Using a person-centered, nonconfrontational approach and active listening during a health promotion visit will yield the most disclosure. Explaining how biological changes with aging can put the older patient at higher risk of complications is helpful (Kuerbis, 2020). Understanding of some factors that lead older adults to substance misuse is also important. Chronic pain, depression, social isolation, cognitive or mental health problems, and stress are major contributors to substance misuse (Dufort & Samaan, 2021; Kuerbis, 2020). Patients should be cautioned about the risk of falls, breathing problems, auto accidents, and heart problems related to substance misuse and encouraged to seek treatment. Naloxone (Narcan) should be prescribed for emergency use by family or friends of older adults who are on scheduled opioid medication.

If older adults are using benzodiazepines, explain the additive effect with opiates or alcohol, the risks to memory and cognition as well as risks for falling and serious injury (Maree, et al., 2016). Clinicians can work with the patient to initiate deprescribing for benzodiazepines and prescribe a selective serotonin reuptake inhibitor for depression or anxiety if indicated. Also recommend cognitive behavioral therapy or other counseling.

Very little hard data exist about cannabis use in older adults; a review of medical marijuana registries in 13 states revealed that 35% to 50% of users were aged 50 or older (Kuerbis, 2020). It is the most used illicit drug by older adults due to legalization, social acceptability, and decriminalization. Even when it is dispensed as medical marijuana, there are significant effects on the cardiovascular system in older adults, including increased blood pressure, heart rate, and respiratory rate, and loss of short-term memory (Kuerbis, 2020). There are also significant drug interactions between cannabis and multiple frequently prescribed drugs for older adults, including simvastatin, warfarin, amiodarone, alprazolam, and others (Medscape Drug App, 2021). Older adults using cannabis should be counseled about the risks versus benefits of ongoing usage.

Tobacco usage (smoking) in those age 65 and older is about 8.4% (Jamal et al., 2016), with many smokers reporting concurrent medical illness such as COPD or lung cancer. Using the 5 A’s, assess willingness to quit and counsel on benefits of quitting at any age.

SCREENING AND PREVENTION

The table below shows the final recommendation summaries for older adults from the U.S. Preventative Services Task Force (USPSTF).

Topic	Recommendation	Grade	Release Date
Abdominal aortic aneurysm: Screening: men aged 65 to 75 years who have ever smoked	The USPSTF recommends 1-time screening for abdominal aortic aneurysm (AAA) with ultrasonography in men aged 65 to 75 years who have ever smoked.	B	December 2019
Aspirin Use to Prevent Cardiovascular Disease	The USPSTF recommends for adults aged 40 to 59 years who have an estimated CVD risk of 10% or greater that shared decision making is used in determining initiation of low dose (81 mg/day) of aspirin. Consider potential benefits and harms to the individual when discussing ASA use for prevention.	C	April 2022
	The USPSTF recommends against initiating ASA For adults 60 years or older aspirin for primary prevention of CVD.	D	
Breast Cancer: Screening: women aged 50 to 74 years	The USPSTF recommends biennial screening mammography for women aged 50 to 74 years. [†]	B	January 2016
Colorectal Cancer: Screening: adults aged 50 to 75 years	The USPSTF recommends screening for colorectal cancer in all adults aged 50 to 75 years.	A	May 2021
Depression in Adults: Screening: general adult population, including pregnant and postpartum women	The USPSTF recommends screening for depression in the general adult population, including pregnant and postpartum women. Screening should be implemented with adequate systems in place to ensure accurate diagnosis, effective treatment, and appropriate follow-up.	B	January 2016
Falls Prevention in Community-Dwelling Older Adults: Interventions: adults aged 65 years or older	The USPSTF recommends exercise interventions to prevent falls in community-dwelling adults aged 65 years or older who are at increased risk for falls.	B	April 2018
Healthy Diet and Physical Activity for Cardiovascular Disease Prevention in Adults With Cardiovascular Risk Factors: Behavioral Counseling Interventions: adults with cardiovascular disease risk factors	The USPSTF recommends offering or referring adults with cardiovascular disease risk factors to behavioral counseling interventions to promote a healthy diet and physical activity.	B	November 2020
Hepatitis C Virus Infection in Adolescents and Adults: Screening: adults aged 18 to 79 years	The USPSTF recommends screening for hepatitis C virus (HCV) infection in adults aged 18 to 79 years.	B	March 2020
Hypertension in Adults: Screening: adults aged 18 years or older without known hypertension	The USPSTF recommends screening for hypertension in adults aged 18 years or older with office blood pressure measurement (OBPM). The USPSTF recommends obtaining blood pressure measurements outside of the clinical setting for diagnostic confirmation before starting treatment.	A	April 2021
Intimate Partner Violence, Elder Abuse, and Abuse of Vulnerable Adults: Screening: women of reproductive age	The USPSTF recommends that clinicians screen for intimate partner violence (IPV) in women of reproductive age and provide or refer women who screen positive to ongoing support services. See the “Clinical Considerations” section for more information on effective ongoing support services for IPV and for information on IPV in men.	B	October 2018
Latent Tuberculosis Infection: Screening: asymptomatic adults at increased risk for infection	The USPSTF recommends screening for latent tuberculosis infection (LTBI) in populations at increased risk.	B	September 2016

Topic	Recommendation	Grade	Release Date
Lung Cancer: Screening: adults aged 50 to 80 years who have a 20 pack-year smoking history and currently smoke or have quit within the past 15 years	The USPSTF recommends annual screening for lung cancer with low-dose computed tomography (LDCT) in adults aged 50 to 80 years who have a 20 pack-year smoking history and currently smoke or have quit within the past 15 years. Screening should be discontinued once a person has not smoked for 15 years or develops a health problem that substantially limits life expectancy or the ability or willingness to have curative lung surgery.	B	March 2021
Osteoporosis to Prevent Fractures: Screening: women 65 years and older	The USPSTF recommends screening for osteoporosis with bone measurement testing to prevent osteoporotic fractures in women 65 years and older.	B	June 2018
Prediabetes and Type 2 Diabetes: Screening: asymptomatic adults aged 35 to 70 years who have overweight or obesity	The USPSTF recommends screening for prediabetes and type 2 diabetes in adults aged 35 to 70 years who have overweight or obesity. Clinicians should offer or refer patients with prediabetes to effective preventive interventions.	B	August 2021
Prevention of HIV Infection: Preexposure Prophylaxis: persons at high risk of HIV acquisition	The USPSTF recommends that clinicians offer preexposure prophylaxis (PrEP) with effective antiretroviral therapy to persons who are at high risk of HIV acquisition. See the “Clinical Considerations” section for information about identification of persons at high risk and selection of effective antiretroviral therapy.	A	June 2019
Sexually Transmitted Infections: Behavioral Counseling: sexually active adolescents and adults at increased risk	The USPSTF recommends behavioral counseling for all sexually active adolescents and for adults who are at increased risk for sexually transmitted infections (STIs). See the “Practice Considerations” section for more information on populations at increased risk for acquiring STIs.	B	August 2020
Statin Use for the Primary Prevention of Cardiovascular Disease in Adults: Preventive Medication: adults aged 40 to 75 years with no history of CVD, 1 or more CVD risk factors, and a calculated 10-year CVD event risk of 10% or greater	The USPSTF recommends that adults without a history of cardiovascular disease (CVD) (i.e., symptomatic coronary artery disease or ischemic stroke) use a low- to moderate-dose statin for the prevention of CVD events and mortality when all of the following criteria are met: (1) they are aged 40 to 75 years; (2) they have 1 or more CVD risk factors (i.e., dyslipidemia, diabetes, hypertension, or smoking); and 3) they have a calculated 10-year risk of a cardiovascular event of 10% or greater. Identification of dyslipidemia and calculation of 10-year CVD event risk requires universal lipids screening in adults aged 40 to 75 years. See the “Clinical Considerations” section for more information on lipids screening and the assessment of cardiovascular risk.	B	November 2016
Syphilis Infection in Nonpregnant Adults and Adolescents: Screening: asymptomatic, nonpregnant adults and adolescents who are at increased risk for syphilis infection	The USPSTF recommends screening for syphilis infection in persons who are at increased risk for infection.	A	June 2016
Tobacco Smoking Cessation in Adults, Including Pregnant Persons: Interventions: nonpregnant adults	The USPSTF recommends that clinicians ask all adults about tobacco use, advise them to stop using tobacco, and provide behavioral interventions and U.S. Food and Drug Administration (FDA)-approved pharmacotherapy for cessation to nonpregnant adults who use tobacco.	A	January 2021

Continued

Topic	Recommendation	Grade	Release Date
Unhealthy Alcohol Use in Adolescents and Adults: Screening and Behavioral Counseling Interventions: adults 18 years or older, including pregnant women	The USPSTF recommends screening for unhealthy alcohol use in primary care settings in adults 18 years or older, including pregnant women, and providing persons engaged in risky or hazardous drinking with brief behavioral counseling interventions to reduce unhealthy alcohol use.	B	November 2018
Unhealthy Drug Use: Screening: adults aged 18 years or older	The USPSTF recommends screening by asking questions about unhealthy drug use in adults aged 18 years or older. Screening should be implemented when services for accurate diagnosis, effective treatment, and appropriate care can be offered or referred. (Screening refers to asking questions about unhealthy drug use, not testing biological specimens.)	B	June 2020
Weight Loss to Prevent Obesity-Related Morbidity and Mortality in Adults: Behavioral Interventions: adults	The USPSTF recommends that clinicians offer or refer adults with a body mass index (BMI) of 30 or higher (calculated as weight in kilograms divided by height in meters squared) to intensive, multicomponent behavioral interventions.	B	September 2018
†The Department of Health and Human Services, under the standards set out in revised Section 2713(a)(5) of the Public Health Service Act and Section 9(h)(v)(229) of the 2015 Consolidated Appropriations Act, utilizes the 2002 recommendation on breast cancer screening of the U.S. Preventive Services Task Force. To see the USPSTF 2016 recommendation on breast cancer screening, go to http://www.uspreventiveservicestaskforce.org/uspstf/recommendation/breast-cancer-screening1. A = USPSTF recommends the service. High certainty that net benefit is substantial; B = USPSTF recommends. High certainty that net benefit is moderate or moderate certainty that net benefit is moderate or substantial Reprinted from U.S. Preventive Services Task Force. (n.d.). <i>A&B Recommendations</i>. https://www.uspreventiveservicestaskforce.org/uspstf/recommendation-topics/uspstf-and-b-recommendations			

Approach to Screening in Older Adults

Advances in medical science have yielded improved screening tools and preventive health interventions. For older adults with limited years to live, recent medical literature has focused on the risks, benefits, and harms of screening and treatments relative to the remaining years of life. Principles such as time to benefit (TTB) and life expectancy (LE) have been incorporated into the science of prognostication, or predicting mortality (Coll et al., 2020a, 2020b; Lee et al., 2018; Schoenborn, Jacobson, et al., 2020; Schonberg, Karamourtopoulos, et al., 2020), as part of individualizing prevention in older adults. Coll et al. (2020a, 2020b) present a comprehensive overview of cancer screening and treatment in older adults that outlines TTB, harms, and risks. If LE is deemed shorter than TTB, the test or intervention is not recommended. If TTB is shorter than LE, then the intervention or screening test should be considered. In cases where LE and TTB are closely aligned timewise, discussion between the patient and clinician is advised to arrive at a decision (Lee et al., 2018). Determination of LE can be done by using mortality indices that have been already developed. According to Lee et al. (2018), a systematic review found 16 distinctive indices; these have been compiled and translated into online calculators at a Web site ePrognosis.com (<https://eprognosis.ucsf.edu/index.php>). Data from trials of screening outcomes and procedure outcomes has been utilized in arriving at TTB.

Work on prognostication is ongoing, with various research groups seeking to refine the tools (Jaul et al., 2021; Schoenborn, Massare, et al., 2020; Schonberg, Jacobson, et al., 2020) and add other variables, such as comorbidities and frailty, into the mix. Although prognostication is being advanced by researchers and population health advocates, translation to practice requires a commitment on the part of

clinicians in practice. There has been some hesitancy on the part of clinicians initially, fueled in part by concerns of malpractice and interfering with the clinician-patient relationship, but this is gradually dissipating (Kotwal & Walter, 2020; Schonberg, Jacobson et al., 2020). Most recently, scripts have been created to guide the dialogue between patient and clinician for optimal communication (Kotwal & Walter, 2020; Schonberg, Karamourtopoulos, et al., 2020). Video examples of discussions are available on the ePrognosis Web site. Lee et al. (2020) acknowledge the uncertainty in using probabilistic predictions but point out that several evidence-based examples have arisen from this, including the CHADsVasc 2 for atrial fibrillation. Prognostication outcomes are indirectly related to overuse of medical testing and the Choosing Wisely initiative (discussed below).

Sensitivity and Specificity and Positive Predictive Value of Diagnostic Tests

Not every diagnostic test is useful to diagnose a disease. For older adults, selection of the right diagnostic tests should take into consideration the health status of the older adult patient and the individual's consensus for treatment. Health-care providers need to understand how effective select tests are in establishing a diagnosis in an older adult. It is important to know the strengths and weaknesses of the select tests.

Sensitivity and specificity are the usual statistical measures employed to evaluate how a test performs compared to the gold standard. Sensitivity, or true positive, is the ability of a diagnostic test to correctly identify a proportion of those patients who have the disease or condition out of all who have the disease or condition when measured against a gold standard (Monaghan et al., 2021). Specificity, or true negative, is the ability of a diagnostic test to correctly identify a

proportion of those patients who do not have the disease or condition out of all who do not have the disease or condition (Monaghan et al., 2021). Sensitivity and specificity are inversely proportional—when sensitivity increases, specificity will decrease. How good is the test, compared to the gold standard, in identifying true positives?

$$\text{Sensitivity} = \frac{\text{Number of people correctly identified as having the disease}}{\text{Total number of people affected}}$$

OR

$$\text{Sensitivity} = \frac{\text{Number of true positives}}{\text{Number of true positives} + \text{Number of false negatives}}$$

How well does the test perform in identifying true negatives—those who do not have the disease, from true negatives and false positives?

$$\text{Specificity} = \frac{\text{Number of people correctly identified as not having the disease}}{\text{Total number of true negatives}}$$

OR

$$\text{Specificity} = \frac{\text{All not having the disease}}{\text{Number of true negatives} + \text{Number of false positives}}$$

Positive predictive value is another statistical term used when examining the value of a test to diagnose a condition. Unlike sensitivity and specificity, which are deemed stable components of a test, positive predictive value aims to predict if a person actually has the disease based upon the pre-test probability or likelihood prior to administering the diagnostic test (Loh et al., 2020). This requires knowledge of the risk factors for acquiring the disease and the prevalence of the disease in the population being tested (Aminsharifi et al., 2018; Monaghan et al., 2021). For example, a recent Cochrane Review (Dinnes et al., 2021) studied the performance of rapid antigen COVID-19 tests compared to the gold standard RT-PCR test. They sought to discover how it performed in those with symptoms and without symptoms. The positive predictive value of a test like this in a population where COVID-19 is rampant, such as the United States, would be much better than if it were used in New Zealand where COVID-19 cases are very scarce, due to a difference in risk factors and prevalence.

CHOOSING WISELY

Choosing Wisely is an initiative started by the American Board of Internal Medicine Foundation in 2012 to raise the awareness of overuse of medical tests and procedures. The American Geriatrics Society (AGS), 70 other specialty groups, and Consumer Reports are part of this national effort. The goal of Choosing Wisely is to support conversations and interactions between patients and their health-care providers about what care is necessary (Levinson et al., 2018; Wolfson et al., 2014). It began with the National Physicians Alliance and a medical ethicist calling on internal medicine, family practice, and pediatrics leaders to each

identify five interventions that should not be implemented; building on this, specialty medical organizations were also asked to list five items that were evidence-based, frequently done in practice, billable, within the purview of their clinical specialty, but were unnecessary or overused. The respective medical societies utilized quality and safety committees to develop the lists, polled their membership, and sought approval from their governing board prior to publishing the list. Several organizations have written articles depicting the process underlying their recommendations, and the list has increased from five to 10 items (Levinson et al., 2018; Wolfson et al., 2014). The AGS Health in Aging patient Web site (<https://www.healthinaging.org/choosing-wisely>) lists 10 things that patients and health-care providers should question, along with rationale and resources (Box 2-1).

In addition to the AGS recommendations, older adults should discuss the harms and benefits of procedures and testing with their health-care provider. The Medicare AWW, chronic health maintenance visits, and the Welcome to Medicare visit offer opportunities for this dialogue.

Like prognostication, many of the Choosing Wisely recommendations incorporate age and 10-year life expectancy into their calculations, particularly screening and treatment

BOX 2-1

Choosing Wisely: 10 Things Clinicians and Patients Should Question

- Don't recommend percutaneous feeding tubes in patients with advanced dementia; instead offer oral-assisted feeding.
- Don't use antipsychotics as first choice to treat behavioral and psychological symptoms of dementia.
- Avoid using medications other than metformin to achieve hemoglobin A1c. (<7.5% in most older adults; moderate control is generally better.)
- Don't use benzodiazepines or other sedative-hypnotics in older adults as first choice for insomnia, agitation, or delirium.
- Don't use antimicrobials to treat bacteriuria in older adults unless specific urinary tract symptoms are present.
- Don't prescribe cholinesterase inhibitors for dementia without periodic assessment for perceived cognitive benefits and adverse gastrointestinal effects.
- Don't recommend screening for breast, colorectal, prostate, or lung cancer without considering life expectancy and the risks of testing, overdiagnosis, and overtreatment.
- Avoid using prescription appetite stimulants or high-calorie supplements for treatment of anorexia or cachexia in older adults; instead, optimize social supports, discontinue medications that may interfere with eating, provide appealing food and feeding assistance, and clarify patient goals and expectations.
- Don't prescribe a medication without conducting a drug regimen review.
- Don't use physical restraints to manage behavioral symptoms of hospitalized older adults with delirium.

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of cancer (Coll et al., 2020a, 2020b; Saletti et al., 2018), although the primary intent is to eliminate tests and procedures that will not benefit older adults and can cause unnecessary harm or reduced quality of life. Not all clinicians agree with using age cutoffs or life expectancy criteria for cancer screening and treatment recommendations. Schoenborn et al. (2020) found that while there was general agreement about the need to stop overscreening, clinicians questioned the use of age as the determining factor. Some felt that population health and individual patient management were misaligned and were concerned about bias and limiting access to care. Rowe et al. (2021) sought family physician rationales for not following the AGS Choosing Wisely recommendations; reasons included clinical inertia, patient preference, and underestimating harms or overestimating benefits of a test or procedure.

In addition to the AGS recommendations, other important Choosing Wisely endorsements include elimination of routine electrocardiograms and stress testing on those with no cardiovascular problems (Rehman et al., 2018), excluding lipid labs on those on statins, avoiding percutaneous coronary stents in those with stable angina, and omitting a full perioperative work-up for cataract surgery (Mafi et al., 2019). Several researchers continue to monitor health care for overuse. Morgan et al. (2019) has published an annual update on medical overuse for 5 years, noting that there is still much work to be done to eliminate the problem. Chalmers et al. (2021), using Medicare fee for service claims for 2015–2017, identified serious overuse issues in for-profit, non-teaching hospitals, primarily in the Southern United States. Zikmund-Fisher et al. (2017) identified several barriers to implementing Choosing Wisely, including malpractice, patient desire for testing or newer drugs, medication costs, insurance issues, lack of time for shared decision making, health-care providers ordering unnecessary tests, and rewards for ordering tests (payer, performance).

Welcome to Medicare Visit

Beginning in 2003 with the passage of the Medicare Modernization Act (MMA), the focus on older adults shifted to prevention and health promotion (Ng et al., 2017). In 2005, as part of the MMA, CMS introduced the Welcome to Medicare visit, also known as the Initial Preventive Physical Exam (IPPE); this includes a medical and social health history review as well as education about preventive services and their benefit. The Welcome to Medicare visit is a one-time covered service during the first 12 months of Medicare B enrollment for fee-for-service Medicare enrollees. For a variety of reasons, it has taken some time for this concept of preventive services in older adults to be adopted (Chung et al., 2018). Ng et al. (2017) reported that there was little to no change in use of preventive services by older adults since the initiation of the Welcome to Medicare visit. Chappell (2017) found that physicians were uncomfortable with the idea and did not know how to conduct this visit or the Medicare AWW. This resulted in additional tests being ordered, and the patient would then be billed for the visit, which is supposed to be a free benefit. This created some ill will between patients and clinicians over billing. There were also misunderstandings about the difference between the IPPE and a routine annual physical examination, which is not covered by

Medicare. CMS has created a short video for clinicians to explain the difference (<https://www.youtube.com/watch?v=r7yOUaMJyJU>). The Welcome to Medicare visit and subsequent AWWs are best conducted by a clinician who is known and trusted by the older adult patient. In preparation for the visit, it is helpful to have information on local resources for health promotion, such as exercise programs, senior centers, home safety, Area Agency on Aging services, advanced directives, and substance abuse treatment sources, readily available. The goal of the visit is to develop a wellness plan using shared decision making with the patient. This can be reviewed and updated at subsequent AWWs. Components of the Welcome to Medicare visit and the AWW can be found on the CMS Medicare Learning Network Web site (<https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/preventive-services/medicare-wellness-visits.html>). Section 410.16 addresses the Welcome to Medicare Visit, which includes:

- Medical and social history with special attention to risk factors; family history, social history, medications, allergies, OTC use (including supplements)
- Functional, ADLs, home safety, hearing, and fall risk assessments
- Depression screening
- Vital signs, body mass index
- Opioid use, screening for abuse, alcohol, tobacco use
- Socialization, diet, and physical activity

Nurse practitioners, with their holistic health approach and emphasis on prevention, are the ideal clinicians to perform Medicare Welcome and AWWs.

Annual Wellness Visits

Annual wellness visits were introduced in 2011 as part of the Affordable Care Act, offering wellness and preventive health opportunities with no copay to older adults on Medicare (Fox & Shaw, 2015; Ng et al., 2017). The visit is covered once every 12 months and includes an initial health risk assessment and personalized prevention plan, jointly developed by clinician and older adult patient. After the initial visit, the health risk assessment and prevention plan are updated at subsequent visits (Coburn et al., 2018). If other elements are added (e.g., the patient comes in with an upper respiratory tract infection and asks for treatment), the patient will be billed for the visit because it is no longer an AWW (42 CFR 410.15).

Like the Welcome to Medicare visit introduced earlier, AWWs have had a slow uptake trajectory to date. Ganguli et al. (2018) reported that between 2011 and 2015 the percentage of eligible Medicare beneficiaries receiving AWWs only increased from 7.5% to 18.8%, and most of them are concentrated in higher socioeconomic areas, in practices associated with Accountable Care Organizations or with the Medicare Electronic Health Record Incentive Program (Albright et al., 2016). Using Medicare data up to 2015, Ganguli et al. (2018) found that 51.2% of practices offered no AWWs; only 23.1% offered visits to one-quarter of their eligible beneficiaries. Some practices serving lower socioeconomic groups did not offer AWWs, or those with complex care needs did not receive the visits. Tipirneni et al. (2019) proposed that AWWs be expanded to include other health-care

team members such as social workers and community health workers and include an assessment of social determinants of health with referral to community resource agencies. This will decrease health disparities and allow those with limited access to care and complex health and social needs to benefit from preventive health planning. The Association of Community Health Centers and CMS have both developed tools to include social determinants of health in the AWVs; policy advocacy is needed to obtain funding and implement them (Tipirneni et al., 2019).

Simpson et al. (2018) and Simpson and Kovich (2019) surveyed advance practice nurses in Indiana who worked with Medicare patients related to underuse of AWVs. The survey found a deficit in their knowledge related to the content and extent of health risk appraisals and the need to develop a Personalized Prevention Plan (PPP). The main author of the survey advocates for advance practice nurses, with their focus on prevention and holistic health, to be the clinicians of choice for AWVs (Simpson, 2019). Most recently Simpson et al. (2021) reported on a research project where nurses performed monthly follow-up phone calls after AWVs to support older adults' PPP. They identified seven areas that impacted implementation of the PPP, including mental health, social support, stress, community/environment, motivation, health promotion behaviors, and health-care access, discussing how the personalization and contact helped older adults to overcome barriers to their plan and how follow-up is needed to ensure success of the PPP. They advocate for a team-based approach to the AWV to alleviate the burden on clinicians' time and to offer patients a more holistic, comprehensive, and personalized approach to prevention, with follow-up as needed. Bluestein et al. (2017) surveyed eligible patients and providers in their practice. They found that if the provider recommended the AWV that patients would be more likely to do it; providers were also supportive but confused by the complexity of the regulations. They emphasize that staff support is essential to delivering AWVs; their model utilized a nurse care manager along with office staff for increasing awareness among eligible patients, scheduling the visit, and doing the risk assessment and personalizing the PPP under the supervision of the physician. An added benefit to the practice was that the nurse care manager learned more about the patients and was able to follow up on their specific needs while being a trusted contact with the provider.

The Welcome to Medicare visit and AWVs are important opportunities for health promotion and establishing a personalized prevention plan for older adults; clinicians are urged to devise a plan to incorporate them into their management of older adults.

Immunizations

The adult immunization schedule is updated annually and can be found on the CDC's Web site at <https://www.cdc.gov/vaccines/schedules/hcp/imz/adult.html>.

The information is also available on a free downloadable phone app (<https://www.cdc.gov/vaccines/schedules/hcp/schedule-app.html#download>)

The CDC and the Advisory Committee on Immunization Practices (ACIP) collaborate on immunization recommendations (Freedman et al., 2021).

INFLUENZA VACCINE

Everyone 6 months of age and older is recommended to get an annual influenza vaccine, including healthy adults. Vaccination is especially important for those older than 65 years because they are at higher risk of serious influenza complications and for people who live with or care for people at higher risk for serious influenza complications. Flu vaccine protects against the flu viruses that research indicates will be most common during the upcoming season. Every year vaccines are updated to better match circulating viruses. Full immunity from vaccination occurs after about 2 weeks. Influenza vaccines for older adults contain no live viruses (Schmader et al., 2021).

DIPHTHERIA, TETANUS, AND PERTUSSIS VACCINES

Adults who have never received the tetanus, diphtheria, and acellular pertussis (Tdap) vaccine should receive a single dose, even if they recently received the tetanus and diphtheria (Td) vaccine. After this dose, a booster of Tdap or Td should be administered every 10 years. Boostrix® should be used for adults 65 years or older; if this is unavailable, use either vaccine product (CDC, 2018).

RECOMBINANT ZOSTER VACCINE (SHINGRIX)

The recombinant zoster vaccine (RZV) Shingrix is currently the only zoster vaccine on the market. For those age 50 years or older, a two-dose series 2 to 6 months apart (minimum interval: 4 weeks; repeat dose if administered too soon) is recommended regardless of previous herpes zoster or history of prior zoster vaccine live (ZVL, Zostavax) vaccination (Gagliardi et al., 2019; Weinberger, 2021).

PNEUMOCOCCAL VACCINES

There are two different pneumococcal vaccines. The pneumococcal polysaccharide vaccine (PPSV23) and the pneumococcal conjugate vaccine (PCV13). Annually over 25,000 people older than age 50 die from pneumococcal disease (*Weinberger, 2021). With a weakened immune system, older adults are at greater risk for this condition, especially those with multimorbidities. Dosing recommendations are as follows (CDC, 2019):

Routine vaccination: Age 65 years or older (immunocompetent): 1 dose PPSV23. If PPSV23 was administered prior to age 65 years, administer 1 dose PPSV23 at least 5 years after previous dose.

Shared clinical decision making: Age 65 years or older (immunocompetent): 1 dose PCV13 based on shared clinical decision making if previously not administered. PCV13 and PPSV23 should not be administered during the same visit. If both PCV13 and PPSV23 are to be administered, PCV13 should be administered first. PCV13 and PPSV23 should be administered at least 1 year apart.

COVID-19 VACCINES

All older adults should be vaccinated against COVID-19 with one of the available vaccines licensed for emergency use in the United States. There is also an immunization global entity that collaborates with the United States and other countries on COVID-19 vaccine initiatives (Becerra, 2021; Privor-Dumm et al., 2021; Al-Tawfiq & Memish, 2019).

As of October 22, 2021, when requested for an individual among the groups recommended for a booster consistent with the FDA emergency use authorization (EUA) and the CDC's recommendation, all CDC COVID-19 vaccination program enrolled providers must make available and administer upon request: (1) for those who received the Moderna primary series, a single Moderna COVID-19 vaccine booster dose (which is half of the dose that is administered for a primary series Moderna dose) at least 6 months after completion of the Moderna primary series, in risk groups CDC has previously recommended receive Pfizer-BioNTech booster dose, under the FDA's EUA; or (2) for those who received a primary Janssen dose, a single Janssen COVID-19 vaccine booster for all persons aged 18 years or older at least 2 months after receipt of the primary Janssen dose, under the FDA's EUA.

Among the groups recommended by CDC to receive booster vaccination after a Pfizer-BioNTech, Moderna, or Janssen COVID-19 vaccine primary series, a single booster dose of any of the currently authorized or approved COVID-19 vaccines may be provided as a heterologous booster dose, under the FDA EUAs.

With the onset of the COVID-19 pandemic, issues with vaccine hesitancy and mistrust of the health-care system by underrepresented communities came to the forefront. Bhanu et al. (2021) reported on a systematic review identifying barriers to vaccine use and suggestions to address them. Some factors included misinformation, the perception that being healthy meant that the vaccine was unnecessary, believing that the vaccine was ineffective or caused harm, mistrust of the health system, and having access to the vaccine. Reasons that facilitated acceptance of the vaccine were fear of acquiring the disease, understanding how the vaccine works, recommendation by a health-care provider trusted by the patient, vaccine setting and accessibility, realization of age as a risk factor, support from the community, and vaccine reminders (Bhanu et al., 2021). Researchers concluded that increased education efforts with the underrepresented communities combined with culturally competent discussions with trusted health-care professionals and expanded access can produce maximal vaccine action (Bhanu et al., 2021; Loskutova et al., 2020).

TRAVEL AND LEISURE

Older adults represent a significant proportion of international travelers. Reasons for travel include tourism, business, visiting friends and relatives, medical tourism, missionary work, volunteer opportunities, pilgrimage, and study abroad. Travel can be greatly rewarding but is physically demanding and poses risk to the traveler.

Travel Medicine

Travel Medicine is a worldwide interdisciplinary medical specialty and evolved from many published studies of disease risks in international travelers in the mid-70s. The first international conference on travel medicine was held in Zurich in 1988, and the International Society of Travel Medicine (ISTM) was formed during the second conference in Atlanta, 1991 (Dupont & Steffen, 2020). The ISTM has its own body of knowledge, practice guidelines, offers a Certificate in Travel

Health (CTH) and continuing professional development, holds biannual conferences, and has a directory of travel clinics. Travel medicine has become increasingly complex due to constantly changing global infectious disease epidemiology, changing patterns of drug resistance, and travelers with challenging circumstances (see Box 2-2). Some of the main reasons primary care providers (PCPs) refer patients to travel medicine specialists (TMSs) include the need for yellow fever or other travel vaccines, complex itineraries, medical comorbidities, the need for malaria chemoprophylaxis, and older travelers (Gerstenlauer, 2019a). Unfortunately, many travelers do not seek pretravel health, or may obtain pretravel advice from practitioners who are not equipped to provide current and accurate information. This can result in mistakes with disastrous consequences for the traveler. To provide pretravel consultations, practitioners need to be able to impart all necessary information regarding the health risks of the destination countries and health prevention measures as well as order the appropriate vaccines and medications. Providers can access country-specific epidemiologic information from the WHO or the CDC. Travel health software programs such as Tropimed and Shoreland Travax can be used while seeing patients, but these programs do not replace travel medicine training. The *CDC Health Information for International Travel*, known as "The Yellow Book," is published biannually and is a great resource for health professionals providing care to international travelers.

The Older Traveler

More older adults (ages 60 and older) are traveling due to increased quality of life, medical technology advances, and a longer time spent in retirement. Most older travelers enjoy traveling and return home in good health. Perceived mental and physical benefits of international travel include a temporary escape from medical appointments, group camaraderie, broadening language and cultural horizons, increased physical activity, and better weather (Liew & Flaherty, 2020).

However, older travelers face higher health risks and exacerbation of their chronic disease than younger travelers because of normal age-related physiologic changes, immunosenescence, atherosclerosis, comorbid conditions, functional impairments, polypharmacy, and being in a foreign environment. Cardiovascular disease (CVD) disease is one of

BOX 2-2

International Travel During COVID-19 Pandemic

The COVID-19 pandemic declared by the World Health Organization on March 11, 2020, greatly impacted international travel. Overseas travel for U.S. citizens in 2020 decreased by 78.2% (National Travel and Tourism Office, 2021). At the time of this text's publication, The Centers for Disease Control and Prevention (2021) does not recommend traveling internationally unless a person is fully vaccinated by one of the FDA-approved COVID-19 vaccines. If an individual is not fully vaccinated and must travel, see [cdc.gov/coronavirus](https://www.cdc.gov/coronavirus). All travelers need to follow all airline and destination requirements related to travel, mask wearing, testing, or quarantine, before traveling.

the most common preexisting medical conditions among international travelers, and is the leading cause of death, accounting for 70% (Liew & Flaherty, 2020). The lower atmospheric pressure during air travel may trigger decompensation of preexisting CVD and expose passengers to potentially life-threatening inflight cardiac emergencies. Malignancies and trauma are the next most common causes of death abroad, while infectious diseases account for less than 10% (Darrat & Flaherty, 2019). Older travelers are less able to adapt physiologically and less able to adjust to climatic extremes. Comorbid conditions such as hypertension, dyslipidemia, diabetes, and COPD are often coexisting, and each requires a combination of medications, leading to polypharmacy. Medication adherence during travel can be difficult because of time zone changes and travel disruption. Some travelers may withhold certain medications due to undesired effects (e.g., not taking a diuretic on a long plane ride). Selecting appropriate medication can be more difficult as older adults undergo physiologic changes that alter the pharmacokinetic and pharmacodynamic nature of medications potentially causing increased drug interactions, adverse events, and altered drug action (Lewis et al., 2019). In a large CDC study, 61% of drug-drug interactions occurred in adults 50 and older and 41% had at least three comorbid conditions (Sbailh et al., 2018). Older adults represent ~8% of ill-returned travelers but have more severe disease compared to younger travelers. Navigating airports, poorly constructed roads, walking uphill, and stair climbing can be physically demanding with risk of injury. Sensory impairments and language barriers create communication difficulties.

The Pretravel Consultation

The pretravel consultation offers a dedicated time to prepare travelers for the health risks that might arise during their trip. The objectives are to perform an individual risk assessment, communicate anticipated health and safety risks, and provide risk reduction management measures, such as immunizations, malaria chemoprophylaxis, medications as needed, and education for specific risk behaviors. During the consultation, provide copies of the individualized trip information and educational materials for later reference and recall to avoid information overload. Educational materials are available on the CDC Travelers Health Web page (www.cdc.gov/travel).

Barring any communication technology issues, telemedicine can serve as a convenient alternate to an in-person pretravel visit, reducing cost and time and improving access to care. For telemedicine pretravel consultations, providers need to follow the same professional standards as with in-person consultations (CDC, 2020). Medications and vaccinations can be prescribed during a telemedicine encounter. Travelers can then seek vaccinations in the PCP's office or local health clinics and obtain prescriptions from their pharmacy. A valuable resource on telemedicine, including requirements by state, is available at <https://prognosis.com/wp-content/uploads/2017/01/Telemedicine-Whitepaper.pdf>.

Air travel is contraindicated for patients with certain conditions, such as those who are less than 3 weeks post uncomplicated myocardial infarction and those who are less than 10 days post thoracic or abdominal surgery (CDC, 2020). Providers should determine whether recent outbreaks or

other safety notices have been posted for the traveler's destination; information is available on the CDC and U.S. Department of State Web sites. Disease exposures related to special activities merit discussion (e.g., river rafting and schistosomiasis or leptospirosis, spelunking and histoplasmosis). Flying from lowlands to high-altitude areas and trekking or climbing in mountainous regions introduces the risk of altitude illness. Compared to tourists, individuals who are visiting friends and relatives have higher travel risks, seek pretravel health less often, and may only get required vaccines as opposed to routine and recommended vaccines (*Ferrara et al., 2019). Host factors and trip details to assess with degree of risk are listed in Table 2-1.

IMMUNIZATION STATUS

The provider needs to inform the traveler of the necessity to receive routine, required, and recommended vaccines based on their medical history, immunization status, and their travel destination. Country-specific required and recommended vaccines can be found in the travel software programs or at the CDC vaccinations page. Written confirmation of the doses taken should be noted on the WHO approved International Certificate of Vaccination or Prophylaxis (ICVP), referred to as the "yellow card." The yellow card must be kept with the traveler's passport because it serves as proof of vaccination. Preferably, all vaccinations should be taken at least 4 to 6 weeks before the planned departure to give full protection against a disease. If a traveler has an incomplete vaccine series, continue the series, regardless of how much time has passed. Providers should report all adverse events that might be caused by vaccination to the CDC/FDA Vaccine Adverse Events Reporting System (VAERS).

ROUTINE VACCINES

All travelers should be current with routine vaccines before international travel, regardless of destination. A visit for travel health is an opportunity to bring an incompletely vaccinated person current on routine vaccines. Routine vaccines for older adults include influenza, pneumococcal, Td/Tdap, zoster, COVID-19, and hepatitis B for those at risk. The CDC sets U.S. adult vaccination schedules annually, based on the recommendations of Advisory Committee on Immunization Practices (ACIP). Some travelers may be immune to the disease for which immunization is being considered. Testing for antibody titers can determine whether vaccination is needed. If a person does not have adequate written documentation of vaccinations, these persons should be considered susceptible and started on the age-appropriate vaccination schedule. Exceptions are that self-reported doses of influenza and pneumococcal 23 are acceptable (General Best Practices for Immunizations, 2021).

REQUIRED VACCINES

Country-specific required vaccines need to be prioritized because the traveler may be denied entry to the country without proof of vaccination. For example, travelers to Mecca and Medina annually for the week-long Hajj pilgrimage require COVID-19 vaccination and the quadrivalent meningococcal conjugate vaccine, which must have been received in the past 3 years and at least 10 or more days in advance of arrival because this pilgrimage is one of the largest mass gatherings and may result in the occurrence and spread of infectious diseases (Al-Tawfiq & Memish, 2019).

TABLE 2-1 Risk Assessment During Pretravel Consultation

HOST FACTORS	LOWER RISK TRAVEL	HIGHER RISK TRAVEL
Age, gender, nationality, occupation	Younger age	Older age
Immune status, allergies	Immunocompetent	Immunocompromised
Underlying conditions	Controlled chronic disease(s)	Unstable chronic disease(s)
Mental status	Cognitively intact	Cognitive impairment
Physical status	Physically fit	Poor physical health
Functional status	High functional ability	Functional impairments
Medications	Minimal medications	Polypharmacy (>5–6)
Special conditions, dietary restrictions, specialist care, prosthetics, medical equipment and supplies	No special conditions, routine health maintenance specialty care	Disability or handicap, psychiatric condition, seizure disorder, dietary restrictions, recent surgery, cardiopulmonary or cerebral vascular event, severe allergies, chronic diseases
Immunization status	Current with routine, prior travel vaccines	Not current with routine vaccines, refuse recommended vaccines, inadequate timing
Trip Details	Lower Risk Travel	Higher Risk Travel
Itinerary, country destination(s) including regions, order of travel	Industrialized, nontropical, one country	Developing, tropical countries, multiple countries
Duration of trip, departure and return dates	Shorter (<3 weeks)	Longer (>3 weeks)
Reason for travel	Tourism, business	Mission, medical tourism, volunteerism, visiting friends or relatives
Trip organization	Organized prepackaged	Independent
Traveling style	Group	Traveling alone
Accommodations	Tourist, luxury	Hostel, budget hotel, camp, local host family
Location of activities	Urban, large cities	Rural, smaller cities, villages, jungle, rain forests, desert, remote
Type of activities	Usual tourist	Adventure (i.e., backpacking, scuba diving, climbing, trekking, hiking, cycling, spelunking), refugee camps, disaster relief, medical missions, wading or swimming in fresh water, cruise ships
Budget	High	Low
General hygiene standards, food and water restrictions	Well-known tourist areas, adherence	Local restaurants, street vendors, tap water
Modes of travel	Commercial	Local, motor bikes, under own power
Prior international travel history	Previous travel, experience with malaria chemoprophylaxis, altitude	Novice or only traveled to Western Europe
Challenges related to prior travel	Uneventful	Eventful (illnesses, injuries, hospitalizations, evacuations)
Anticipated interaction with animals	None expected	Monkeys, bats, elephants
Risky sexual encounters	None anticipated	Anticipated
Supplemental travel insurance	Purchased	No plans to get

Yellow fever (YF) is a mosquito-borne vaccine-preventable disease that is transmitted to humans by the bites of infected mosquitoes. YF vaccination (YF-VAX) is mandatory for all travelers to certain endemic countries in tropical and subtropical regions of Africa and South America. This can include travelers who may be staying in an endemic country only briefly, such as during an airport layover, before being

allowed to enter other countries on their itinerary (Tropimed, 2018). The CDC gives country-specific information on YF vaccine requirements and recommendations. Travelers need to have received their dose at least 10 or more days in advance of arrival. The ACIP published a new recommendation in 2015 that one dose of YF-VAX provides long-lasting protection and is adequate for most travelers (CDC, 2020). However,

some countries may still require a booster after 10 years, and boosters may be recommended for certain travelers. YF-VAX is available only in certified yellow fever vaccination clinics.

RECOMMENDED VACCINATIONS FOR TRAVEL

- **Cholera** is caused by bacteria that are spread from person-to-person by drinking contaminated water or eating contaminated food. It is rare and can be prevented with practicing food and water precautions and hand washing in areas with outbreaks. A single-dose oral cholera vaccine was approved by the ACIP in 2016, but only for adults ages 18 to 64.
- **Hepatitis A** is a contagious virus found in contaminated food and water that causes liver disease. The vaccine is recommended for all international travelers regardless of travel destination (CDC, 2020).
- **Hepatitis B** is a contagious virus found in the blood and body fluids of infected people that causes liver disease. The vaccine mitigates the risk of nosocomial transmission if accessing rudimentary health services abroad, so is recommended for all international travelers (CDC, 2020).
- **Japanese encephalitis** is transmitted by mosquitoes. It occurs rarely but is a risk for travelers with rural exposure for more than 4 weeks or prolonged residence in endemic areas.
- **Meningitis** is caused by bacteria spread through close personal contact. The vaccine is recommended for Hajj pilgrims and for travelers to the meningitis belt of sub-Saharan Africa during the dry season (December through June). Only meningococcal ACWY is used for travel health.
- **Polio** is a disease caused by a virus. It is mainly spread by person-to-person contact, by eating undercooked food, or drinking fluids contaminated with the feces of an infected person. Travel to Afghanistan, Nigeria, and Pakistan may be a risk for this disease. A booster dose is recommended for previously vaccinated travelers to affected countries.
- **Rabies** kills about 60,000 people a year, 40% of whom are children (Global Alliance for Rabies Control [GARC], 2019). In the United States, rabies is mostly found in wild animals such as bats, raccoons, skunks, and foxes (CDC, 2020); however, in many other countries, especially rural areas of economically disadvantaged countries in Africa and Asia, up to 99% of human cases are acquired from infected dog bites, which are responsible for most of the rabies deaths in people (GARC, 2019). Rabies can be prevented by vaccinating pets, avoiding wildlife, and seeking medical care after exposure before symptoms start (CDC, 2020). The pre-exposure rabies vaccine will reduce the number and type of postexposure vaccines needed. When considering the rabies vaccine, consider the risk of animal exposure, access to local health care, and availability of rabies immune globulin and rabies vaccine at the traveler's destination. Providers should consult with local or state health officials for recommendations on postexposure prophylaxis recommendations (CDC, 2020).
- **Typhoid fever** is transmitted by contaminated food and water in endemic areas. Two vaccines are available: a weakened live oral with a series of 4 doses and an inactivated injectable.

Foodborne and Waterborne Illnesses

Travelers' diarrhea (TD) is the sudden onset of abnormally loose, frequent stools and affects 30% to 70% of travelers (CDC, 2020). Intestinal pathogens like bacteria cause 80% to 90% of TD, viruses 5% to 15%, and protozoa 10%. Careful selection of food and beverages and hand washing are important for prevention, but never eliminate the risk, typically due to poor local restaurant hygiene (CDC, 2020). Hepatitis A, cholera, and typhoid vaccines as appropriate, can help prevent food- or waterborne infections. Early antibiotic therapy can shorten the duration of illness, alleviate the disability associated with TD, and prevent the risk of long-term complications (CDC, 2020). Combining the antibiotic with an antimotility agent such as loperamide can shorten the course further. Using antimotility agents alone are recommended for mild TD, and antibiotics can be reserved for moderate to severe TD (CDC, 2020). To minimize the risk of antibiotic-associated side effects, colonization, and resistance, use single-dose regimens, and select an antibiotic agent that minimizes microbiome disruption and risk of colonization. The traveler will need to self-treat, so clear written guidance about TD prevention and instructions on treatment are crucial. Prophylactic antibiotics are not recommended for most travelers but may be considered for short-term travelers who are high-risk hosts (e.g., immunosuppressed, significant medical comorbidities) and where the benefits outweigh the risks (CDC, 2020; van Aalst et al., 2018). Fluoroquinolones have been the most effective antibiotics for the prophylaxis and treatment of bacterial TD, but increasing resistance to *Campylobacter* and *Shigella* species, the association with tendinitis, and increased risk of *Clostridioides difficile* infection limit their use. Alternatives include azithromycin, rifaximin, and rifamycin SV (CDC, 2020).

Mitigating Travel Risks

The pretravel consultation provides an opportunity to educate the traveler about their destination risks, as well as management of these safety risks and chronic diseases while traveling. Topics to be explored are numerous and could be organized into a checklist, placing priority on the most serious and frequently encountered issues (see Table 2-2). Provide the traveler a clinician letter on letterhead outlining allergies, existing medical conditions, prescribed medications (including generic names), and any medical equipment required. Give the traveler a list of travel clinics or sources of medical care in case they need to seek medical care; preferably with English-speaking, American-trained providers. Encourage the use of mobile applications to tract certain chronic illnesses while traveling. Medications requiring prescriptions in the United States may be available over the counter abroad; however, discourage travelers from buying these medications, especially from non-pharmacy sources, because of the risk of obtaining substandard or counterfeit medications (CDC, 2020). Advice on self-treatable conditions may minimize the need for travelers to seek medical care while abroad and possibly lead to faster return to good health.

Malaria Chemoprophylaxis

Malaria is a preventable illness but unfortunately is one of the most severe public health problems in the world. It is a leading cause of morbidity and mortality in many developing

TABLE 2-2 Management of Safety Risks and Chronic Diseases While Traveling

CONDITION OR SITUATION	RECOMMENDATIONS
Acclimatization	• Drink at least 3 or 4 liters of bottled water or isotonic drinks daily. • Avoid intense physical activity in the first few days after arrival.
Allergies, life-threatening	• Carry EpiPen, diphenhydramine, steroid dose pack. • Avoid triggers.
Altitude	• The risk of altitude illness is dependent on the elevation at destination, rate of ascent, and exertion. • Inadequate acclimatization may lead to altitude sickness in any traveler going to 8,000 feet/2500 m (CDC, 2020). • Prior experience with altitude is a good indication of risk. • CDC guidelines are: • Ascend gradually, if possible, not going directly from a low elevation to more than 9,000 ft/2,750 m sleeping elevation in 1 day. • Once above 9,000 ft/2,750 m, move sleeping elevation no higher than 1,600 ft/500 m per day, and plan an extra day for acclimatization every 3,300 ft/1,000 m. • Consider using acetazolamide to speed acclimatization if abrupt ascent is unavoidable. • Avoid alcohol for the first 48 hours; continue caffeine if a regular user. • Participate in only mild exercise for the first 48 hours.
Basic health practices	• Reinforce frequent hand washing, hand sanitizers, masks as required, carrying extra tissues or toilet paper, wearing safety belts, safe sexual practices, protection of passport, valuables. • Carry contact information for the primary care provider, specialists, and significant others.
Bloodborne pathogens	• Inform the patient on what to do in case of needlesticks or bloodborne pathogen exposure. • Discuss use of postexposure prophylaxis for HIV. • Avoid tattooing, body piercing, and injections with nonsterile needles.
Cardiovascular disease	• See a cardiologist pretravel. • Carry a copy of most recent electrocardiogram. • Bring identification cards for cardiac devices. • If on warfarin for atrial fibrillation, consider the use of nonvitamin K antagonist oral anticoagulants for a more favorable risk-benefit profile, easier adherence, and negation of the need for International Normalized Ratio monitoring abroad. • Carry nitrate spray.
Casual sex	• Use condoms. • Discuss use of postexposure prophylaxis for HIV. • Stress that avoidance is better.
Cognitive impairment	• If possible, have a traveling companion. • Consider treatment with acetylcholinesterase inhibitors and/or memantine. • Use pre-organized group travel. • Encourage patient to carry a hotel's business card and to photograph hotels, buses, cruise ships or tour company's names to help recall.
Diabetes	• Consider use of continuous glucose monitoring devices. • Check blood glucose every 4 to 6 hours during air travel. • Use mobile apps to track blood glucose, activity, diet. • Accept somewhat higher blood glucose levels during travel days to avoid hypoglycemia. • Try to simplify treatment regimen to avoid multidosing. • Carry snacks to avoid hypoglycemia.
Dietary restrictions	• The patient may need to self-select from available food choices because specialty diets may not be available. • Check ahead of time to see if specialty diet can be ordered during travel. • The patient may need to bring their own food and snacks. Obtain a doctor's note allowing you to carry liquid "medical foods" through security at the airport so nothing is confiscated by Transportation Security Administration.
Environmental hazards	• Avoid contact with wild animals to reduce the potential for bites and scratches that can transmit rabies. • Avoid walking barefoot where animals can defecate to avoid certain parasitic infections. Avoid wading or swimming in freshwater where there is risk for schistosomiasis or leptospirosis. • Apply sunscreen to skin exposed to the sun. Adhere to water/food and feeding hygiene.
Fitness for travel	• Evaluation is not usually a part of pretravel consultation. • Recommend seeing the primary care provider at a separate appointment or a specialist as appropriate. • Encourage regular exercise or training in preparation.

TABLE 2-2

Management of Safety Risks and Chronic Diseases While Traveling—cont'd

CONDITION OR SITUATION	RECOMMENDATIONS
Immunocompromised	• If a traveler cannot tolerate recommended immunizations or prophylaxis, consider counseling the traveler to change the itinerary, alter planned activities, or deferring the trip. • The traveler's specialty care provider may need to be contacted to discuss any concerns.
Jet lag	• This is a risk when traveling across more than three time zones. • It can affect mood, concentration, and coordination. • Per CDC (2020), if the destination is more than 3 hours different than your normal time zone, follow the sleep and waking routines of your destination when you arrive. • Consider scheduling travel to arrive at your destination at least 2 days before any important events.
Long-distance flights	• Use antithrombosis compression socks. • Ensure sufficient nonalcohol, non-caffeine hydration and exercise. • Take diuretics as prescribed.
Medications	• Keep medications in original bottles in carry-on luggage. • Keep a copy of medication list. • Ensure patient has enough for the entire trip plus a few days extra in case of delays. • If crossing time zones, take medication based on elapsed time and not time of day. • Check with the U.S. embassy or consulate to clarify medication restrictions in the destination country. Some countries do not allow narcotics or psychotropic medications. • Educate the patients about any drugs ordered and review for drug interactions. • Try to simplify schedules to avoid polypharmacy and help adherence. • If refrigeration is needed, consider travel ice packs, refrigerators in hotel rooms, or use of ice buckets.
Medical supplies	• Keep these in their original containers in carry-on luggage. • Check all batteries and bring extras. • Adapters may be needed. • Those on continuous positive airway pressure may need an alternative if destination has inadequate electricity.
Medical alert bracelet, necklace, or card	• Make sure those with drug allergies and certain medical conditions have one.
Motion sickness	• Try to avoid situations that tend to trigger symptoms. • Try to optimize position to reduce motion perception (e.g., drive instead of riding in a vehicle, or sit in the front seat, sit over the wing of an aircraft, choose a window seat on flights and trains) (CDC, 2020). • Maintain hydration and eat small frequent meals, limiting alcohol, caffeine. • Avoid smoking. • Use distractions such as controlled breathing, listening to music, aromatherapy, flavored lozenges.
Personal safety	• Avoid driving or riding at night in developing countries. • Avoid motor scooters, overcrowded buses and vans, walking alone, alcohol excess, which can increase the risk of personal assault, robbery, drowning. • Look for security bulletins related to the destination and consider areas to avoid (e.g., areas of civil unrest). • Have contact information for the U.S. embassy.
Foodborne or waterborne infections	• Perform regular hand washing. • Drink bottled or boiled water; carbonated drinks, beer, wine. • Avoid drinks with ice cubes, street food, unpasteurized dairy products. • Eat only fruits washed and peeled by yourself and recently cooked and hot-served food. • Avoid buffets.
Pulmonary conditions	• Notify the airline in advance if oxygen or other equipment is needed on the plane. • Prepare for chronic obstructive pulmonary disease or asthma exacerbations by having lung function tested before travel. • Have standby medications readily available.
Supplemental insurance	• Medicare and most medical insurance policies do not cover health care in other countries; consider supplemental insurance coverage for emergency medical and dental treatment, reimbursement for cost. • Consider trip cancellation insurance in the event of illness. • Provide information on medical evacuation/repatriation insurance and emergency medical assistance services.
Vectorborne diseases	• Use insect repellents with N, N-diethyl-meta-toluamide (DEET), 20%–40%. Apply over sunscreen. • Use mosquito nets. • Wear long pants, long sleeves, hats. • Avoid staying outdoors from dusk to dawn when insects are the most active. • Use air conditioning or tight window screens. • Treat clothing, gear, and bedding with permethrin up to 2 weeks before travel.

countries (Gerstenlauer, 2019b). It occurs mostly in economically disadvantaged tropical and subtropical areas in Africa, South America, and South Asia. The most vulnerable are persons with little or no immunity against the disease, like travelers or migrants coming from areas with little or no malaria transmission. Visitors of friends and relatives have a disproportionately high prevalence of travel-related morbidity, particularly infectious diseases, including malaria (Volkman et al., 2020). They are also less successful at implementing key approaches to malaria prevention. Malaria is transmitted by the bite of an *Anopheles* mosquito that is infected by a protozoan parasite of the *Plasmodium* genus. For travelers going to malaria-endemic countries, it is important to discuss bite avoidance, insect repellents, malaria chemoprophylaxis, and symptom awareness. Malaria should always be a consideration when fever or other flu-like symptoms are present in a traveler who had risk, even after a year post travel (Gerstenlauer, 2019). Long-term travelers may face barriers in obtaining sufficient antimalarial medication to cover their entire stay because Medicaid and some private insurance plans in the United States limit antimalarial dispensing to a 34-day supply and may not permit vacation overrides (Volkman et al., 2020). Malaria chemoprophylaxis is not always covered by insurance.

Choosing a medication for chemoprophylaxis must be individualized and must consider the traveler's medical

history, current medications, potential side effects, past history, cost of the medication, time till departure, as well as malaria drug resistance in the area(s) of travel. No antimalarial drug is 100% protective and must be combined with the use of personal protective measures. The drugs are generally well tolerated. Side effects may develop but do not usually require stopping the medication. All recommended chemoprophylaxis regimens involve taking a medication before, during, and after travel. Recommendations for drugs can be found in malaria information by country https://www.cdc.gov/malaria/travelers/country_table/c.html.

SUMMARY

Improved quality of life and ease of travel has increased the number of older adult international travelers. Older travelers have special considerations and unique challenges that are important to address in preventing travel-related complications. Older travelers should be specifically counseled to reduce their risks by obtaining pretravel health. PCPs are increasingly called upon to provide travel health. The PCP needs to be ready to give tailored and accurate advice to a wide variety of travelers. APRNs are very suited to this role and are encouraged to seek additional professional training to become an effective travel health specialist.

CASE STUDY

J.B. is a 73-year-old widow, living alone in an urban area. It has been almost 3 years since her husband died, and J.B. has worked through her grief, settled his affairs, and is ready to move forward with her life. She has no children. Her sister lives in another state. J.B. has some close friends in the area. She currently attends Zumba classes twice weekly at the local senior center and she has joined a women's walking group. She also sings in the local community chorus group. J.B. is in good health; she takes lisinopril 10 mg PO daily for hypertension and a multivitamin. Family history includes:

- Father—deceased from a stroke
- Mother—deceased from colon cancer
- Younger sister—living with breast cancer.

Due to taking care of her late husband, J.B. has neglected some preventive health screenings. She recently began dating and is attracted to a 66-year-old divorcee, L.D., in the community chorus. He is very social; they have

gone out for coffee and meals, and he is hinting that he wants to get to know her better. He has a vacation home in Florida and has invited her to come for a week.

1. You are seeing J.B. for her AWV. What are some important areas to address with her in terms of screening?
2. During the visit J.B. confides in you that she has not been sexually active in many years due to her husband's protracted illness and death. She is very attracted to L.D. but is also anxious and verbalized that L.D. seems to have had a few relationships since his divorce. How would you counsel J.B. about safe sex and dating?
3. What is the purpose of the AWV and what areas need to be addressed?
4. J.B. has a cough and a sore throat during the AWV and asks if you can examine her and prescribe something. How would you address this with her?

Exercise in Older Adults

Lori Martin-Plank

According to the 2020 Profile of Older Americans (Administration on Aging [AoA], 2021), people older than age 65 years represented 16% of the total U.S. population in 2019. The U.S. Census projection (2017) predicts that older adults will reach 23.4% of the population in 2034 and will outnumber children younger than 18 at that time. Most of these older adults will live in the community, either with a partner or alone, and will desire to age in place. This projection presupposes that these individuals must be physically able to function and perform most activities of daily living (ADLs) with minimal assistance or have caregiver assistance.

Data related to physical activity or exercise in older adults comes primarily from self-reported surveys, including the National Health Interview Survey (Federal Interagency Forum on Aging-Related Statistics, 2020). According to *Older Americans 2020*, in 2018 approximately 16% of older adults between 65 and 74 years of age met the standard for physical activity set by *Physical Activity Guidelines for Americans* (2nd ed.); this percentage decreased to 7% for those 85 years of age and older (Federal Interagency Forum on Aging-Related Statistics, 2020).

The Senior Report 2021 (United Health Foundation, 2021) reports that exercise in older adults in the United States (those aged 65 years and older), increased from 17.6% to 23.1% from 2017 to 2019. Although any increase in physical activity is encouraging, these figures clearly show that we are making very slow progress in this area. Recommendations from the *Physical Activity Guidelines for Americans* (2nd ed.) state that older adults aged 65 and older perform a minimum of 150 minutes weekly of moderate-intensity aerobic activity or 75 minutes weekly of vigorous-intensity aerobic physical activity, or an equivalent combination of both. Additional requirements call for muscle strengthening activities involving all major muscle groups, using at least moderate-intensity, two or more days weekly. If older adults cannot achieve 150 minutes of moderate-intensity aerobic exercise due to chronic health issues, they should be as active as their health conditions and abilities permit (U.S. Department of Health and Human Services, 2018). In addition to the above requirements, older adults should engage in balance training activities weekly and be mindful of safety in exercising related to their health conditions and abilities.

AVAILABLE RESOURCES

Guidelines and position statements for increasing physical activity in adults and older adults have been issued by several authorities, including the American College of Sports Medicine (ACSM), American Heart Association (AHA), U.S. Preventive Services Task Force (USPSTF), U.S. Department of Health and Human Services (USDHHS), and the National Strength and Conditioning Association (NSCA). Additionally, the *Healthy People 2030* initiative has several sections dedicated to health promotion in older adults. Numerous agencies, such as the Centers for Disease Control and Prevention (CDC), American Osteopathic Association (AOA), National Institute on Aging (NIA), National Council on Aging (NCOA), and Centers for Medicare and Medicaid (CMS), have programs to promote wellness and quality of life in older adults, including physical activity projects. The ACSM's Web site, Exercise Is Medicine, has extensive resources for providers and the public (<http://exerciseismedicine.org>), and the Preventive Cardiovascular Nurses Association (PCNA) has a Heart Healthy Toolbox (<http://pcna.net/clinical-tools/tools-for-healthcare-providers/heart-healthy-toolbox>) with a variety of free tools for use by clinicians. Health insurance companies, including Medicare Advantage plans, offer programs such as *SilverSneakers* at selected gyms or YMCAs, and most of these locations have individualized health coaching services available to their members. The challenge for clinicians working with older adults is learning about these free resources and discovering how to assimilate them in a meaningful way into their clinical encounters, and to engage patients in regular physical activity.

Research on Physical Activity in Older Adults

There is no shortage of research related to physical activity and older adults, including randomized clinical trials; however, the timelines in most studies are concentrated on short-term outcomes, and some studies have very specific foci, which may not easily translate into everyday life. Callow et al. (2020, 2021) and Jiménez-Pavón et al. (2020) both speak to the mental health benefits of physical exercise by older adults in the COVID-19 era, while Langhammer et al. (2018) address the overall importance of physical activity in older adults.

Several studies focus on improving gait speed and dual-task processing to stimulate body and brain health (Merchant et al., 2021; Pothier et al., 2018; Trombini-Souza et al., 2020). Blumenthal et al. (2019) found that an aerobic exercise program in sedentary older adults with mild cognitive impairment improved their executive function abilities. Beauchamp et al. (2019) highlighted the impact of psychological mediators in promoting adherence to a group exercise program for older adults, while Cho and Kim (2020) reported on the beneficial psychological effect of exercise in older adults overall. A study by Buttelli and colleagues (2021) discovered that a Pilates program for older women with dyslipidemia successfully improved both aerobic capacity and blood glucose but had no effect on lipoprotein profile. Multiple studies addressed the positive impact of resistance training on strength and mobility (Fragala et al., 2019; Krčmářová et al., 2018; Kumbhare et al., 2019; Marcos-Pardo et al., 2019); Stojanović et al. (2021) devised a chair-based program with resistance bands that improved fitness and metabolic markers in older women. Sipilä et al. (2018) compared a program with physical and cognitive training versus physical training alone on mobility and fall prevention in older adults; Hopewell and colleagues (2020) performed a systematic review and meta-analysis of multifactorial interventions to prevent falls in community-dwelling older adults. Phu et al. (2019) found that balance training using virtual reality was effective in improving performance in older adults at high risk for falling. Muellmann et al. (2018) conducted a systematic review of the effectiveness of e-health interventions such as text messaging, phone apps, pedometers, and wearable fitness trackers in promoting physical activity in older adults; findings demonstrated that e-health interventions were effective in the short term. Results comparing the efficacy of e-health versus in-person program outcomes were inconclusive. A study by Rincé and colleagues (2021) showed the positive impact of an individualized rehabilitation program on mobility for the oldest-old.

Of the many areas of research related to older adults and physical activity, almost all demonstrate the value of interventions to promote physical activity and there has been great diversity in research approaches to this topic. Studies that focused on older adults and exercise found that short-term interventions, both individual and group and face-to-face and electronically, were effective in increasing physical activity when delivered as part of a multifaceted program of educational and cognitive-behavioral participation. Health education alone was ineffective in this population. Health-care personnel–recommended physical activity and an exercise prescription were effective in the short term. None of the studies reviewed had a long enough duration to measure persistence of effort.

BARRIERS AND FACILITATORS TO EXERCISE FOR OLDER ADULTS

Patient Barriers

- Lack of time
- Perceived need for equipment
- Perceived barrier to beginning exercise/physical activity
- Disability or functional limitation

- Unsafe neighborhood or weather conditions
- No parks or walking trails
- Depression
- High body mass index (BMI)
- Lack of motivation
- Interpersonal loss or significant life event
- Ignorance of what to do

Patient Facilitators

- Social support
- Positive self-efficacy
- Motivation to engage in physical activity
- Good health, no functional limitations
- Frequent contact with prescriber
- Regular schedule, planned program
- Satisfaction with program
- Insurance incentive
- Improvement in mobility or health condition
- Staff (of exercise or physical therapy facility) support

Clinician Barriers

- Time to assimilate information on physical activity specific to older adults
- Time to counsel patients on the importance of physical activity and lifestyle changes
- Lack of knowledge about how to write an exercise prescription
- Lack of awareness of resources in the community to support physical activity in older adults
- Focus on medical interventions for chronic disease management in lieu of lifestyle changes
- Failure to follow up to insure implementation of recommendations for physical activity

Examples of Medical Contraindications for Exercise Therapy

- Unstable angina
- Uncompensated heart failure
- Severe anemia
- Uncontrolled blood glucose
- Unstable aortic aneurysm
- Uncontrolled hypertension or tachycardia
- Severe dehydration or heat stroke
- Low oxygen saturation

PLAN FOR INCORPORATING EXERCISE INTO PATIENT ENCOUNTERS

One of the easiest ways to address exercise or physical activity with older adults is utilizing the Welcome to Medicare visit or the Annual Wellness Visit (AWV). Both visits are focused on individual patient issues, including lifestyle, items identified during the health risk assessment (such as sedentary lifestyle), and patient goals, and both have more encounter time built into the visit.

There are several helpful professional resources that focus on the components of an exercise prescription and how to

write one, including Medscape, the American College of Sports Medicine (ACSM), *UpToDate*, and the American Academy of Family Physicians (see Resources). Clinicians' knowledge about their older adult patients and their functional levels and interests can help in designing the exercise prescription or plan. For example, some older adults enjoy dancing; some like to play golf, bike, or swim; while others may prefer tai chi or yoga in addition to walking. The ideal exercise prescription is one that the patient will follow; any increase in physical activity is better than none. For many older adults who are sedentary, walking is an aerobic activity. The four recommended components for maximal benefit from an exercise program are aerobic activities, resistance training for muscle strengthening, flexibility exercises (stretching), and balance training to lessen the chance of falls (DiPietro et al., 2019; Fragala et al., 2019; King et al., 2019; Tricco et al., 2017). Recent studies have demonstrated that there are comparable benefits from high-intensity interval training (HIIT) and moderate-intensity continuous training (Campbell et al., 2019). Erickson et al. (2019) found that physical activity benefited those with cognitive deficits in later life. Another systematic review by Jakicic et al. (2019) reported that, contrary to prior evidence, physical activity of any bout duration was correlated with improved health outcomes, including all-cause mortality; this is encouraging for those with limited endurance or attention span.

The ACSM recommends that clinicians discuss the benefits of exercise and physical activity at every visit (2021); their *ACSM's Guidelines for Exercise Testing and Prescription* (11th ed., 2021) is a comprehensive resource and includes exercise prescriptions that are specific to several health conditions. This can serve as a quick resource for busy clinicians in addition to their Exercise is Medicine Web site.

Clinicians can now schedule visits billed with extra time to initiate or follow up on a prescribed exercise program. Busy practices can train a staff member to meet with patients to monitor progress of existing exercise programs, contract with an exercise physiologist or coach, or incorporate physical therapy training into the initial program. Older patients can also be referred to health coaching services or gym programs included in their medical insurance. Clinicians can set an example of healthy exercise by scheduling times to walk with patients in a nearby park or somewhere close to the office or sponsoring a patient walking group. Telehealth visits utilizing motivational interviewing can be used for exercise counseling and follow-up. The clinician office can display materials promoting exercise and other healthy lifestyle behaviors or have a dedicated closed-circuit TV with messages. Handouts depicting online programs dedicated to older adult fitness can be made available to patients.

Clinician judgment should be used when assessing the patient and prescribing an exercise routine. Major authorities agree that all adults who do not have symptoms and have no diagnosed chronic health condition, such as osteoarthritis, heart disease, or diabetes mellitus, do not need to consult with a health-care professional about increasing physical activity (Centers for Disease Control and Prevention [CDC], 2021). Patients with chronic conditions should consult a health-care provider for physical activity goals that are realistic and safe (U.S. Department of Health and Human Services,

2018). Healthy adult men older than 45 years and healthy women older than 55 years who are considering a *vigorous* exercise program need health-care provider screening and routine stress testing. Sedentary older adults and all adults with cardiac disease or strong risk factors should undergo screening and stress test if they are undertaking a *vigorous* exercise program (Lee et al., 2017).

In 2018, 1.2 million U.S. adults aged 65 and older resided in a long-term care (LTC) facility (AARP, 2019), many of them representing frail older adults. Izquierdo et al. (2016) raised the question of whether it is ethical not to provide physical activity for frail older adults. At the same time, a group of preeminent geriatricians, physical therapists, and gerontologists formed a taskforce under the auspices of the International Association of Geriatrics and Gerontology Global Aging Research Network (IAGG-GARN) and the European division of IAGG to make recommendations for physical activity and exercise standards in long-term care settings (de Souto Barreto et al., 2016). Acknowledging the heterogeneity of the population, the group devised two sets of recommendations—one advocating for a decrease in sedentary behavior for all residents of LTC settings, and the other utilizing evidence from meta-analyses and other research to develop a guideline for a select subset of LTC residents capable of participating in a structured exercise program to maintain functional and ADL abilities for as long as possible. For the first group, utilizing short breaks in sitting two to five times daily, such as walking to the dining room instead of using a wheelchair, is recommended. For those capable of structured exercise, a multicomponent program of moderate intensity done twice weekly for 35 to 45 minutes each time is recommended (de Souto Barreto et al., 2016). The importance of promoting physical activity in older adults living in LTC facilities cannot be underestimated because this age-group increases in numbers; benefits are not only individual, but also economic in terms of preventing costly hospitalizations and delaying functional decline.

KEY GUIDELINES FOR SAFE PHYSICAL ACTIVITY

The key guidelines for adults also apply to older adults (Physical Activity Guidelines Committee, 2018). In addition, the following key guidelines are for older adults only:

- As part of their weekly physical activity, older adults should do multicomponent physical activity that includes balance training as well as aerobic and muscle strengthening activities.
- Older adults should determine their level of effort for physical activity relative to their level of fitness.
- Older adults with chronic conditions should understand whether and how their conditions affect their ability to do regular physical activity safely.
- When older adults cannot do 150 minutes of moderate-intensity aerobic activity a week because of chronic conditions, they should be as physically active as their abilities and conditions allow (Table 3-1).

TABLE 3-1 Examples of Common Health Conditions in Older Adults with Exercise Recommendations

HEALTH CONDITION: CONSIDER COMORBIDITIES FOR ALL	RECOMMENDED ACTIVITIES: START LOW INTENSITY, GO SLOW	COMMENTS: CONSIDER COMORBIDITIES FOR ALL
Osteoarthritis	Walking, aquatic activities, tai chi, resistance exercises, cycling	Vary type and intensity to avoid overstressing joints; heated pool
Coronary artery disease	Walking, treadmill walking, cycle ergometry	Supervised program with blood pressure and heart rate monitoring
Heart failure	Walking, treadmill walking, cycle ergometry	Individualize to patient; supervised program
Type 2 diabetes mellitus	Resistive, aerobic, aquatic, recreational activities	Proper shoe fit; may need insulin reduction if insulin dependent
Anxiety disorders	Walking, biking, weightlifting	If able to do high-intensity exercise, this benefits anxiety
Depression	Walking, cycling, recreational activities	Group participation helpful to keep patient engaged
Fibromyalgia	Aerobic, aquatic therapy, strengthening, tai chi, Pilates	Heated pool, gentle stretches, counsel about possible increased pain initially
Chronic obstructive pulmonary disease	Cycle ergometer, treadmill walking; individualize	Supervised program—consider pulmonary rehabilitation program
Chronic venous insufficiency	Walking, standing exercises	Supervised program
Osteoporosis	Weight-bearing exercises, weight training	Assess balance and risk for falls before beginning
Parkinson's disease	Walking, treadmill walking, stationary bike, dancing, tai chi, Pilates, boxing	Assess balance and risk for falls before beginning; American Parkinson Disease Association resources
Peripheral arterial disease	Lower extremity exercises, treadmill walking, walking	Very short intervals initially, progress as tolerated
Age-related sleep disorders	Tai chi, walking, aquatherapy, biking	Assess balance and risk for falls before beginning
Dementia	Walking, recreational activities	Provide safe environment, assess fall risk and ability to participate

Source: Adapted from Goodman, C., & Helgeson, K. (2011). Exercise prescriptions for medical conditions. FA. Davis.

Clinical Recommendation	Evidence Rating	References
Exercise alone and various combinations of interventions reduces the risk of injurious falls in older adults.	A	Lee & Kim, 2017 Tricco et al., 2017
Strong evidence demonstrates that participation by community-dwelling older adults in multicomponent group or home-based fall prevention physical activity and exercise programs can significantly reduce the risk of injury from falls, including severe falls that result in bone fracture, head trauma, open wound soft tissue injury, or any other injury requiring medical care or admission to hospital.	A	2018 Physical Activity Guidelines Advisory Committee (PAGAC), 2018
Strong evidence demonstrates that aerobic, muscle-strengthening, and multicomponent physical activity improves physical function in the general aging population.	A	PAGAC, 2018
Strong evidence demonstrates that physical activity improves several physical function outcomes, including walking, balance, strength, and disease-specific motor scores in individuals with Parkinson's disease.	A	PAGAC, 2018
Limited evidence suggests that for individuals with cognitive impairment, physical activity programs improve physical function, including measures of activities of daily living (ADLs).	B	PAGAC, 2018 Blumenthal et al., 2019 Erickson et al., 2019
Strong evidence demonstrates that physical activity improves measures of physical function in older people with frailty.	A	PAGAC, 2018
A = consistent, good-quality, patient-oriented evidence; B = inconsistent or limited-quality, patient-oriented evidence; C = consensus, disease-oriented evidence, usual practice, expert opinion, or case series. For information about the SORT evidence rating system, go to https://www.aafp.org/aafp/2004/0201/p548.html .		

SUMMARY

There is strong evidence from a variety of sources that increasing physical activity in older adults will improve health and quality of life in both healthy adults and those with chronic health conditions, in the community and in long-term care settings (Buttelli et al., 2021; Campbell et al., 2019; de Souto

Barreto, 2016; DiPietro et al., 2019; Hopewell et al., 2020; Kumbhare et al., 2019; Langhammer et al., 2018; Lee et al., 2017). Primary care providers can play an important role in promoting physical activity for all older adult patients at every visit, using an individualized approach. Resources are available to assist with this effort.

CASE STUDY

A. G., a 72-year-old man, comes in for follow-up of laboratory test results. He has coronary artery disease (CAD), hypertension (controlled), impaired fasting glucose (IFG), benign prostatic hyperplasia, and mild degenerative joint disease (DJD). Since being diagnosed with IFG he has cut back on soda consumption and is also seeing a dietitian for counseling. He is a former smoker (last use 12 years ago) and admits to being a “couch potato.” Current medications: Lisinopril 20 mg orally (PO) daily, hydrochlorothiazide 12.5 mg PO daily, simvastatin 20 mg PO daily in the evening, and tamsulosin 0.4 mg PO daily. He has a prescription for nitroglycerin 0.4 mg sublingually as needed for chest pain but has never needed to use it. He occasionally takes Tylenol Arthritis Pain or Aleve if the DJD bothers him. Vital signs are blood pressure (BP) 134/72, heart rate (HR) 70 (reg), respiratory rate 18 breaths per minute (bpm) (afebrile), and BMI 34.2. Pulse oximetry is 99% on room air. Laboratory test results are unremarkable except for high-density lipoprotein (HDL) 32 and fasting blood sugar (FBS) 125. Mr. G expresses frustration at the lack of

change in his fasting glucose despite cutting back on soda. He asks you, “What else can I do? I don’t want to get diabetes.” You encourage him to increase his physical activity level gradually, beginning with walking.

1. What strategies will you use to promote increased physical activity in this patient?
2. What additional objective data will you be assessing for?
3. What national guidelines are appropriate to consider?
4. Will you need to order any tests before he begins this program? If so, what tests?
5. Are there any screening tools that you want to use?
6. What is your plan of care?
7. Are there any *Healthy People 2030* objectives that you should consider?
8. What additional patient teaching may be needed?
9. How will you follow up on the planned increase in physical activity?

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ADDITIONAL RESOURCES FOR CLINICIANS

- <https://www.ncoa.org/article/exercise-programs-that-promote-senior-fitness>
- <https://www.ncoa.org/professionals/health/center-for-healthy-aging>
- <https://www.nia.nih.gov/health/how-older-adults-can-get-started-exercise#plan>
- <https://www.who.int/news-room/fact-sheets/detail/physical-activity>
- <https://www.cdc.gov/physicalactivity/basics/index.htm>
- <https://emedicine.medscape.com/article/88648-overview>
- <https://www.aafp.org/afp/2017/0401/p425.html>
- https://www.acsm.org/docs/default-source/publications-files/acsms-exercise-testing-prescription.pdf?sfvrsn=111e9306_4
- <https://www.exerciseismedicine.org/eim-in-action/health-care/health-care-providers/>