

Course Introduction

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Contact hours: 10

Course price: \$59

Course Summary

An overview of the effects of aging and appropriate responses to the issues arising from advancing age.

The following course information applies to occupational therapy professionals:

- Target Audience: Occupational Therapists, OTAs
- Instructional Level: Intermediate
- Content Focus: Category 1—Domain of OT, Client Factors
Category 2—Occupational Therapy Process, Outcomes

Criteria for Successful Completion

A score of 80% or higher on the post test, a completed evaluation form, and payment where required. No partial credit will be awarded.

Accreditation

To find specific accreditations or approvals, [click here](#).

Course Objectives

When you finish this course you will be able to:

1. Explain 2 ways in which ageism impacts healthy aging.
2. Identify the health disparities of 4 ethnic groups of older Americans.
3. Name 3 pieces of critical legislation in support of the elder population.
4. Summarize 4 models of elder care.
5. Summarize age-related changes for 5 of the body systems.
6. Explain 3 types of dementia.
7. Name 3 components of a health assessment for an older adult.
8. Identify 5 risks for falls and how they can be prevented.
9. List 3 ways of preventing inadvertent polypharmacy and drug misuse in elders.
10. State 8 tips for preventing elder abuse.
11. Examine 2 end-of-life care options related to advance directives.
12. Describe 4 obstacles to optimal caregiving in older adults' lives.

Instructions

Once you've finished studying the course material:

1. Record your test answers on the answer sheet.
2. Complete the course evaluation.
3. Complete your registration and payment*.

Mail the completed forms with your payment to:

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1. Healthy Aging and Ageism

Healthy aging is not about being free of disease or infirmity but about keeping those things well controlled when they do occur so they have as little influence as possible on wellbeing.

WHO, 2019

When we think about aging and elders, regrettably we tend to focus on what people *cannot* do instead of what they *can*. While healthcare professionals may see illness or infirmity in their aging patients, the goal should always be to enable the older person to regain meaning and ease in their life to whatever extent they are able.

Healthcare professionals are helping draw attention to the need for a sea change in how society views getting older, and being older. Life is a continuum, and the final years are as much a part of it as the early years. In recent decades, we have learned a lot about the physical and mental changes of age, and indeed about the capabilities of age that were once dismissed, but there is a disconnect between what we have learned and what society believes about aging.

One difference in perception between science and society has been characterized as **Embrace vs. Battle**:

While experts recognize that physical and cognitive challenges accompany the aging process for most adults, they also recognize that the older years bring new opportunities and capacities for growth, contribution and self-expression. Meanwhile, the public sees the aging process as something to be confronted—an obstacle to be overcome or an opponent to be battled (Lindland et al., 2015).

Everyone has heard that we have an **aging population** in the United States. In some ways our public misperceptions have affected planning as well as programs for this aging demographic. The reality is that the more actively we deal with it, the better off we will be as a society and as individuals. This is a public policy issue that we all can have a hand in improving (Lindland et al., 2015; FrameWorks, 2017).

Healthy Aging

Healthy aging takes account of the reality that there is *notypical* older person.

WHO, 2016

In its 2016 report, *Healthy Aging in Action: Advancing the National Prevention Strategy*, the National Prevention Council identified the overall goal of advancing healthy aging, defined as:

- Promoting health, preventing injury, and managing chronic conditions
- Optimizing physical, cognitive, and mental health
- Facilitating social engagement (NPC, 2016)

The report is intended to:

- **Support** prevention efforts to enable older adults to remain active, independent, and involved in their community
- **Highlight** innovative and evidence-based programs. . . that address the physical, mental, emotional, and social well-being issues that are often encountered in later life
- **Inform** future multi-sector efforts to promote and facilitate healthy aging in communities (NPC, 2016)

The World Health Organization (WHO) defines **healthy aging** as “the process of developing and maintaining the *functional ability* that enables well-being in older age.” Further, **functional ability** comprises the interaction of an individual’s intrinsic capacity (mental and physical capacities) with relevant environmental characteristics, or the capability to be and do what you value, including

- Meeting basic needs
- Learning, growing, and making decisions
- Being mobile
- Building and maintaining relationships

- Contributing to society (WHO, 2019)

Individual capacities may range from robust and active to care-dependent, even among people of identical age. The diversity of capacity in older people is in large measure the result of a cumulative lifetime of advantages and disadvantages that may include environment, family of origin, sex, ethnicity, education, and financial resources (WHO, 2019, 2018, 2017). Policies, whether international, national, state, local, or institutional need to address these realities in order to have the greatest positive impact on the older people they serve.

Ageism

Ageism might parallel. . . racism as the great issue of the next 20 to 30 years.

Butler, 1969

Ageism is stereotyping, prejudice, and discrimination on the basis of a person's age. It reflects the erroneous assumption that all people in a certain group (in this case, those over 60 or 65) are identical. WHO notes that ageism is both widespread and insidious and it has harmful effects on the health of older adults. It can affect their everyday life in areas such as employment, access to social services, and media stereotyping. Ageism marginalizes and excludes elders in the very communities in which they live, negatively affecting their health and well-being (WHO, 2019a,b; FrameWorks, 2017; Achenbaum, 2015).

Ageism is everywhere and is socially normalized more than either racism or sexism due to having fewer advocates who speak out against it. Like these other -isms, ageism serves underlying social and economic purposes that legitimize and sustain inequalities. Ageism manifests itself in prejudicial attitudes and in discriminatory policies and practices that reinforce stereotypes. It is evident in personal attitudes, public policy, and in all forms of media, including social media, television, movies, books, magazines, and news outlets, where coverage has at times been designed to pit younger and older against each other (WHO, 2019a,b; Achenbaum, 2015; Robbins, 2015).

Ageism has not been well studied historically and its origins and consequences have gone unexamined. This belies the fact that attitudes of ageism were seen for centuries, reaching back to Roman times and even Neolithic cultures. It is deeply ingrained in societies around the world, not just in the West (Achenbaum, 2015). Ironically, older adults can carry over these attitudes from their youth; for example, people in their eighties who "reject senior housing because they don't want to live with old people" (Burling, 2018).

In 2015 the American Society on Aging devoted an entire issue of its journal *Generations* to examining the problem of aging and its effects (ASA, 2015). That issue was inspired by a 2015 report by eight national organizations directly concerned with aging, including the American Society on Aging, AARP, the American Federation for Aging Research, the American Geriatrics Society, Grantmakers in Aging, the Gerontological Society of America, the National Council on Aging, and the National Hispanic Council on Aging (ASA, 2015; FrameWorks Institute, 2017). Collectively, the result of this report was a move to "reframe how the public views aging, so that improvements across services, policies, and opportunities for older adults can be perceived as not only possible but also desirable" (Robbins, 2015).

Ageism and Healthcare

If you've seen one 85-year-old, you've seen one 85-year-old.

Ouchida & Lachs, 2015

How does ageism affect health? How does it affect healthcare?

Research has shown that older adults with negative attitudes about themselves may have lifespans as much as 7.5 years shorter than those who hold positive attitudes. Low expectations about aging can be linked to lower levels of physical activity, poorer diets, and less use of preventive measures such as regular checkups, seatbelt use, and moderation of alcohol intake. In addition to improving lifespan, holding positive age stereotypes has been linked to a 44% greater likelihood of fully recovering from serious disability (Ouchida & Lachs, 2015).

Numerous research studies have confirmed that misperceptions about age are widely held in the healthcare field. In healthcare settings, ageism can result in both over-treatment and under-treatment. Knowledge and attitudes about aging can affect a provider's ability to distinguish normal age-related changes from illness or chronic disease, meaning

Ageism can take the form of a provider dismissing treatable pathology as a feature of old age, or treating expected changes of aging as though they were diseases. (Ouchida & Lachs, 2015; WHO, 2019b)

Pain is routinely under-treated in older adults, a situation exacerbated by the unfortunate dovetailing of patients' misperceptions of aging with those of their providers. Another common idea is that older adults are not sexually active, which means chances to address bothersome but easily treatable problems are missed, as are potentially serious diagnoses of sexually transmitted diseases, including HIV (Ouchida & Lachs, 2015).

Overtreatment is expensive

On the other hand, there are demonstrated problems of over-treatment, which, among other things, can incur unnecessary expense for patients and insurers, including Medicare. Unnecessary screenings, aggressive treatments not desired by patients, and excessive and potentially harmful medication use are among the issues of concern (Ouchida & Lachs, 2015).

The best place to begin addressing this problem may be with more effective communication between older patients and their healthcare providers. Providers obviously need to screen for cognitive and sensory impairment but it is important to begin with no assumptions. Speaking loudly or in an exaggerated way, or speaking to a caregiver as if the patient were not there, at all are perceived as demeaning by patients and have been demonstrated to impact care negatively. Even a third party's presence can have negative effects on patient well-being and should be allowed thoughtfully (Ouchida & Lachs, 2015; WHO, 2019b).

Deeply engrained ageism

Our deeply ingrained ageist thinking—and the tendency to deny our own aging—affect many issues related to quality of life for an aging population. Discrimination in the workplace affects economic well-being and mental and physical health. Lack of recognition, training, and support for caregivers, whether family members or paid helpers, can have long-term consequences for health. A failure to address the critical issue of long-term care is likely to haunt future thinking. Curiously, about 50% of Americans over age 40 think “almost everyone” is likely to require long-term care as they get older, yet only 25% believe they will need it! In reality, research shows that 70% of adults over 65 will require some type of long-term care (Blancato & Ponder, 2015).

Nationwide shortage of trained geriatricians is critical in healthcare. There are approximately 7,300 certified geriatricians practicing in the United States (as of 2015) and only 50% of those who are fellowship-trained are re-certifying. Even though fellowships have increased slightly, the number filled has remained the same. Not everyone needs to be a specialist, but most healthcare providers, especially nurses of all types plus OTs and PTs, will routinely work with older patients in the course of their regular practice—and better training will help everyone. In addition to more practitioners, more teachers need to inspire medical students to join the field (Ouchida & Lachs, 2015).

Excluding older adults who have multiple chronic illnesses from trials that help to establish **clinical practice guidelines (CPGs)** is another negative associated with ageism. CPGs help primary care providers and others to make treatment potentially safer and more effective for the patient (Ouchida & Lachs, 2015).

Clearly, healthy aging and combating ageism is a multi-faceted challenge that requires a new way of looking at how we live—in our homes, our communities, our larger society, and even the world. There are many options for changing and improving lives that require the cooperation of everyone—individuals (regardless of age), community groups, governments at all levels, and, of course, all members of the healthcare profession.

Healthy Aging Actions to Advance the National Prevention Strategy



Chart is a simplified version of the chart on p.19 of Healthy Aging in Action: Advancing the National Prevention Strategy. The complete chart is available at <https://www.cdc.gov/aging/pdf/healthy-aging-in-action508.pdf>

2. Demographics of Aging

By the year 2050, worldwide there will be 2 billion people over 60 years old, nearly double the number in 2015. Eighty percent of them will live in low- and middle-income countries (WHO, 2019a, 2018).

In the ten years from 2006 to 2016, the U.S. population age-65-and-over increased from 37.2 million to 49.2 million (a 33% increase) and is projected to almost double to 98 million in 2060. The 85-and-over population is projected to more than double by 2040, growing 6.4 million in 2016 to 14.6 million—a 129% increase. Racial and ethnic minority populations have been increasing their percentage of the older population and will continue to do so (ACL, 2018).

Population Aging

Population aging strains social insurance and pension systems and challenges existing models of social support. It affects economic growth, trade, migration, disease patterns and prevalence, and fundamental assumptions about growing older.

NIA, 2017

Population aging has been defined as the “increasing share of older persons in the population” (WHO, 2015); most sources add that it is due to declines in fertility and increases in life expectancy (Roberts et al., 2018; Nikolova, 2016), and others refer to the effects in the United States of the Baby Boom generation. Overall, these are simple definitions for a phenomenon far more complex in its dynamics and consequences.

A data picture is useful if we don't let a crush of numbers mask the implications and challenges. In contrast to the rapid growth of the older population forecast for the United States in the period to 2050, there will be almost flat growth of the youth population (those under age 20) and a moderate increase in those age 20 to 64 (the working-age population (Roberts et al., 2018).

U.S. on track to have oldest population

The older population is not just growing in the United States but also, at varying levels, across world regions including, Africa, Asia, Europe, Latin America, the Caribbean, Oceania, and the rest of North America. Europe is currently the oldest region, and by 2050 its older population will be 25% of the total. However, the older population of Asia and Latin America/Caribbean will grow fastest of all regions. Africa will remain relatively younger due to high fertility rates despite significant growth of its older population. At 2050 the United States is expected to be the second oldest region, with 21.4% of its total population age 65 or older (Roberts et al., 2018).

A Picture from Data

Based on Census Bureau data for 2016 in the United States, more than half the older population was age 65 to 74 and more than half of them were female. That disparity increases with age due to the higher life expectancy of females. (Note: this is often expressed as the **sex ratio**, which is the number of males per 100 females.)

Some highlights from the Census Bureau report include:

- The older population was largely white, especially so at older ages, with 81% of the population 85 and older white, compared with 61% white for the overall U.S. population.
- Although most of the older population had been married at some point in their lives, a majority of older females (72%) were widowed by the age of 85 and older, while more than half of their male counterparts were still married.
- The likelihood of living in a family household diminished with age from 73% among people aged 65 to 74, to 48% for those 85 and older; conversely, people living alone almost doubled from 22% for the former age group to 39% for the latter.
- About 9 out of 10 older whites and blacks were born in the United States compared with about 4 out of 10 Hispanics and 1 out of 10 Asians, a reflection of the groups' migration experiences.
- The proportion of the older population who had a computer at home ranged from 58% among individuals 85 and older to 87% among those 65 to 74 years old, with a similar pattern for Internet access: 55% for the former and 83% for the latter.

- The proportion of the older population with some disability increased with age, with the highest percentage having serious difficulty walking or climbing stairs among people 85 and older (48%).
- Labor force participation decreased with age, but more males than females remained in the labor force.
- The most common type of household income received in the past 12 months among the population 65 and older was Social Security (90%), received most by those 85 and older (94%).
- Women 85 and older had the highest poverty rate (13%) among the older population, higher than their male counterparts (8%), and rivaling men (13%) and women (15%) in the general population (Roberts et al., 2018).

Each of these items highlight issues that can come into play in personal, social, and healthcare interactions for the older members of the population—income, education, living situation, migration patterns that might affect language barriers, disability status, understanding of and access to computers and the Internet, among others.

The significance of race and ethnic data is that it points us to the critical issue of health disparities.

Health Disparities

Health disparities related to race, ethnicity, socioeconomic status, gender, and sexual orientation, among others, compound health problems that can occur with age.

National Prevention Council, 2016

Health disparities are “differences in health outcomes and their determinants between segments of the population, as defined by social, demographic, environmental, and geographic attributes,” while **health equity** is achieved when everyone has the opportunity to be as healthy as possible (CDC, 2016a,b).

To obtain high-quality care, Americans must first gain entry to the healthcare system. Measures of access to care tracked in the Agency for Healthcare Research and Quality’s (AHRQ) **National Healthcare Quality and Disparities Report (QDR)** include having health insurance, having a usual source of care, encountering difficulties when seeking care, and receiving care as soon as wanted. Historically, Americans have experienced variable access to care based on race, ethnicity, socioeconomic status, age, sex, disability status, sexual orientation, gender identity, and residential location. Trends show that, although some gaps are getting smaller, disparities remain (AHRQ, 2017).

Minority Health Disparities (Johns Hopkins University)

<https://www.youtube.com/watch?v=vIVZKZNXyBA>

Health disparities are preventable differences in the burden of disease, injury, violence, or in opportunities to achieve optimal health experienced by socially disadvantaged racial, ethnic, and other population groups and communities. Health disparities exist in all age groups, including older adults. Even though life expectancy and overall health have improved in recent years for most Americans, not all older adults are benefitting equally because of factors such as economic status, race, and gender (CDC, 2017c).

Person-centered care is most improved

The AHRQ’s QDR looks at strengths and weaknesses in access and in quality, and it also looks at health disparities. In regard to access, 43% of access measures showed improvement (2000–2016), 43% did not show improvement, and 14% worsened. Quality improved overall from 2000 through 2014–2015 but the pace of improvement varied by priority area: person-centered care, patient safety, healthy living, effective treatment, care coordination, and care affordability. Person-centered care showed improvement in the greatest number of care measures (70%) (AHRQ, 2017).

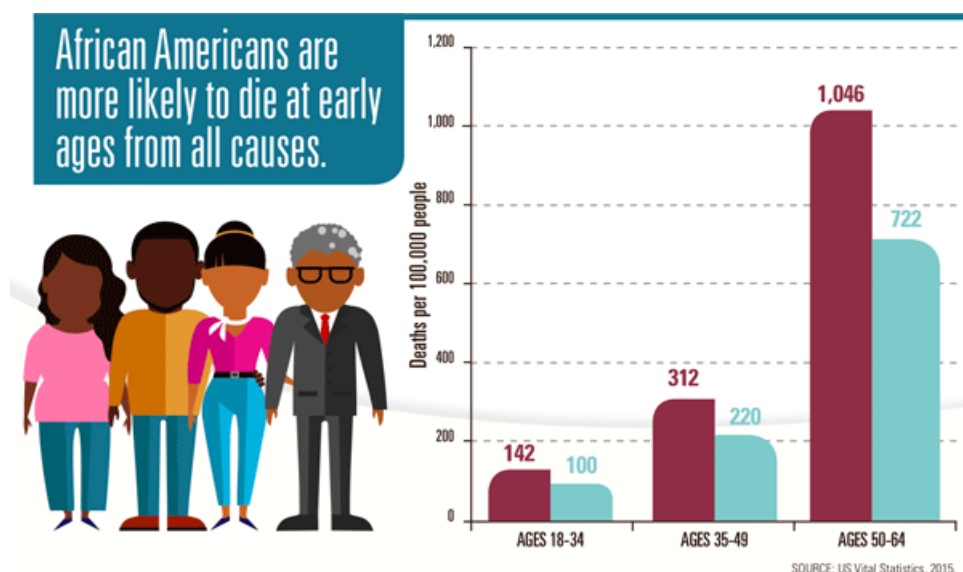
The quality of healthcare is evaluated through more than 250 individual quality measures that fall into the six priority areas. Disparities were identified by comparing measures in regard to race/ethnicity, income, and status. Overall, some disparities were getting smaller from 2000 through 2014–2015, but they persist, especially for poor and uninsured groups in all the six quality priority areas (AHRQ, 2017).

Hispanics

Data for the most recent year show that disparities remain for nearly 33% of quality measures for Hispanics. Overall, about 60% of quality measures improved for Hispanics. The gap between Hispanics and non-Hispanic whites remained the same for 80% of measures, getting smaller for 20%.

African Americans

Data for the most recent year show that disparities remain for about 40% of quality measures for blacks. The largest disparities for blacks compared with whites include: rate of new HIV cases per 100,000 over age 13; rate of HIV infection deaths per 100,000; rate of adults with potentially avoidable hospital admissions for hypertension per 100,000. Overall, 55% of quality measures improved for blacks. The gap between blacks and whites remained the same for 75% of measures with 3 measures showing an increasing gap.



Vital Signs p.2 (<https://www.cdc.gov/vitalsigns/pdf/2017-05-vitalsigns.pdf>)

Asians

Data for the most recent year show that disparities remain for about 20% of quality measures for Asians. The largest disparities for Asians compared with whites were in patient safety and person-centered care. Overall, 60% of quality measures improved for Asians. The gap between Asians and whites remained the same for 90% of measures with 3 show a decreasing gap.

American Indians and Alaska Natives

Data for the most recent year show that disparities remain for about 30% of quality measures for AI/ANs. Overall, 35% of quality measures improved for AI/ANs. Disparities persist with the gap with whites remaining the same for about 90% of measures, although 2 did show a decreasing gap.

Native Hawaiians and Pacific Islanders

Data for the most recent year show that disparities remain for nearly 33% of quality measures for NHPIs. Trends show about 25% of quality measures improving over time for NHPIs. The gap with Whites remained the same for all but one measure.

Older Adults

The brief look above at health disparities by racial and ethnic groups is just one category in which health disparities are identified. Others include age, gender, sexual orientation, disability status, socioeconomic status, and geographic location. While many of these accompany a person throughout life, joining the “older population” adds a new element for an individual to manage in regard to staying healthy and obtaining appropriate healthcare when needed.

Value of a lifecycle focus

Effects of change can sometimes be bidirectional, as for example when poor health leads to a decline in socioeconomic status. In other cases, certain social contexts such as geography, family, neighborhoods, and schools moderate the effects of race, education, or social class on health outcomes. Additional research is ongoing and much needed in regard to health disparities, and the value of a lifecycle focus is becoming evident (NIA, 2016).

Oral health is a glaring health disparity for older adults that is often overlooked. The National Prevention Council notes that more than 37% of adults age 65 and older have not had a dental visit in the preceding 12 months—a fact borne out by an AARP survey conducted in late 2018 that noted 16% had not seen a dentist in over 5 years (NPC, 2016; AARP, 2019).

Medicare does not provide dental coverage for beneficiaries and many older adults cannot afford to pay outright for dental care or for dental insurance. The AARP survey found that the vast majority of older adults value good oral care and are not happy being unable to obtain it. In fact, 62% said they would be willing to pay additional Medicare premiums if a dental benefit was added (AARP, 2019).

Poor oral health can have a negative effect on general well-being and research has shown a clear connection with chronic diseases and conditions prevalent among older adults, including diabetes and heart disease. Older adults often either have no dental insurance or it is not adequate. For those who may have had other factors contributing to poor oral health when they were younger the situation may worsen (NPC, 2016; AARP, 2019).

Minorities most at risk as they age

Older adults who are members of a racial or ethnic minority or have a lower socioeconomic status are more likely to have certain chronic diseases, and non-Hispanic whites and blacks at age 65 on average live 1 year less than Hispanics who have reached age 65. Lesbian, gay, and bisexual elders have higher rates of disability, cardiovascular disease, obesity, and depression than do older heterosexual people (NPC, 2016).

For older adults already experiencing health disparities, changed situations that accompany aging can make their situation worse. A restricted retirement income that leads to a more isolated living situation, or the development of a disability, will exacerbate other factors already in play. Healthcare providers have an important role in identifying and addressing disparity issues in older adults and should be provided with the necessary education and training to do this (NPC, 2016).

Lesbian, Gay, Bisexual, and Transgender Americans

[This section is taken from healthypeople.gov, 2019.]

LGBT individuals encompass all races and ethnicities, religions, and social classes. Sexual orientation and gender identity questions are not asked on most national or state surveys, making it difficult to estimate the number of LGBT individuals and their health needs.

Research suggests that LGBT individuals face health disparities linked to societal stigma, discrimination, and denial of their civil and human rights. Discrimination against LGBT persons has been associated with high rates of psychiatric disorders, substance abuse, and suicide. Experiences of violence and victimization are frequent for LGBT individuals, and have long-lasting effects on the individual and the community. Personal, family, and social acceptance of sexual orientation and gender identity affects the mental health and personal safety of LGBT individuals.

The LGBT companion document to Healthy People 2010 highlighted the need for more research to document, understand, and address the environmental factors that contribute to health disparities in the LGBT community. As part of this work, we need to increase the number of nationally representative health-related surveys that collect information on **sexual orientation and gender identity (SOGI)**.

Eliminate LGBT health disparities

Eliminating LGBT health disparities and enhancing efforts to improve LGBT health are necessary to ensure that LGBT individuals can lead long, healthy lives.

The many benefits of addressing health concerns and reducing disparities include:

- Reductions in disease transmission and progression
- Increased mental and physical well-being
- Reduced healthcare costs
- Increased longevity

Efforts to improve LGBT health include:

- Collecting SOGI data in health-related surveys and health records in order to identify LGBT health disparities
- Appropriately inquiring about and being supportive of a patient's sexual orientation and gender identity to enhance the patient-provider interaction and regular use of care
- Providing medical students with training to increase provision of culturally competent care
- Implementing anti-bullying policies in schools
- Providing supportive social services to reduce suicide and homelessness among youth

- Curbing human immunodeficiency virus (HIV)/sexually transmitted infections (STIs) with interventions that work

To address LGBT health issues effectively, we must securely and consistently collect SOGI information in national surveys and health records. This will allow researchers and policy makers to accurately characterize LGBT health and disparities.

Understanding LGBT health starts with understanding the history of oppression and discrimination that these communities have faced. For example, in part because bars and clubs were often the only safe places where LGBT individuals could gather, alcohol abuse has been an ongoing problem.

Social determinants affecting the health of LGBT individuals largely relate to oppression and discrimination. Examples include:

- Legal discrimination in access to health insurance, employment, housing, marriage, adoption, and retirement benefits
- Lack of laws protecting against bullying in schools
- Lack of social programs targeted to and/or appropriate for LGBT youth, adults, and elders
- Shortage of healthcare providers who are knowledgeable and culturally competent in LGBT health

The physical environment that contributes to healthy LGBT individuals includes:

- Safe schools, neighborhoods, and housing
- Access to recreational facilities and activities
- Availability of safe meeting places
- Access to health services

LGBT health requires specific attention from healthcare and public health professionals to address a number of disparities, including the following:

- LGBT youth are 2 to 3 times more likely to attempt suicide.
- LGBT youth are more likely to be homeless.
- Lesbians are less likely to get preventive services for cancer.
- Gay men are at higher risk of HIV and other STDs, especially among communities of color.
- Lesbians and bisexual females are more likely to be overweight or obese.
- Transgender individuals have a high prevalence of HIV/STDs, victimization, mental health issues, and suicide and are less likely to have health insurance than heterosexual or LGB individuals.
- Older LGBT individuals face additional barriers to health because of isolation and a lack of social services and culturally competent providers.
- LGBT populations have the highest rates of tobacco, alcohol, and other drug use.

A number of issues will need to continue to be evaluated and addressed over the coming decade, including:

- Nationally representative data on LGBT Americans
- Prevention of violence and homicide toward the LGB community, and especially the transgender population
- Resiliency in LGBT communities
- LGBT parenting issues throughout the life course
- Elder health and well-being
- Exploration of sexual/gender identity among youth
- Need for a LGBT wellness model
- Recognition of transgender health needs as medically necessary

3. Legislation Supporting Elders

More than 11 million people served, 145 million meals paid for, and 10.6 million hours of adult daycare were subsidized by OAA in 2016.

AARP Bulletin, April 2019

Older Americans Act

[This section is taken from acl.gov, 2017, 2017a.]

Older American Act (OAA), 1965

Congress passed the Older Americans Act (OAA) in 1965 to address a lack of community social services for older persons. The original legislation established authority for grants to states for community planning and social services, research and development projects, and personnel training in the field of aging. The law also established the Administration on Aging (AoA) to administer the newly created grant programs and to serve as the federal focal point on matters concerning elders (ACL, 2017).

Although older individuals may receive services under many other federal programs, today the OAA is considered to be a major vehicle for the organization and delivery of social and nutrition services to this group and their caregivers. It authorizes a wide array of service programs through a national network of agencies on aging, service providers, and tribal organizations. The OAA also includes community service employment for low-income older Americans; training, research, and demonstration activities in the field of aging; and vulnerable elder rights protection activities (ACL, 2017).

The OAA has been amended and reauthorized many times in the intervening years, with a number of significant changes made in 2006, embedding the principles of consumer information for long-term care planning, evidence-based prevention programs, and self-directed community-based services to older individuals at risk of institutionalization (ACL, 2017).

In 2016 OAA reauthorized programs for FY 2017 through FY 2019. Among the many changes were provisions aiming to protect vulnerable elders by strengthening the **Long-Term Care Ombudsman** program (see below) and elder abuse screening and prevention efforts. It promoted delivery of evidence-based programs, such as those for falls prevention and chronic disease self-management programs. It also required the Assistant Secretary for Aging to issue guidance for states who are serving Holocaust survivors (ACL, 2017, 2017a).

OAA identifying current health needs

The OAA is currently (2019) up for reauthorization and supporters are hoping this time it will not take five years, as did the previous one. In addition to continuing support for fighting elder abuse, supporting aging-in-place programs, supporting caregivers, providing jobs for the needy, focusing on policy supporting an older population, and setting up advocacy agencies, supporters would like to see more food programs, more support for caregivers, more resources to fight Alzheimer's disease, and pilot programs for transportation alternatives for older Americans (AARP, 2019b).

Long-Term Care Ombudsman Program

[This section is taken from acl.gov, 2019.]

Authorized under Title VII, Chapter 2, Sections 711/712 of the OAA, the States' Long-Term Care Ombudsman programs work to resolve problems related to the health, safety, welfare, and rights of individuals who live in LTC facilities, such as nursing homes, board and care, and assisted living facilities, as well as other residential care communities. Ombudsman programs promote policies and consumer protections to improve long-term services and supports at the facility, local, state, and national levels.

Begun in 1972 as a demonstration program, today the Ombudsman program operates in all states, the District of Columbia, Puerto Rico and Guam, under the authorization of the OAA. Each state has an Office of the State LTC Ombudsman, headed by a full-time State LTC Ombudsman who directs the program statewide. Ombudsmen designate

staff and thousands of volunteers as representatives to directly serve residents.

The OAA requires Ombudsman programs to:

- Identify, investigate, and resolve complaints made by or on behalf of residents;
- Provide information to residents about LTSS;
- Ensure that residents have regular and timely access to ombudsman services;
- Represent the interests of residents before governmental agencies and seek administrative, legal, and other remedies to protect residents; and
- Analyze, comment on, and recommend changes in laws and regulations pertaining to the health, safety, welfare, and rights of residents (ACL, 2019)

There are other support services and programs for older adults, including those for elders who have Alzheimer's Disease and other dementias and for their caregivers. Comprehensive information on all of these can be found on the Administration for Community Living website, which is the overarching entity that includes the Administration on Aging (AoA).

Elder Justice Act

[This section is taken from [acl.gov](https://www.acl.gov), 2017b.]

The Elder Justice Act was passed in 2010 and is the first comprehensive legislation to address the abuse, neglect, and exploitation of older adults at the federal level. The law authorized a variety of programs and initiatives to better coordinate federal responses to elder abuse, promote elder justice research and innovation, support Adult Protective Services systems, and provide additional protections for residents of long-term care facilities.

The Elder Justice Act established the Elder Justice Coordinating Committee to coordinate activities related to elder abuse, neglect, and exploitation across the federal government. It is also a source of authority for ACL programs and activities that include:

- Elder Abuse Prevention Intervention Demonstrations (PPHF)
- Elder Justice Innovation grants
- State grants to enhance Adult Protective Services
- Voluntary consensus guidelines for State APS Systems
- National Adult Maltreatment Reporting System (NAMRS) (ACL, 2017b)

Caregiver Advise, Record, Enable (CARE) Act

This model legislation first proposed in 2016 by AARP and promoted by its state offices has now become state law in 42 states and territories. It requires identification, notification, and education of family caregivers of individuals who are hospitalized (AARP, 2016). It is discussed in more detail in the section on Caregivers at the end of this course.

4. Models of Care

Aging in place is the ability to live in one's own home and community safely, independently, and comfortably regardless of age, income, or ability level.

CDC, 2008

In 2008 the Institute of Medicine (now the National Academy of Medicine) published a comprehensive report entitled *Retooling for an Aging America: Building the Health Care Workforce*. That report was intended to bring the population aging reality to public attention, especially in terms of the coming need to

- Enhance the geriatric competence of the entire workforce
- Increase the recruitment and retention of geriatric specialists and caregivers
- Improve the way care is delivered

As part of improving care delivery it sent out a call for new models of care and payment options to replace models that were not working. Finally, the report emphasized the need to empower individual patients and their families to be informed and remain active in their own healthcare. Unfortunately, most of the workforce needs are still acute, but there are some important models of care being successfully pursued (NAM, 2008; Rowe et al., 2016).

A number of successful community-focused living models are following two general paths: formal programs managed by an agency or other entity and intended to serve the needs of low-income seniors; and organized but less formal models of supportive organizations that, while open to all income levels, are helping fill the gap for middle-income seniors who wish to age in place but are being priced out of options (Goldstein, 2017; McCabe, 2019, 2018; Parker, 2019).

Program of All-Inclusive Care for the Elderly (PACE)

[This section is taken from [medicaid.gov](https://www.medicaid.gov), n.d., n.d.-a.]

The **Programs of All-Inclusive Care for the Elderly (PACE)** provide comprehensive medical and social services to certain frail, community-dwelling elders, most of whom are dually eligible for Medicare and Medicaid benefits. In 1973 a San Francisco nonprofit started a program to help meet the needs of a growing cohort of older immigrants in Chinatown who did not want to be institutionalized away from their families in places where, among other things, no one spoke any Chinese languages. The day program founded as On Lok Lifeways eventually became the national PACE (Goldstein, 2017).

PACE model of care

An interdisciplinary team of health professionals provides PACE participants with coordinated care. For most participants, the comprehensive service package enables them to remain in the community rather than receive care in a nursing home or other care facility. Financing for the program allows providers to deliver all services participants need rather than limit them to those reimbursable under Medicare and Medicaid fee-for-service plans. The PACE model of care is established as a provider in the Medicare program and as such enables states to provide PACE services to Medicaid beneficiaries as a state option. The PACE program becomes the sole source of Medicaid and Medicare benefits for PACE participants.

Individuals can join PACE if they meet certain conditions:

- Age 55 or older
- Live in the service area of a PACE organization
- Need a nursing home-level of care (as certified by the state)
- Able to live safely in the community with help from PACE

The PACE program becomes the sole source of services for Medicare and Medicaid eligible enrollees. Individuals can leave the program at any time.

PACE benefits include, but are not limited to, all Medicaid and Medicare covered services:

- Adult daycare
- Dentistry
- Emergency services
- Home care
- Hospital care
- Laboratory/x-ray services
- Meals
- Medical specialty services
- Nursing home care
- Nutritional counseling
- Occupational therapy
- Physical therapy
- Prescription drugs (takes the place of a Part D plan)
- Primary care (including doctor and nursing services)
- Recreational therapy
- Social services, includes caregiver training, support groups, and respite care
- Social work counseling
- Transportation to PACE center and medically necessary appointments

PACE also includes all other services determined necessary by the healthcare professional team to improve and maintain an individual's health. PACE programs provide services primarily in an adult day health center and are supplemented by in-home and referral services in accordance with the enrollee's needs.

Since comprehensive care is provided to PACE participants, individuals who need end-of-life care will receive the appropriate medical, pharmaceutical, and psychosocial services. If the individual wants to elect the hospice benefit, they must voluntarily disenroll from the PACE program.

An interdisciplinary team, consisting of professional and paraprofessional staff, assesses an enrollee's needs, develops care plans, and delivers all services (including acute care services and, when necessary, nursing facility services).

Minimally, the team is composed of a:

- Dietician
- Driver
- Homecare liaison
- Nurse
- Occupational therapist
- PACE center supervisor
- Personal care attendants
- Physical therapist
- Primary care physician
- Recreational therapist or activity coordinator
- Social worker

The interdisciplinary team meets to ensure that the comprehensive medical and social needs of each participant are met. Teams typically meet daily to discuss the status of participants. Enrollees may be required to use a PACE-preferred doctor and will get the majority of their care from staff of the PACE organization in the PACE center. The PACE program is intended to place the focus on patients who then have a team that knows them and works closely with them and their family.

A PACE organization is a non-profit private or public entity that is primarily engaged in providing PACE healthcare services. To qualify for PACE, organizations must have:

- A governing board that includes community representation
- A physical site to provide adult daycare services
- A defined service area
- The ability to provide the complete service package regardless of frequency or duration of services
- Safeguards against conflict of interest
- Demonstrated fiscal soundness

Enrollment in the PACE program is voluntary. If an individual meets the eligibility requirements and elects PACE, then an enrollment agreement is signed. Enrollment continues as long as desired by the individual, regardless of change in health status, until voluntary or involuntary disenrollment.

PACE providers receive monthly Medicare and Medicaid capitation payments for each enrollee. Medicare enrollees who are not eligible for Medicaid pay monthly premiums equal to the Medicaid capitation amount, but no deductibles, coinsurance, or any other type of Medicare or Medicaid cost-sharing. Persons who do not have Medicare or Medicaid can pay for PACE privately.

Geriatric Resources for Assessment and Care of Elders (GRACE)

Featured on the Agency for Healthcare Research and Quality (AHRQ) Priorities in Action website are several dozen programs across the country that align with the National Quality Strategy's (NQS) six priorities. A number of these programs benefit older adult patients, one in particular is **GRACE Team Care** (AHRQ, 2017).

Patients receiving medical care in today's complex health system often interact with many physicians, nurses, medical assistants, and other trained professionals across multiple care settings—a situation especially true for the sickest populations. The Centers for Disease Control and Prevention (CDC) recently estimated that 25% of the U.S. population has multiple chronic conditions—a number that rises to 75% of adults over age 65. Treatment costs for Americans with multiple chronic conditions account for nearly 70% of the Nation's annual healthcare costs (AHRQ, 2017a).

GRACE teams address multiple chronic conditions

Successful delivery of coordinated care among healthcare providers has been shown to improve healthcare quality and outcomes and to decrease healthcare costs. Early studies of new care delivery models prominently featured in the Patient Protection and Affordable Care Act (ACA), including patient-centered medical homes and accountable care organizations, show promise for rapidly advancing the quality of coordinated healthcare delivered to Americans with multiple chronic conditions by restructuring patients' relationships with their primary care physicians (AHRQ, 2017a).

More than a decade ago, the Indiana University School of Medicine's Center for Aging Research developed and implemented a program known as **Geriatric Resources for Assessment and Care of Elders (GRACE)** Team Care. Researchers developed the model to assist primary care physicians working with low-income seniors who have multiple chronic conditions to optimize health and functional status, decrease excess use of healthcare services, and prevent unnecessary long-term nursing home placement.

When an elder enrolls in a GRACE Team Care program, he or she receives a comprehensive in-home assessment performed by a nurse practitioner and social worker (the GRACE Support Team). This team is responsible for coordinating ongoing care for the person and it brings information learned at the in-home assessment back to an expanded GRACE team, which is led by a geriatrician and includes a pharmacist and mental health liaison who is typically a licensed clinical social worker. This larger interdisciplinary team puts together a carefully tailored care plan based on evidence-based care protocols for 12 common geriatric conditions ranging from proper medication management to vision and mobility issues to depression. If it turns out that patients have experienced many falls in the past, they will receive recommendations about stopping medications that might contribute to falls, have their vision checked, and receive a physical therapy referral for strength and balance exercises. Lessons on how to avoid falls and how to recover if they occur are also provided (AHRQ, 2017a).

After the expanded team develops a care plan for the enrollee, the support team meets with the patient's primary care physician to review and discuss the plan. Once the plan is finalized, the support team performs a second in-home visit to align the care plan with the person's individual goals and preferences and to work out logistics with the person and caregivers (AHRQ, 2017a).

GRACE enrollees are seen by their GRACE Support Team as needed to implement the care plan and provide ongoing care management. Enrollees are contacted by phone by their care team at least once a month, and after any hospitalizations or emergency department (ED) visits, the support team will do additional home visits. The larger interdisciplinary team meets to review the person's care plan and determine if any changes need to be made and if anything could have been done by the team to prevent the patient's hospitalization. Prearranged reviews of the care plan are built into the model at 3 and 6 weeks as well as 3, 6, 9, and 12 months (AHRQ, 2017a).

Focus on care transitions

A particular focus of the model is on care transitions, which can cause serious issues for senior citizens with multiple chronic conditions. The team nurse practitioner and social worker serve as advocates for the person receiving care, whatever the location. If an enrollee is admitted to the hospital, the GRACE Support Team communicates the person's baseline status, healthcare goals, and care plan to the hospital staff and informs the patient's primary care physician of their hospital admission. The team collaborates with hospital staff to develop an effective care transition plan before the patient's discharge and then ensures that the plan is fully implemented. The nurse practitioner also reconciles medications and provides the patient with easy-to-understand medication instructions (AHRQ, 2017a).

For patients admitted to a nursing home, the GRACE team communicates relevant health information and care with the nursing home physician. A long-term goal of the GRACE model is to have the patient return home from hospitalization of any sort with adequate support, both to promote the patient's happiness and well-being and to save on high-cost nursing home and acute care services (AHRQ, 2017a).

Several clinical studies confirmed the efficacy of the model, demonstrating that high-risk seniors enrolled in GRACE had fewer hospitalizations, hospital readmissions, and ED visits, as well as reduced hospital costs. A cost analysis of the intervention found that, for high-risk patients, increases in chronic and preventive care costs were offset by reductions in acute care costs. In the year after the intervention ended, the model continued to reduce costs for those enrolled. The GRACE model also received high ratings by physicians for effectively meeting the needs of older patients, and better ratings on quality indicators for both general health and geriatric conditions. Quality-of-life ratings were also higher for GRACE patients (AHRQ, 2017a; Counsell et al., 2006, 2007).

GRACE model succeeds with elders

The model's successes, demonstrated in peer-reviewed journal articles and clinical trials, has led to implementation of the model in organizations across the country. A study published in February 2016 in *PLoS One* took key facets of the GRACE Team Care model and expanded the patient pool to include younger patients with multiple chronic conditions in a major urban academic medical center. Evaluation of the adapted care model found significant declines in the median number of ED visits and hospitalizations, as well as increases in the number of enrollees reporting better self-health. It has also been used successfully in a Veterans Affairs medical center (AHRQ, 2017a; Ritchie et al., 2016; Schubert et al., 2016).

Since its initial implementation at Indiana University, GRACE Team Care has been adapted to fit a wide variety of patient populations with multiple chronic conditions, across diverse healthcare settings, while maintaining positive results with regard to patient and caregiver satisfaction, healthcare quality indicators, and healthcare service utilization. The Indiana University team behind GRACE Team Care currently offers a variety of technical assistance tools and support options for organizations and healthcare systems looking to implement the model (AHRQ, 2017a).

Virtual Villages

I am in considerable denial about my own future. What you can do for me is, don't protect me from the truth.

Member of San Francisco Village, AARP, 2015

At a time when 90% of older adults express interest in "aging in place," yet both the costs of doing so and the costs of care alternatives can be prohibitive, the idea of **Virtual Villages**, which first took hold about 20 years ago, is proving popular and successful. Virtual Villages first got started in 1999 in the Beacon Hill area of Boston and the first village—Beacon Hill Village—formally began accepting members in 2002 (AARP, 2015, 2015a; Beacon Hill Village, 2019).

Today there are more than 200 villages in operation and at least 150 more in development. Grassroots and usually nonprofit Virtual Villages can be found in 45 states and Washington, DC. They are not "virtual" in the online sense but in the sense that they are not tied to a traditional municipal borderline, although they do limit themselves to geographical areas that are manageable for their purposes. The majority serve urban or suburban areas with about 13% serving rural and another 16% serving mixed areas (Graham et al., 2017; McCabe, 2018; Village to Village Network, 2019).

Most Villages are membership organizations with annual dues that average \$431 (individual) and \$601 (household) but range from \$0 to \$900 for individuals and \$0 to \$1,309 for household memberships. These ranges reflect the fact that many Villages offer discounts for lower-income members. In a survey done in 2016 the average number of members in a Village was 146, up slightly from the previous survey in 2012 (Graham et al., 2017).

The demographics of the surveyed Villages (about 74% of the total in existence) provide some interesting information. Age ranges are estimated to be: 13% age 64 or younger, 35% 65–74, 36% 75–84, and 22% 85 or older. Only 4% of Villages restrict membership to those over age 65 and 10% are open to all ages; the rest fall somewhere in between.

Other membership details are illuminating:

- 11% non-white
- 32% male
- 13% economically vulnerable
- 9% impoverished
- 9% have severe illness or chronic disability
- 7% LGBTQ

About 67% of Villages reported a variety of deliberate efforts to diversify membership to attract more younger members, ethnic minorities, sexual minorities, and male members. Recruitment efforts had increased since the 2012 survey but had not resulted in significant changes in membership of underrepresented groups (Graham et al., 2017).

Virtual Villages allow aging in place

The guiding purpose of Virtual Villages is to enable elders to age in place. This is accomplished with services provided by Village staff and/or volunteers, depending on each Village's structure, or through referrals to preferred providers. The former often includes hosting social events, providing transportation, educational events or classes, companionship, technology assistance, shopping, information and referral services, home repair or maintenance, and health promotion programs. Outside providers are vetted by the Village and most often address home modification or safety assessments, home care or personal care, care coordination or social services, health promotion programs, gardening services, and technological assistance. Services vary depending on the size and talents of staff and volunteer base as well as the needs of members (Graham et al., 2017).

The future of Virtual Villages will be determined by further observation and research. The concept continues to remain popular and the number of Villages to grow. Most belong to the Village-to-Village Network, which provides mentoring and support before and after start up. Villages also tend to collaborate with regional organizations. At one time it was thought that Villages would do better if developed within an agency but that has not proven to be correct.

As Villages evolve, services provided are adjusted, what they do and who they serve is more closely defined, and issues of membership and diversity, structure and rules, staffing, volunteer support, and economic sustainability continue to be addressed (Aging in Action, 2012; Graham et al., 2017; Village to Village Network, 2019).

Naturally Occurring Retirement Communities (NORCs)

Similar to and yet different from Virtual Villages is the idea of **naturally occurring retirement communities** or **NORCs**. NORCs are usually administered by a lead social service agency and center on a residential area, such as a specific apartment building, apartment complex, or neighborhood. These are areas that were not planned as retirement housing but have evolved to have high concentrations of older adults in residence (Aging in Action, 2012; Goldstein, 2017).

NORCs like Virtual Villages

The NORC model can be traced to a program developed in New York city in the mid-1980s. An astute hospital social worker realized that the nearby South Penn high-rise apartment complex was home to many seniors who were often seen at the hospital for things that could be more effectively managed with preventive care. In conjunction with residents and the complex's board of directors she developed a program that allowed a geriatric nurse practitioner and herself to be based at the complex and organize a range of health and social services (Goldstein, 2017).

Like Virtual Villages, NORCs support aging in place by providing services that promote and maintain healthy aging. They tend to be established by governments and nonprofits and underwritten with government funds and local philanthropy, and they utilize significant numbers of volunteers from both members and outsiders. Services most commonly include transportation, social activities, help arranging home healthcare and housekeeping services, and mental health and bereavement counseling (Goldstein, 2017; Parker, 2019).

Social activities and engagement can include all sorts of things—yoga and tai chi, English classes, workshops and lectures, supper clubs, trips to the theater, shopping, or a staff person's translation services at medical appointments or help with insurance and Medicare forms and other bureaucracy. As with Virtual Villages, the services evolve to meet the needs of the members of an individual NORC. Often the highest need is for transportation, especially for the oldest individuals. Just having that service provided consistently and safely can mean the difference between healthy aging in place and ending up in an institution the person does not want to be in, at a higher cost to them and/or to Medicare or other programs (Goldstein, 2017; Abrahms, 2019).

As with Virtual Villages, NORCs are evolving entities and some do better than others. More recent variations on the model that include Supportive Services Programs (NORC-SSPs) have been successful in some areas. Experimentation and more research may help better identify what works and why. The Administration on Aging, which was the critical federal support for aging-in-place initiatives, was negatively affected by the most recent recession and can no longer provide the level of support it used to, forcing groups to look elsewhere for funds (Abrahms, 2019; Parker, 2019; Piturro, 2012).

5. Age-Related Health Changes

Metabolic Changes

Metabolism is all of the chemical reactions that take place in a living organism to keep it alive. It includes **anabolism** (the building up of things) and **catabolism** (the breaking down of things). In our bodies the chemical reactions of anabolism build new cells and maintain tissues—and usually need energy. Catabolism uses larger compounds to create smaller ones, releasing energy for physical activity of all kinds. Body weight is catabolism minus anabolism (Nordqvist, 2017; Raman, 2017; Manini, 2010).

The speed of metabolism is affected by four key elements:

- Resting metabolic rate (RMR): calories burned while sleeping/resting
- Thermic effect of food (TEF): calories burned through digesting and absorbing food
- Exercise: calories burned by exercising
- Non-exercise activity thermogenesis (NEAT): calories burned doing such things as standing, wiggling or fidgeting, doing household chores (Nordqvist, 2017; Raman, 2017; Manini, 2010).

Metabolism is also affected by:

- Age
- Height
- Muscle mass
- Hormonal factors
- Gender

As we age, metabolism slows for a variety of reasons including reduced activity, muscle loss, and the aging of the body's internal parts. Research has shown that while more than one-quarter of Americans age 50 to 65 do not exercise outside of work, that rises to one-third for those over 75 (Raman, 2017; Watson, 2016). Combined with a 29% drop in calories burned through non-exercise activity thermogenesis (NEAT) by older adults. Regular exercise has been shown to mitigate this drop in metabolism (Nordqvist, 2017; Raman, 2017; Manini, 2010).

Musculoskeletal Changes

Sarcopenia and osteoporosis are two of the most common musculoskeletal changes that occur with age. Osteoporosis, which involves a gradual loss of bone density and a thinning of bone tissue, is a silent disease because it progresses without symptoms. Sarcopenia is the age-related loss of muscle mass and strength.

Osteoporosis

Osteoporosis, or porous bone, is a disease characterized by low bone mass and structural deterioration of bone tissue, leading to bone fragility and an increased risk of fractures of the hip, spine, and wrist. Men as well as women are affected by osteoporosis, a disease that can be prevented and treated. In the United States, more than 53 million people either already have osteoporosis or are at high risk due to low bone mass (NIH, 2018).

Bone, made mostly of collagen (a protein) and calcium phosphate (a mineral), is both flexible and strong, which helps it withstand stress. Old bone is removed and new bone added throughout the lifetime. New bone is added faster than old is removed until peak bone mass is reached, usually by the late twenties, and resorption slowly begins to exceed formation (NIH, 2018).

In women, bone loss is fastest in the first few years after menopause and continues into postmenopausal years. Osteoporosis mainly affects women but can also affect men; it develops when bone loss occurs too quickly or bone formation occurs too slowly. There are a number of risk factors for osteoporosis, some of which can be changed and others that cannot (NIH, 2018).

Risk factors that cannot be changed:

- **Sex.** Chances of developing osteoporosis are greater in women, who have less bone tissue and lose bone faster than men because of the changes that happen with menopause.
- **Age.** Bones become thinner and weaker with age so the risk of osteoporosis increases.
- **Body size.** Small, thin-boned women are at greater risk.
- **Ethnicity.** White and Asian women are at highest risk. African American and Hispanic women have a lower but significant risk.
- **Family history.** Fracture risk may be due, in part, to heredity.

Risk factors that can be changed:

- **Sex hormones.** Abnormal absence of menstrual periods (amenorrhea), low estrogen level (menopause), and low testosterone level in men can bring on osteoporosis.
- **Anorexia nervosa.** This eating disorder increases risk.
- **Calcium and vitamin D intake.** A lifetime diet low in calcium and vitamin D makes one more prone to bone loss.
- **Medication use.** Long-term use of certain medications, such as glucocorticoids and some anticonvulsants can lead to loss of bone density and fractures.
- **Lifestyle.** An inactive lifestyle or extended bed rest tends to weaken bones.
- **Cigarette smoking.** Smoking is bad for bones as well as the heart and lungs.
- **Alcohol intake.** Excessive consumption of alcohol increases the risk of bone loss and fractures. (NIH, 2018)

Maintaining adequate intake of calcium and vitamin D (needs change with age), engaging in weight-bearing and resistance exercise, not smoking, moderating alcohol intake, and working with one's physician regarding medications that contribute to bone loss are all important preventive steps (NIH, 2018).

While white women and those of Asian ancestry have an overall higher risk of osteoporosis than do African American and Hispanic women, the risk is still significant for the latter groups, and some special conditions can be relevant. When compared with white women, Asian American, African American, and Hispanic women have been found to consume too little calcium, perhaps because they are more prone to lactose intolerance. Also, Hispanic women are more likely than white women to develop diabetes, which can increase risk for osteoporosis (NIH, 2015a,b,c).

Symptoms and Diagnosis

Bone loss occurs without symptoms, so a person may not know they have osteoporosis until their bones are so weak that a sudden strain, bump, or fall results in a hip fracture or collapsed vertebra. Collapsed vertebra may present as severe back pain, loss of height, or spinal deformities such as kyphosis (severely stooped posture) (NIH, 2018).

A doctor will do a careful medical history and ask about lifestyle to determine risk factors, including family history of fractures, hormone levels, and use of certain medications. The doctor may also do blood or urine tests and may order a bone mineral density test (NIH, 2015).

A bone mineral density (BMD) test can identify osteoporosis, determine risk for fractures, and measure response to osteoporosis treatment. The most widely recognized BMD test is a central dual-energy x-ray absorptiometry, or central DXA test. The test is painless—like having an x-ray, but with much less exposure to radiation and takes about 15 minutes. It can measure bone density at the hip and spine. BMD tests can:

- Detect low bone density before a fracture occurs.
- Confirm a diagnosis of osteoporosis if a fracture has occurred.
- Predict chances of fracturing in the future.
- Determine rate of bone loss, and monitor the effects of treatment if the test is conducted at intervals of a year or more. (NIH, 2018)

Private insurance will sometimes cover BMD tests ordered by a doctor and Medicare may pay for them under certain circumstances for women and men age 65 and older (NIH, 2015).

Treatment

Treatment of osteoporosis involves a comprehensive program targeting nutrition, exercise, and possibly therapeutic medications. Medications for prevention and/or treatment of osteoporosis include: bisphosphonates; calcitonin; estrogen (hormone therapy); estrogen agonists/antagonists (also called selective estrogen receptor modulators or SERMs); parathyroid hormone (PTH) analog; parathyroid hormone-related protein (PTHrp) analog; RANK ligand (RANKL) inhibitor; and tissue-selective estrogen complex (TSEC).

Fall prevention is another important component in dealing with osteoporosis because falls can increase the likelihood of fracturing a bone of the hip, wrist, spine, or other part of the skeleton. Falls can be caused by environmental factors—indoors and outdoors—and by impaired vision or balance, chronic diseases that affect mental or physical functioning, and certain medications, such as sedatives and antidepressants (NIH, 2018). See the section later in this course on Falls—Risks and Prevention for more discussion and guidelines.

Sarcopenia

Sarcopenia is age-related loss of muscle mass and function. Until about age 30, muscles grow larger and stronger, but during the thirties one starts to lose both muscle mass and function. Inactive people can lose 3% to 5% of their muscle mass every decade after age 30, although those who are active will still experience some loss. Sarcopenia will usually happen faster around age 75 but this speeding up can begin between 65 and 80. There is no test or level of loss that triggers a diagnosis of sarcopenia, because loss reduces strength and mobility and any amount is important. However, in the last 10 years, much has been done to define and aid assessment of sarcopenia (Cruz-Jentoft et al., 2019; Liguori et al., 2018; WebMD, 2018b).

In addition to inactivity, research suggests other factors contribute to the development of sarcopenia, including:

- Reduced number of nerve cells that send signals from brain to muscles
- Lowered concentrations of some hormones (growth hormone, testosterone, insulin-like growth factor)
- Decreased ability to convert protein to energy
- Insufficient daily calories or protein to sustain muscle mass (WebMD, 2018b)

Sarcopenia contributes to frailty and the possibility of falls and fractures. Because weakness and loss of stamina are symptoms that often reduce physical activity, a cycle of reduced activity leads to reduced muscle mass and other symptoms noted earlier. The main treatment for sarcopenia is exercise—resistance training or strength training—that increases muscle strength and endurance and can improve the conversion of protein to energy in older adults (WebMD, 2018b).

There are specific requirements for an exercise program to address sarcopenia and patients need to work with a physical therapist or trainer who has experience dealing with sarcopenia when beginning an exercise plan. Sarcopenia is not usually treated with drugs but there are some currently under investigation for treating it. These include:

- Urocortin II (not yet tested in humans)
- Hormone Replacement Therapy (HRT) (subject to controversy) (WebMD, 2018b)

Other treatments also under investigation include exercise training, nutritional supplementation, hormonal therapies, and some novel strategies. However, only physical exercise has so far demonstrated positive effects on managing and preventing sarcopenia (Liguori et al., 2018).

The condition can have a wide range of negative effects on well-being, including disability, poor quality of life, hospitalization, and death, especially in institutionalized elders, and thus higher medical costs for individuals and society (Liguori et al., 2018). Improved understanding and assessment and treatment tools for healthcare providers are critical.

Sarcopenia has been underrecognized because it has proven difficult to identify, but very recent research (Cruz-Jentoft et al., 2019) details work, especially over the last ten years, to refine and advance a definition for sarcopenia, create tools clinicians can use for assessment, and advance knowledge of the condition and its treatment options.

In 2010 the European Working Group on Sarcopenia in Older People (EWGSOP), established a widely accepted definition in which

[T]he diagnosis of sarcopenia requires the presence of both low muscle mass and low muscle function, which can be defined by low muscle strength or low physical performance (Liguori et al., 2019)

In 2018 the definition was revised to reflect additional scientific and clinical evidence from the last ten years (Cruz-Jentoft et al., 2019).

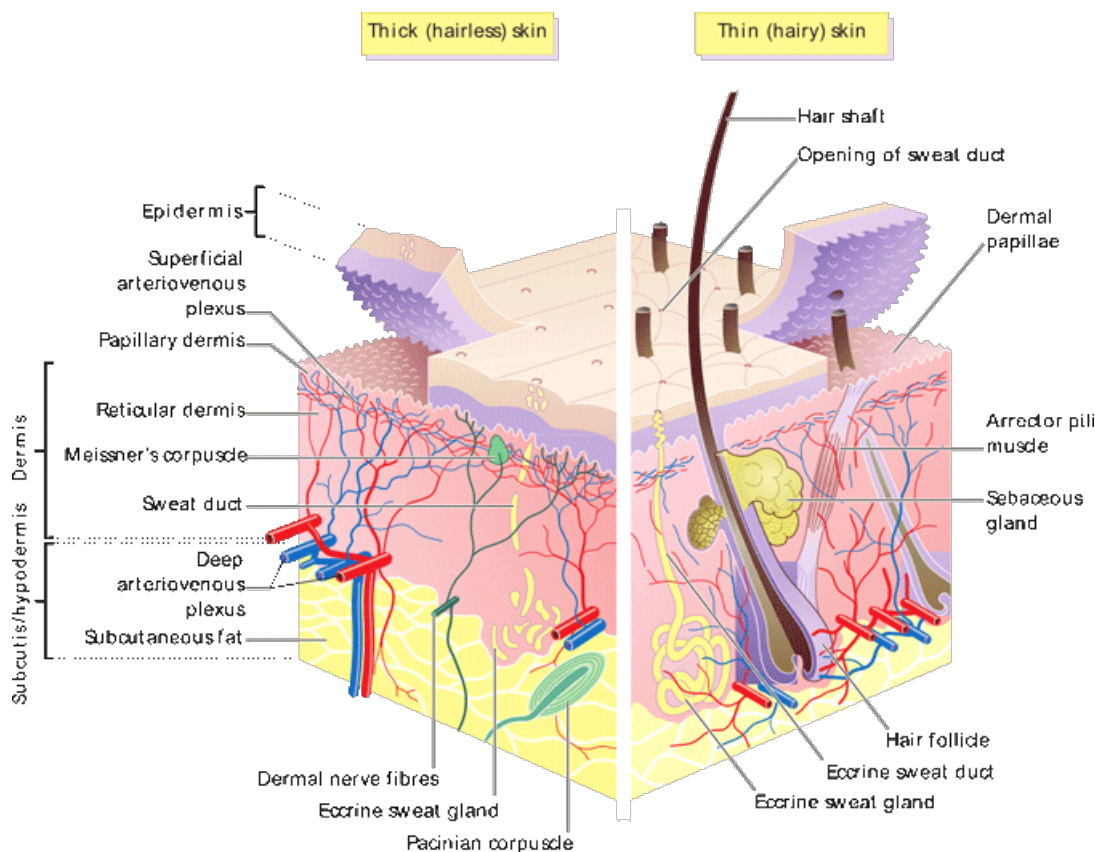
Integumentary Changes

The integumentary system consists of the skin, hair, and nails; it has a variety of functions. It acts as a waterproof shield and insulates the body against extremes of temperature. It also helps to regulate temperature, cushion and protect the deeper tissues, shield the body from sunlight and harmful chemicals, and excrete wastes. The skin contains sensory receptors to detect pain, sensation, pressure, and temperature and is involved in vitamin D synthesis (MedlinePlus, 2019d, 2018e).

Skin

Skin is the largest organ of the integumentary system (and of the body) and contains three primary layers: (1) the epidermis, (2) dermis, and (3) hypodermis. The outermost layer, the **epidermis**, is a waterproof barrier and contains no blood vessels. The **dermis** lies just below the epidermis and contains connective tissue, nerve endings for touch and temperature, and hair follicles, sweat glands, sebaceous glands, and lymphatic and blood vessels. The **hypodermis** lies below the dermis and connects it to underlying muscle and bone.

Cross Section of Human Skin



Source: Wikimedia Commons. Author: Madhero88. Original is at https://en.wikipedia.org/wiki/File:Skin_layers.png.

As we age, structures within the skin begin to atrophy and lose elasticity and turgor. A decrease in the number of nerve endings leads to decreased sensation. Melanocytes (pigment-producing cells) decrease, causing gray hair and making the skin more susceptible to sun damage.

As age progresses, the epidermis begins to thin, reducing its protective function and allowing chemicals and pathogens easier access to the body. Adipose tissue also decreases with age, reducing the ability of the skin to cushion the body against trauma and to protect against environmental temperature change. Reduced collagen causes skin to tear more easily.

Older adults who spend most of their time in a bed, chair, or wheelchair can develop **pressure sores** and related skin damage. The following are important to avoid the problem:

- Change position every one to two hours.
- Keep sheets flat and unwrinkled.
- Help the person practice movement.
- Keep skin clean and dry.
- Massage (not sore areas).
- Use pads or protectors (especially for heels and elbows).
- Observe a good varied diet with enough protein. (HealthinAging.org, 2015).

Hair and Nails

With a decrease in the pigment melanin produced in the hair follicles, hair color fades and turns gray or white. Hair strands become smaller and many hair follicles stop producing hair altogether, causing hair thinning and baldness. Nails grow more slowly and may become dull or yellowed and brittle. Sudden hair loss or the development of nail pits, ridges, lines, changes in shape, or other changes should be checked by a healthcare provider (MedlinePlus, 2019).

Heat Intolerance

Older adults adjust less well to sudden changes in temperature and are more prone to heat stress than younger people. They are more likely than younger people to have a chronic medical condition that changes normal body responses to heat. They are also more likely to be taking prescription medications that inhibit perspiration or impair the body's ability to regulate temperature (CDC, 2017).

Heat stroke is the most serious heat-related illness in all ages. It occurs when a person is no longer able to control body temperature. This creates a cascade in which body temperature rises rapidly, the body loses its ability to sweat and thus the ability to cool. Body temperatures can rise to 106°F or higher within 10 to 15 minutes. Heat stroke can cause death or permanent disability if emergency treatment is not provided.

Warning signs of heat stroke vary but include the following:

- An extremely high body temperature (above 103°F)
- Hot, red, dry, or damp skin
- Fast, strong pulse
- Headache
- Dizziness
- Nausea
- Confusion
- Losing consciousness

Call 911 right away because this is a medical emergency. In the meantime, move the person to a cooler place and help lower their temperature with cool cloths, spritzing with water, a cool bath, or whatever is at hand. **Do not give the person anything to drink**(CDC, 2017a).

Heat exhaustion is a milder form of heat-related illness that can develop after several days of exposure to high temperatures and inadequate or unbalanced replacement of fluids.

Warning signs of heat exhaustion vary but may include the following:

- Heavy sweating
- Cold, pale, and clammy skin
- Fast, weak pulse
- Nausea or vomiting
- Muscle cramps
- Tiredness or weakness
- Dizziness
- Headache
- Fainting

Move the person to a cool place, loosen clothing, put cool wet cloths on the body or place in a cool bath. Get immediate medical help if the person is throwing up or if symptoms worsen or last longer than 1 hour (CDC, 2017a).

To protect elders from heat stress, encourage them to drink cool, nonalcoholic beverages and to drink more fluids than normal—not wait until thirsty to drink. However, if the person is on a limited fluid intake or water pills, consult their health professional about safe fluid intake. Avoid very sugary or alcoholic drinks as they cause more loss of body fluid, and avoid extremely cold liquids because they can cause cramps.

Cool showers or baths can be helpful. Do not rely on fans in extreme heat. If the home is not air-conditioned, suggest visiting an air-conditioned public space such as a shopping mall or public library. Contact the local health department for locations of air-conditioned shelters or other suggestions.

Loose, lightweight, light-colored clothing is recommended and, if possible, the older person should remain indoors during the heat of the day. Strenuous activity is to be avoided and plenty of rest is important (CDC, 2017a,b).

Hypothermia

Hypothermia (abnormally low body temperature) and frostbite are both dangerous conditions that can happen when a person is exposed to extremely cold temperatures (CDC, 2019). Hypothermia is caused by prolonged exposure to very cold temperatures resulting in the body losing heat faster than it is produced. If the exposure is long enough, all the body's stored energy can be used up, leading to a lower body temperature (CDC, 2019). Hypothermia occurs as body temperature falls below 96 or 95 degrees F (CDC, 2019; Mayo Clinic, n.d.).

Bodies lose heat (1) when it is radiated from unprotected body surfaces, (2) due to direct contact with something very cold, or (3) due to wind. Situations can include:

- Wearing clothes that aren't warm enough for weather conditions
- Staying out in the cold too long
- Being unable to get out of wet clothes or move to a warm, dry location
- Falling into the water, as in a boating accident
- Living in a house that's too cold, either from poor heating or too much air conditioning (Mayo Clinic, n.d.)

Low body temperature affects brain function, preventing the victim from thinking clearly or moving well. Thus, the person may not even realize what is happening or be able to act to get to safety. Even though hypothermia is most likely to occur at very cold temperatures, it can occur at cool temperatures (above 40 degrees F) if the person becomes chilled (CDC, 2019).

Symptoms of hypothermia usually manifest first as shivering but include the following:

- Shivering

- Slurred speech or mumbling
- Slow, shallow breathing
- Weak pulse
- Clumsiness or lack of coordination
- Drowsiness or very low energy
- Confusion or memory loss
- Loss of consciousness

These may begin gradually, which along with the confused thinking, may prevent the person from realizing what is happening or may lead to risky behaviors (Mayo Clinic, n.d.).

Hypothermia can be a particular problem for older adults because of the body's decreased ability to regulate and sense temperature. Medical conditions such as Parkinson's, hypothyroidism, stroke, severe arthritis, diabetes, poor nutrition, trauma, spinal cord injuries, may affect the body's temperature regulation abilities, as can certain medications including antidepressants, antipsychotics, narcotic pain medications, and sedatives.

Conditions that decrease sensation and movement, interfere with circulation, or cause the body to lose more heat than normal can all contribute to hypothermia (Mayo Clinic, n.d.). In addition, older adults may not be able to communicate that they are cold or move themselves to a warmer location.

In mild cases in older people a diagnosis may not be readily apparent, as for example when an older person who is not outside exhibits confusion, lack of coordination, and speech problems (Mayo Clinic, n.d.)—an important reminder that **some symptoms can be shared across many conditions** and keeping an open mind and inquiring as to details can be critically important when working with elders.

Treatment

Hypothermia requires immediate medical attention but while waiting for help to arrive the following are recommended:

- Use gentle, limited movements and only when necessary. No massage or rubbing. Excessive, vigorous or jarring movements may trigger cardiac arrest.
- Move out of the cold. Move to a warm, dry location if possible. Otherwise shield from cold and wind and keep in a horizontal position if possible.
- Remove wet clothing, cutting away if necessary.
- Cover with blankets, using layers of dry blankets or coats; cover the head, leaving only the face exposed.
- Insulate the person's body from the cold ground by placing the person on the back on a blanket or other warm surface.
- Monitor breathing. A person with severe hypothermia may appear unconscious, with no apparent signs of a pulse or breathing. If the person's breathing has stopped or appears dangerously low or shallow, begin CPR immediately (if trained).
- Provide warm beverages if the affected person is alert and able to swallow. Provide a warm, sweet, nonalcoholic, noncaffeinated beverage to help warm the body.
- Use warm, dry compresses. Use a first-aid warm compress (a plastic fluid-filled bag that warms up when squeezed) or a makeshift compress of warm water in a plastic bottle or a dryer-warmed towel. Apply a compress only to the neck, chest wall, or groin.
- Do not apply a warm compress to the arms or legs as heat applied to the arms and legs forces cold blood back toward the heart, lungs and brain, causing the core body temperature to drop, which can be fatal.
- Do not apply direct heat such as hot water, a heating pad, or a heating lamp. The extreme heat can damage the skin or, even worse, cause irregular heartbeats so severe that they can cause the heart to stop. (Mayo Clinic, n.d.)

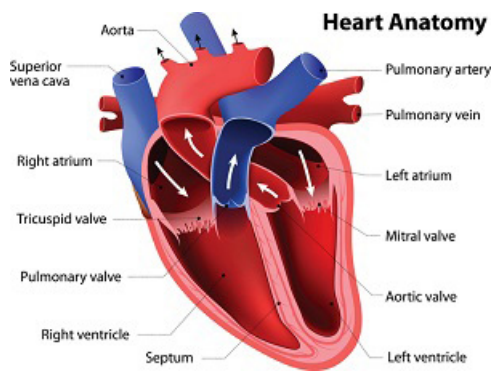
Once at a medical facility, treatment may include:

- Passive rewarming
- Blood rewarming
- Warm intravenous fluids
- Airway rewarming
- Irrigation (Mayo Clinic, n.d.)

Cardiovascular Changes

[This section is taken largely from NIA, 2018 & CDC, 2015.]

The heart is a strong muscle responsible for pumping blood to the rest of the body, and when healthy a normal adult heart is about the size of a clenched fist. The right side of the heart pumps blood to the lungs to obtain oxygen and the left side receives this oxygen-rich blood and pumps it via the arteries throughout the body. Each side has two chambers—atrium at the top and ventricle at the bottom—all controlled by an electrical system that controls the heart rate and coordinates contraction of the chambers.

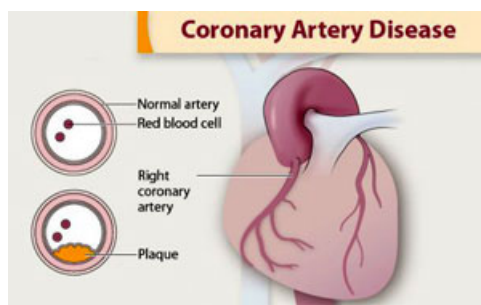


Source: NIH, 2018.

Adults age 65 and older are much more likely than younger people to experience a heart attack or a stroke or to develop coronary heart disease (heart disease) or heart failure. Changes to the heart and blood vessels can be caused by age and, while one's heart rate at rest does not change significantly with normal aging, older hearts cannot beat as fast during stressful times or during physical activity.

Over many years, fatty deposits can build up on artery walls and cause heart disease but a number of actions can be taken to mitigate this. The most common aging change is **arteriosclerosis**—hardening of the arteries—which can cause hypertension (high blood pressure), and is more common with aging.

Hypertension joins other risk factors, including increased age, to increase the possibility of developing **atherosclerosis**—buildup of fatty deposits, or plaques, in the walls of the arteries over many years. A number of these risk factors are modifiable so atherosclerosis is not necessarily a normal part of aging.



Source: CDC.

Coronary artery disease is caused by plaque buildup in the wall of the arteries that supply blood to the heart (called coronary arteries). Plaque is made up of cholesterol deposits. Plaque buildup causes the inside of the arteries to narrow over time. This process is called atherosclerosis.

The buildup of fatty deposits over time hardens and narrows the arteries, limiting oxygen-rich blood flow to the organs and other parts of the body. When the plaque buildup takes place in the coronary arteries and reduces blood flow to the heart muscle, **heart disease** develops. This can weaken and/or damage the heart and lead to heart failure. Heart damage can come from heart attacks, long-standing hypertension, and chronic heavy alcohol use. There are other age-related changes to the heart, including:

- Changes in the electrical system that lead to **arrhythmias**—rapid, slowed, or irregular heartbeat—and/or the need for a pacemaker. The valves that control blood flow between the chambers can become thicker and stiffer, which can constrict the flow of blood from the heart or become leaky.
- Chambers of the heart may increase in size. The heart wall thickens so the amount of blood a chamber can hold may decrease despite the increased overall heart size. The heart may fill more slowly. The main cause of thickening of the heart wall is long-standing hypertension and it can increase the risk of atrial fibrillation, a common heart rhythm problem in older people.
- With increasing age, people experience increased sensitivity to salt, which can cause increased blood pressure and/or edema (swelling) of the ankles or feet.

Other factors that can weaken the heart muscle include thyroid disease or chemotherapy, and there are heart disease risks one cannot control such as family history. However, heart-healthy lifestyle choices can help avoid or delay serious illness.

Ischemic Heart Disease

[This section is taken largely from NHLBI, n.d.]

Heart disease is a catch-all phrase for a variety of conditions that affect the heart's structure and function. **Ischemic heart**

disease occurs when the arteries of the heart cannot deliver enough oxygen-rich blood to the heart. It is the leading cause of death in the United States, with most deaths occurring from **coronary heart disease (CHD)**, also known as **coronary artery disease (CAD)**—the most common type of ischemic heart disease.

Coronary heart disease is caused by the buildup of plaque inside the coronary arteries. This buildup can partly or totally block blood flow in the large arteries of the heart. Some types of this condition may be caused by disease or injury affecting how the arteries work in the heart. **Coronary microvascular disease (CMD)** is another type of ischemic heart disease. It occurs when the heart's tiny arteries do not function normally.

Symptoms of ischemic heart disease may differ from person to person even if they have the same type of ischemic heart disease. However, because many people have no symptoms, they do not know they have heart disease until they experience complications such as a heart attack or sudden cardiac arrest.

There are three main types of ischemic heart disease:

- Obstructive coronary artery disease
- Nonobstructive coronary artery disease
- Coronary microvascular disease

Coronary artery disease affects the large arteries on the surface of the heart and many people have both obstructive and nonobstructive forms of this disease. **Coronary microvascular disease** affects the tiny arteries in the heart muscle. It may occur with or without coronary artery disease.

There are many risk factors for ischemic heart disease. The risk increases with the type and number of risk factors and how serious they are. Some risk factors—such as high blood pressure and high blood cholesterol—can be changed through heart-healthy lifestyle changes. Other risk factors, such as sex, older age, family history and genetics, and race and ethnicity, cannot be changed.

Genetic or lifestyle factors cause plaque to build up in the arteries as a person ages. In men, the risk for ischemic heart disease starts to increase around age 45. Before menopause, women have a lower risk for ischemic heart disease than men. After around age 55, however, the risk increases at the same rate in both women and men. This is likely because the protective effects of the female hormone estrogen diminish after menopause. Also, changes in the small blood vessels of the heart with age increase the risk for coronary microvascular disease.

It is important to know the symptoms of **heart attack** (*myocardial infarction*, or MI). Call 911 at the first sign of heart attack symptoms—these individuals should not drive themselves to the hospital. Treatment works best when it's given right after symptoms occur, so acting fast can save lives and limit damage to the heart.

Heart attack symptoms vary from person to person and are often different for women than men, but they can include:

- Chest pain or discomfort. This involves uncomfortable pressure, squeezing, fullness, or pain in the center or left side of the chest that can be mild or strong. This discomfort or pain often lasts more than a few minutes or goes away and then comes back.
- Upper body discomfort in one or both arms, the back, neck, jaw, or upper part of the stomach.
- Shortness of breath, which may occur with or before chest discomfort.
- Nausea, vomiting, light-headedness or sudden dizziness, or breaking out in a cold sweat.
- Sleep problems, fatigue (tiredness), and lack of energy.

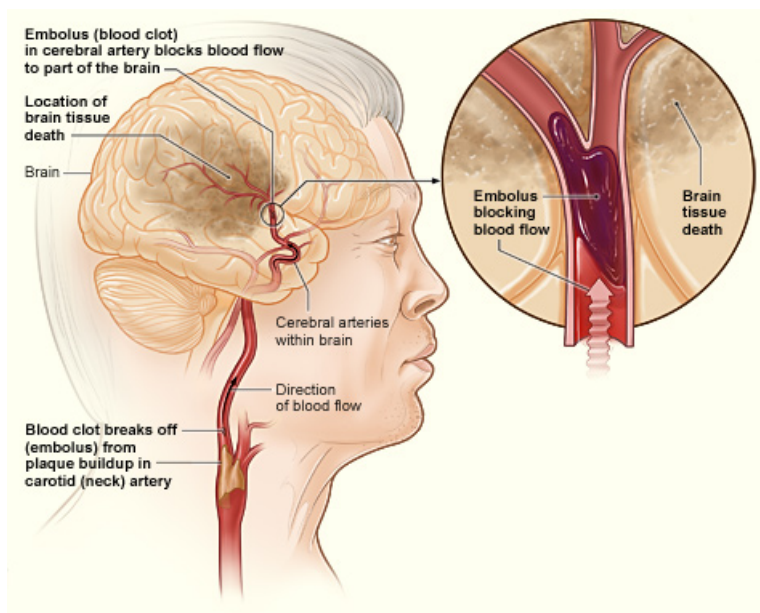
Stroke

[This section taken is taken largely from NINDS, 2018 and NHLBI, n.d.-a.]

A **stroke**, sometimes called a “brain attack,” occurs when the blood supply to part of the brain is suddenly interrupted or when a blood vessel in the brain bursts, spilling blood into the spaces surrounding brain cells.

An **ischemic stroke** occurs when an artery supplying the brain with blood becomes blocked, suddenly decreasing or stopping blood flow and ultimately causing a brain infarction. This type of stroke accounts for approximately 80% of all strokes. Blood clots are the most common cause of artery blockage and brain infarction.

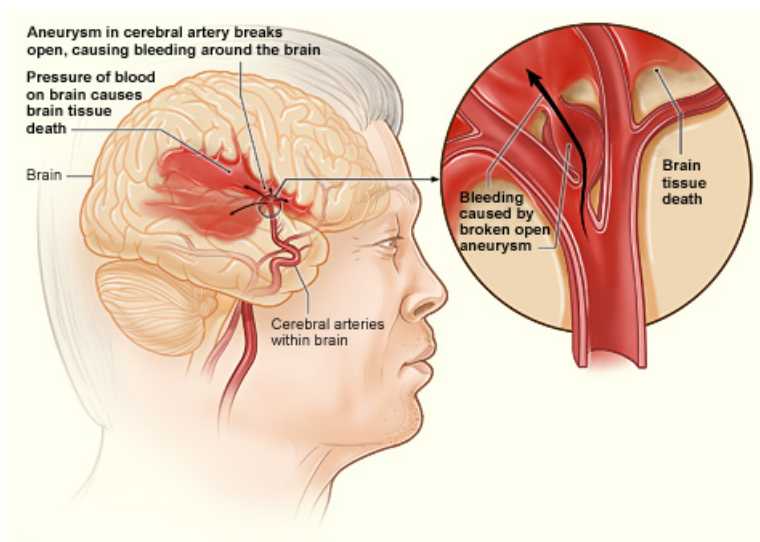
The Brain During an Embolic Stroke



Source: NHLBI, n.d.-a

When an artery in the brain bursts, blood spews out into the surrounding tissue and upsets not only the blood supply but also the delicate chemical balance neurons require to function. This is called a **hemorrhagic stroke**. Such strokes account for approximately 20% of all strokes.

Ruptured Aneurysm with Associated Bleeding in the Brain



Source: NHLBI, n.d.-a

Stroke strikes all age groups, from fetuses still in the womb to centenarians. However, older people have a higher risk for stroke than the general population and the risk for stroke increases with age. For every decade after the age of 55, the risk of stroke doubles, and two-thirds of all strokes occur in people over age 65. People over 65 also have a seven-fold greater risk of dying from stroke than the general population. The incidence of stroke is increasing proportionately with the increase in the elder population, and when the baby boomers move into the over-65 age group, stroke and other diseases will take on even greater significance in the healthcare field.

Gender plays a role in risk for stroke. Men have a higher risk for stroke, but more women die from stroke. The stroke risk for men is 1.25 times that for women. But men do not live as long as women, so men are usually younger when they have strokes and therefore have a higher rate of survival than women. In other words, even though women have fewer strokes than men, women are generally older when they have their strokes and are more likely to die from them.

Race and ethnicity also play a role in stroke incidence and risk. Stroke incidence among African Americans is almost double that of whites, and twice as many African Americans die from them. Although African Americans between the ages of 45 and 55 have 4 to 5 times the stroke death rate of whites, after age 55 the stroke mortality rate for whites increases and is equal to that of African Americans. African Americans also have a higher incidence of stroke risk factors than do whites. Hispanics, Native Americans, and Asian Americans all have incidence and mortality rates similar to those of whites.

Symptoms of a stroke are easy to spot. They include sudden numbness or weakness, especially on one side of the body; sudden confusion or trouble speaking or understanding speech; sudden trouble seeing in one or both eyes; sudden trouble walking, dizziness, or loss of balance or coordination; or sudden severe headache with no known cause. All of the symptoms of stroke appear suddenly, and often there is more than one symptom at the same time. Thus, stroke can usually be distinguished from other causes of dizziness or headache, symptoms which are common to other problems as well.



Source: National Institutes of Health.

Risk factors for stroke include:

- Hypertension
- Heart disease
- Diabetes
- Cigarette smoking
- Heavy alcohol consumption
- High blood cholesterol levels
- Illicit drug use
- Genetic or congenital conditions (particularly vascular abnormalities)

People with more than one risk factor have what is called “amplification of risk,” which means that multiple risk factors compound destructive effects, and cause overall risk to be greater than simply adding up the individual risk factors.

Many older adults already have increased problems with hypertension, heart disease, diabetes, and maintaining healthy cholesterol levels. Forty to seventy percent of adults over age 65 have high blood pressure—the most powerful risk factor for stroke—making their risk for stroke 4 to 6 times higher than for those without hypertension.

Managing risk factors and observing a healthy lifestyle is just as critical for older adults as for younger people. Working with healthcare providers to manage high blood pressure, heart disease, cholesterol levels, and diabetes in conjunction with quitting smoking and illicit drug use, and decreasing excess consumption of alcohol, are all important. In addition, keeping physically active, maintaining a healthy weight, managing stress, and making heart-healthy eating choices all help to reduce risk—for cardiovascular events of all kinds.

Urinary Changes

The kidneys along with the ureters, bladder, and urethra make up the urinary system. The kidneys filter the blood, help remove wastes and extra fluid from the body, and help control the body’s chemical balance. With age, the kidneys and bladder change, which can affect their function.

The number of **nephrons** (the filtering units of the kidneys) decreases with age and the kidneys are less able to filter waste from the blood. Blood vessels that supply the kidneys become stiffer, causing the kidneys to filter blood more slowly. The overall amount of kidney tissue also decreases and there is a reduced capacity for renal regeneration in the face of acute renal insults (MedlinePlus, 2019).

Changes to the bladder affect both the bladder wall and muscles. With a toughening of the bladder wall tissue it becomes less stretchy and the bladder cannot hold as much urine as it could previously. Bladder muscles also weaken. Blockage of the urethra can happen in both men and women. If the bladder or vagina has prolapsed (fallen out of position) it can block a woman’s urethra, while in men blockage can be caused by an enlarged prostate gland (MedlinePlus, 2019).

Healthy aging can still involve effects on kidney function from illness, medicines, or other conditions. Common problems for older adults include:

- Bladder control issues—leakage or **incontinence** (not being able to hold it) and **retention** (not being able to completely empty the bladder)
- Bladder or other urinary tract infections (UTIs)
- Chronic kidney disease (MedlinePlus, 2018)

Urinary Tract Infections

Urinary tract infections (UTIs) occur when bacteria enter and infect the urinary tract. UTIs can affect several parts of the urinary tract, but the most common type of UTI is a bladder infection (also known as **cystitis**). Most are not serious and

can be treated with antibiotics or antifungals (depending on infection source) and the body can sometimes fight the bacteria without any problems; however, the infection can cause discomfort and may sometimes spread to the kidneys. Kidney infections (also known as **pyelonephritis**) are less common but more serious (CDC, 2015).

Symptoms of UTI vary by age, gender, and whether a catheter is present. Among young women, UTI symptoms typically include a frequent and intense urge to urinate and a painful, burning feeling in the bladder or urethra during urination. The amount of urine per void may be very small (NIDDK, 2017). Other symptoms include:

- Cloudy, dark, bloody, or foul-smelling urine
- Low grade fever in some people
- Pressure or cramping in lower abdomen or back

If the infection has spread to the kidneys:

- Chills and shaking or night sweats
- Fatigue and a general ill feeling
- Fever above 101°F (38.3°C)
- Pain in the side, back, or groin
- Flushed, warm, or reddened skin
- Mental changes or confusion
- Nausea and vomiting
- Very bad abdominal pain (sometimes) (MedlinePlus, 2018a)

Women are more likely than men to get UTIs and older adults are more likely than younger ones. Other conditions that may affect older adults and also increase risk for UTIs including: increased susceptibility to infections, reduced mobility, urinary incontinence or retention, urinary catheter placement, prostate enlargement, and dementia, or other conditions interfering with personal hygiene (CDC, 2015; MedlinePlus, 2018, 2018a,b).

It is important to note that for older adults mental changes or confusion often are the only signs of a UTI; however, it is also important to note that this is a common indication of the onset of other acute illnesses in older adults and signals the need for attention to all relevant details for diagnosis (MedlinePlus, 2018a; Flaherty, 2011).

Urinary Incontinence

Incontinence is often seen as part of aging, and while it is more common in older people (especially women), it can occur for many other reasons, and it can contribute to skin breakdown and infection and also to (UTIs). UTIs, vaginal infection or irritation, constipation, and some medications can cause bladder control problems that last a short time. When incontinence lasts longer, it may be due to (NIA, 2017d):

- Weak bladder muscles
- Overactive bladder muscles
- Weak pelvic floor muscles
- Damage to nerves that control the bladder from diseases such as multiple sclerosis, diabetes, or Parkinson's disease
- Blockage from an enlarged prostate in men
- Diseases such as arthritis that may make it difficult to get to the bathroom in time
- Pelvic organ prolapse, which is when pelvic organs shift out of their normal place into the vagina

In men, most incontinence is related to the prostate gland and may be caused by:

- Prostatitis—a painful inflammation of the prostate gland
- Injury or damage to nerves or muscles from surgery
- An enlarged prostate gland, which can lead to BPH (NIA, 2017d)

During urination, muscles in the bladder tighten to move urine into the urethra. At the same time, the muscles around the urethra relax and let the urine pass out of the body. When the muscles in and around the bladder don't work the way they should, urine can leak. Incontinence typically occurs if the muscles relax without warning (NIA, 2017d).

A healthcare provider should be consulted to determine the cause of urinary incontinence, and urine and blood tests should be done to rule out infection. Tests may also be done to determine how well the bladder is emptying. The patient may be asked to keep a daily diary to track times of urination or leakage (NIA, 2017d).

There are different types of urinary incontinence and the healthcare provider can tailor treatment based on which type or types the patient is experiencing (NIA, 2017d):

- **Stress incontinence** happens when urine leaks as pressure is put on the bladder, for example, during exercise, coughing, sneezing, laughing, or lifting heavy objects. It is the most common type of bladder control problem in younger and middle-aged women. It may also begin around the time of menopause.
- **Urge incontinence** happens when people have a sudden need to urinate and are not able to hold their urine long enough to get to the toilet in time. It is often, but not only, a problem for people who have diabetes, Alzheimer's

disease, Parkinson's disease, multiple sclerosis, or stroke.

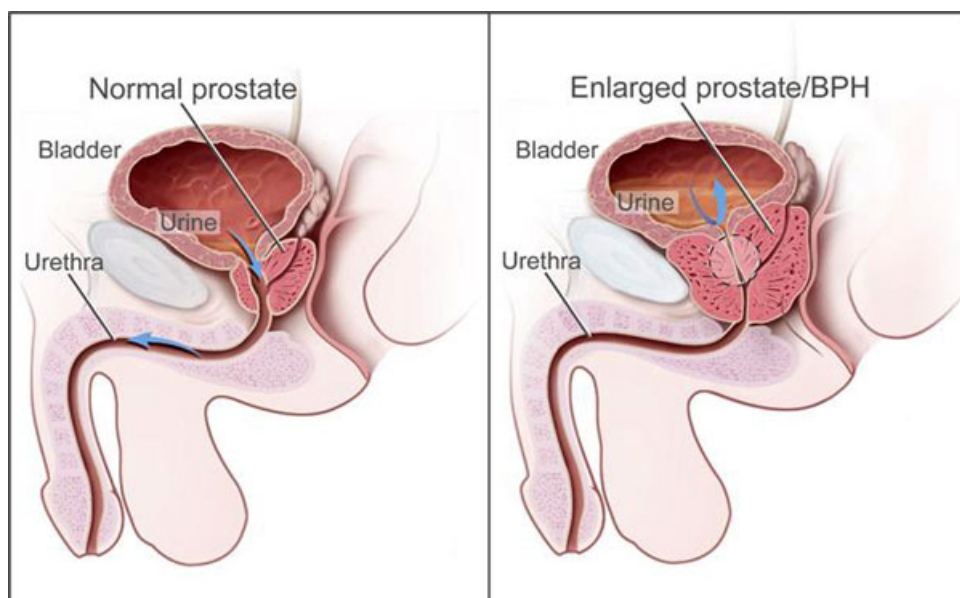
- **Overflow incontinence** happens when small amounts of urine leak from a bladder that is always full. A man can have trouble emptying his bladder if an enlarged prostate is blocking the urethra. Diabetes and spinal cord injury can also cause this type of incontinence.
- **Functional incontinence** happens in many older people who have normal bladder control. They just have a problem getting to the toilet because of arthritis or other disorders that make it hard to move quickly. (NIA, 2017d)

Treatment options include medicines, estrogen creams, injecting a substance to help close the bladder opening, medical devices, nerve stimulation, and surgery. In addition, there are several ways a person can improve bladder control, including pelvic muscle exercises (Kegel exercises), biofeedback, timed voiding, and certain lifestyle changes (NIA, 2017d).

There are four categories of medications that can cause or worsen urinary incontinence; however, their effects vary from person to person and are not necessarily the same in men and women. These include medications for hypertension and depression, along with diuretics and sleeping pills. Healthcare providers need to be aware of all medications, including OTC and supplements, that a patient is taking when evaluating for treatment (WebMD, 2018).

Prostate Changes and Prostate Cancer

The prostate is a small gland that is part of the male reproductive system and is located just below the bladder and in front of the rectum. It surrounds the urethra and is about the size of a walnut in a man in his twenties. As a man ages, the prostate tends to increase in size and may be the size of a lemon by age 60. This can squeeze the urethra and decrease urine flow. This is called **benign prostatic hyperplasia (BPH)**, and it is not the same as prostate cancer (CDC, 2018a; NCI, n.d.)



Prostate cancer is the second most common cancer among men in the United States (after skin cancer) but most who have it are older than 65 and do not die from it. Prostate cancer tends to grow slowly compared with most other cancers, and cell changes can begin 10 to 30 years before a tumor is large enough to cause symptoms. More than half of all American men have some cancer in their prostate glands by the age of 80. Most of them never pose a problem and may never cause symptoms or become a serious health threat (NCI, n.d.).

Risk factors include age, race, family history, and diet. Men over age 50 have a higher risk, and African American men have the highest risk. It tends to start younger and grow faster in African American men than in men of other races. Asian American men have the lowest rates of prostate cancer. Men with a father or brother who had prostate cancer have a risk 2 to 3 times that of men with no family history of the disease. Finally, the risk may be higher for men who consume high-fat diets.

Symptoms of prostate cancer can include:

- Trouble passing urine
- Frequent urge to pass urine, especially at night
- Weak or interrupted urine stream
- Pain or burning when passing urine
- Blood in the urine or semen
- Painful ejaculation
- Nagging pain in the back, hips, or pelvis

Some of the symptoms of BPH are similar to those for prostate cancer, so they should be reported to a man's healthcare provider for evaluation and treatment. For most men, screening for prostate cancer may not be necessary, but if a man

has risk factors then a doctor can help make that decision (CDC, 2018a; NCI, n.d.).

Respiratory Changes

The lungs bring oxygen from the air into the body and remove carbon dioxide from the body, sending it back into the air. During breathing, inhaled air travels through the airways to the lungs. Airways are composed of stretchy tissue supported by bands of muscle and other tissue that wrap around them to keep them open. The respiratory tract also warms and moistens the incoming air, regulates air flow, removes airborne particles, and cools the entire organism.

A number of age-related changes affect the respiratory system, including changes to:

- Bones and muscles of the spine
- Lung tissue
- Nervous system
- Immune system

The bones and muscles of the chest and spine become thinner and change shape, which can change the ribcage's shape and impact its ability to expand and contract when breathing. The diaphragm (the muscle that supports breathing) becomes weaker and may prevent a person from breathing enough air in or out. These changes can cause a reduction in oxygen level or a failure to remove enough carbon dioxide and can cause shortness of breath and tiredness (MedlinePlus, 2018c).

Muscles and other tissues around airways are designed to keep airways open but with age they can lose that ability and allow airways to close easily. Air sacs can also lose their shape and become baggy as a person ages. Both of these changes can allow air to be trapped in the lungs so that too little oxygen gets into the blood and not enough carbon dioxide gets out, making it hard to breathe (MedlinePlus, 2018c).

With age, the part of the brain that controls breathing may lose some function, which can also mean that not enough oxygen gets in or carbon dioxide out and breathing is difficult. Nerves in the airways that trigger coughing can also become less sensitive, making it hard to cough up particles or germs that then collect in the lungs (MedlinePlus, 2018c).

Finally, the immune system can get weaker with age and may not be able to fight off lung infections or other diseases, and the lungs may be less able to recover from exposure to smoke or other harmful particles (MedlinePlus, 2018c).

All of these changes increase the risks faced by older people for:

- Lung infections (ie, pneumonia and bronchitis)
- Shortness of breath
- Low oxygen level
- Abnormal breathing patterns, which can cause other conditions such as sleep apnea (MedlinePlus, 2018c)

Endocrine Changes

The endocrine system is made up of glands that secrete hormones that regulate the body's growth and development, metabolism (digestion, elimination, breathing, blood circulation, maintenance of body temperature), sexual function, reproduction, and mood. With age, some hormones increase or decrease, some target organs become less receptive, and hormones may be broken down more slowly (MedlinePlus, 2018d, 2019).

Despite age-related changes that affect nearly every gland, the endocrine system functions well in most older people. However, some changes do occur because of damage to cells during the aging process, accumulated effects of medical issues, or genetically programmed cellular changes. These changes may alter:

- Hormone production and secretion
- Hormone metabolism (how quickly excess hormones are broken down and leave the body)
- Hormone levels circulating in blood
- Target cell or target tissue response to hormones
- Rhythms in the body, such as the menstrual cycle (Endocrine Society, 2018)

Increasing age is thought to be related to the development of type II diabetes, which is the most common endocrine disease in the United States (MedlinePlus, 2019). Diabetes is a disorder that causes repeated episodes of inappropriately high concentrations of glucose in the bloodstream. This chronic hyperglycemia gradually produces tissue damage, notably to eyes, kidneys, nerves, heart, and blood vessels. With aging, the target cell response time becomes slower, especially in people who might be at risk for this disorder.

With population aging, the number of adults over 65 is increasing, and it is estimated that 33% of adults 65 and older have diabetes. This elder population is also more likely than younger people to develop complications related to diabetes, such as hypoglycemia, kidney failure, and heart disease (Endocrine Society, 2019).

The American Diabetes Association estimates that, in 2015, 30.3 million Americans (9.4% of the population) had diabetes and 7.2 million of them do not know they have it. Of Americans age 65 and older, 25.2% (12 million) have diabetes

(diagnosed and undiagnosed). Another 84.1 million people over age 18 have prediabetes, a condition with increased blood sugar levels that are not yet elevated enough to be called diabetes. The rate of diagnosed diabetes in adults is lowest among non-Hispanic whites at 7.4% and highest among American Indians/Alaskan Natives at 15.1% (ADA, 2018).

The aging population presents challenges for treating endocrine disorders for several reasons. Disorder manifestation in older patients is often atypical, presents as nonspecific geriatric symptoms, or is believed to be a function of “old age” by patients. The symptoms of an endocrine illness may be mistaken for a medication problem or the worsening of a comorbid illness. Older patients may have no particular symptoms and only biochemical evidence of a condition. Treatment of older patients must take all of these things into account and be cognizant of issues of polypharmacy. It has been suggested that endocrine disorders in seniors may be best treated using an interdisciplinary care model (Matsumoto & Robertson, 2016).

Gastrointestinal Changes

The digestive system is made up of the gastrointestinal tract—also called the **GI tract** or digestive tract—and the liver, pancreas, and gallbladder. The GI tract is a series of hollow organs joined in a long, twisting tube from the mouth to the anus. Digestion is the process by which food and drink are broken down into their smallest parts so the body can use them for energy, growth, and cell repair (NIDDK, 2017a).

The digestive system is less affected by aging than other organ systems, nevertheless aging is a factor and older adults are more likely to develop diverticulosis and digestive tract disorders like constipation as a medication side effect (Ruiz, 2017).

Gastroesophageal reflux disease (GERD) occurs when the lower esophageal sphincter does not close properly and stomach contents leak back (reflux) into the esophagus. Heartburn that occurs more than twice a week may be considered GERD, and it can eventually lead to more serious health problems (**MedlinePlus, 2019a**).

Food intake may decrease in the older adult for several reasons. An older person’s ill-fitting dentures or tooth decay can make chewing difficult. Decreased saliva production causes dry mouth, which may increase tooth decay and even make swallowing more difficult. Taste becomes less acute, making food less appetizing.

Decreased intestinal motility and slower stomach emptying can lead to altered absorption of nutrients and medications. Decreased physical activity, decreased intestinal motility, and a lessened urge to defecate can lead to constipation.

Constipation

Nearly everyone becomes constipated at one time or another, but older people are more likely than younger people to become constipated. Constipation is estimated to affect 2% to 27% of the general population in the United States—but 20% to 74% of older patients—and is highest among institutionalized individuals (Chokhavatia et al., 2016).

Constipation is a symptom, not a disease. An individual may be constipated if there are fewer bowel movements than usual, it takes a long time to pass stools, and the stools are hard. There is no correct number of daily or weekly bowel movements. Being regular is different for each person. For some, it can mean bowel movements twice a day and for others having movements three times a week is normal.

The cause of constipation is not always known. It may be poor diet, not getting enough exercise, or using laxatives too often. Reasons for constipation include:

- Diet low in fiber, vegetables, fruits, and whole grains
- Loss of interest in cooking and eating
- Dental problems
- Lack of water and other fluids
- Overuse of laxatives and enemas
- Lack of exercise
- Holding back or ignoring the urge to have a bowel movement

In addition, constipation can result from medical conditions such as stroke, diabetes, a blockage in the intestines, or Irritable bowel syndrome (IBS), and from medications used to treat depression, antacids containing aluminum or calcium, iron supplements, some antihistamines, certain painkillers, some hypertension drugs (including diuretics), and some drugs used to treat Parkinson’s disease (NIDDK, 2018; NIA, 2013, MedlinePlus, 2019b).

When serious causes of constipation have been ruled out, dietary and lifestyle changes can be tried for problems with constipation. Fiber should be added to the diet by eating more fresh fruits and vegetables, either cooked or raw, and more whole-grain cereals and breads.

If the diet does not include natural fiber, a small amount of bran may be added to baked goods, cereal, and fruit. This may cause some bloating and gas in the beginning, so diet changes should be made slowly to allow the system to adapt. Fiber products such as psyllium seed may be used and are found in the grocery store.

Drinking more water and juice—at least three 12-oz glasses of water each day unless medically contraindicated—and staying active helps prevent constipation and is also important for overall health.

If these changes don't work, laxatives may be considered. If constipation continues to be a problem, it is important to seek medical advice. A change in bowel habits, blood in the stool, abdominal pain, or recent unexplained weight loss may be signs of a more serious problem (NIA, 2013).

Older adults regularly taking narcotic pain medications frequently experience constipation that is often underrecognized and undertreated. Opioid pain medications slow movement of stool through the intestinal tract and the stool becomes hard and more difficult to expel. The usual treatments of fiber, fluids, and exercise are not sufficient and traditional laxatives are not always effective or appropriate. Some prescription drugs have become available but the complexity of the situation in older patients calls for careful attention from healthcare professionals to resolve individual cases (Chokhavatia et al., 2016).

Other Gastrointestinal Problems

- **Gallstones**—formed from hardened digestive fluid in the gallbladder—are very common, affecting 10% to 15% of the U.S. population, and being over age 40 increases the risk of developing them. They can cause abdominal pain, especially in the right upper abdomen and right upper back (NIDDK, 2017c).
- Loss of muscle strength with aging can lead to **diverticular disease**. Diverticulosis is very common and occurs in 10% of people over age 40 and in 50% of people over age 60. Although most people have few or no symptoms, the diverticula may become infected (diverticulitis) or cause bleeding (WebMD, 2018a).
- The risk for **colorectal cancer** increases dramatically after age 50 and about 90% of all colorectal cancers are diagnosed in adults over age 55 (NCI, 2019). Symptoms can include rectal bleeding, constipation or loose stools, weight loss, abdominal pain, and fatigue. It is generally recommended that all individuals have a colonoscopy every 10 years beginning at age 50, and younger or more often depending on family and personal history. Alternative tests may be appropriate for certain patients (NIDDK, 2017b).

Sensory Changes

As the senses become less acute with age, less information can be gathered and processed about the world around us. The prevalence of sensory impairments is increasing as life expectancy increases. In order to maintain independent living, health, and quality of life for older adults it is important to minimize the impact of sensory impairments.

Data shows the critical interplay of sensory deficits in older adults with other deficiencies and overall quality of life. Vision impairment, which correlates with depression, poor quality of life, cognitive decline, and mortality, occurs in 18% of adults age 70 and older. Hearing impairment, associated with slower gait speed, poor cognition, and mortality, is found in 33% of the same age group.

Loss of smell and taste, both of which have been associated with compromised nutrition and in-patient mortality, affect many adults 70 and older. In addition, multisensory impairment is not uncommon; 67% of older adult Americans have two or more sensory deficits, while only 6% have none (Correia et al., 2016).

Hearing

Hearing loss is one of the most common conditions affecting older adults. Approximately 1 in 3 people between 65 and 74 and nearly half of those older than 75 have hearing loss, making it hard to understand and follow a doctor's advice, respond to warnings, and hear doorbells and alarms. Hearing loss can also make it difficult to enjoy talking with friends and family.

Many people lose their hearing slowly as they age, a condition known as **presbycusis**. Presbycusis most commonly arises from gradual changes in the inner ear as a person ages, but may also result from changes in the middle ear or from complex changes along the nerve pathways leading to the brain.

Age-related hearing loss most often occurs in both ears and affects them equally. Because the loss of hearing is gradual, people may not realize that their hearing is diminishing. Doctors do not know why this condition affects people differently but it seems to run in families.

Years of exposure to noise that is either too loud or lasts too long can result in **noise-induced hearing loss**. This kind of noise exposure can damage the ears' sensory hair cells, which do not grow back, so hearing is diminished. Most older people with hearing loss have a combination of age-related and noise-induced hearing loss.

Conditions more common in older people, such as high blood pressure or diabetes, can contribute to hearing loss. But it can also be caused by viral or bacterial infections, heart conditions or stroke, head injuries, tumors, and certain medicines toxic to sensory cells in the ear (eg, some used in chemotherapy) (NIDCD, 2018, 2018a).

Vision

Ninety percent of blindness caused by diabetes is preventable.

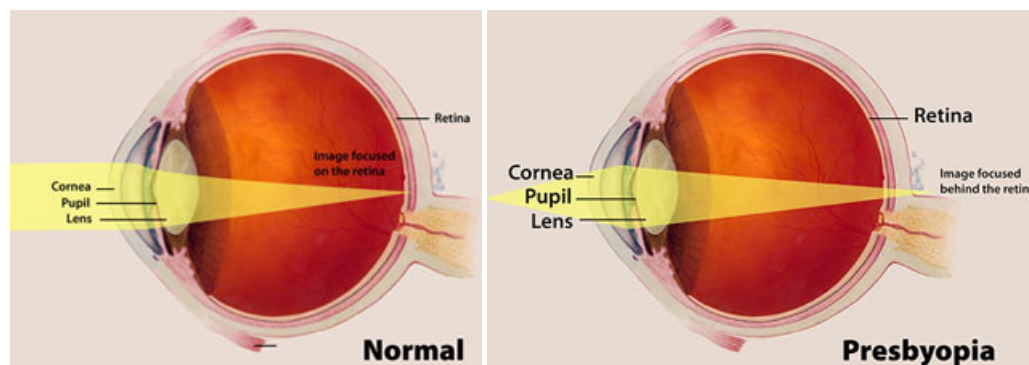
CDC, 2017g

As people age, their risk increases for eye diseases and conditions such as age-related macular degeneration, cataracts, diabetic retinopathy, dry eye, glaucoma, and low vision. But vision loss is not inevitable; if eye diseases are detected and treated early, vision loss is often preventable (NEI, n.d.). It is estimated that by 2050 the number of Americans with age-related eye diseases will double. Many eye diseases have no early signs or symptoms to warn people but they can be detected in their early states by a comprehensive dilated eye exam done by an eyecare professional (CDC, 2017f).

Blindness or vision problems are among the top ten disabilities among adults aged 18 and older. Vision loss has serious consequences for the individual as well as those who care for and about people who have compromised vision because it impedes the ability to read, drive, prepare meals, watch television, and attend to personal affairs. Reduced vision among mature adults has been shown to result in social isolation, family stress, and ultimately a greater tendency to experience other health conditions or die prematurely (CDC, 2017f).

Presbyopia is a common type of vision disorder that occurs naturally in people as they age. It results in the inability to focus up close and is associated with refraction (bending of light) in the eye. Presbyopia is easily corrected with glasses (NEI, 2010).

Eye Anatomy: Normal and with Presbyopia



Source: National Eye Institute, National Institutes of Health.

Age-Related Macular Degeneration (AMD) is a common eye condition and a leading cause of vision loss among people age 50 and older. It causes damage to the macula, a small spot near the center of the retina and the part of the eye needed for sharp, central vision, which lets people see objects that are straight ahead. In some cases, AMD advances so slowly that people notice little change in their vision. In others, the disease progresses faster and may lead to a loss of vision in one or both eyes (NEI, 2018).

Normal Vision and Effect of Macular Degeneration



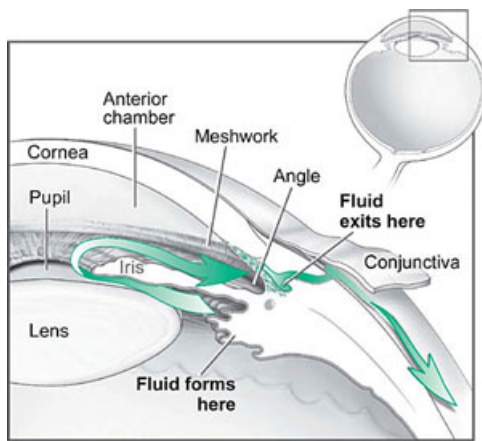
Source: National Eye Institute, National Institutes of Health.

A **cataract** is a clouding of the lens in the eye that affects vision and generally is related to aging. By age 80, more than half of all Americans either have a cataract or have had cataract surgery. A cataract can occur in one or both eyes and cannot spread from one eye to the other (NEI, 2015).

With age, some of the protein that makes up the lens may clump together and start to cloud a small area of the lens, causing a cataract. Over time the cataract may grow larger and cloud more of the lens. Researchers suspect that there are several causes of cataract (eg, smoking, diabetes) or it may be that the protein in the lens changes from the wear and tear it takes over the years (NEI, 2015).

Glaucoma is a group of diseases that damage the eye's optic nerve and can result in vision loss and blindness. However, with early detection and treatment, serious vision loss may be prevented (NEI, 2015b).

Drainage System of the Eye



Source: NIH, n.d.

Several large studies have shown that eye pressure is a major risk factor for optic nerve damage. In the front of the eye is a space called the anterior chamber. Aqueous humor flows continuously in and out of the chamber and nourishes nearby tissues. The fluid leaves the chamber at the open angle where the cornea and iris meet. When the fluid reaches the angle, it flows through a spongy meshwork, like a drain, and leaves the eye.

In open-angle glaucoma, even though the drainage angle is “open,” the fluid passes too slowly through the meshwork drain. Since the fluid builds up, the pressure inside the eye rises to a level that may damage the optic nerve. When the optic nerve is damaged from increased pressure, open-angle glaucoma and vision loss may result. That’s why controlling pressure inside the eye is important.

Another risk factor for optic nerve damage relates to blood pressure. Thus, it is important to make sure general blood pressure remains at a proper level (NEI, 2015b).

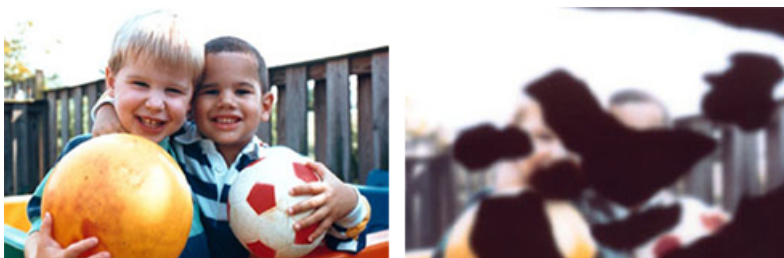
Visual Result of Glaucoma



Normal vision and vision impaired by glaucoma. Source: National Eye Institute, National Institutes of Health.

Diabetic retinopathy is the most common diabetic eye disease and a leading cause of blindness among working-age adults. It is caused by changes in the blood vessels of the retina (NEI, 2015c). Diabetic retinopathy can cause blood vessels in the retina to leak fluid or hemorrhage, distorting vision. In its most advanced stage, new abnormal blood vessels proliferate on the surface of the retina, which can lead to scarring and cell loss in the retina (NEI, 2015c).

Visual Result of Diabetic Retinopathy



Normal vision and vision impaired by diabetic retinopathy. Source: National Eye Institute, National Institutes of Health.

Optic nerve atrophy in older adults is most commonly caused by poor blood flow, which damages the optic nerve. Vision becomes dim, the field of vision is reduced, the ability to see fine detail is lost, and colors seem faded. Over time the pupil is less able to react to light and may eventually completely lose that ability. Damage to the optic nerve is permanent and treatment consists of treating the underlying cause and preventing further damage, as well as protecting the other eye (Medline Plus, 2018f).

It is important for older adults to have yearly eye exams to detect problems in the early stages. Blood pressure should be

monitored and exercise and a healthy diet are important. Smoking and sun exposure have been linked to both cataracts and macular degeneration. Sunglasses with 100% UVA and UVB protection should be worn.

Recent research has found that vision loss precedes loss of mental capacity and suggests that maintaining eye health could help protect cognition in older adults, lending more urgency to the need to protect vision as we age (Zheng et al., 2018).

Smell and Taste

Smell and taste are closely linked in the brain, but they are actually distinct sensory systems. True tastes are detected by taste buds on the tongue and the roof of the mouth, as well as in the throat region, and are limited to sweet, salty, sour, bitter, savory—and perhaps a few other sensations. The loss of smell is much more common than the loss of taste, and many people mistakenly believe they have a problem with taste, when they are really experiencing a problem with their sense of smell.

Our sense of **smell** helps us enjoy life and is also a warning system that alerts to danger signals such as a gas leak, spoiled food, or a fire. Any loss in our sense of smell can have a negative effect on our quality of life. It can also be a sign of more serious health problems.

Roughly 1% to 2% of people in North America say that they have a smell disorder. Problems with the sense of smell increase with age and are more common in men than women. In one study, nearly one-quarter of men ages 60 to 69 had a smell disorder, while about 11% of women in that age range reported a problem. Many people who have smell disorders also notice problems with their sense of taste (NIDCD, 2017).

Sense of smell that declines with age is called **presbyosmia** and is not preventable.

Age is only one of the many reasons for problems with smell. Most people who develop a problem with smell have recently had an illness or injury. The most common causes are the common cold and chronic nasal or sinus infection.

Problems with the sense of smell can also be a sign of other serious health conditions. A smell disorder can be an early sign of Parkinson's disease, Alzheimer's disease, multiple sclerosis, and (rarely) brain tumor. It can also accompany or be a sign of obesity, diabetes, hypertension, and malnutrition.

When smell is impaired, people often change their eating habits. Some may eat too little and lose weight while others may eat too much and gain weight. Food becomes less enjoyable and people may use too much salt or sugar to improve the taste, a practice that can worsen certain medical conditions such as high blood pressure, kidney disease, or diabetes. In severe cases, loss of smell can lead to depression.

It is important to identify and treat the underlying cause of a smell disorder. Certain antibiotics, some blood pressure pills, some cholesterol-lowering drugs, and some antifungal medications can cause problems with smell. The sense of smell usually returns to normal when the medicine is stopped.

Surgery to remove nasal obstructions such as polyps can restore airflow. Some people recover their ability to smell when the illness causing their olfactory problem is resolved. Occasionally, a person may recover the sense of smell spontaneously.

People with head and neck cancers who receive radiation treatment to the nose and mouth commonly experience problems with their sense of smell and taste as a side effect. Older people who have lost their larynx (voice box) commonly complain of poor ability to smell and taste (NIDCD, 2017; NIA, 2015).

Nineteen percent of Americans over age 40 report some alteration in their sense of **taste**, and this rises to 27% in people age 80 and older. About 5% of Americans experience **dysgeusia**, an often-persistent problem in which tastes are distorted; a majority (64%) of sufferers are women (NIDCD, 2019).

Chewing, drinking, and digesting foods releases tiny molecules that stimulate special sensory cells in the mouth and throat. Taste cells are clustered in the taste buds located mainly on the tongue, roof of the mouth, and the lining of the throat. Taste cells respond to at least one of five basic taste qualities: sweet, sour, bitter, salty and umami (savory). When people are born they have about 10,000 taste buds but may start to lose them after age 50 (NIDCD, 2017a; NIA, 2015).

Taste quality works in conjunction with another mechanism called the **common chemical sense**, which involves nerve endings on the moist surfaces of the eyes, nose, mouth, and throat that let you experience things like the coolness of mint or the burning of chili peppers. Other nerves create sensations of heat, cold, and texture. All of these work together with a food's aroma to produce the perception of flavor, which allows one to distinguish one food from another (NIDCD, 2017a).

When people chew food, it releases aromas that activate the sense of smell by way of a channel connecting the roof of the throat to the nose. If a stuffy nose or other condition is blocking the channel, odors don't reach the nose's sensory cells and much enjoyment of flavor is lost, making food seem bland and flavorless. Most of the time when people think they have a taste disorder they actually have a smell disorder (NIDCD, 2017a).

The most common taste disorder is phantom taste perception. A reduced ability to taste the five qualities affects some people, and some cannot detect any tastes but that is a rare condition. Some people are born with tasted disorders but

most begin after an injury or illness. Causes can include:

- Upper respiratory and middle ear infections
- Radiation therapy for cancers of the head and neck
- Exposure to certain chemicals, such as insecticides and some medications, including some common antibiotics and antihistamines
- Head injury
- Some surgeries to the ear, nose, and throat (such as middle ear surgery) or extraction of the third molar (wisdom tooth)
- Poor oral hygiene and dental problems.

Touch

Touch is the first sense that babies develop in the womb and it is necessary for the continued physical and emotional development of humans. Studies have shown that children deprived of human touch were more likely to become aggressive and violent than children raised with a loving and nurturing parent. Massage therapy has been shown to be beneficial in reducing anxiety and decreasing episodes of defiance in adolescents with behavioral disorders.

The sense of touch allows one to be aware of pain, temperature, pressure, vibration, and body position. Nerve endings (receptors) in skin, muscles, tendons, joints, and internal organs detect these sensations. Sensations can be reduced or changed with aging. Sometimes this is due to decreased blood flow to the nerve endings or the spinal cord or brain, which transmit and interpret signals from the nerves. Various health problems can also affect sensation changes, including lack of certain nutrients, brain surgery, brain problems, confusion, or nerve damage from injury or chronic diseases such as diabetes (MedlinePlus, 2018g).

Changed sensations vary but can have a variety of negative effects, some particularly relevant to elders. A decreased sensitivity to temperature that makes it hard to distinguish between cool and cold or hot and warm can make a person more susceptible to frostbite, hypothermia, and burns. A decreased sensitivity to vibration, touch, or pressure increases the risk from pressure ulcers, while decreased pain sensitivity may mislead one into thinking an injury is not as severe as it actually is. Walking problems and fall risk increase if a person develops a reduced ability to understand where their body is in relation to the floor (MedlinePlus, 2018g).

Sleep Changes

Sleep disorders are common in older adults and involve any disrupted sleep pattern, including problems falling or staying asleep, too much sleep, or abnormal behaviors with sleep. All adults need about the same amount of sleep—seven to eight hours per night—but older adults sleep less deeply and experience choppy sleep than younger people. A healthy 70-year-old may wake up several times per night without any connection to a disease.

Sleep disturbances in older adults can be due to:

- Alzheimer's disease
- Alcohol
- Changes in the body's natural internal clock, causing some people to fall asleep earlier in the evening
- Long-term (chronic) disease, such as heart failure
- Certain medicines, herbs, supplements, and recreational drugs
- Depression (depression is a common cause of sleep problems in people of all ages)
- Brain and nervous system conditions
- Being inactive
- Pain caused by diseases such as arthritis
- Stimulants such as caffeine and nicotine
- Frequent urination at night (MedlinePlus, 2018h)

Sleep patterns tend to change with age and most people find that they have a harder time falling asleep, wake more often during the night, and awaken earlier in the morning. Even though total sleep need doesn't really change, if it is harder to fall asleep—then total time in bed may increase. Older people often wake up more abruptly and so feel they have become lighter sleepers. Older people spend less time in deep, dreamless sleep so they wake up more often—3 to 4 times per night on average. They are also more aware of being awake. These factors can make them feel sleep-deprived even if the amount of time asleep has not materially changed (MedlinePlus, 2018i).

Sleep problems are annoying and sleep deprivation contributes to accidents and depression. It can even cause confusion and mental changes, but fortunately, it is treatable and symptoms reduce with enough sleep. Sleep problems are also a common symptom of depression and it is best to see a healthcare provider to rule out depression and other health conditions as a cause. Most sleep disorders have treatments available and sleep medicines in particular may not be advisable for older patients, so seeing a healthcare provider is always a good first step (MedlinePlus, 2018i).

The most common sleep problems are:

- Insomnia (one of the more common in older people)
- Other sleep disorders, such as restless legs syndrome, narcolepsy, or hypersomnia

- Sleep apnea, where breathing stops for a time during sleep (MedlinePlus, 2018i)

Insomnia is trouble falling asleep, staying asleep through the night, or waking up too early in the morning. It can be caused by poor sleep or lifestyle habits, use of some medicines or drugs, health problems, and social or mental health issues such as stress, anxiety, or depression (MedlinePlus, 2018j).

Restless legs syndrome is a common condition in older adults and affects more than 15% of people 80 years and older. People with RLS experience uncomfortable feelings in their legs such as tingling, crawling, or pins and needles that are alleviated by moving the leg. This often makes it hard for them to fall asleep or stay asleep, and causes them to be sleepy during the day.

Obstructive sleep apnea occurs when air entering from the nose or mouth is either partly or completely blocked, usually because of obesity or extra tissue in the back of the throat and mouth. If these episodes occur frequently or are severe, they may cause a person's sleep to be fragmented throughout the night. This may result in their being sleepy during the day.

Psychosocial Changes

Loss

All older adults experience loss with aging—loss of social status and self-esteem, loss of physical capacities, and the death of friends and loved ones. The loss of a spouse is common in late life. About 800,000 older Americans are widowed each year and bereavement is a natural response to the death of a loved one. The death of a spouse can also result in financial difficulties and loss of social contacts. Its features, almost universally recognized, include crying and sorrow, anxiety and agitation, insomnia, and loss of appetite (Moen et al., 2000).

The losses experienced by older adults often occur over short periods of time. Experiencing more than one loss at a time or over a short period of time can cause prolonged grieving. An older person who experiences loss may feel numb and overwhelmed and may also lack the support systems they once had. But, in the face of loss, many older people have the capacity to develop new adaptive strategies, even creative expression. Those experiencing loss may be able to move in a positive direction, either on their own, with the benefit of informal support from family and friends, or with formal support from mental health professionals.

Social Roles

Social roles are important components of self-concept. Older adults face many challenges, including the loss of careers, loss of family members and friends, changes in physical and mental abilities, difficulties in accessing affordable and high-quality healthcare, decreased financial security, and decreasing opportunities to remain engaged in society (Cornwell, 2008).

Remaining socially integrated in society has many benefits for the older adult. Although the oldest old have a smaller social network, they tend to have more contact with the core group. Social networks are important for older adults because they provide resources—such as access to information and other resources—that are crucial for successful aging and social support (Cornwell, 2008).

As people age they may become more dependent on family members for care and support, and adult children may feel that there has been a role reversal, concerned that they have become their parent's parent. But it is difficult for an older adult to give up a lifetime of independence and, like any other adult, they want their decisions to be respected. It is important, even with an older person who has dementia, to make collaborative decisions about care, living arrangements, and outside help when needed.

6. Age-Related Memory Changes and Dementia

Dementia and Cognitive Impairment

[This section is taken largely from NINDS, 2017.]

Dementia is the name for a group of symptoms caused by disorders affecting the brain. It is not a specific disease (MedlinePlus, 2017).

Dementia is the loss of cognitive functioning—the ability to think, remember, or reason—to such an extent that it interferes with a person's daily life and activities. These functions include memory, language skills, visual perception, problem solving, self-management, and the ability to focus and pay attention.

Some people with dementia cannot control their emotions, and their personalities may change. Dementia ranges in severity from the mildest stage, when it is just beginning to affect a person's functioning, to the most severe stage, when the person must depend completely on others for basic activities of daily living (ADLs).

Age is the primary risk factor for developing dementia. For that reason, the number of people living with dementia could double in the next 40 years as the number of Americans age 65 and older increases from 48 million today to more than 88 million in 2050. Regardless of the form of dementia, the personal, economic, and societal demands can be devastating.

Dementia is not the same as age-related cognitive decline—when certain areas of thinking, memory, and information processing slow with age, but intelligence remains unchanged. Unlike dementia, age-related memory loss isn't disabling. Occasional lapses of forgetfulness are normal in older adults. While dementia is more common with advanced age (as many as half of all people age 85 or older may have some form of dementia), it is not an inevitable part of aging. Many people live into their nineties and beyond without any signs of dementia.

Dementia is not the same as delirium, which is usually a short-term complication of a medical condition and most often can be treated successfully. Signs and symptoms of dementia result when once-healthy neurons (nerve cells) in the brain stop working, lose connections with other brain cells, and die. While everyone loses some neurons as they age, people with dementia experience far greater loss.

Mild cognitive impairment (MCI) is a stage between normal cognitive changes that may occur with age and more serious symptoms that indicate dementia. Symptoms of MCI can include problems with thinking, judgment, memory, and language, but the loss doesn't significantly interfere with the ability to handle everyday activities. Symptoms of MCI include mild memory loss; difficulty with planning or organization; trouble finding words; frequently losing or misplacing things; and forgetting names, conversations, and events.

Someone who has MCI may be at greater risk of eventually developing Alzheimer's or another type of dementia, particularly if the degree of memory impairment is significant, but MCI does not always progress to dementia. Symptoms may remain stable for several years, and even improve over time in some people.

Researchers are still trying to understand the underlying disease processes involved in dementia. Scientists have some theories about mechanisms that may lead to different forms of dementia, but more research is needed to better understand if and how these mechanisms are involved.

Differentiating Dementia from Other Conditions

[This section is taken largely from NINDS, 2017.]

The symptoms of a number of medical conditions mimic those of dementia and this must be considered when evaluating a person experiencing cognitive changes. Gerontology specialists speak of the "Three Ds"—dementia, delirium, and depression—because these are the most prevalent reasons for cognitive impairment in older adults. Delirium and depression can cause cognitive changes that may be mistaken for dementia, and healthcare providers and caregivers should learn to distinguish among the three conditions.

There are other conditions that can cause dementia-like symptoms; many of these conditions can be stopped and may be

reversible with appropriate treatment:

- **Normal pressure hydrocephalus** is an abnormal buildup of cerebrospinal fluid in the brain. Elderly individuals with the condition usually have trouble with walking and with bladder control before the onset of dementia. Normal pressure hydrocephalus can be treated or even reversed by implanting a shunt system to divert fluid from the brain.
- **Nutritional deficiencies** of vitamin B1 (thiamine), caused by chronic alcoholism, and of vitamin B12, can be reversed with treatment. People who have abused substances such as alcohol and recreational drugs sometimes display signs of dementia even after the substance abuse has stopped.
- **Side effects of medications** or drug combinations may cause cognitive impairment that looks like a degenerative or vascular dementia but which could reverse upon stopping these medications.
- **Vasculitis**, an inflammation of brain blood vessels, can cause dementia after multiple strokes and may be treated with immunosuppressive medications.
- **Subdural hematoma**, or bleeding between the brain's surface and its outer covering (the dura), is common after a fall. Subdural hematomas can cause dementia-like symptoms and changes in mental function. With treatment, some symptoms can be reversed.
- Some **non-malignant brain tumors** can cause symptoms resembling dementia and recovery occurs following their removal by neurosurgery.
- Some **chronic infections** around the brain, so-called chronic meningitis, can cause dementia and may be treatable by drugs that kill the infectious agent.

Dementia Screening/Diagnosis

[This section is taken largely from NINDS, 2017.]

To diagnose dementia, doctors first assess whether an individual has an underlying treatable condition such as abnormal thyroid function, vitamin deficiency, or normal pressure hydrocephalus that may relate to cognitive difficulties. Early detection of symptoms is important, as some causes can be treated. In many cases, the specific type of dementia may not be confirmed until after the person has died and the brain is examined. An assessment generally includes:

- **Medical history and physical exam.** Assessing a person's medical and family history, current symptoms and medication, and vital signs can help the doctor detect conditions that might cause or occur with dementia. Some conditions may be treatable.
- **Neurologic evaluations.** Assessing balance, sensory response, reflexes, and other functions helps the doctor identify signs of conditions that may affect the diagnosis or are treatable with drugs. Doctors also might use an electroencephalogram, a test that records patterns of electrical activity in the brain, to check for abnormal electrical brain activity.
- **Brain scans.** Computed tomography (CT) and magnetic resonance imaging (MRI) can detect structural abnormalities and rule out other causes of dementia. Positron-emission tomography (PET) can look for patterns of altered brain activity that are common in dementia. Recent advances in PET can detect amyloid plaques and tau tangles in AD.
- **Cognitive and neuropsychological tests.** These tests are used to assess memory, language skills, math skills, problem-solving, and other abilities related to mental functioning.
- **Laboratory tests.** Testing a person's blood and other fluids, as well as checking levels of various chemicals, hormones, and vitamin levels, can identify or rule out conditions that may contribute to dementia.
- **Pre-symptomatic tests.** Genetic testing can help some people who have a strong family history of dementia identify risk for a dementia with a known gene defect.
- **Psychiatric evaluation.** This evaluation will help determine if depression or another mental health condition is causing or contributing to a person's symptoms.

Types of Dementia

[This section is taken largely from NINDS, 2017.]

Various disorders and factors contribute to dementia, resulting in a progressive and irreversible loss of neurons and brain functions. Currently, there are no cures for these neurodegenerative disorders.

How Alzheimer's Changes the Brain [4:00]

https://www.nia.nih.gov/health/video-how-alzheimers-changes-brain?utm_source=ADvideo&utm_medium=web&utm_campaign=rightrail

Alzheimer's disease (AD) is the most common cause of dementia in older adults. As many as 5 million Americans age 65 and older may have the disease. In most neurodegenerative diseases, certain proteins abnormally clump together and are thought to damage healthy neurons, causing them to stop functioning and die. In Alzheimer's, fragments of a protein called **amyloid** form abnormal clusters called **plaques** between brain cells, and a protein called **tau** forms **tangles** inside nerve cells.

It seems likely that damage to the brain starts a decade or more before memory and other cognitive problems appear. The damage often initially appears in the hippocampus, the part of the brain essential in forming memories. Ultimately, the abnormal plaques and tangles spread throughout the brain, and brain tissue significantly shrinks.

As Alzheimer's disease progresses, people experience greater memory loss and other cognitive difficulties. Problems can include wandering and getting lost, trouble handling money and paying bills, repeating questions, taking longer to complete normal daily tasks, and personality and behavior changes.

People are often diagnosed in this stage. Memory loss and confusion worsen, and people begin to have problems recognizing family and friends. They may be unable to learn new things, carry out multi-step tasks such as getting dressed, or cope with new situations. In addition, people at this stage may experience hallucinations, delusions, and paranoia and may behave impulsively.

People with severe Alzheimer's cannot communicate and are completely dependent on others for their care. Near the end, the person may be in bed most or all of the time as body functions shut down. Certain drugs can temporarily slow some symptoms of Alzheimer's from getting worse, but currently there are no treatments that stop the progression of the disease.

Researchers have not found a single gene solely responsible for Alzheimer's disease; rather, multiple genes are likely involved.

Today, 5.8 million Americans have Alzheimer's disease (5.2 million are over age 65) and about two-thirds of them are women. By 2050 up to 14 million people will have AD. In 2019 Alzheimer's and other dementias will cost the nation \$290 billion, with Medicare and Medicaid paying 67% of that. Older African Americans are twice as likely as older whites to have Alzheimer's or other dementias (Alzheimer's Association, 2019).

Frontotemporal Disorders

Frontotemporal disorders (FTD) are forms of dementia caused by a family of neurodegenerative brain diseases collectively called *frontotemporal lobar degeneration*. They primarily affect the frontal and temporal lobes of the brain, rather than the widespread shrinking and wasting away (atrophy) of brain tissue seen in Alzheimer's disease. In these disorders, changes to nerve cells in the brain's frontal lobes affect the ability to reason and make decisions, prioritize and multitask, act appropriately, and control movement.

Changes to the temporal lobes affect memory and how people understand words, recognize objects, and recognize and respond to emotions. Some people decline rapidly over 2 to 3 years, while others show only minimal changes for many years. People can live with frontotemporal disorders for 2 to 10 years, sometimes longer, but it is difficult to predict the time course for an affected individual. The signs and symptoms may vary greatly among individuals as different parts of the brain are affected. No treatment that can cure or reverse frontotemporal disorders is currently available.

Lewy Body Dementia

Lewy body dementia (LBD) is one of the most common causes of dementia after Alzheimer's disease and vascular disease. It typically begins after age 50, but can occur earlier. It involves abnormal protein deposits called Lewy bodies, which are balloon-like structures that form inside nerve cells. The abnormal buildup of the protein alpha-synuclein and other proteins causes neurons to work less effectively and die. Initial symptoms may vary, but over time people with these disorders develop similar cognitive, behavioral, physical, and sleep-related symptoms.

Lewy body dementia includes two related conditions—**dementia with Lewy bodies (DLB)** and **Parkinson's disease dementia (PDD)**. In dementia with Lewy bodies, the cognitive symptoms are seen within a year of movement symptoms called parkinsonism (including tremor, difficulty with walking and posture, and rigid muscles). In Parkinson's disease dementia, the cognitive symptoms develop more than a year after movement problems begin.

Vascular Contributions to Cognitive Impairment and Dementia

Vascular contributions to cognitive impairment and dementia (VCID) cause significant changes to memory, thinking, and behavior. Cognition and brain function can be significantly affected by the size, location, and number of brain injuries.

Vascular dementia and vascular cognitive impairment arise as a result of risk factors that similarly increase the risk for cerebrovascular disease (stroke), including atrial fibrillation, hypertension, diabetes, and high cholesterol. Symptoms of VCID can begin suddenly and progress or subside during the lifetime. VCID can occur along with Alzheimer's disease.

People with VCID almost always have abnormalities in the brain on magnetic resonance imaging (MRI) scans. These include evidence of prior strokes, often small and asymptomatic, as well as diffuse changes in the brain's "white matter"—the connecting "wires" of the brain that are critical for relaying messages between brain regions. Microscopic brain examination shows thickening of blood vessel walls called arteriosclerosis and thinning or loss of components of the white matter.

Other Neurodegenerative Diseases and Conditions

Doctors have identified many other conditions that can cause dementia or dementia-like symptoms. The diseases have different symptoms that involve body and brain functions, and affect mental health and cognition.

Argyrophilic grain disease is a common, late-onset degenerative disease that affects brain regions involved in memory and emotion. It causes cognitive decline and changes in memory and behavior, with difficulty finding words. The disease's signs and symptoms are indistinguishable from late-onset AD. Confirmation of the diagnosis can be made only at autopsy.

Creutzfeldt-Jakob disease is a rare brain disorder that is characterized by rapidly progressing dementia. Scientists found that infectious proteins called *prions* become misfolded and tend to clump together, causing the brain damage. Initial symptoms include impaired memory, judgment, and thinking, along with loss of muscle coordination and impaired vision. Some symptoms of CJD can be similar to symptoms of other progressive neurologic disorders, such as Alzheimer's disease.

Chronic traumatic encephalopathy (CTE) is caused by repeated traumatic brain injury (TBI) in some people who suffered multiple concussions. People with CTE may develop dementia, poor coordination, slurred speech, and other symptoms similar to those seen in Parkinson's disease 20 years or more after the injury. Late-stage CTE is also characterized by brain atrophy and widespread deposits of tau in nerve cells. In some people, even just 5 to 10 years beyond the traumatic brain injury, behavioral and mood changes may occur. Dementia may not yet be present and the brain may not have started to shrink, but small deposits of tau are seen in specific brain regions at autopsy.

Huntington's disease is an inherited, progressive brain disease that affects a person's judgment, memory, ability to plan and organize, and other cognitive functions. Symptoms typically begin around age 30 or 40 years and include abnormal and uncontrollable movements called **chorea**, as well as problems with walking and lack of coordination. Cognitive problems worsen as the disease progresses, and problems controlling movement lead to complete loss of ability for self-care.

HIV-associated dementia (HAD) can occur in people who have human immunodeficiency virus, the virus that causes AIDS. HAD damages the brain's white matter and leads to a type of dementia associated with memory problems, social withdrawal, and trouble concentrating. People with HAD may develop movement problems as well. The incidence of HAD has dropped dramatically with the availability of effective antiviral therapies for managing the underlying HIV infections.

Secondary dementias occur in people with disorders that damage brain tissue. Such disorders may include multiple sclerosis, meningitis, and encephalitis, as well as Wilson's disease (in which excessive amounts of copper build up to cause brain damage). People with malignant brain tumors may develop dementia or dementia-like symptoms because of damage to their brain circuits or a buildup of pressure inside the skull.

Care of Those with Dementia

Those with moderate or advanced dementia often need round-the-clock care and supervision and also may need

assistance with ADLs such as eating, bathing, and dressing. Meeting these needs takes patience, understanding, and careful thought by the person's caregivers.

Communicating with a person who has dementia is a learned skill. Important elements include:

- Setting a positive mood
- Getting the person's attention
- Stating your message clearly
- Asking simple answerable questions
- Listening with ears, eyes, and heart
- Breaking activities into steps
- Using distraction and redirection to deal with upset and agitation
- Responding with affection and reassurance
- Remembering the past as a soothing technique
- Maintaining a sense of humor

Caregiving is a challenging task made even more so when caring for someone with dementia. Print, online, and in-person resources can help caregivers:

- Modify the environment to make it safer and help keep the person with dementia from wandering
- Understand frustrating behaviors and how to work with the person
- Deal with personal issues of cleanliness—toileting, bathing, and dressing
- Manage diet and nutrition
- Provide activities and exercise
- Deal with agitation, paranoia, and other difficult behaviors (FCA, 2016)

Eighty-three percent of the help provided to older adults in the United States is provided by family members, friends, and other unpaid caregivers. Nearly half of all caregivers are caring for someone with Alzheimer's or another dementia, which in many cases exacts a larger emotional, financial, and physical toll on caregivers than caring someone without dementia (Alzheimer's Association, 2019).

Often overlooked by family caregivers is the need to care for themselves (FCA, 2016).

7. Assessing the Older Adult

Working with older adult patients requires excellent communication skills attuned to their particular concerns. Some considerations are as simple as observing the perhaps-unfamiliar etiquette of their generation. Other considerations are attuned to specific deficits—cognitive, hearing, sight—in each patient. It is important to assume nothing about a new patient but screen for any conditions that might affect communication. Even in a patient with no cognitive impairments and no hearing or vision loss there may be issues related to health literacy.

Health Literacy

Health Literacy is defined in the Institute of Medicine report, *Health Literacy: A Prescription to End Confusion* as “the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.”

Health literacy requires a complex group of reading, listening, analytical, and decision-making skills, as well as the ability to apply these skills to health situations. For example, it includes the ability to understand instructions on prescription drug bottles, appointment slips, medical education brochures, doctor's directions and consent forms, and the ability to negotiate complex healthcare systems.

More recent definitions focus on specific skills needed to navigate the healthcare system and the importance of clear communication between healthcare providers and their patients. Both healthcare providers and patients play important roles in health literacy. The number of definitions for health literacy demonstrates how the field has evolved (NNLM, n.d.).

Older adults have documented health literacy problems. The landmark National Assessment of Adult Literacy (2003) contained a component designed specifically to measure health literacy. Data from the survey showed that 75% of adults older than age 60 had difficulty in using print materials, 80% had difficulty using documents such as forms or charts, and 68% had difficulty interpreting numbers and doing calculations (CDC, 2018b). Understanding this is critical for those working directly with older adults in healthcare settings and for those preparing data-gathering forms and health information material intended to help elders manage their care.

Good health literacy includes the ability to:

- Access healthcare services
- Analyze relative risks and benefits
- Calculate dosages
- Communicate with healthcare providers
- Evaluate information for credibility and quality
- Interpret test results
- Locate health information

In order to accomplish these tasks, individuals must be:

- Visually literate (able to understand graphs or other visual information)
- Computer literate (able to operate a computer)
- Information literate (able to obtain and apply relevant information)
- Numerically or computationally literate (able to calculate or reason numerically)

Oral language skills are important as well—patients must be able to articulate their health concerns and describe their symptoms accurately. They need to ask pertinent questions and be able to understand spoken medical advice and treatment directions. In an age of shared responsibility between healthcare provider and patient, patients need strong decision-making skills. Increasingly, health literacy also includes the ability to search the Internet and evaluate healthcare websites.

Anyone might have low health literacy, including people with good literacy skills. Even those who have a medical background can have trouble understanding healthcare information at some point in their lives (NNLM, n.d.).

Obtaining a Medical History

[The following information is taken largely from NIA, 2017a.]

For elder patients, obtaining a good history is crucial; it should include social circumstances, lifestyle, and both medical and family history. If feasible, gather preliminary data before the session by requesting previous medical records or having the patient and family members fill out forms at home. Try to structure questionnaires for easy reading by using large type and providing enough space between items for people to respond.

Try to have patients tell their story only once. For older patients who are ill, re-telling can be tiring. If the patient has trouble with open-ended questions, make greater use of yes-or-no or simple-choice questions. During the interview, sit and face the patient at eye level. Use active listening skills, responding with brief comments such as “I see” and “Okay.” Remember that the interview itself can be beneficial. Giving a patient the chance to express concerns to an interested person can be therapeutic.

Older adults often have sensory impairments that affect communication. Vision and hearing deficits are common. Screen for these so you can check to make sure that hearing aids are in and working or that glasses are available. Be prepared to adjust your delivery if the devices were left at home.

Older patients often have multiple chronic conditions and may have vague complaints or atypical presentations. Thinking in terms of current concerns rather than a chief complaint might be productive. Asking about the patient’s major concern first then allowing them to talk without interruption may help them. But when they finish, probe gently to ask “Is there anything else?” which may help to get all their concerns out on the table before proceeding. If the main concern is a sensitive topic it may not be the first thing the patient brings up. Encouraging patients (or caregivers) to bring a written list of concerns and questions can be useful.

Ask about medications including OTC items, nose sprays and eye drops, supplements, teas, and prescriptions from all the patient’s other providers. Again, asking the patient to bring a list of these items can save time and reduce the chances of overlooking something. This is also a good time to see if a medical alert ID is needed and if the patient has one.

Obtain a thorough family history. This information can provide critical information about family medical conditions; help elicit opinions regarding illness and death, possibly provide an opening to inquire about advance directives; give information about the role relatives play in the patient’s support system, currently or for the future; and identify caregivers the patient relies on, whether paid or unpaid.

Ask question about functional status and ADLs. Inquire about any recent important changes in the patient’s life, including the death of someone close, or a change in living arrangements or financial status.

Social history questions that inquire about where they live and specific living arrangements; access to transportation; eating habits; tobacco, drug, and alcohol use; typical activities, including work; education; and financial situation can all be relevant as you try to devise realistic interventions and understand any problems with treatment adherence.

There are a number of sensitive subjects that can be hard for both providers and patients but it is incumbent on healthcare professionals to find a way to initiate these conversations. These often include when to stop driving, end-of-life plans and advance directives, financial problems, long-term care, abuse, and medical issues such as incontinence, sexuality, substance abuse, and mental health.

Useful conversational techniques include framing questions as common concerns of many people, and using a medication conflict as a way to bring up the issue of driving. Keeping relevant printed materials available in waiting areas is a good practice. Many agencies and organizations—including the National Institute on Aging, CDC, AARP, Alzheimer’s Association, and others—provide printed and online information to train providers and offer materials that can be distributed to patients.

The more complete a life story you can obtain for your patient the better you can understand and care for them. Time constraints may mean that you acquire the information over multiple visits.

Always treat the patient with respect regardless of their mental and physical status. When in doubt, address a patient as Miss, Mrs., or Mr. until you determine if they prefer something else. Speak clearly in a normal voice and avoid endearments such as “Honey” or “Darling.” If the patient’s caregiver is present, do not speak to the caregiver as if the patient were not there. Adjust what is needed to the needs of the patient in that situation.

Give the person the opportunity to ask questions and verify that they understand any diagnosis, treatment, and follow-up instructions. In many offices now, electronic health record systems generate visit summaries and instructions for the patient. If not, older patients many need some information and instructions written out.

Screening Categories

Assessing Sensory Function

One of the challenges of caring for older people is the atypical presentation of symptoms. Deterioration in level of

functioning is often the first symptom in an older person with an acute illness. An older adult may evidence only difficulty with ambulation or mentation when they are ill, while a younger person presents with completely different symptoms. Pneumonia in an older person may present with a change in mental status and a UTI may present as a fall. Vomiting may be the only symptom of a heart attack. Changes in vision, hearing, balance and postural control, or sensory loss can affect mobility and should be thoroughly assessed in older patients.

Vision

Approximately 12 million Americans 40 years and older have vision impairment, including 1 million who are blind, 3 million who have vision impairment after correction, and 8 million who have vision impairment due to uncorrected refractive error.

Even though 61 million adults in the United States are at high risk for serious vision loss, only half visited an eye doctor in the past 12 months. National and state data show that more than half of adult Americans who did not seek eye care lacked awareness of the potential problems or were concerned about the costs; concerns often exacerbated by lack of adequate health insurance.

Ninety percent of blindness caused by diabetes is preventable, and while not all vision loss is correctable, early detection and timely treatment of eye conditions such as diabetic retinopathy has been found to be efficacious and cost effective.

Vision loss causes a substantial social and economic toll for millions of people including significant suffering, disability, loss of productivity, and diminished quality of life. More than 70% of survey respondents in a 2005 survey consider vision loss would have the greatest impact on their day-to-day life, yet less than 11% were aware that there are no early warning signs of glaucoma and diabetic retinopathy (CDC, 2017g).

Healthcare providers in many situations will be in a position to do basic screening and/or inform patients and encourage them to make an appointment with an eye care professional.

Hearing

Approximately 1 in 3 people between the ages of 65 and 74 has hearing loss and nearly half of those older than 75 have difficulty hearing. Having trouble hearing can make it hard to understand and follow a doctor's advice, to respond to warnings, and to hear doorbells and alarms. It can also make it hard to enjoy talking with friends and family. All of this can be frustrating, embarrassing, and even dangerous (NIDCD, 2018).

Healthcare providers can screen for and manage diseases, conditions, and medications that may be causing hearing loss. They can be a safe place for patients to discuss hearing loss and how it is affecting their quality of life, and they can provide information about hearing problems and their treatment and offer referrals to hearing aid or other specialists.

Balance and Postural Control

[This section is taken largely from NIA, 2017d.]

Balance problems are among the most common reasons that older adults seek help from a doctor. They are often caused by disturbances of the inner ear. **Vertigo**, the feeling that you or the things around you are spinning, is a common symptom.

Having good balance means being able to control and maintain body position, whether moving or remaining still. Good balance helps one walk without staggering, get up from a chair without falling, climb stairs without tripping, and bend over without falling. Good balance is important to help people get around, stay independent, and carry out daily activities. Balance disorders are one reason older people fall.

People are more likely to have problems with balance as they get older. But age is not the only reason these problems occur. In some cases, one can reduce the risk for certain balance problems.

Some balance disorders are caused by problems in the inner ear. The part of the inner ear that is responsible for balance is the **vestibular system**, also known as the *labyrinth*. A condition called *labyrinthitis* occurs when the labyrinth becomes infected or swollen. It is typically accompanied by vertigo and imbalance. Upper respiratory infections, other viral infections, and, less commonly, bacterial infections can also lead to labyrinthitis.

Some diseases of the circulatory system, such as stroke, can cause dizziness and other balance problems. Low blood pressure can also cause dizziness. Head injury and many medicines may also lead to balance problems as well. Symptoms of balance disorders can include:

- Staggering when walking
- Teetering or falling when standing up
- Dizziness or vertigo
- Falling or feeling like falling
- Lightheadedness, faintness, or a floating sensation
- Blurred vision
- Confusion or disorientation

Other symptoms might include nausea and vomiting; diarrhea; changes in heart rate and blood pressure; and fear, anxiety, or panic. Symptoms may come and go briefly or last a long time, which can result in fatigue and depression.

Balance disorders can be signs of other health problems, such as an ear infection, stroke, or multiple sclerosis. In some cases, a balance disorder can be treated by seeking medical treatment for the illness that is causing the disorder.

Some exercises help make up for a balance disorder by moving the head and body in certain ways. The exercises are developed especially for a patient by a professional (often a physical therapist) who understands the balance system and its relationship with other systems in the body.

Some balance problems can be managed with lifestyle changes: lowering sodium intake, maintaining a healthy weight, exercising, drinking plenty of fluids, avoiding alcohol, and being cautious regarding body posture and movement. If a balance disorder cannot be fully relieved, referral to a vestibular rehabilitation therapist can help the person cope with dizziness.

Healthcare providers can screen for and manage diseases, conditions, and medications that may be causing or contributing to balance disorders. They can also provide information and referrals to specialists. Additional information about fall risk and prevention appears later in this class.

Older Adults and Balance Problems [4:05]

Source: NIH Senior Health. <https://www.youtube.com/watch?v=cBC2zCIsZ0w#action=share>

Assessing the Skin

Skin disorders are so common among older people that it is often hard to tell normal changes from those related to a disorder. More than 90% of all older people have some type of skin disorder. Skin disorders can be caused by many medical conditions as well as allergies, climate, clothing, chemical exposure, indoor heating, and sun exposure (MedlinePlus, 2018k).

When assessing skin color, look for cyanosis (bluish color), which may indicate poor oxygenation arising from respiratory or cardiac problems, or may signal low body temperature. Because skin color varies by race and ethnicity, it is important to inspect the ears, lips, inside of mouth, hands, and nail beds for signs of cyanosis.

The skin, sclera of the eyes, and mucous membranes should be inspected for jaundice, which may indicate liver disease. Skin pallor can indicate anemia. Erythema, or redness of the skin, may be due to fever, alcohol intake, or infection.

Skin should also be assessed for swelling, which can be a sign of injury or fluid retention. Bruising or bleeding of the skin should be noted, as it may indicate blood disorders or abuse.

Pressure Ulcers

Pressure ulcers, sometimes called *decubitus* ulcers, pressure sores or bedsores, are areas of damaged skin caused by staying in one position for too long. They commonly form where bones are close to the skin, such as ankles, back, elbows, heels, and hips. Patients are at risk if they are bedridden, use a wheelchair, or are unable to change their position.

Pressure sores can cause serious infections, some of which are life-threatening (MedlinePlus, 2019e,f)

The Institute for Healthcare Improvement notes that “because muscle and subcutaneous tissue are more susceptible to pressure-induced injury than skin, pressure ulcers are often worse than their initial appearance. Pressure ulcers cause considerable harm to patients, hindering functional recovery, frequently causing pain and the development of serious infections. Pressure ulcers have also been associated with an extended length of stay, sepsis, and mortality” (IHI, 2019).

Pressure ulcers are often associated with nursing homes and long-term skilled care facilities, but some 60,000 deaths occur each year from complications due to hospital-acquired pressure ulcers and they are considered a medical error (Sullivan & Schoelles, 2013) Pressure ulcers can also happen in home care situations and at-risk patients should be given information and instruction on prevention and treatment.

Pressure sores have a variety of treatments. Advanced sores are slow to heal, so early treatment is best (MedlinePlus, 2019e,f).

Pressure Ulcer Risk Assessment

The Braden Scale is one of the most often used pressure ulcer risk assessment tools. It assesses six risk factors: mobility, activity, moisture, sensation, nutrition, and shear. The Braden Scale has high validity and reliability. Perform the risk assessment on admission and repeat if there is a change in the patient’s condition. This scale is valid for use with individuals of all skin tones.

Pressure Ulcer Prevention

“Preventing pressure ulcers entails to two major steps: first, identifying patients at risk; and second, reliably implementing prevention strategies for all patients who are identified as being at risk” (IHI, 2019). The IHI *How-to Guide: Prevent Pressure Ulcers* (IHI, 2011) (recommended through the AHRQ pressure ulcer prevention site) is available at www.ihl.org.

Basic preventions for pressure ulcers involve:

- Keeping skin clean and dry
- Changing position every 2 hours
- Using pillows and products that relieve pressure (MedlinePlus, 2019e,f)

In healthcare settings key changes recommended by the IHI how-to guide include:

- Inspect skin daily
- Manage moisture on skin
- Conduct a pressure ulcer admission assessment for all patients
- Minimize pressure
- Optimize nutrition and hydration
- Reassess risk for all patients daily (IHI, 2019, 2011)

Moles

During a skin assessment, moles need to be assessed for possible skin cancer. A common mole (**nevus**) is a small growth on the skin that is usually pink, tan, or brown and has a distinct edge. People who have more than fifty common moles have a greater chance than others of developing melanoma. Most common moles do not turn into melanoma and in older people they tend to fade away (NCI, 2018a).

A dysplastic nevus is an unusual mole that is often large and flat and does not have a symmetric round or oval shape. The edge is often indistinct. It may have a mixture of pink, tan, or brown shades. People who have many dysplastic nevi have a greater chance than others of developing melanoma, but most dysplastic nevi do not turn into melanoma (NCI, 2018a).

Photos of Common Moles

Some moles have been circled by the clinician.



Left: common moles that are evenly tan or brown. Center: a common mole that is round with a distinct edge. Right: A common mole is usually small. This one is less than 5 millimeters (about 1/4 inch).

Photos of Dysplastic Nevi

Some moles have been circled by the clinician.



Left: dysplastic nevi that are a mixture of tan, brown, and red/pink. Center: a dysplastic nevus with an irregular edge and the color fading into the skin around it. Right: dysplastic nevus with scaly or pebbly surfaces.



Left: dysplastic nevus with scaly or pebbly surfaces. Center: Dysplastic nevi are often larger than 5 millimeters wide, This one shows a large dysplastic nevus. Right: several large dysplastic nevi circled on a person's back.

NCI, 2011, <https://www.cancer.gov/types/skin/mole-photos>.

If the color, size, shape, or height of a mole changes or if it starts to itch, bleed, or ooze, or if a new mole doesn't look like the client's other moles, it needs to be checked by a physician. The only way to diagnose melanoma is to remove tissue and check it for cancer cells.

Skin Signs of Elder Abuse

When assessing skin, look for signs of abuse. Healthcare providers are mandated reporters of elder abuse. While one sign does not necessarily indicate abuse, some tell-tale signs that there could be a problem:

- Bruises, pressure marks, broken bones, abrasions, and burns may be an indication of physical abuse, neglect, or mistreatment.
- Bruises around the breasts or genital area may indicate sexual abuse.
- Bedsores, unattended medical needs, poor hygiene, and unusual weight loss are indicators of possible neglect.

Skin Breakdown from Urinary Incontinence

Urinary incontinence can contribute to skin breakdown and infection and also to urinary tract infections (UTIs). It is important that incontinence be managed and that skin be cleansed and dried as soon as possible to prevent these complications.

Assessing Psychosocial Function

Isolation

A 2017 study of adults age 65 and older living in the community found that about 14% of participants could be defined as socially isolated, meaning they have little contact with adult children, other relatives, or friends. This group was more likely to be white male urban dwellers with low income and wealth and more likely to have depression, difficulties with ADLs, and at least five chronic conditions. People who were married were no less likely to be isolated than single people (Gleckman, 2017; AARP, 2017a).

The study found that Medicare spent \$1,608 more per year for each socially isolated older adult than it did for adults better connected socially. Socially isolated individuals were 29% more likely to use skilled nursing facilities and incur higher bills. These same individuals were not more likely to use inpatient care (hospitals) but when they did Medicare spent more on them. This may be because socially isolated individuals are sicker when admitted or be unable to transition home as quickly without a support system (AARP, 2017a).

These findings suggest that reducing isolation might improve outcomes for individuals and reduce Medicare spending. The report noted that social isolation is not inevitable with aging (after all, 86% of study participants were not isolated) but "for those older adults who have poor social connections, these findings present an opportunity for state and federal policy makers, along with private-sector actors, to identify promising interventions to alleviate isolation" (AARP, 2017a).

Depression and Suicide

As people age, they tend to go through a lot of changes—death of loved ones, retirement, stressful life events, or medical problems. It's normal to feel uneasy, stressful, or sad about these changes; but, after adjusting, many older adults feel well again (NIMH, 2016).

Depression is a true and treatable medical condition, not a normal part of aging; however, older adults are at an increased risk for experiencing depression. We know that about 80% of older adults have at least one chronic health condition, and 50% have two or more. Depression is more common in people who also have other illnesses (such as heart disease or

cancer) or whose function becomes limited (CDC, 2017i).

Older adults are often misdiagnosed and undertreated. Healthcare providers may mistake an older adult's symptoms of depression as just a natural reaction to illness or the life changes that may occur as we age, and therefore not see the depression as something to be treated. Older adults themselves often share this belief and do not seek help because they don't understand that they could feel better with appropriate treatment (CDC, 2017i).

Depression is a medical condition that interferes with daily life and normal functioning. It is not a normal part of aging, a sign of weakness, or a character flaw. Many older adults with depression need treatment to feel better (NIMH, 2016).

Types of Depression

There are several types of depression. The most common include:

- **Major depression**—severe symptoms that interfere with your ability to work, sleep, concentrate, eat, and enjoy life. Some people may experience only a single episode within their lifetime, but more often, a person may experience multiple episodes.
- **Persistent depressive disorder (dysthymia)**—depression symptoms that are less severe than those of major depression, but last a long time (at least two years).
- **Minor depression**—depression symptoms that are less severe than those of major depression and dysthymia, and symptoms do not last long (NIMH, 2016).

Symptoms

Depression may sometimes be undiagnosed or misdiagnosed in some older adults because sadness is not their main symptom. They may have other, less obvious symptoms of depression or they may not be willing to talk about their feelings.

Depression has many symptoms, including physical ones. A person experiencing several of the following symptoms for at least two weeks, may be suffering from depression:

- Persistent sad, anxious, or “empty” mood
- Loss of interest or pleasure in hobbies and activities
- Feelings of hopelessness, pessimism
- Feelings of guilt, worthlessness, helplessness
- Decreased energy, fatigue, being “slowed down”
- Difficulty concentrating, remembering, making decisions
- Difficulty sleeping, early-morning awakening, or oversleeping
- Appetite and/or unintended weight changes
- Thoughts of death or suicide, suicide attempts
- Restlessness, irritability
- Aches or pains, headaches, cramps, or digestive problems without a clear physical cause and/or that do not ease even with treatment (NIMH, 2016)

Risk Factors

Although most cases of depression are diagnosed in young adults, depression can occur at any age. Certain people are at a higher risk for developing depression. Older adults may be at a higher risk if they:

- Are female
- Have a chronic medical illness, such as cancer, diabetes or heart disease
- Have a disability
- Sleep poorly
- Are lonely or socially isolated

They may also be at a higher risk if they:

- Have a personal or family history of depression
- Use certain medications
- Suffer from a brain disease
- Misuse alcohol or drugs
- Have experienced stressful life events such as loss of a spouse, divorce, or taking care of someone with a chronic illness

If other factors are ruled out, a referral can be made to a mental health professional, such as a psychologist, counselor, social worker, or psychiatrist. Some providers are specially trained to treat depression and other emotional problems in older adults and there are sometimes community-based senior mental health wellness programs operated in conjunction with local hospitals or agencies that can be eligible for coverage by Medicare and/or Medicaid (NIMH, 2016; CDC, 2018c; CVMC, 2019).

8. Falls: Risks and Prevention

No clinician working alone, regardless of how talented, can prevent all falls. Rather, fall prevention requires the active engagement of many individuals, including the multiple disciplines and teams involved in caring for the patient.

Preventing Falls in Hospitals (AHRQ, 2018)

Patient Falls

Fall prevention is a matter of concern with elders whether they are in hospitals or other institutions, out in public places, or in their own homes. Prevention “requires the active engagement of many individuals” in every situation and that includes the individual, their caregivers, and their healthcare providers (AHRQ, 2018). According to AHRQ, a **patient fall** is defined as “an unplanned descent to the floor with or without injury to the patient.” Such falls can result in fractures, lacerations, or internal bleeding, requiring additional healthcare. Research has shown that close to one-third of falls are preventable (AHRQ, 2018).

Falls happen for a number of reasons including:

- Person is weak, tired or ill
- Person is not physically fit
- Person may have problems seeing
- Medicines may cause weakness, sleepiness, confusion or dizziness
- Slippery or wet floors or stairs
- Obstructed pathways
- Darkness (Joint Commission, 2018)

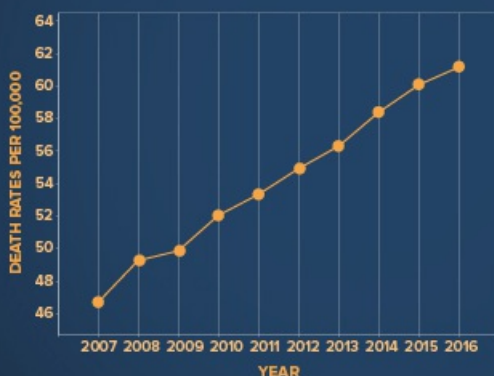
Treating fall injuries is very costly. In 2015 medical costs for falls totaled more than \$50 billion. Because the U.S. population is aging, both the number of falls and the costs to treat fall injuries are likely to rise. Every year 3 million older people are treated in EDs because of falls and over 800,000 patients are hospitalized because of a fall injury—most commonly broken hips and head injuries (CDC, 2017h, 2016c).

The average hospital cost for a fall injury is more than \$30,000 and the costs go up with age. In 2015 total medical costs for falls were more than \$50 billion and Medicare and Medicaid shouldered 75% of these costs (CDC, 2017h).

Falls Resulting in Death

Fall Death Rates in the U.S. INCREASED 30%

FROM 2007 TO 2016 FOR OLDER ADULTS



Learn more at www.cdc.gov/HomeandRecreationalSafety.

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Preventing Patient Falls

Falls within care settings are especially concerning. The Joint Commission Center for Transforming Healthcare notes that hundreds of thousands of patients fall in hospitals every year and 30% to 35% experience an injury. The estimated average cost for a fall with injury is about \$14,056 (JCC, 2019).

Hospital staff have a complex and potentially conflicting set of patient care goals. They need to treat the problem that prompted the patient's admission, keep the patient safe, and help the patient to maintain or recover physical and mental function. Thus, fall prevention must be balanced against other priorities (AHRQ, 2018).

Fall prevention involves managing a patient's underlying fall risk factors (eg, problems with walking and transfers, medication side effects, confusion, frequent toileting needs) while working within the hospital's physical design and environment. A number of practices have been shown to reduce the occurrence of falls, but these practices are not used systematically in all hospitals (AHRQ, 2018).

Fall prevention requires an interdisciplinary approach to care. Some aspects of fall prevention care are highly routinized, while others must be tailored to each patient's specific situation. Fall prevention requires the active engagement of all the multiple disciplines and teams involved in caring for the patient. This sort of coordination for high-quality prevention requires an organizational culture and operational practices that promote teamwork and communication, as well as individual expertise (AHRQ, 2018).

Fall prevention activities also need to be balanced with other considerations, such as minimizing restraints and maintaining patients' mobility, to provide the best possible care to the patient. Therefore, improvement in fall prevention requires a system focus to make needed changes (AHRQ, 2018).

What can individuals do to reduce their risk of falls? The Joint Commission provides guidelines targeted toward patients at home and in hospitals or nursing facilities.

At-home guidelines include:

- Turn on the lights when you enter a room. Do not walk in the dark.
- Make sure your pathway is clear.
- Use the handrails on staircases.
- Sit in chairs that do not move and have arm rests to help when you sit down and stand up.
- Wear shoes that have firm, flat, non-slip soles. Avoid shoes that do not have backs on them.
- Replace the rubber tips on canes and walkers when they become worn. (Joint Commission, 2018)

In-patient guidelines include:

- Use your call button to ask for help getting out of bed if you feel unsteady.
- Ask for help going to the bathroom or walking around the room or in hallways.
- Wear non-slip socks or footwear.
- Lower the height of the bed and the side rails.
- Talk to your doctor if your medicine makes you sleepy, light-headed, sluggish or confused. Ask how to reduce these side effects or if you can take another medicine. (Joint Commission, 2018)

Agency for Healthcare Research and Quality

The AHRQ's text, *Patient Safety and Quality: An Evidence-Based Handbook for Nurses*, released in 2008, includes a chapter specific to patient falls in various care settings, with a discussion of fall risk assessment tools and prevention strategies (see table below) (Currie, 2008).

Source: Currie, 2008.

Recommendations for Acute and Long-Term Care

Evidence-based practice recommendations	Research implications
Fall Prevention	
<ul style="list-style-type: none">• Educate staff about safety care.• Train medical team, including students and residents, for fall-injury risk assessment and post fall assessment.• Use alarm devices.• Monitor medication side effects and adjust as needed.• Adjust environment (eg, design rooms to promote safe patient movement).• Provide exercise interventions (eg, Tai Chi) for long-term care patients.• Provide toileting regimen for confused patients (eg, check patients every 2 hours)• Monitor and treat calcium and vitamin D levels for long-term care patients.• Treat underlying disorders such as syncope, diabetes, and anemia.	<ul style="list-style-type: none">• Examine impact of safety education across interdisciplinary team.• Examine impact of alarms on caregiver satisfaction.• Examine effect of computerized decision support for medication management.• Examine cost effectiveness of environmental adjustments.• Examine usefulness of exercise interventions for acute care patients.• Study barriers to maintaining and sustaining monitoring activities.• Examine effects of calcium and vitamin D management for acute care patients.• Examine constellations of disorders that might precipitate falls.

Injury prevention

<ul style="list-style-type: none">• Limit restraints use.• Lower bedrails.• In addition to fall rates, monitor injury rates.• Use hip protectors for geriatrics and long-term care.• Use floor mats.• Monitor prothrombin time, international normalized ration (PT/INR) for patients at risk for falling.• Ensure post fall assessment.• Use bisphosphonates for patients with documented osteoporosis.	<ul style="list-style-type: none">• Identify methods to overcome barriers to restraints reduction.• Study efficacy of environmental changes.• Establish fatal fall rates across settings.• Identify methods to overcome barriers to use of hip protectors.• Examine effect of safety flooring.• Identify safety measures for bleeding-injury prevention.• Examine barriers to post fall assessment.• Explore safety of long-term use of bisphosphonates.
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Also, updated in 2018 was AHRQ's *Preventing Falls in Hospitals: A Toolkit for Improving Quality of Care*, which discusses the development of a complete program for hospitals, including such practices as rounding protocols (AHRQ, 2018).

Joint Commission Center for Transforming Healthcare

The Joint Commission released its *Targeted Solutions Tool for Patient Falls with Injury* in August 2015. The tool is an innovative application that guides healthcare organizations through a step-by-step process to accurately measure their organization's actual performance, identify their barriers to excellent performance, and direct them to proven solutions that are customized to address their particular barriers. According to the Commission, organizations that followed its standardized approach reduced the rate of patient falls by 35% and falls with injury by 62% (JCC, 2019).

Tens of thousands of patients fall in healthcare facilities every year and many of these falls result in moderate to severe injuries. Find out how the participants in the Center for Transforming Healthcare's seventh project are working to keep patients safe from falls.

CDC's STEADI: Older Adult Fall Prevention

CDC created the evidence-based STEADI (Stopping Elderly Accidents, Deaths, and Injuries) initiative to help healthcare providers incorporate fall prevention into routine care for older adults. STEADI provides screening tools, guidelines for talking with patients, assessment forms and procedures, a medication review framework, educational materials and resources, handouts to give to patients, and online trainings for healthcare providers. Information can be accessed on the CDC's STEADI website (CDC, 2016d).

The CDC says that when healthcare professionals see a patient 65 and older they should always ask these three questions:

1. Have you fallen in the past year?
2. Do you feel unsteady when standing or walking?
3. Do you worry about falling?

A yes answer to any of these questions indicates an increased risk of falling and further assessment is recommended. Falls are not an inevitable part of aging. Healthcare providers can help a patient reduce their chances of falling by identifying the risk level, identifying modifiable risk factors, and offering effective interventions (CDC, 2019b).

9. Medication Use and Misuse

Older adults are at especially high risk for experiencing medication-related problems because of their high rate of medication use, age-related changes in physiology, sensitivity to medications, and polypharmacy.

Proper use of medications is critical to cost-effective disease management. As the number of older adults increases, healthcare professionals must spend more time evaluating medication regimens.

The decline of cognitive health—from mild cognitive decline to dementia—can have profound implications for an individual's health and well-being. Limitations with the ability to manage medications and existing medical conditions effectively are particular concerns when an individual is experiencing cognitive decline or dementia (Bihari, 2018; Stibich, 2018).

Polypharmacy

The phenomenon of polypharmacy has been recognized for several decades, yet there is no universally agreed-upon definition. While polypharmacy is often used to mean the use of five or more medications by the same person, the specific number varies from definition to definition and some instead use “many” or “too many” in place of a specific number. Often implicit (or stated) in definitions is the idea of “appropriate” or “inappropriate,” regarding the relationship between what is prescribed and the patient's condition or conditions.

Polypharmacy is often directly linked to comorbidity or **multimorbidity**—the co-existence of two or more chronic health conditions, a common occurrence in the population of older adults. Some definitions add even more qualifiers such as “for x length of time” or specify the setting in which medications are used (Masnoon et al., 2017).

Literature reviews and research projects currently underway on both polypharmacy and the criteria used to evaluate certain medicines for their use with elders show promise. Sticking with the simplest definition of **polypharmacy—the concurrent use of multiple medications**—and consistent application of good medication management techniques by both providers and patients with the goal of using the fewest medications necessary suggests itself as a prudent approach.

Effects of Polypharmacy

Patients are constantly admonished to keep their healthcare providers up to date on all medications they are taking, yet many do not understand everything that may include. This is one of several contributing factors in polypharmacy, especially for older adults.

Common concerns of polypharmacy:

- Excessive known side effects as sensitivities to medication increase with age
- Additive side effects when several drugs induce similar physical responses
- Dangerous drug interactions
- Diminished effectiveness of drug due to interaction with another
- Confusion resulting in missed or extra doses or other errors (Stibich, 2018)

Aging changes the way medications are absorbed and utilized in the body, sensitivities increase, and seniors are more likely to experience side effects, drug interactions, and other adverse drug reactions (Bihari, 2018).

Why Polypharmacy Occurs

Older adults often have multiple illnesses or conditions being treated with medications, some of which may require multiple medications to control them. What began as appropriate prescribing can turn into more than necessary. Other issues include:

- **Prescribing cascades**, which happen when a patient is taking one prescription to deal with the side effects of another

- **Disconnected medical care**, when a patient is seeing multiple doctors and what one prescribes may not work well with what another prescribes
- **Pharmacy changes**, when a patient uses multiple pharmacies to fill prescriptions so that no one pharmacy knows all the medications being taken and potential interactions may not be caught (Stibich, 2018)

Typical medications for common chronic medical conditions when taken concurrently have increased potential to cause adverse reactions in older people. The more drugs a person is taking, the higher the likelihood of adverse interactions between the drugs, food, and/or alcohol. The more complicated a dosing schedule becomes, the more likely the patient is to miss doses or take them twice or at the wrong time.

Effective medication depends on the body's normal process of absorption (usually in the intestine), distribution where needed in the body (usually via bloodstream), its being metabolized or chemically changed (often in liver or kidneys) and finally excreted or removed (mostly through urine). This process is often referred to as **ADME** and normal aging changes in all four processes can change how drugs are dealt with by the body and can exacerbate side effects.

With age the percentage of body fat increases, body fluid decreases, digestive processes slow down, and liver function decreases. Consequently, fat-soluble drugs may be trapped, water-soluble drugs may become too concentrated, drugs that depend on digestive processes or breakdown in the liver or kidneys can be delayed getting to the body or may remain longer, all increasing the risk of side effects (Bihari, 2018).

Improving Medication Management

What Providers and Patients Can Do

Even if you are not the provider issuing a prescription, you can help your patients develop good drug use habits and help them locate resources.

Discuss with patients that medicines (drugs) are not just those for which they have a prescription but include:

- Prescriptions—only with a doctor's order
- Over-the-counter (otc)—pills, liquids, creams without prescription
- Vitamins, eye drops, or other **dietary supplements**

Encourage patients to use a medication-tracking worksheet of some type to record and track all medications. This should help them to know:

- Name of drug
- Why they are taking it
- What medical condition it treats
- When to take it (times per day; time of day)
- How much to take
- With or without food?
- How long it will take to work?
- Possible interactions with other medications they are taking
- Is it safe to drive while taking it?
- What does "as needed" mean?
- What to do if dosage is missed
- Possible side effects and what to do if they occur
- If a refill will be needed

Encourage a patient to fill all prescriptions at the same pharmacy, utilize the pharmacist's knowledge for questions, and ask if the pharmacy system will flag potential interactions or problems. Always remind them to make sure they have the correct prescription before leaving the store, to keep any allergy information up to date, and to read the printed information that comes with a medication and ask questions if something is not clear.

Discuss possible **side effects**—unwanted or unexpected symptoms or feelings that occur when taking a medicine—and what the patient should do if they experience a side effect. Side effects can be relatively minor, such as a headache or a dry mouth. They can also be life-threatening, such as severe bleeding or irreversible damage to the liver or kidneys. Medication side effects can also affect driving (NIA, 2017f).

Discuss with a patient any potential interactions between their medication(s) and specific foods and alcohol. Alcohol can exacerbate side effects or interfere with the metabolism of certain medications or lead to dangerous adverse events. Certain medications can also increase the effects of alcohol. Older people can be more adversely affected by medication–alcohol interactions, which can lead to falls and serious injuries (verywellmind.com, 2018).

Remind a patient not to stop taking any medication without the provider's permission. Multiple drugs for one condition may be appropriate in their case, and while polypharmacy can be harmful, **medication adherence** is also important (Stibich, 2018).

The internet is ubiquitous in our society and not everyone knows how to evaluate the information they find there. Direct

patients to websites that will help them locate reliable information (such as the National Institute on Aging website about Online Health Information or the FDA's "Quick Tips for Buying Medicines Over the Internet.")

Medication Adherence

Healthcare providers have to rely on patients to follow medication instructions and ask if they have questions or need help. Reviewing the elements of medication adherence may help to ensure this cooperation.

Review with patients the potential problems with:

- Taking old or leftover medications
- Decreasing or increasing dosage without doctor's approval
- Stopping a medication without doctor's approval
- Not showing up for IV therapy appointments
- Taking someone else's medications
- Sharing medications (Moawad, 2018)

Cognitive Impairment

Impairment of cognitive functions presents significant problems for medication management. It is important to prescribe as few medicines as possible and to tailor doses to the person's personal habits. It is also important to observe the person's ability to use medication organizers if they are utilized.

Automated computer-based reminding aids, online medication monitoring and telemonitoring may be helpful for patients with mild dementia. Assistance with medication management should be implemented when safety becomes an issue.

Cost of Medications

Medications are often expensive and patient attempts to save money by cutting pills in half, taking less, or delaying refills can result in an untreated or partially treated condition, a worsened condition, or even disability and death.

If a patient is having trouble getting a prescription filled or it is too costly, a review of their insurance company's formulary may contain an alternative medication that is more affordable. Be sure patients are taking advantage of their Medicare Part D drug plan benefits and/or any other Medicare drug-related assistance including:

- Medicare Extra Help Program
- State Pharmaceutical Assistance Program (SPAP)
- Pharmaceutical Assistance Programs (PAP)
- Partnership for Prescription Assistance (NIA, 2017g)

10. Elder Abuse

In general, elder abuse refers to “any knowing, intentional, or negligent act by a caregiver or any other person that causes harm or a serious risk of harm to a vulnerable adult.” Although all fifty states have passed some form of elder abuse prevention laws, these laws and definitions of terms can vary considerably. Broadly defined, abuse may be:

- **Physical abuse**—inflicting physical pain or injury on a senior, eg, slapping, bruising, or restraining by physical or chemical means.
- **Sexual abuse**—non-consensual sexual contact of any kind.
- **Neglect**—the failure by those responsible to provide food, shelter, healthcare, or protection for a vulnerable elder.
- **Exploitation**—the illegal taking, misuse, or concealment of funds, property, or assets of a senior for someone else's benefit.
- **Emotional abuse**—inflicting mental pain, anguish, or distress on an elder through verbal or nonverbal acts, eg, humiliating, intimidating, or threatening.
- **Abandonment**—desertion of a vulnerable elder by anyone who has assumed the responsibility for care or custody of that person.
- **Self-neglect**—characterized as the failure of a person to perform essential, self-care tasks and that such failure threatens his/her own health or safety. (ACL, 2019a)

Prevalence

In 2009 a National Institute of Justice (NIJ) study of 5,777 adults over 60 years of age found that 11% reported some form of mistreatment other than financial exploitation in the previous year. Among them, the reporting of the mistreatment to authorities ranged from a low of 8% for emotional abuse to 16% for sexual abuse and 31% for physical abuse. Thus 69% of the adults over 60 who are experiencing physical abuse are *not* reporting that abuse (Acierno et al., 2009). The problem of under-reporting remains a critical concern.

The same NIJ study found that previous-year financial exploitation by a family member had affected 5.2% of respondents and lifetime incidents of financial exploitation by a stranger had affected 6.2% (Acierno et al., 2009). Financial exploitation can directly affect quality of care, depriving victims of the financial means to access medical treatment or obtain medications, sometimes with dire consequences.

Financial exploitation is a fast-growing form of abuse of seniors and, like other forms of abuse, is seriously under-reported. In recent research, 1 in 20 elders reported recent incidents of perceived financial mistreatment, and 90% of abusers are family members or trusted others, such as caretakers, neighbors, friends, and professionals (attorneys, doctors and nurses, pastors, bank employees) (NAPSA, 2019; Acierno et al., 2009).

Victims

Many factors—race, gender, age, income and employment, physical and mental health, prior traumatic events, social support—can play a role in the likelihood of becoming a victim. These factors operate differently for the various types of mistreatment; some are indicative of potential for all types of abuse while others are significant only for certain forms of abuse. For example, those reporting very low social support face a three-fold greater risk of emotional mistreatment, while those needing assistance with daily life activities face double the risk. In fact, low social support affects the potential for all types of mistreatment, which may provide clues to important potential avenues of prevention (Acierno et al., 2009).

The NIJ study found that those in the 60 to 70 age group—the “younger old”—have an increased risk of physical, emotional, and stranger-perpetrated financial mistreatment, while age was not related to increased or decreased risk of sexual abuse, financial mistreatment by family members, or neglect. Variation in these findings among studies may be related to whether the experience of institutionalized people is considered.

The NIJ study also found that gender (being female) only increased the risk for sexual abuse, while belonging to a non-white racial group was associated with increased risk of physical mistreatment, financial mistreatment, and potential neglect. It is important to note that the role of risk factors can be affected by many things, and combinations of factors increase that complexity.

Perpetrators

In the landmark National Elder Abuse Incidence Study, done in 1998, it was found that nearly half of the perpetrators of elder abuse were adult children of the victims. Spouses accounted for 20% of the perpetrators, while other relatives, grandchildren, and siblings were also noted as perpetrators (NCEA, 1998).

The 2009 NIJ study breaks down similar findings with more detail. It found that in emotional, physical, sexual, and neglect incidents the majority were perpetrated by a family member. Partners or spouses accounted for 57% of physical mistreatment, 40% of sexual mistreatment, 28% of neglect, and 25% of emotional mistreatment. Children, grandchildren, and other relatives also play a significant role in these events (Acierno et al., 2009).

While the NCEA study in 1998 showed that more than half (53%) of abusers were male, 75% were white, and nearly 40% were middle-aged, the NIJ study helps demonstrate that many factors may play a role in who becomes a perpetrator. The better these factors are understood, the better intervention strategies may be developed. For example, “relative to the general population, it appears that perpetrators of emotional, physical, and sexual mistreatment had high unemployment, increased substance abuse, and increased likelihood of mental health problems. Particularly striking was the older adult report that perpetrators of mistreatment were socially isolated. . . . [This] may present targets for intervention. Reducing substance abuse and increasing social connections in isolated family members of older adults may have the secondary benefit of reducing elder mistreatment” (Acierno, et al., 2009; NCEA, 1998).

Why Victims of Abuse Do Not Report

There are many reasons why victims do not report the abuse, including lack of confidence, a history of abuse, fear of retaliation by the abuser, cultural beliefs, embarrassment, and shame. For example, people who have never been self-confident are not likely to ask for help when they become dependent. Those who have been abused or neglected their entire lives expect maltreatment will continue, would never think someone would want to help, and often reject help when it is offered.

Abused adults may have sought help from law enforcement or other agencies in the past, only to experience worse abuse, neglect, or exploitation when representatives of those agencies were not present.

Some cultures believe that whatever happens within a family is no one else's business. The abused adult may be ashamed or embarrassed to be neglected, abused, or financially exploited by a trusted family member. The victim may promise to keep the abuse secret so the abuser will not further abuse them or other loved ones, including pets. Abusers may threaten to withhold care or food or other necessities, or to send the victim to a nursing home if they tell anyone about the abuse.

Why Mandatory Reporters Do Not Want to Report

Those who are required by law to report suspected abuse of elders share some of the same fears as the abused individuals: that reporting will hurt the relationship with the victim or the abuser or will cause retaliation by the perpetrator. Other stated reasons for reluctance to report include:

- Damage relationship with victim and/or suspected abuser
- Fear of losing a job
- Court time—with loss of work time
- Nothing will change, and everyone involved will get upset
- Cannot get DHS or DIA to accept a report
- Do not want to get involved (“none of my business”)

Reporting Suspected Abuse

Any person who believes that an elder has suffered abuse may make a report of the suspected abuse to DHS or the designated entity in their state. For example, an employee of a financial institution may report suspected financial exploitation of elder. Greater public awareness of the prevalence of abuse of elders and people with disabilities would bring this crime out of the shadows. People who report suspected abuse even though they are not legally required to are called **permissive reporters**.

Those who are required by law to report elder abuse are known as mandatory reporters. In most states, most healthcare professionals are mandatory reporters. Check with your state or your licensing board to find out when, where, and how you make a report in your state.

Communication with Victims and Families

Effective communication is based first of all on the principle of respect. Both the sender and the receiver of the message have unique physical, emotional, mental, social, and spiritual characteristics. Effective communication shows acceptance of a person's individual worth and involves good listening skills.

Overcoming Communication Barriers

When talking with a dependent adult, the following principles will facilitate communication:

- Use clear, simple language.
- Ask open-ended, one-part questions.
- Be an attentive listener and allow for periods of silence.
- Allow sufficient time so there is no pressure to hurry.
- Use explanations that progress from simple to complex.
- Allow eye contact, but do not force it.
- Allow plenty of space to move; medications may cause restlessness.
- Keep background noise to a minimum.
- Sit facing the person to help them identify visual cues.

Ways to Ask About Abuse

First, be **direct**. Ask non-threatening questions and respond empathetically. Second, **universalize the question** rather than personalizing it. For example, "Many people are hurt physically or in other ways by someone they know. Is this happening to you?"

Make your questions **gradual and exploratory**, such as:

- How are things going for you?
- What kinds of stresses do you have in your everyday life?
- Is there anyone in your life who is pretty strict, or hard to please?
- Do you get blamed a lot?
- Can you disagree? What happens when you don't agree?
- Have there been situations in which you felt afraid?
- How often are you called names? How often are your feelings hurt?
- Are you ever threatened with forced sex, been pushed or shoved, had your hair pulled or been slapped?
- Have you had things thrown at you?
- Have any of your precious possessions been deliberately broken?
- Have your pets, children, grandchildren, or other people close to you been intentionally hurt?
- Are you ever prevented from leave the house, or from seeing friends or family?
- Do you feel safe in your home?
- Should I be concerned for your safety?

Supportive Ways to Respond

When talking with victims of abuse:

- Allow time for the person to speak.
- Listen.
- Believe what the person says.
- Empathize: validate the person's feelings.
- Make it clear that the abuse was wrong and it was not the victim's fault.
- Speak directly about the violence.
- Ask in what ways you can be helpful.
- Respect the person's right to self-determination.
- Assure the person there are resources to help and that he or she is not alone.
- Discuss a safety plan and offer follow-up contacts.

Communication Don'ts

When talking with victims of abuse:

- **DON'T talk to the victim while others are present.** Confidentiality and privacy are essential and the presence of others may interfere with information the victim wants to provide, particularly if the perpetrator is present.
- **DON'T blame the victim.** Societal attitudes often blame the victim for the abusive situation. This is extremely harmful to the victim and may result in an inability to trust.
- **DON'T tell the victim it is not that bad or minimize the pain.** The shame and fear he or she feels is natural.
- **DON'T check out the story with the abuser.** Talking with abusers may tip them off to a possible evaluation. This not only hinders the evaluation but may also endanger the victim.
- **DON'T demand that the victim take a certain course of action.** You may offer suggestions, but it is necessary for him or her to be comfortable with the plan of recourse.
- **DON'T think you have failed if you did not fix the situation.** Many abusive situations indicate long-entrenched patterns of behavior. To assume that you can always alleviate the situation by reporting the abuse or other action is unrealistic.

Try to establish whether the victim is competent and does or does not want help, or whether he or she is incompetent to make decisions. If the individual is not competent, someone else is needed to make decisions for that person. In some

cases, the victim is competent to make decisions but there are barriers to that person's being able to ask for or accept help.

Ten Tips for Preventing Abuse

The following list suggests actions that are designed to prevent abuse and to help the family and caretaker develop effective coping mechanisms and support systems:

- Assess the person for signs of abuse/neglect. Early identification is essential to break a pattern of abuse or neglect.
- Assess the family at risk for abuse or neglect, and intervene as necessary before abuse occurs. Identifying high-risk families can stop abuse before it starts.
- Develop a trusting relationship with the dependent adult and their relatives. This promotes open discussion of difficulties.
- Offer guidance in caregiving. The caretaker may lack information on how to properly care for the person.
- Provide information about community resources and alternative living arrangements before an older person moves in with an adult child. Knowledge of options and services can help avoid situations that may lead to abuse.
- Encourage the caretaker to join a self-help group and/or to use respite services. Discussion groups provide education and support. They also help relieve frustration.
- Emphasize the importance of social involvement. Using multiple support sources lessens the caretaker's responsibilities and increases the older adult's sense of independence.
- Report suspected abuse accurately. Use direct quotes and give specific descriptions of physical findings. Sketches and photographs of injuries may be extremely helpful. Accurate and comprehensive documentation is essential for diagnosis and intervention by legal or social services.
- Consult a social worker about referring the person to community agencies or providing alternative living arrangements. This encourages her/him to choose formal support services that maximize independence and enhance well-being.
- Discuss the possibility of alternative living arrangements to prevent abuse or neglect. If appropriate, the dependent adult may need to relocate to live with relatives, friends, or in a boarding home, retirement community, or healthcare facility.

11. End of Life Directives and Care

Advance Care Planning

Advance care planning is important for patients, family members, caregivers, aging services professionals, and healthcare providers. It allows a person to make known their wishes regarding treatment and care in the event of a serious illness or a situation in which they lose decision making capacity (CDC, 2015b).

Advance care planning includes both having an up-to-date plan for ongoing daily care and making and documenting a body of decisions regarding end-of-life treatment wishes (CDC, 2017e). These documents are generally referred to as **advance directives** and they include living wills and durable powers of attorney for either medical or financial decisions, as well as specific orders such as DNR, DNI, and statements regarding artificial nutrition and hydration (NHPCO, 2016). Related documents called POLST (POST, MOLST, MOST) orders work in conjunction with advance directives (Morrow, 2018; NPP, 2019).

Engaging in advance care planning allows a person to investigate available life-sustaining treatments and to decide which ones they would or would not want. It allows them to express their values and wishes, relieves others from having to guess or agonize over a decision when the person can no longer speak for themselves, and avoids the possibility of unwanted medical treatments being undertaken (NHPCO, 2017; CDC, 2015b).

Making Advance Decisions [3:27]

Source: National Healthcare Decisions Day website, www.nhdd.org.
<https://www.youtube.com/watch?v=Bar0qZTUGdw>

Advance Directives

Advance directives for healthcare are legal documents that allow a person to let others know ahead of time what medical care they want. They should be completed when a person is healthy. Doing so gives a person control over their healthcare and advance planning can relieve worry that one's wishes might not be followed or that an undue burden will fall on family members. It also allows family members and caregivers the peace of mind of knowing a person's specific wishes. Advance planning means that in already stressful circumstances, such as a cancer diagnosis or an end-of-life situation, time does not have to be spent trying to figure out the most basic decisions.

Conversations about end-of-life planning are often difficult, for individuals, families, and even for healthcare providers.

Most healthcare facilities have relevant forms and someone who can assist with them, and most will retain completed forms in a patient's file. It is also advisable to keep copies handy at home and to carry a wallet card that lets others know the documents exist and where they are stored.

In 2017 Medicare began allowing physicians and non-physician practitioners to bill for providing advance care planning (ACP) services to their patients (CMS, 2018; NCI, 2015), and the CDC provides an online course with many resources to help healthcare and aging services professionals provide these services (CDC, 2015b).

Advance directives can always be changed if a person's wishes change, and it is advisable to review these documents from time to time. Each state has its own laws regarding advance directives and states do not necessarily observe reciprocity, so a person should be sure that they have completed the appropriate document for the state where they live and are being treated.

A **living will** allows a person to state whether or not they want specific types of medical care in a situation where they cannot speak for themselves. The most common types of care addressed are:

- Use of machines to sustain life (ie, dialysis machine or ventilator)
- "Do Not Resuscitate" (DNR) orders (instruct healthcare team not to use CPR if breathing or heartbeat stop)
- Tube feeding
- Withholding of food and fluids
- Organ and tissue donation

A **medical power of attorney** allows people to name another person to make decisions about their medical care if they are unable to do so. This document may also be referred to as a healthcare proxy or a durable power of attorney for healthcare and the person appointed is the healthcare agent, surrogate, or proxy. These documents do not state specific actions to be taken in specific medical situations but designate another person to make those decisions for the patient.

A person may also want to appoint someone to manage their financial affairs if they cannot. This is called **durable power of attorney for finances**, and is a separate legal document from the durable power of attorney for healthcare. The proxy chosen does not have to be the same on both.

A **Do Not Resuscitate (DNR) order** is a document that directs medical staff in the hospital not to do cardiopulmonary resuscitation (CPR) if the heart or breathing stop. A DNR order is only about CPR and not about any other treatment, and in the United States if there is no DNR order then CPR will be performed regardless. There is also an **Out-of-hospital DNR** order that tells emergency medical workers outside of a hospital that CPR is not wanted. The details of these orders vary from state to state. A DNR can be part of an advance directive (living will) or can be a single specific order a patient asks a doctor to put in their medical chart.

Do Not Intubate (DNI) orders allow a patient to request that they not have a tube placed into their nose or mouth to facilitate breathing. It is a treatment specific order and does not prevent other techniques of resuscitation. Patient and physician need to discuss the details involved and how DNR and DNI orders may be connected.

Other individual orders may concern **artificial nutrition and hydration**—treatments that provide a person with food and fluid when they can no longer take them by mouth (NIA, 2018a; NHPCO, 2016, 2015b; NCI, 2015a).

Related Forms

There are other forms that work in conjunction with advance directives. While everyone should have an advance directive (living will, healthcare power of attorney) not everyone needs a POLST or POLST-type document.

POLST stands for **Physician Orders for Life-Sustaining Treatment**. POLST communicates the patient's desires for specific medical treatments during a medical emergency. These forms are indicated for individuals with serious illnesses or advanced frailty near the end of life. The POLST form becomes official orders for the patient in that situation and is valid in a hospital, nursing home, or long-term care facility. POLST (also called MOLST, MOST, POST) programs vary from state to state (NPP, 2019; Morrow, 2018; NCI, 2015a).

If a person has no advance directives and no guardian, 44 states have "default surrogate consent laws" that usually provide a hierarchy of family decision-makers, beginning with the spouse, who can make decisions for a person not competent to make their own healthcare decisions. Almost half (22) of these states do make a provision for a "close friend" familiar with the person's values" to make decisions if there are no family members or none are available. In addition, 11 states have established a mechanism for what to do for "unbefriended" patients (Wood, 2018).

Less than 30% of Americans have advance directives so the surrogate laws actually cover the majority of decisions for patient who have been rendered unable to make their own decisions. Yet, a recent focus group conducted by the American Bar Association found that in on-the-spot situations in hospitals the process by which surrogates were determined might or might not conform to state laws. However, many hospitalists noted their primary concern was to determine what the patient's values were and what they would have wanted (Wood, 2018).

Care at the End of Life

Care at the end of life involves a team-oriented approach that includes expert medical care, pain management, and emotional and spiritual support. Care is tailored to the person's needs and wishes while providing support to the person's loved ones.

Palliative Care

Palliative care is given to “improve the quality of life of patients who have a serious or life-threatening disease. The goal of palliative care is to prevent or treat as early as possible the symptoms of a disease; side effects caused by treatment of a disease; and psychological, social, and spiritual problems related to a disease or its treatment. Also called *comfort care*, *supportive care*, and *symptom management*” (NCI, 2017, 2015a; NHPCO, n.d.).

Palliative care utilizes an interdisciplinary approach that focuses on the physical, psychological, social, spiritual and practical needs of patients who have progressive incurable illnesses. It can also address the needs of the patient's caregivers. Palliative care can be given at any time throughout the course of an illness, along with curative and aggressive treatments. It includes interventions that are intended to maintain quality of life and ease the suffering of both the patient and family. As death approaches, palliative care typically intensifies to ensure that comfort is a priority and practical needs are addressed. When palliative treatment is given at the end of life, care is taken to make sure the patient's wishes about treatments are followed (NCI, 2017, 2015a; NHPCO, n.d.).

Palliative care got its start in hospice programs but is now also used in hospitals, nursing facilities, and home health agencies. While hospice is providing service to patients with life expectancies in months, palliative care can be given at any time and while the patient is still receiving treatments for their disease (NHPCO, n.d.).

Hospice

Choosing hospice care doesn't mean that you've given up hope. . . It means that you're changing what you hope *for*.

NCI, 2018

Hospice is a special type of care in which medical, psychological, and spiritual support are given to patients and their loved ones when therapies are no longer controlling the disease. While hospice and palliative care both provide comfort and support for patients, palliative care is available throughout a patient's experience with their disease. A person's treatment continues while receiving palliative care, but with hospice care, the focus shifts to just relieving symptoms and providing support at the end of life (NCI, 2018, 2015a; NHPCO, 2018).

The goal of hospice care is to help the patient live each day to the fullest by controlling pain and other symptoms and making the person as comfortable as possible. The focus is on caring, not curing, with no intention to either hasten or postpone death. If the patient's condition improves or goes into remission, hospice care can be stopped and active treatment pursued again (NCI, 2018, 2015a; NHPCO, 2018).

Hospice care is most often done at home but can also be provided in hospitals, nursing homes, and special inpatient facilities. Hospice services can include:

- Doctor and nursing services
- Medical supplies and equipment
- Drugs for managing symptoms and pain
- Short-term inpatient care
- Volunteers to give caregivers a break
- Counseling and spiritual care
- Social work services
- Grief counseling and support (NCI, 2018, 2015a; NHPCO, 2018)

The Hospice Team

The hospice care team members are all specially trained and include doctors, nurses, home health aides, social workers, clergy or other counselors, trained volunteers, and speech, physical, and occupational therapists, if needed. Everyone is specially trained and committed to supporting the emotional needs of the patient and family members as well as addressing medical symptoms. Their focus is on the patient's goals and plan for end-of-life care (NCI, 2018; 2015a; NHPCO, 2018).

In addition to managing the patient's pain and other symptoms, hospice team members can help patient and family members with the emotional, psychosocial, and spiritual process of dying, and provide grief support to surviving family members for up to one year. Because in most cases a family member serves as the primary caregiver, the team is an important source of instruction and support, and can facilitate arrangements for caregiver respite time (NHPCO, 2018).

Paying for Hospice

Most insurance plans, including Medicare and most Medicaid plans, cover hospice care once they receive certification from the attending doctor and the hospice medical director that the patient has a life expectancy of six months or less. The

patient will also be required to sign a statement indicating that they are choosing hospice care. Hospice care can continue past the six months as long as the doctors recertify the patient's status (NCI, 2018; 2015a).

Many Medicare recipients benefit from hospice care. In 2016, 1.43 million Medicare beneficiaries were enrolled in hospice care for at least one day. Of all those receiving Medicare who died, 48% had received one day or more of hospice care *and* were enrolled in hospice care when they died. However, the proportion enrolled in hospice at the time they died varies widely by state, from a low of 23% in Puerto Rico to a high of 58% in Utah (NHPCO, 2018).

More than 90% of U.S. hospices are certified by Medicare, for a total in 2016 of 4,382. People over 65 account for 80% of those using hospice care (NHPCO, n.d.-a). Medicare requirements regarding certification and recertification and medical review of patients have resulted in a regulatory environment that helps ensure eligible patients are served by hospice and that they receive the quality of service they want (NHPCO, 2015).

12. Caregivers

Informal caregivers provide regular care or assistance to a friend or family member who has a health problem or disability.

CDC, 2019c

The CDC considers the health of caregivers to be an important and growing public health priority that affects the quality of life for millions of individuals (CDC, 2018d).

Informal or unpaid caregivers (family members or friends) are the backbone of long-term care provided in people's homes. While some aspects of caregiving may be rewarding, caregivers can also be at increased risk for negative health consequences, which may include stress, depression, difficulty maintaining a healthy lifestyle, and shortchanging their own preventive health services.

As the number of older Americans increases, so will the number of caregivers needed to provide care. The number of people 65 years old and older is expected to double between 2000 and 2030. It is expected that there will be 71 million people aged 65 years old and older when all baby boomers are at least 65 years old in 2030.

Currently, there are 7 potential family caregivers per adult. By 2030, there will be only 4 potential family caregivers per adult (CDC, 2018d).

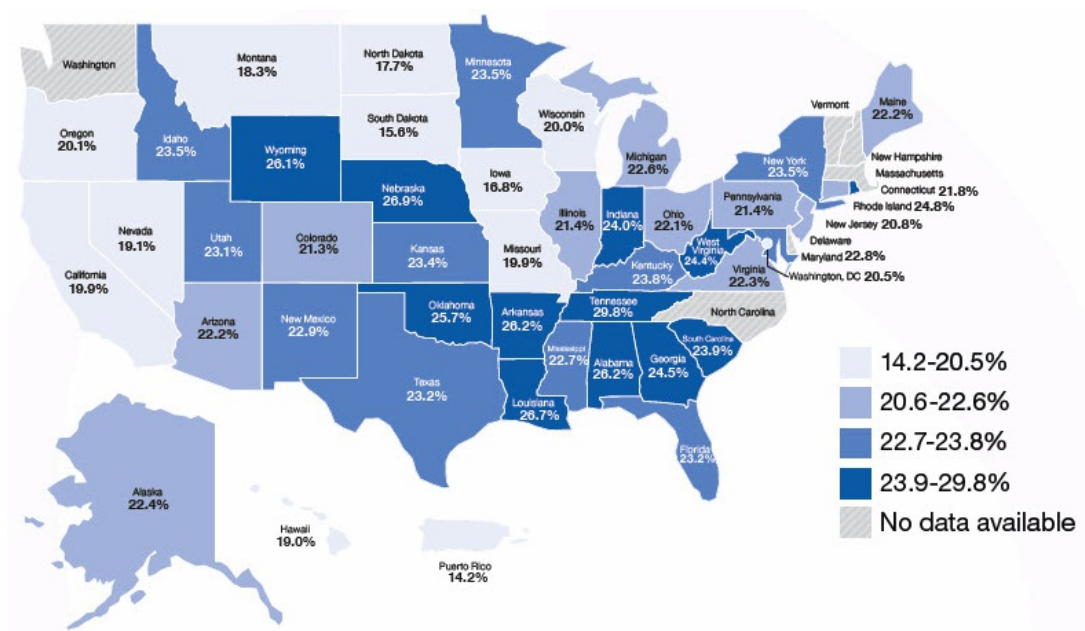
Role of Caregivers

Caregivers provide assistance with another person's social or health needs. Caregiving may include help with one or more activities important for daily living such as bathing and dressing, paying bills, shopping and providing transportation. It also may involve emotional support and help with managing a chronic disease or disability. Caregiving responsibilities can increase and change as the recipient's needs increase, which may result in additional strain on the caregiver (CDC, 2019c).

Caregivers can be unpaid family members or friends or paid caregivers. Informal or unpaid caregivers are the backbone of long-term care provided in people's homes. In particular, middle-aged and older adults provide a substantial portion of this care in the United States, as they care for children, parents, or spouses. These informal caregivers are the focus here (CDC, 2019c).

Caregiving can affect the caregiver's life in a myriad of ways including his/her ability to work, engage in social interactions and relationships, and maintain good physical and mental health. Caregiving also can bring great satisfaction and strengthen relationships, thus enhancing the caregivers' quality of life. As the population ages and disability worsens, it is critical to understand the physical and mental health burden on caregivers, the range of tasks caregivers may perform, and the societal and economic impacts of long-term chronic diseases or disability. Gathering information on these topics enables us to plan for public health approaches to assist individuals as well as their communities and maintain the health of caregivers and care recipients. (CDC, 2019c).

Adults Aged 45 Years or Older Who Reported Being a Caregiver to a Friend or Family Member



Source: CDC, 2019c.

Who Are Caregivers?

Caregivers provide care to people who need some degree of ongoing assistance with everyday tasks on a regular or daily basis. The recipients of care can live either in residential or institutional settings, range from children to older adults, and have chronic illnesses or disabling conditions (CDC, 2018d).

Approximately 25% of U.S. adults 18 years of age and older reported providing care or assistance to a person with a long-term illness or disability in the past 30 days, according to 2009 data from CDC's state-based Behavioral Risk Factor Surveillance System. This is termed "informal or unpaid care" because it is provided by family or friends rather than by paid caregivers. The one-year value of this unpaid caregiver activity was estimated as \$450 million dollars in 2009 (CDC, 2018d).

Effects on Caregivers

Informal or unpaid caregiving has been associated with:

- Elevated levels of depression and anxiety
- Higher use of psychoactive medications
- Worse self-reported physical health
- Compromised immune function
- Increased risk of early death

Over half (53%) of caregivers indicate that a decline in their health compromises their ability to provide care. Furthermore, caregivers and their families often experience economic hardships through lost wages and additional medical expenses. In 2009 more than 1 in 4 (27%) of caregivers of adults reported a moderate to high degree of financial hardship as a result of caregiving.

There are positive aspects of caregiving, and many people note that providing care for a family member with a chronic illness or a disabling condition offers:

- A sense of fulfillment
- Establishment of extended social networks or friendship groups associated with caregiving
- Feeling needed and useful
- Learning something about oneself, others, and the meaning of life (CDC, 2018d)

There are a number of things caregivers can do to reduce stress and make their job easier. One is to make sure they have detailed organized information about the person they are caring for.

Care Planning

Developing and maintaining a care plan helps balance the caregiver's life and that of the person to whom they are providing care. Not every care situation requires the same amount of work and the more there is to attend to the more being organized will help.

A caregiver for someone with Alzheimer's disease, dementia, or another chronic health condition may manage everything

from medications and getting dressed in the morning to doctor appointments, social events, and meals (CDC, 2017j). (See the earlier section of this course on dementia for additional caregiver information.)

A care plan is a form that summarizes a person's health conditions and current treatments for their care (one is available on the CDC Caregiver website). The plan should include information about:

- Health conditions
- Medications
- Healthcare providers
- Emergency contacts
- Caregiver resources

Talking with the person's doctor may be helpful in completing the care plan. At that time, you can also discuss advance care plan options, such as what follow-up care is necessary, end-of-life care options, and resources that are available to help make things easier for you as a caregiver. Try to update the care plan every year or if there is a change in the person's health or medications, and remember to respect the care recipient's privacy after reviewing their personal information (CDC, 2017j).

Developing a care plan

- Start a conversation about care planning with the person you take care of. If your care recipient isn't able to provide input, anyone who has significant interaction with the care recipient (a family member or home nurse aide) can help complete the form.
- Talk to the doctor of the person you care for or another healthcare provider. A physician can review the form you started and help to complete it, especially if there is a conversation about advance care planning.
- Ask about relevant care options that are relevant. Medicare covers appointments that are scheduled to manage chronic conditions and for discussing advance care plans. Beginning in January of 2017, Medicare covers care planning appointments specifically for people with Alzheimer's, other dementias, memory problems, or suspected cognitive impairment.
- Discuss any needs you have as a caregiver; 84% of caregivers report they could use help on caregiving topics especially related to safety at home, dealing with stress, and managing their care recipient's challenging behaviors. Caregivers of people with dementia or Alzheimer's are particularly at greater risk for anxiety, depression, and lower quality of life compared to caregivers of people with other chronic conditions (CDC, 2017j).

Benefits of a care plan

- Care plans can reduce ED visits, hospitalizations, and improve overall medical management for people with a chronic health condition, like Alzheimer's disease, resulting in better quality of life for all care recipients.
- Care plans can provide supportive resources for you, the caregiver, to continue leading a healthy life of your own (CDC, 2017j).

Keep a care plan to reduce stress and allow quick action in emergencies such as the CDC Caregiving Care Plan Form available at their website (CDC, 2018e).

Resources for Caregivers

The National Family Caregiver Support Program (NFCSP) provides grants to states and territories to fund various supports that help family and informal caregivers care for older adults in their homes for as long as possible. It was established in 2000 and authorized under the Older Americans Act of 1965 Act (see earlier section of course) (ACL, 2019b).

The grantees provide the following kinds of services:

- Information to caregivers about available services
- Assistance to caregivers in gaining access to the services
- Individual counseling, organization of support groups, and caregiver training
- Respite care; and
- Supplemental services, on a limited basis

The services are coordinated with other state and community-based services. Research has demonstrated positive benefits for caregivers in reducing depression, anxiety, and stress, and enabling them to provide care longer (ACL, 2019b).

The 2016 Reauthorization of the Older Americans Act authorized four specific populations of caregivers as eligible to receive services:

- Adult family members or other informal caregivers age 18 and older providing care to individuals 60 years of age and older
- Adult family members or other informal caregivers age 18 and older providing care to individuals of any age with

Alzheimer's disease and related disorders

- Older relatives (not parents) age 55 and older providing care to children under the age of 18; and
- Older relatives, including parents, age 55 and older providing care to adults ages 18 to 59 with disabilities (ACL, 2019b)

American Indian and Alaska Native (AI/AN) Caregiving

The prevalence of caregivers in the AI/AN population is greater than that of the general U.S. population. Like people of all racial/ethnic groups, AI/AN families want to care for their elders and the elders want to remain in their homes and have family care as long as possible. One concern for AI/AN communities is that there is an out-migration from the reservations to urban areas for jobs, leaving a potentially smaller pool of prospective caregivers (CDC, 2018f).

For the American Indian/Alaskan Native (AI/AN) population, taking care of an elder is a continuation of an ancient custom of extended family and lifelong care for family. Indian family caregivers are similar to non-Indian caregivers in many ways; however, the resources available to them are much more limited. In addition, eligibility criteria for long-term care services are often couched in language that is not culturally sensitive. Surveys show AI/AN families would like training on how to take care of an older adult, help to coordinate care and navigate the health system, respite care and adult daycare to give the caregiver a break, support groups, and more services for their care recipient (CDC, 2018f).

Caregiver Advise, Record, Enable (CARE) Act

The AARP pioneered this model legislation, which is now law in 44 states, to provide much needed support for family caregivers when the person they care for is transitioning back home from a hospitalization.

The CARE Act requires hospitals to:

- Record the name of the family caregiver on the medical record of the person they care for.
- Inform the family caregivers when that person is to be discharged.
- Provide the family caregiver with education and instruction for the medical tasks he or she will need to perform for the patient at home.

Family caregivers are often called upon to manage multiple medications, provide wound care, manage special diets, give injections, and operate monitors or other specialized medical equipment. Most have no formal training, but being able to do these task helps keep their family member at home and out of an institution. Being able to prepare for the patient's return home and get training on how to care for them is something many have asked for (AARP, 2016).

13. Conclusion

Healthcare professionals will find their interactions with older adults guided by the requirements and responsibilities of their specific practice field. Elders and their care is an infinitely complex topic, as complex as the members of its group. Certain topics will be directly relevant to some while only tangentially relevant to others. Professional need will ultimately draw some much deeper into particular topics. But everyone will be affected by the need to broaden and deepen their perceptions of what it means to age and to be an older adult, whether we call that *senior* or *elder* or *older* or *geriatric*.

There is a call out there to view aging and those who are already older in a different way and to realize part of the reason to do so is that we are all aging—we are all going to be older adults eventually. In order to see ourselves aging in a healthy way, respected for what we know and can still do, and able to make decisions about where to live and what kind of care we want, we must start thinking of the already old in the same way.

That new perspective can guide everything from public policy decisions to the way we greet our next older patient. We can resolve to help them deal with today's very complex healthcare environment and to see how they can get the most out of it.

14. Resources and References

Resources

AARP / Public Policy Institute / Foundation

Long-Term Services & Supports State Scorecard

<http://www.longtermscorecard.org/>

<https://www.aarp.org/ppi/>

<https://www.aarp.org/ppi/issues/caregiving/>

Family Caregiving

<https://www.aarp.org/caregiving/>

Administration for Community Living

National Family Caregiver Support Program

<https://acl.gov/programs/support-caregivers/national-family-caregiver-support-program>

Centers for Disease Control and Prevention (CDC)

Alzheimer's Disease and Healthy Aging Program

<https://www.cdc.gov/aging/index.html>

Extensive resources for individuals and health professionals.

<https://www.cdc.gov/aging/caregiving/index.htm>

Resources for caregivers including the Complete Care Plan Form.

Family Caregiver Alliance

National Center on Caregiving

<https://www.caregiver.org/caregivers-guide-understanding-dementia-behaviors>

National Center on Elder Abuse

c/o University of Southern California Keck School of Medicine

Department of Family Medicine and Geriatrics

1000 South Fremont Avenue, Unit 22, Building A-6

Alhambra, CA 91803

855 500 3537 (855 500 ELDR)

626 457 4090 (fax)

<https://ncea.acl.gov/> The NCEA provides the latest information regarding research, training, best practices, news and resources on elder abuse, neglect and exploitation to professionals and the public.

Transforming Life as We Age

Next Avenue (Twin Cities PBS)

<https://www.nextavenue.org/special-report/transforming-life-as-we-age/>

Comprehensive website with up-to-date coverage of healthcare, caregiving, daycare and living options, legal and finance issues, and innovative programs relevant to the aging population and those who care for them.

World Health Organization (WHO)

Ageing and Life Course

<https://www.who.int/ageing/en/>

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2017 Profile of American Indians and Alaska Natives Age 65 and Over <https://acl.gov/sites/default/files/Aging%20and%20Disability%20in%20America/2017OAPProfileAIAN508.pdf>

2017 Profile of Asian Americans Age 65 and Over <https://acl.gov/sites/default/files/Aging%20and%20Disability%20in%20America/2017OAPProfileAsAm508.pdf>

2017 Profile of Hispanic Americans Age 65 and Over <https://acl.gov/sites/default/files/Aging%20and%20Disability%20in%20America/2017OAPProfileHA508.pdf>

Minority Aging Statistical Profiles <https://acl.gov/aging-and-disability-in-america/data-and-research/minority-aging>

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Quiz: Elders and Their Care Today

Quiz

- A passing score is 80% or above.
- You can take the test as many times as needed to pass.
- The system will remember your progress if you leave and return.

Question 1

1. Ageism is:

Choose one

- ☐ a. Stereotyping, prejudice, and discrimination on the basis of a person's age.
- ☐ b. Neutral categorization of people by age for research purposes.
- ☐ c. A recent development in society.
- ☐ d. A feature of only Western societies.

Question 2

2. Ageism in healthcare can result in:

Choose one

- ☐ a. Occasional over-treatment of pain in older adults.
- ☐ b. Over-treatment and under-treatment of older adults.
- ☐ c. Routine over-treatment of pain in older adults.
- ☐ d. No effects on older adults.

Question 3

3. Population aging refers to the increasing share of older persons in the population because of:

Choose one

- ☐ a. Changes in the birthrate projected out fifty years.
 - ☐ b. Population changes taking place only in North America.
 - ☐ c. Declines in fertility and increases in life expectancy.
 - ☐ d. Population changes taking place only in Europe.
-

Question 4

Great improvements have been made in reducing health disparities in the last 15 years:

Choose one

- ☐ True
- ☐ False

Question 5

5. Health disparities are preventable differences in the burden of disease experienced by:

Choose one

- ☐ a. Older adults only.
 - ☐ b. Women only.
 - ☐ c. Citizens of developing countries only.
 - ☐ d. Certain racial and ethnic groups.
-

Question 6

6. Congress passed the Older Americans Act (OAA) in 1965 to:

Choose one

- ☐ a. Provide healthcare for older people.
 - ☐ b. Address a lack of community social services for older people.
 - ☐ c. Provide economic supports for rural elders.
 - ☐ d. Fund a few short-term programs for older people.
-

Question 7

7. The PACE and GRACE models of care are intended to allow older adults to:

Choose one

- ☐ a. Find a long-term care facility.
 - ☐ b. Find an assisted living facility.
 - ☐ c. Age in place.
 - ☐ d. Obtain grants to repair their homes.
-

Question 8

8. The purpose of virtual villages for older adults is to:

Choose one

- ☐ a. Connect lonely elders through the Internet.
 - ☐ b. Provide employment to caregivers while supporting elders.
 - ☐ c. Create centers for elders that make care more cost-effective.
 - ☐ d. Enable elders to age in place.
-

Question 9

9. Metabolism is not affected by age:

Choose one

- ☐ True
- ☐ False

Question 10

10. Risk factors for developing osteoporosis or having a fracture include all of the following EXCEPT:

Choose one

- ☐ a. Obesity.
 - ☐ b. Estrogen deficiency.
 - ☐ c. Advanced age.
 - ☐ d. A diet low in calcium.
-

Question 11

11. Sarcopenia is:

Choose one

- ☐ a. Another name for osteoporosis.
- ☐ b. Age-related loss of muscle mass and function.
- ☐ c. Helped mainly by hormone therapies.
- ☐ d. Not helped by exercise.

Question 12

12. Gray hair and greater susceptibility to sun damage with aging result from:

Choose one

- ☐ a. An increase in adipose tissue.
- ☐ b. An increase in skin turgor.
- ☐ c. A decrease in melanocytes.
- ☐ d. A decrease in hormone levels.

Question 13

13. Older persons can develop hypothermia even indoors if their winter heating system is inadequate:

Choose one

- ☐ True
- ☐ False

Question 14

14. Symptoms of a heart attack include:

Choose one

- ☐ a. Aphasia
- ☐ b. Blindness
- ☐ c. Nausea, vomiting, cold sweat, light-headedness

-
- ☐ d. Pain in the feet
-

Question 15

15. The symptoms of stroke occur suddenly, and do NOT include:

Choose one

- ☐ a. Numbness or weakness, especially on one side of the body.
- ☐ b. Confusion or trouble speaking or understanding speech.
- ☐ c. Trouble walking.
- ☐ d. Cyanosis in the nail beds.
-

Question 16

16. Which of the following is true of urinary tract infections (UTI) in older adults.

Choose one

- ☐ a. The only symptom may be mental changes or confusion.
- ☐ b. Men are more likely to get them than women.
- ☐ c. They cannot be treated with antibiotics.
- ☐ d. Older adults have no increased risk for them.
-

Question 17

17. Despite age-related changes, the endocrine system functions well in most older people.

Choose one

- ☐ True
- ☐ False

Question 18

18. The gradual loss of hearing with aging is called:

Choose one

- ☐ a. Tinnitus.
-

☐ b. Presbycusis.

☐ c. Tinea capitis.

☐ d. Presbyopia.

Question 19

19. A disease associated with aging that gradually destroys sharp central vision is called:

Choose one

☐ a. Glaucoma.

☐ b. Diabetic retinopathy.

☐ c. Optic nerve atrophy.

☐ d. Macular degeneration.

Question 20

20. Sense of smell that declines with age is called:

Choose one

☐ a. Presbycusis.

☐ b. Presbyopia.

☐ c. Presbyosmia.

☐ d. Presbyteria.

Question 21

21. All older adults experience loss with aging. Psychosocial losses may include:

Choose one

☐ a. Social status and self-esteem.

☐ b. Short-term memory.

☐ c. Adequate income.

-
- ☐ d. Ability to operate a motor vehicle.
-

Question 22

22. Dementia is the loss of cognitive function to the extent that it:

Choose one

- ☐ a. Causes a person to be bedridden.
- ☐ b. Interferes with a person's daily life and activities.
- ☐ c. Mandates institutional care.
- ☐ d. Requires hospital treatment for extended periods of time.
-

Question 23

23. Mild cognitive impairment is:

Choose one

- ☐ a. Always a progression to Alzheimer's disease.
- ☐ b. Not an indicator of greater risk for Alzheimer's or other dementia.
- ☐ c. A stage between normal aging changes and dementia.
- ☐ d. A limitation on most daily activities.
-

Question 24

24. The most common cause of dementia in those over age 65 is Alzheimer's Disease:

Choose one

- ☐ True
- ☐ False
-

Question 25

25. Health literacy is:

Choose one

- ☐ a. Having a fundamental knowledge of the human body.
-

☐ b. A complex of skills that comes from reading about innovations in healthcare.

☐ c. Simply put, the ability to read.

☐ d. The ability to apply reading and thinking skills to health situations.

Question 26

26. A good history from an older adult is thorough but does usually not include:

Choose one

☐ a. Mini-mental examination.

☐ b. Family and medical history.

☐ c. Lifestyle.

☐ d. Social circumstances.

Question 27

27. Often a healthcare worker is the only one who sees the skin of an elderly patient. A mole may require assessment for possible skin cancer if it:

Choose one

☐ a. Has a symmetrical shape.

☐ b. Changes appearance or starts to itch or bleed.

☐ c. Has a distinct edge.

☐ d. Is pink, tan, or brown.

Question 28

28. Depression:

Choose one

☐ a. Seldom affects older adults.

☐ b. Generally goes away on its own without treatment.

☐ c. Is a true and treatable medical condition.

-
- ☐ d. Has a lower risk for older females.
-

Question 29

29. Inpatient fall prevention is:

Choose one

- ☐ a. The sole responsibility of the patient's primary nurse.
- ☐ b. Always systematically addressed in hospitals.
- ☐ c. Not necessary in adult inpatient settings.
- ☐ d. Best addressed using a team approach.
-

Question 30

30. Polypharmacy is:

Choose one

- ☐ a. The concurrent use of multiple medications.
- ☐ b. Combining prescription drugs and supplements.
- ☐ c. Taking more than one medication for one condition.
- ☐ d. Using herbal remedies to substitute for pharmaceuticals.
-

Question 31

31. Side effects:

Choose one

- ☐ a. Are only a problem with polypharmacy.
- ☐ b. Are unwanted or unexpected symptoms when taking a medicine.
- ☐ c. Generally have only minor effects.
- ☐ d. Only happen with medicines for hypertension.
-

Question 32

32. While the importance of risk factors varies, which ONE of the following increases the risk of all forms of abuse:

Choose one

- ☐ a. Income.
 - ☐ b. Gender.
 - ☐ c. Low levels of social support.
 - ☐ d. Alcoholism.
-

Question 33

33. The majority of perpetrators of adult dependent abuse are:

Choose one

- ☐ a. Home intruders, muggers, or other criminals.
 - ☐ b. Caretakers and healthcare personnel.
 - ☐ c. Accountants, financial advisors, and bankers.
 - ☐ d. Partners, spouses, children, or other relatives.
-

Question 34

34. Reasons that victims of abuse do not report include ALL BUT ONE of the following:

Choose one

- ☐ a. They have a history of complaining.
 - ☐ b. They fear retaliation by the abuser.
 - ☐ c. They have a history of abuse.
 - ☐ d. They lack confidence that someone will care.
-

Question 35

35. One supportive way to respond to victims of abuse is to:

Choose one

- ☐ a. Take the lead in conversations about the abuse.

☐ b. Make sure they understand that it was not their fault.

☐ c. Try to lighten the mood with humor.

☐ d. Urge them to share their experience with other residents.

Question 36

36. Advance directives are legal documents that allow people to make their wishes known in advance of becoming incapacitated. They include all but one of the following:

Choose one

☐ a. Durable power of attorney for healthcare.

☐ b. Durable power of attorney for finances.

☐ c. Affidavit spelling out any insurance held by the individual.

☐ d. Do not resuscitate (DNR) order.

Question 37

37. The goal of palliative care is to:

Choose one

☐ a. Replace aggressive treatments with a caring regimen.

☐ b. Focus exclusively on the needs of the patient's family.

☐ c. Substitute for hospice care when hospice is not available.

☐ d. Prevent or relieve suffering and enhance quality of life to the end.

Question 38

38. Hospice is a place where people can go for specialized care as they live out the final days of their lives.

Choose one

☐ True

☐ False

Question 39

39. Being a family caregiver is generally an easy job because of the love that exists.

Choose one

- ☐ True
- ☐ False

Question 40

40. Family caregivers:

Choose one

- ☐ a. Are all reimbursed by the government.
- ☐ b. Seldom perform any medical tasks.
- ☐ c. Provide care to people who need some degree of ongoing assistance with everyday tasks on a regular or daily basis.
- ☐ d. Are highly trained and state certified.

Question 41

41. American Indian and Alaska Native caregivers:

Choose one

- ☐ a. Are a new idea in native cultures today.
- ☐ b. Are prevalent across most Native communities.
- ☐ c. Have a lower prevalence in the AI/AN population than in the general population.
- ☐ d. Generally have more limited resources than non-Native caregivers.

Answer Sheet

Elders and Their Care Today

Name (Please print your name)

Date_____

Passing score is 80%

1. _____	16. _____	31. _____
2. _____	17. _____	32. _____
3. _____	18. _____	33. _____
4. _____	19. _____	34. _____
5. _____	20. _____	35. _____
6. _____	21. _____	36. _____
7. _____	22. _____	37. _____
8. _____	23. _____	38. _____
9. _____	24. _____	39. _____
10. _____	25. _____	40. _____
11. _____	26. _____	41. _____
12. _____	27. _____	
13. _____	28. _____	
14. _____	29. _____	
15. _____	30. _____	

Evaluation: Elders and Their Care Today

Upon completion of the course, I was able to:

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Explain 2 ways in which ageism impacts healthy aging.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identify the health disparities of 4 ethnic groups of older Americans.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Name 3 pieces of critical legislation in support of the elder population.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Summarize 4 models of elder care.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Summarize age-related changes for 5 of the body systems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Explain 3 types of dementia.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Name 3 components of a health assessment for an older adult.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identify 5 risks for falls and how they can be prevented.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
List 3 ways of preventing inadvertent polypharmacy and drug misuse in elders.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
State 8 tips for preventing elder abuse.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Examine 2 end-of-life care options related to advance directives.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Describe 4 obstacles to optimal caregiving in older adults' lives.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please rate the following statements:

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The author(s) are knowledgeable about the subject matter.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The author(s) cited evidence that supported the material presented.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please answer Yes or No to these statements:

	Yes	No
Did this course contain discriminatory or prejudicial language?	<input type="radio"/>	<input type="radio"/>
Was this course free of commercial bias and product promotion.	<input type="radio"/>	<input type="radio"/>
As a result of what you have learned, do you intend to make any changes in your practice?	<input type="radio"/>	<input type="radio"/>

If you answered Yes above, what changes do you intend to make? If you answered No, please explain why.

please type response here

Do you intend to return to ATrain for your ongoing CE needs?

- ☐ Yes, within the next 30 days.
- ☐ Yes, during my next renewal cycle.
- ☐ Maybe, not sure.
- ☐ No, I only needed this one course.

Navigating the ATrain Education website was:

- ☐ Easy.
- ☐ Somewhat easy.
- ☐ Not at all easy.

Would you recommend ATrain Education to a friend, co-worker, or colleague?

- ☐ Yes, definitely.
- ☐ Possibly.
- ☐ No, not at this time.

What is your overall satisfaction with this learning activity?

- ☐ Very satisfied
- ☐ Satisfied
- ☐ Neutral
- ☐ Dissatisfied
- ☐ Very dissatisfied

How long did it take you to complete this course, posttest, and course evaluation?

- ☐ 60 minutes (or more) per contact hour
- ☐ 50–59 minutes per contact hour
- ☐ 40–49 minutes per contact hour
- ☐ 30–39 minutes per contact hour
- ☐ Less than 30 minutes per contact hour

I heard about ATrain Education from:

- ☐ Government or Department of Health website
- ☐ State board or professional association
- ☐ Searching the Internet
- ☐ A friend
- ☐ An advertisement
- ☐ I am a returning customer
- ☐ My employer
- ☐ Social Media (FB, Twitter, LinkedIn, etc)
- ☐ Other...

Registration and Payment Form

Please answer the following questions (* required).

*Name: _____

*Email: _____

*Address: _____

*City and State: _____

*Zip: _____

*Country: _____

*Phone: _____

*Professional Credentials/Designations:

*License Number and State: _____

*Name and credentials as you want them to appear on your certificate.

Payment Options

You may pay by credit card, check or money order.

Fill out this section only if you are paying by credit card.

10 contact hours: \$59

Credit card information

*Name: _____

Address (if different from above):

*City and State: _____

*Zip: _____

*Card type: Visa Master Card American Express Discover

*Card number: _____

*CVS#: _____ *Expiration date: _____