The Hennepin County Aging Initiative

Research highlights: Health and aging outcomes

Healthy. *People are healthy, have access to quality health care and live in a clean environment. Healthy is a goal Hennepin County has for all its residents.*

Top research findings

1. Although public health researchers have identified some risk factors for disease in late life, they have yet to identify the specific biological mechanisms responsible for aging.
2. Sixty-five and older is often used to classify *old age.* However, there is no single age at which researchers can say that people cross into *old age;* aging is a heterogeneous experience.
3. It is difficult to define when someone is old because the aging experience is unique. However, there are four different types of aging experiences that an older adult may encounter: robust elder, the disabled active elder, the frail elder, and the elder with dementia.
4. Researchers estimate that up to 90 percent of older adults over the age of 65 have at least one chronic disease.
5. Chronic disease should be viewed through multiple lenses for planning purposes. For example, the most prevalent chronic health conditions may not be the most debilitating.
   a. Heart disease, stroke, cancer, and diabetes are among the most costly chronic conditions.
   b. The number of Americans over the age of 65 with two or more chronic conditions is expected to increase.
   c. The prevalence of chronic disease is highest among persons of color, the fastest growing group in the older population.
   d. Dementia's debilitating nature will bring challenges for caregivers. An individual with mild dementia is estimated to need approximately 57 hours of family care giving per week.
6. Studies in the last ten years support the theory that individuals are living longer with more disease and fewer disabilities.
7. Disability rates among adults 65 and older declined in the 1990s, however disagreement exists about future trends. Recent studies have shown that disability rates remain stable or are increasing among the baby boomer population.
8. Although limited, recent evidence suggests baby boomer's health is as good, if not worse, than the previous generation.
   a. Heart disease, diabetes, obesity, and lung disease are on the rise among baby boomers.
   b. Baby boomers are less likely to describe their health as excellent or very good than were their predecessors at the same age.

Prepared by:

Research, Planning & Development
Sherrie Simpson, *Director*

Principal contributors:

Constance Osterbaan, *Research Manager*
Ellen Wolter, *Pr. Planning Analyst*

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The Age of Aging

When are we old?

In the early 20th century, older people were not defined as a specific group and there was no specific age at which an individual was considered old.[1] However, cultural attitudes toward old age have changed dramatically since the early 20th century, when health care providers were not yet the primary authority on aging. In the 1930s the numbers of "older" individuals increased and these "older Americans" began to be seen as a burden to society with specific economic and health needs. Sixty-five years old was defined as old for social security purposes and was a product of social perceptions and economic necessity.[1]

Although sixty-five and older is often used to classify "old age," there is no single age at which researchers can say that people cross the threshold into "old age."[2] Aging is a heterogeneous experience and individuals age at different rates. Age does not have a biological definition that can be subscribed to all individuals.[2] Individuals might have mental, physical, and functional ages that are different from each other.

Often, individuals are identified as being "old" for many reasons including their behavior, health, attitudes, and appearance. Research demonstrates that society defines old age as being slow, unproductive, deliberate, narrow-minded, and not interested in new things. Old age is often associated as a time of decline, withdrawal, and vulnerability. These social definitions lead to ageist thinking that "allows younger generations to see older people as different from themselves; thus they subtly cease to identify with their elders as human beings."[3]

Ageist thinking, however, is not necessarily rooted in facts:[2]

- 75-80 percent of people over age 65 have no disability
- 5-7 percent reside in a nursing home
- Despite being the most common mental health issue among older adults, depression does not occur more often in older adults compared to younger adults
- Recent studies demonstrate that 70 percent of men and women continue sexual activity after 65 years

Public health professionals argue that ageist thinking has consequences. Understanding the experience of aging is important for creating appropriate policies and programs.[2]

Why do we age?

There is significant debate about why we age. Do we age because of "random wear & tear?" Or is aging "more orderly and genetically driven?"[2,4] These questions, not yet answered by researchers, pose challenges for public health professionals who aim to implement prevention programs. Are late life declines due to an age-determined aging process (senescence) or an age-related phenomenon (disease)? Public health researchers have yet to identify the specific biological mechanisms responsible for aging.[2]

Five Common Experiences of Aging

"There are costs to averting our eyes from the realities [of aging]. For one thing, we put off changes that we need to make as a society. For another, we deprive ourselves of the opportunities to change the individual experience of aging for the better." [4]

It is difficult to define when someone is old because the aging experience is unique. Understanding the heterogeneous experience of aging will be important for determining how a large aging population will affect Hennepin County as an economic region and as a service provider. Muriel Gillick, a Harvard geriatrician, proposed that policymakers must "start with a deep understanding of what being sick is like so we can reach a consensus on what kind of healthy policy is appropriate for the elderly."[2,5] There are five different types of aging experiences that an older adult is likely to encounter: the robust elder, the disabled active elder, the frail elder, and the elder with dementia.[2,5]

The robust elder

Robust elders are physically vigorous, mentally aware and able to continue working or volunteering.[2] They may have chronic conditions but they are conditions that are easily treatable and do not impair daily activities. National studies suggest the robust elder is not uncommon with estimates of robust elders ranging from 12-30 percent, depending on the definition.[2,6,7,8,9] On average, 75-80 percent of Americans over the age of 65 report no assistance needed with personal self-maintenance activities such as bathing or dressing. Some researchers have proposed that up to 40 percent of older adults may experience minimal interruption of their usual activities.[2] In Hennepin County, 13 percent of adults older than 65 report no chronic disease and 84 percent report no disability.[10]

The active disabled elder

Active disabled elders have a disability that impairs them in some way but they are still able to function to achieve daily tasks.[2] Active disabled elders are typically able to live independently but may need some assistance with shopping, preparing meals, or walking. Nationally, 25 percent of adults 65 and older are disabled, depending on the measurement of disability.[2] In Hennepin County, 16 percent of adults older than 65 report a disability. Researchers are just beginning to understand how elders with disabilities compensate to meet their daily needs.[11]

The frail elder

Researchers and public health professionals consider frail elders among the most vulnerable groups in the nation.[2] Frail elders have no one overriding health problem. They suffer from disability and impairments that cause them to be vulnerable to the slightest changes. Frail elders can function day to day but sometimes only with considerable help from others. The frail elderly can move from functioning to helplessness and illness with small changes in the weather such as the heat.[2]

Frailty and disability are often used interchangeably but they are distinct groups and concepts. However, measurement of frailty is difficult and frail elders are often lumped in with "disabled adults." Clinicians and researchers have been working on a common definition of frailty which often consists of unintentional weight loss, weakness, exhaustion, slowness, and low

activity.[6] Older adults with three or more of these characteristics are considered frail.[12]

National estimates of frailty in clinical samples range from 12-16 percent.[13] A recent study using a self-report community sample estimated prevalence of frailty at 22 percent among adults 65 and older and 44 percent among adults 85 and older.[14]

Frailty is often referred to as a women's issue because the frail elderly are disproportionately female who typically live alone.[15] There is limited evidence on frailty and disparities although one recent study found that individuals with lower levels of education and income had higher rates of frailty regardless of race.[16] Another study found that Mexican-Americans experienced a lower incidence of frailty than European Americans.[17]

The elder with Dementia

Aging researchers identify dementia as one of the central public health challenges facing society in the future.[2] The primary forms of dementia are vascular and Alzheimer's. An elder with dementia will experience progressive cognitive function declines. Survival from the point of diagnosis averages approximately 8 years but evidence has demonstrated progressive declines of 20 years or more. Individuals with dementia are also more likely to experience falls, depression, car accidents, and self-neglect.[2]

Dementia is considered a disease of the very old; the prevalence of dementia more than doubles for adults 85 and older. The prevalence of dementia doubles every 5 years after the age of 65. Research estimates that between 30-50 percent of adults over the age of 85 have some form of dementia. Dementia affects women and African-Americans disproportionately.[18,19]

Dementia poses significant challenges for family caregivers. Most elders with dementia are cared for in their homes by relatives or paid caregivers; a smaller percentage lives in residential care settings such as nursing homes and assisted living. Research estimates that families of individuals with dementia will spend an average of seven years and 48 hours per week providing nonpaid care.[20]

The dying elder

It is unclear when the dying process begins.[2] Many public health professionals believe there is a lack of realistic approaches to dealing with death and the risks of dying by patients and their families. In addition, clinicians are often uncomfortable with end of life care. Annually, 5-7 percent of elders (2 million adults) face end of life issues.[2,10] Healthcare spending for individuals rises rapidly in the year or two before death. This is often because individuals are admitted into a nursing home the year prior to death. Nursing homes today are reserved for the oldest and sickest.[2]

Supporting the aging experience

Aging public health professionals recommend the following public health goals to support the varying needs of aging adults.[2]

Types of aging experiences and public health goals[2]

Type of elder	Goal of public health
Robust	Prevention of frailty and disability
Demented	Prevention of excess morbidity, excellent custodial care
Dying	Reduction of isolation, maximization of choice
Frail	Environmental modification to reduce task demand, rehabilitation to increase capacity by developing spared abilities
Compensating	Provision of appropriate aging services, promotion of maximally integrated setting

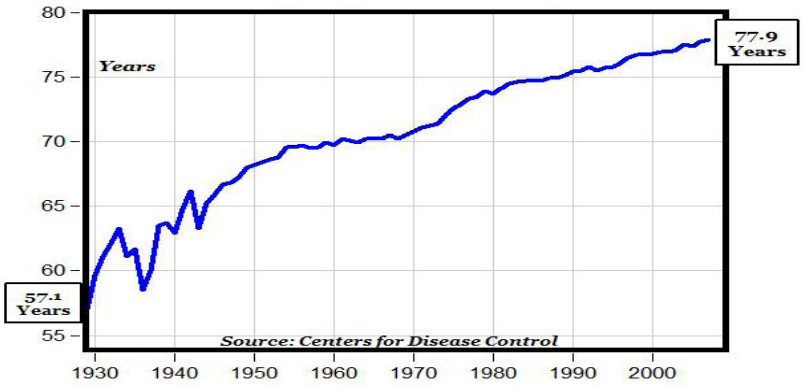
Life Expectancy

Life expectancy has increased dramatically since the early 20th century. The Centers for Disease Control (CDC) calls the increase in life expectancy one of the most significant public health achievements. Life expectancy gains are largely due to the control of infectious diseases in the first half of the 20th century. New interventions and theories, including germ theory, antibiotics, isolating sick children, and improved water supply dramatically eradicated disease, particularly among infants and children. Since the 1950s, gains in life expectancy have been attributed to prevention and control of chronic diseases in adulthood. Researchers have demonstrated these recent improvements are associated with factors such as improved diagnostic techniques and treatments, healthier lifestyles and improved socioeconomic status.[21]

In 2009, the life expectancy for men at age 65 in the United States was 82.3 and for women was 85 (Table 1).[22] Since 1979, women have lived an average of 5.3 years longer than men. It is unknown why women live longer than men; researchers have suggested many theories related to biological, social, and behavioral factors.[21]

Life expectancy in Hennepin County is slightly higher than the national average. In 2010, the life expectancy for men at age 65 was 84.5 and for women at age 65 was 86. Similar to national trends, women have a higher life then men across all races (Table 2). Asian and Latino women have the highest life expectancy at birth and at age 65. Latino and white men have the highest life expectancy at birth. However, at age 65 Latino men have a higher life expectancy than white men; white and black men have a similar life expectancy at age 65. American Indian men and women have the lowest life expectancy at birth and at age 65.

Figure 1. Life expectancy in the U.S. 1929 to 2007



Nationally, white populations typically live longer than populations of color. White individuals live an average of 5.3 years longer than black individuals. However, black females and white males have, on average, a similar life expectancy: the life expectancy for black females is 77.4 and for white males is 76.2 years of age (Table 1).[22] In addition, a recent study demonstrated that the difference in life expectancy at birth between whites and blacks has narrowed to its smallest gap ever. Researchers suggest this may be due to an increase in drug and heart disease related deaths among whites.[23]

Researchers are currently trying to understand the underlying reasons for this disparity among races. The majority of researchers believe race disparities are related to a complex relationship between race, socioeconomic status, behavioral factors, and health. In general, populations with higher education and income live longer than populations with low

Table 1. United States life expectancy, 2009

	At birth		At age 65	
	Men	Women	Men	Women
All races	75.7	80.6	82.3	85
White	76.2	80.9	82.4	85
Black	70.9	77.4	80.5	83.9

Source: Social Security Administration

Table 2. Hennepin County life expectancy, 3 year average 2008-2010

	At birth		At age 65	
	Men	Women	Men	Women
All races	78.6	82.6	84.4	86.1
White	79.0	83.1	84.5	86.9
Black	76.8	78.8	84.9	85.7
American Indian	68.1	68.4	79.8	80.9
Asian	76.3	84.2	85.1	88.9
Latino	85.4	85.8	90.1	89.1

Source: Minnesota Center for Health Statistics, Hennepin County Assessment Unit

education and income.[24] Socio-economic differences disappear as populations age however. For African-Americans and White populations, a crossover effect occurs around age 80 when mortality rates decrease among African-Americans and increase among Whites.[25]

Boomer trends: Will we continue to live longer?

Life expectancy projections are controversial and debated in the literature.[21,26,27] The Social Security Administration predicts that life expectancy will increase at a rate of .7 percent annually which is double the rate during the last 18 years of the 20th century.[21] Other researchers feel the Social Security Administration projections are too pessimistic. Some demographers feel life expectancy will continue to expand because there are no limits to the biological aging process.[21] For example, the Social Security Administration life expectancy projections for 2050, 84 years of age at birth, are less than the current female life expectancy in Japan which is 85 years of age. In addition, in 2005 the Social Security Administration predicted that life expectancy for men at age 65 in 2025 would be 82.5 years old. However, in 2009 the life expectancy for men at age 65 was 82.3 years old. Some research has demonstrated that smoking declines among baby boomer population could result in increased life expectancy.[21] Other researchers question whether increasing obesity rates will cause life expectancy to level off. [28,29,30]

Life expectancy vs. healthy life expectancy

A central question is whether people are living longer and better. Active life expectancy measures whether, on average, older adults spend more of their lives living free from limitations.[21] Donna Shalala, former U.S. Department of Health and Human Services Secretary stated in the launching of Healthy People 2010, "People not only want to live a long life, but they also want to enjoy a healthy life. As the baby boom becomes the senior boom, quality of life will become a central issue for our health system." Studies examining healthy life expectancy or disability-free life expectancy are mixed and inconclusive. Many recent studies showed an increase in the expected number of years of active life and in the percentage of life expectancy expected to be spent without activity limitations.[26,31,32,33] However, a 2011 study examined high level functioning rather than activity limitations or severe disability and found that individuals are living life longer with disease and mobility functioning loss.[30]

Leading Causes of Death

Leading causes of death for 65 and older

In 2009, the seven leading causes of death for individuals 65 and older were heart disease (30 percent of deaths), cancer (20 percent of deaths), cerebrovascular disease (stroke) (7 percent of deaths), chronic lower respiratory disease (6 percent of deaths), Alzheimer's, diabetes (4 percent of deaths), and influenza and pneumonia (3 percent of deaths) (Table 3).[2,34]

The leading causes of death vary by age among adults older than 65 (Table 3).[34,36] Cancer, for example, is the leading cause of death for individuals aged 65-74, whereas heart disease is the leading cause of death for individuals 75-84 and those older than 85.

National death rates (Table 4) mirror the leading causes of death in Hennepin County with the exception of the 75 and older age group in which cancer is the leading cause of death in Hennepin County followed by heart disease, stroke, and chronic lower respiratory diseases (Table 5).

The leading causes of death for adults older than 65 are roughly the same as in 1980 with the exception of artherosclerorisis, which was replaced by Alzheimer's disease. The Alzheimer's disease mortality rate increased 40-fold over the last 25 years.[36] It is unclear why the Alzheimer's disease mortality rate has increased; researchers point to coding revisions and increased recognition of Alzheimer's as a cause of death.[2,36] Researchers have also suggested that because Alzheimer's disproportionately affects individuals 85 and older, the incidence has accelerated because people are living longer.[36]

Mortality rates are higher for males than females for heart disease, cancer, and stroke. Women are more likely to seek preventative care and visit health care providers. Therefore, researchers believe females benefit from early diagnosis and are more able to avoid or treat conditions before they become life-threatening than men.[36,37]

Mortality rates from 1960-2006 declined for all race/ethnicities. For Blacks, the mortality rate remains the highest and the gap between White and Black mortality rates is still significant.[2,36] Latinos however, despite a higher risk socioeconomic profile have a lower mortality rate than Whites.[34,36] Often referred to as the 'Hispanic paradox,' mortality rates remain low for older adults and infants. Possible explanations include immigration patterns where the healthiest Latinos remain in the United States and issues with data measurement of Latinos across data records.[2,36] Asian-Pacific Islanders and Native Americans also have lower mortality rates than non-Hispanic whites.

Table 3. 2009 Leading causes of death among adults 65 and older[34]

Causes of death	Percent of deaths
Heart disease	30%
Cancer	20%
Cerebrovascular disease (stroke)	7%
Chronic lower respiratory diseases	6%
Alzheimer's disease	4%
Diabetes	3%
Influenza and pneumonia	3%

Source: Centers for Desease Control

Table 4. Top five causes of death for older Americans by age, 2009[34]

	Age 65-74	Age 75-84	Age 85+
1	Cancer	Heart disease	Heart disease
2	Heart disease	Cancer	Cancer
3	Chronic lower respiratory diseases	Chronic lower respiratory diseases	Cerebrovascular disease (stroke)
4	Cerebrovascular disease (stroke)	Cerebrovascular disease (stroke)	Alzheimer's disease
5	Diabetes	Alzheimer's disease	Chronic lower respiratory diseases

Source: Centers for Desease Control

Table 5. Top five causes of death for older Hennepin County residents by age, 2006-2008[35]

	Age 65-74	Age 75+
1	Cancer	Cancer
2	Heart Disease	Heart disease
3	Chronic lower respiratory diseases	Cerebrovascular disease (stroke)
4	Cerebrovascular disease (stroke)	Chronic lower respiratory disease
5	Diabetes	Alzheimer's disease

Source: Minnesota Department of Health

Baby Boomer leading causes of death

In Hennepin County, the top five causes of death in 2006-2008 among 45-64 year olds were cancer, heart disease, unintentional injury, cirrhosis, and diabetes.[35]

A study done in California reports that the leading causes of death for baby boomers will transition from acute conditions such as injuries, homicide and suicide, to chronic conditions such as heart disease or cancer.[38] With the exception of HIV, all of the top ten leading causes of death in 2004 among baby boomers have had an increase in the death rate compared to previous years, especially heart disease and cancer. The baby boomer age group has also shown an increase in deaths related to alcohol and drugs and hospitalizations for obesity.[38]

Primary Chronic Conditions

Primary chronic conditions among adults 65 and older[39]

Chronic diseases impact individuals and society in multiple ways: Chronic conditions affect older adults' social, financial, and emotional lives including their ability to function independently, pay for medications, and interact with their community.[40] Chronic conditions can be modified with various interventions but typically cannot be cured. Chronic conditions impact the 65 and older population in varying ways: there are the most prevalent, the most debilitating, the most costly chronic conditions as well as the most common causes of death. The most prevalent health issues are not necessarily the most debilitating or the most costly.[2]

- *Most prevalent conditions*: hypertension, arthritis, heart disease, cancer, diabetes, and vision limitations.
- *Most debilitating conditions*: depression, stroke, diabetes, vision and hearing limitations
- *Most costly conditions*: heart disease, stroke, cancer, and diabetes are among the most costly chronic conditions.
- *Most common causes of death*: heart disease, cancer, stroke, lung conditions, Alzheimer's disease, and diabetes.

Summary findings: Chronic conditions affecting adults older than 65

Individuals ages 50 and older are living longer with chronic conditions. Researchers suggest that longer life expectancy, advances in treatment, and lifestyle factors such as smoking, exercising, and obesity have increased the prevalence of chronic conditions and the length of time people live with them.[2,26,40,43]

Prevalence

Ninety percent of adults 65 and older have one chronic condition and 70 percent have two or more. Other estimates have determined that 35 percent of the population ages 65-79 have more than one chronic condition and 70 percent of adults 80 and older have more than one chronic condition.[40,42,43] High cholesterol, high blood pressure, diabetes, and mental illness are on the rise among adults 65 and older. Not all chronic conditions among adults 65 and older population are increasing: congestive heart failure, dementia, hip fracture, and kidney disease (excluding end-stage renal disease) have decreased.[40,44,45]

Table 6. Six most prevalent, most debilitating, and most common causes of death among adults 65 and older [2,40]

Most prevalent conditions	Most debilitating conditions	Most common causes of death
Hypertension	Mental distress	Heart disease
Arthritis	Stroke	Cancer
Heart disease	Vision limitation	Stroke
Cancer	Hearing limitation	Lung conditions[41]
Diabetes	Diabetes	Alzheimer's disease
Vision limitations	Lung conditions[41]	Diabetes

Source: Centers for Desease Control

Disability

Chronic disease is the leading cause of disability among older adults. Disability, or loss of one's ability to achieve daily tasks, marks a major milestone in the progression of chronic disease.[2] Disability rates among older adults have been decreasing. The majority of research in the past 15 years has demonstrated that disability rates declined in the 1990s among the older adult population.[2,30,57] Researchers believe factors contributing to the decline in disability rates may be improved medical treatment, positive behavioral changes, more widespread use of assistive technologies, rising education levels, and accessibility of buildings.[2,30,57]

Comorbidity

Comorbidity and multimorbidity will become an increasing issue among older adults. The medical care delivery system is designed for single disease interventions and is not coordinated well for individuals with co- or multi-morbidity. Researchers expect this will become a larger issue as the population ages. Comorbidity is associated with lower functional status, more health care utilization, and higher mortality rates than those with single disease.[46] Individuals with multiple chronic conditions are at risk of medical complications such as adverse drug events, unnecessary hospitalizations, and confusion caused by conflicting medical advice. Unfortunately, researchers know very little about patterns of multimorbidity in the older adult population.[2,47] The proportion of Medicare beneficiaries with five or more chronic conditions increased from about 30 percent in 1987 to more than 50 percent in 2002.[30,40,44,45] In the US, researchers estimate that 35 percent of adults between the ages of 65 and 79 and more than 70 percent of adults ages 80 and older have more than one chronic condition.[48]

Health disparities

The prevalence of chronic disease is higher among older adult populations of color.[40] Diabetes is of particular concern because of its debilitating nature and because it disproportionately affects Latinos and African-Americans.[49] Rates of chronic disease also differ among men and women. Older women have higher rates of arthritis and older men report higher rates of hypertension, heart disease and cancer.[40,50,51,52] Older men and women have similar prevalence rates of diabetes.[49]

Baby boomer trends

Although studies are limited, studies show that baby boomers' health trends are mixed. Heart disease, diabetes, obesity, and lung disease have been shown to be on the rise among baby boomers compared to the previous generation. Arthritis, on the other hand, has been shown to be both increasing and decreasing among baby boomers. Diabetes is of particular concern because research shows it is a growing cause of disability for the baby boomer population.[53,54,55,56]

Although limited studies exist, research currently shows that disability rates will remain stable or increase among the baby boomer population compared to the previous generation. However, disability data among baby boomers is not conclusive. Only a handful of studies have reviewed disability trends among the baby boomers.[53,55,57]

Health disparities will be of concern for the future aging population. Older people of color are disproportionately affected by chronic disease and minorities are the fastest growing group in the older population.

Although not a chronic disease, an individual's perception of their own health has been demonstrated to be an important indicator of mortality. Studies have found that baby boomers are less likely to describe their health as excellent or very good than were the generation before them.[54,57,58] One researcher noted that, overall, boomers 'seem to be in no better health objectively than the cohort twelve years before, and subjectively they feel worse.[54,57]

For more specific detail on the primary chronic conditions including prevalence, research highlights, disparities, and baby boomer trends see Table 7. Hennepin County data is included as available.

Table 7. Primary chronic conditions among adults older than 65

	Prevalence	Research highlights	Disparities	Baby boomer trends

Hypertension	• One of most prevalent but least debilitating chronic conditions for 65 and older population.
	• Nationally, 71 percent of adults over the age of 65 have hypertension.[59]
	• National hypertension prevalence by Age:[60]
	  • 50-59: 38%
	  • 60-69: 51%
	  • 70-79: 66%
	  • 80+: 72%
	• 53 percent of seniors have hypertension in Hennepin County.[10]
	• Beginning at age 50, an individual faces a 90 percent lifetime risk of developing hypertension at some time during the rest of their lives.[61]
		• Hypertension is the leading cause of heart disease worldwide.
		• Reduction of hypertension is considered one of the most promising trends for older persons.[60]
		• The percentage of Medicare beneficiaries over 65 who have been diagnosed with hypertension has increased by almost 50 percent (40 percent vs. 58 percent).[40]
		• Approximately 30 percent of MN residents are unaware they have hypertension.[62]
			• Hypertension disproportionately affects men, low-income populations, and African-Americans compared with Whites and Latinos.[63]	• Increase in diagnosis and treatment of hypertension and high cholesterol for male 40-64 year olds from 1999 to 2006.[55]
				• In Hennepin County, 31 percent of adults 55-64 and 18 percent of adults 45-54 have hypertension.[10]

High cholesterol	• Nationally, 60 percent of adults over the age of 65 have high cholesterol.[59] • In Hennepin County, 59 percent of older adults over the age of 65 have high cholesterol.[10]	• Reduction of high cholesterol is considered one of the most promising trends for older persons.[60] • The percentage of Medicare beneficiaries over 65 diagnosed with high cholesterol has increased from 1997 to 2006 by more than 150 percent (18 to 45 percent).[40] • Treatment guidelines changed and generic medications became available leading to an increase in individuals taking high cholesterol medications.	• High cholesterol is more common in men under the age of 55 and in women older than 55.[61] • Mexican-Americans and African-Americans are less likely to be screened for high cholesterol.[64]	• From 1999 to 2006 there was an increase in diagnosis and treatment of high cholesterol for males 40-64 year olds.[53] • No significant differences among high cholesterol rates were found among women ages 40-64 from 1999 to 2006. A second study found that high cholesterol decreased among men and women ages 45-65.[55] • In Hennepin County, 54 percent of adults 55-64 and 41 percent of adults 45-54 have high cholesterol.[10]
Stroke (Cerebrovascular disease)	• Nationally, 11 percent of adults over the age of 65 have been diagnosed with stroke.[65]	• The risk of stroke doubles for an individual each decade after the age of 55. • Stroke has significant effects on disability and/or death. • Studies have shown that survival rates of stroke are improving and extended treatment will increase.[60] Mortality from strokes experienced one of the largest declines between 1970 and 2002.[66]	• Although women are less likely to have a stroke than men, they are more likely to survive and live with the disease.[67] • Women have a higher incidence of stroke after age 85. Women are also more likely to experience disability and to be institutionalized following a stroke than men.[67] • In MN, stroke death rates are higher in African American men and women than White men and women.[68] • Individuals with low socioeconomic status are at risk for stroke.[69]	• There has been a demonstrated increase in strokes among those approaching old age; strokes among 55-59 year olds in 1997 was 44 percent compared to 48 percent among 55-59 year olds in 2005.[70,53]

Table 7. Primary chronic conditions among adults older than 65

	Prevalence	Research highlights	Disparities	Baby boomer trends
Heart disease	• Nationally, 17 percent of women and 31 percent of men have coronary heart disease over the age of 65.[71] • In Hennepin County, 19.1 percent of adults over the age of 65 were told by a health care professional that they have heart trouble, angina, or stroke.[10]	• Heart disease has been the leading cause of death since 1950s. • Evidence demonstrates there is increased survival among those who have heart attacks—it is not until recently that there has been a decrease in the likelihood of actually having a heart attack at a given age.[60,72] • Heart attacks among women have been increasing since 1950s however there is no clear trend for men.[60,73] • People are able to live with heart disease as a chronic condition for longer periods of time.[60]	• Minorities, in particular African Americans, are at higher risk for heart disease than whites.[68] • Men are at greater risk for heart attacks than women.[60,74]	• Heart disease has been demonstrated to be on the rise among 40-59 population compared with the previous generation at the same age.[55] • In Hennepin County, 7 percent of adults 55-64 and 5 percent of adults 45-54 report ever being diagnosed with heart attack, angina and stroke.[10]
Diabetes	• Twenty-seven percent of men and 17 percent of women 65 and older have Type 2 diabetes.[40] • In Hennepin County, 15.2 percent of adults over the age of 65 were told by a health care professional that they have diabetes.[10]	• The prevalence of diabetes among adults 65 and older has increased by more than 50 percent between 1997 and 2006.[40] • Type 2 diabetes is strongly associated with aging; the prevalence of diabetes disproportionately affects individuals over the age of 50.[50] • Thirty percent of diabetes cases are not diagnosed or treated.[60]	• Disproportionately affects older Hispanics and African-Americans over the age of 65.[40] • Mexican-Americans are at increased risk for developing diabetes compared with non-Hispanic blacks and are 50 percent more likely to develop vision problems related to diabetes compared with non-Hispanic whites.[75]	• Diabetes has been shown to be increasing among baby boomers compared to the previous generation.[53,55] • In Hennepin County, 10 percent of adults ages 55-64 and 7 percent of adults 45-54 reported being diagnosed with diabetes.
Arthritis	• In 2007-2009, 50 percent of adults 65 and older reported an arthritis diagnosis.[40,76] • In Hennepin County, 49 percent of adults 65 and older reported being diagnosed with arthritis.[10]	• The prevalence of arthritis has been increasing among the 65 and older population.[40,60,77] • Arthritis causes permanent disability among 20-30 percent of people who have the disease and has been shown to reduce life expectancy by as much as 15 years.[78] • Arthritis is the leading self-reported cause of disability among older adults.[50] • Although arthritis remains one of the chronic conditions most frequently cited as causing disability, recent research has demonstrated self-reported declines of arthritis causing disability.[55]	• Prior to age 50 men are more likely to have arthritis and after age 50 women are more likely to have arthritis.[50] • African-American women are at higher risk than other minority groups for arthritis.[50]	• Conflicting studies exist regarding whether arthritis is increasing among the baby boomer population.[54,55] • In Hennepin County, 30 percent of adults 55-64 and 17 percent of adults 45-54 reported being dignosed with arthritis.[10]

Table 7. Primary chronic conditions among adults older than 65

	Prevalence	Research highlights	Disparities	Baby boomer trends
Cancer (Refers to all classes of cancer diseases. Cancer types vary and have their own risk factors, treatments, and trends.)[60]	• Nationally, twenty-four percent of men and 19 percent of women over the age of 65 have some form of cancer.[71] • Cancer has been referred to as a chronic condition because five year survival rates exceed 80 percent; there are an increasing number of people over the age of 50 living with cancer for years.[40]	• Cancer is considered one of the most prevalent and costly conditions among older adults.[50] • Cancer treatment in the elderly population is complex given the aging process. New treatments, for example, are often cut off at age 60.[40] • The incidence of cancer is lower in the 7th and 8th decade of life compared with the 5th and 6th decades.[2]	• In general, minorities have higher cancer incidence rates and lower survival rates than whites. However, cancer types and their trends among populations vary.[79]	• Cancer rates have remained stable among individuals ages 40-59 in 1997 compared with individuals of the same age in 2007.[53] • The number of adults with cancer is expected to increase by 61-70 percent in older adults by 2030.[80] • Researchers estimate that cancer will disproportionately affect minorities in the next 20 years and cancer care for minorities needs improvement due to under-representation in cancer trials.[80] • In Hennepin County, the leading cause of death in 2010 among 45-64 year olds was cancer.[81] • Researchers project significant increased costs for cancer due to a large aging population.[82]
Depression	• Depression is the most prevalent mental health problem among older adults. Eight percent of older adults report current depression and 16 percent report a lifetime diagnosis of depression.[83] • In Hennepin County, 16.1 percent of residents 65 and older reported being told by a health care professionals that they have depression.[10]	• Some practitioners and organizations, including NAMI, believe that depression is under-recognized and under diagnosed in older adults, leading to prevalence numbers lower than reports of older adults.[83,84] • NAMI considers suicide a risk of untreated depression and states that Americans over the age of 65 have the highest suicide rates of any group. Suicide rates typically rise with age and are at their highest among white men over the age of 85.[84]	• Older adults who are single, low income, live in urban areas, and who abuse alcohol are also at risk of committing suicide.[84]	• Researchers have estimated that baby boomers will likely experience higher rates of mental illness when they are older adults, increasing from 4 million in 1970 to 15 million in 2030.[85] • Studies have found that baby boomers have higher rates of depression and substance abuse than current older adults.[83] • A recent study, however, found that mental distress has not increased among baby boomers compared with their predecessors at the same age.[53] • In Hennepin County, 25 percent of adults 55-64 and 30 percent of adults 45-54 reported being being diagnosed with depression.[10]
Dementia	• 5-10 percent of adults older than 65 and 30-50 percent of adults older than 85 have dementia.[18,19]	• Considered one the central challenges as baby boomers age.[2] • Alzheimer's disease is the leading form of dementia.[2] • Advances in prevention and treatment are important for managing dementia due to large aging population. However, effective techniques are still being researched.[2]	• The prevalence of Alzheimer's disease is higher in women than men in every age group and the gap widens at older ages.[2] • Minority risk status has been shown to be a significant risk factor for Alzheimer's disease; African-American and Latinos are 2-3 times more likely to develop Alzheimer's disease than whites.[50,18]	• Research regarding potential cognitive decline decreases among the baby boomers is mixed. The recent awareness of dementia and Alzheimer's disease makes measuring changes across generational populations difficult.[60] • Estimates project that by 2050, the number of individuals with Alzheimer's disease will triple. Much of this increase will be due to the number of individuals who are older than 85 with some influence coming from affected individuals in the 75-84 age group.[86]

Table 7. Primary chronic conditions among adults older than 65

	Prevalence	Research highlights	Disparities	Baby boomer trends
Obesity Obesity is not technically considered a chronic condition, however researchers worry that obesity may have a large effect on disability rates in older adults as they have already seen an increase in disability among the 18 to 59 age group[40,87]	• The prevalence of individuals who are overweight and obese has increased significantly throughout the past twenty years. • Seventy-one percent of adults 60 and older are overweight and 33 percent are obese.[88] • In Hennepin County, 35.8 percent of adults 65 and older reported being overweight (but not obese) and 24.4 percent obese.[10]	• People aged 65 who are obese increased from 22 percent to 31 percent between 1988-1994 and 2005-2006. Recently, this change leveled off with no statically significant change.[89] • Between 28-32 percent of baby boomers at aged 35-44 years of age were obese in 2002 compared with 14-18 percent of earlier born cohorts when they were 35-44 years old.[90] • Obesity has been demonstrated to increase disability and problems with physical functioning in adults 60 and older.[91,92] • Obese populations did not experience declining disability in the 1990s compared with non-obese populations.[53] • Interestingly, a recent study showed that people did not feel obesity contributed to their disability.[55]	• Obesity has increased among all gender and racial groups.[88] • Women have experienced the greatest increase in obesity.[88] • Obesity rates tend to follow the same trend, with non-Hispanic Black women experiencing highest rates of obesity.[88,92] • In Hennepin County, the obesity rate is significantly higher among non-White or Latino adults older than 65. This rate is also significantly higher among low-income seniors than high income seniors.[10] • There is limited research on obesity, disparities and older adults.	• Numerous studies have demonstrated rising obesity among baby boomers.[26,57,53] • Research on obesity and disability is still emerging and there continues to be debate about how health, functioning, mortality, and life expectancy will be affected.[27,28,53] • The state of California recently found that obesity related conditions is a leading cause of hospitalizations for baby boomer age group.[93] • In Hennepin County, 27 percent of adults 55-64 reported being obese and 21 percent of adults 45-54 reported being obese.[10]

Disability

Disability, or loss of one's abilities, marks a major milestone in the progression of chronic disease.[2] Chronic diseases frequently cause older adults to seek help with everyday life activities such as driving, participating in conversations, and completing basic tasks required for independent living such as eating, bathing, dressing, grooming, using the toilet, or moving between a bed and a chair.[2] Disability is generally defined as the gap between an individuals' capacity and the challenges of one's environment.[30] Researchers believe disability is one of best health indicators available because it provides a more accurate assessment of well-being than disease prevalence and mortality data.[95]

Prevalence

Disability prevalence rates vary from 11-40 percent for adults 65 and older and have been demonstrated to be up to 50 percent for adults 80 and older.[2,96,97,98] The variability in disability rates is largely due to the differing methods used to measure disability. For example, there is no standard method for how survey questions assess activity limitations or the influence of environmental modifications. Varying assessment methods make interpretation of disability trends complicated and pose challenges for planning for an aging population. In Hennepin County, 19 percent of adults over the age 65 report having a disability.

Typically, disability is divided into two categories: activities of daily living (ADLs) and instrumental activities of daily living (IADLs). Although definitions of these categories vary, typically ADLs are defined as fundamental self-care tasks such as personal hygiene, dressing, self-feeding, using the toilet, taking a shower, and walking without the use of an assistive device. IADLs are defined as tasks that support independent living such as housework, managing money, shopping, and using the telephone. However, there is no consistent use of these definitions.

Researchers estimate that approximately 1 percent of the population over the age of 60 have developmental disabilities.[99] The life expectancy of individuals with developmental disabilities has increased to 70 years of age. Individuals with more severe disabilities or Down syndrome have a lower life expectancy ranging in the mid-50s and individuals with mild or moderate disabilities have a higher life expectancy ranging in the mid-70s.[100]

Trends

Disability rates among older adults have been decreasing. The majority of research in the past 15 years has demonstrated that the disability rate declined among today's elderly compared with the previous generation. The Committee on National Statistics of the National Research Council concluded that there had been modest declines among older adults with limitations in IADLs but inconsistencies across surveys in trends in ADLs in the 1990s.[2,99] However, there are a minority of recent studies that have called this into question, asking whether improvements are largely due to environmental influences.[30] Other recent studies have reported reversing trends in new cohorts of older adults.[97]

During the middle and late 1990s studies found consistent declines in disability of 1-2.5 percent per year.[101] The National Long Term Care Survey found that between 1982 and 1999, the prevalence of physical disability in older Americans decreased from 26 percent to 20 percent.[2,30,102] Aging researchers cite disability declines as evidence that disability is not necessarily an inevitable sign of aging.[2,103]

Researchers believe factors contributing to the decline in disability rates are related to improved functioning due to better medical treatment, positive behavioral changes, environmental factors such as more widespread use of assistive technologies, rising education levels, and accessibility of buildings.[2,26,99]

Disparities

There are surprisingly few studies reviewing specific groups and disability rates. It remains unclear whether all groups have benefitted equally from disability rate decreases. Limited research, however, has demonstrated that education, income, and race disability disparities exist among older adults. Older adults with higher income and education experienced greater declines in disability rates over the past two decades than lower income and less educated older adults.[104] African-American men demonstrated greater increases in ADL disability than whites as did obese and overweight populations.

Baby Boomers

Although limited studies exist, research currently shows that disability rates will remain stable or increase among the baby boomer population compared to the previous generation.[53,54,55,105] However, disability data among baby boomers is not conclusive. Only a handful of studies have reviewed disability trends among the baby boomers. Several recent studies have shown that disabilities have remained stable or are increasing among the baby boomer population or remain similar to the previous generation at the same age.[30,53,54,55] Some researchers feel that obesity and other disabling conditions among working age adults could affect future improvements in late life functioning. A recent study found that individuals who are overweight or obese are living longer but with more disabilities.[29] In addition, research suggests that baby boomers with higher education levels may continue to see improved disability rates but at a reduced rate.[105] Researchers note it is "surprising that the gains in health and disability [among the baby boomers] have not been larger nor observed across a broader set of health outcomes."[54]

Even if the disability rate decreases among baby boomers, the absolute number will increase. A 2007 Urban Institute analysis found that even if disability rates fall by 1 percent per year –the most optimistic scenario--the number of frail disabled older Americans will still grow by more than 50 percent between 2000 and 2040.[15]

Due to a large aging population, the number of individuals with developmental disabilities is expected to double by 2030.[100] Individuals with developmental disabilities will face particular challenges as they are more likely to develop chronic conditions at younger ages and rely on family caregivers and public assistance for support and resources.[106]

Continued research will be necessary to address the disability challenges brought on by the aging population in America. According to the National Institutes of Health, it will be important to predict the risk of disability, and personalize interventions for older adults.[104]

Mental Illness

The mental health of older Americans was identified as a priority by the Healthy People 2010 initiative and the 2005 White House Conference on Aging.[107] The Centers for Disease Control (CDC) defines mental illness as 'disorders generally characterized by dysregulation of mood, thought, and/or behavior, as recognized by the Diagnostic and Statistical Manual, 4th edition of the American Psychiatric Association (DSM-IV). The CDC characterizes depression, anxiety, dementia, and psychotic disorders such as bipolar and schizophrenia as mental illness.[108] Generally, any mental illness that affects other age groups can affect older adults. However, it is important to note that some older adults will have been living with mental health conditions for many years.[114]

Assessing mental health issues among older adults is challenging due to the close association between mental health and medical health issues, especially dementia. However, many public health professionals believe mental health assessment has improved among older adults due to a greater understanding of dementia and its distinction between delirium, normal aging, and depression.[112]

Navigating mental health care is challenging for older adults. Studies have found that primary care physicians and aging network service workers are less likely to review older adults for mental health issues compared with younger populations. In addition, older adults with mental health disorders are less likely than younger populations to receive specialty mental health care."[110,126] Depending on the need, older adults may find themselves in multiple systems, including acute mental health care, long-term care, dementia care, substance abuse treatment, or the aging services network, that are not coordinated.[112] In 2009, the Obama administration passed legislation to support increasing access to mental health care by eliminating higher co-payments for mental health services compared to medical services under Medicare.

Prevalence and trends

Data on the mental health of older adults in the United States is limited, especially data comparing baby boomer cohorts with earlier born cohorts.[111,112] Available prevalence and trend data for the most common mental health conditions are discussed below.

Depression

The CDC reports that depression is the most prevalent mental health issue among older adults. Eight percent of adults 50 and older report current depression and 16 percent report a lifetime diagnosis of depression.[83] In Hennepin County, 21 percent of residents 65 and older reported being told by a health care professional that they have depression.[10] The National Alliance on Mental Illness (NAMI) states explicitly that depression is not part of the normal aging process and should not be ignored.[113] Some practitioners and organizations, including NAMI, believe that depression is under-recognized and under diagnosed in older adults, leading to prevalence numbers lower than reports of older adults.[84]

Older adults may also have difficulty distinguishing between grief, commonly experienced in later life, and depression. NAMI considers suicide the risk of untreated depression and states that Americans over the age of 65 have the highest suicide rates of any group. Suicide rates typically rise with age and are at their highest among white men over the age of 85.[114] Older adults who are single, low income, live in urban areas, and who abuse alcohol are also at risk of committing suicide.[84]

Anxiety disorder

Eleven percent of adults over the age of 55 have a diagnosed anxiety disorder.[113] Studies have shown that women and single older adults are more likely to be diagnosed with anxiety. Individuals with more than 3 chronic conditions are also more likely to have an anxiety disorder.[108,113] In several studies, anxiety disorders are higher among baby boomers than adults over the age of 65.[112]

Psychotic and bipolar disorders

Less than 1 percent of adults older than 55 have schizophrenia and bipolar disorders. Research is not clear whether schizophrenia has increased among the baby boomers.[112]

Individuals born after 1940 are more likely to have bipolar disorder than those born before 1940.[112] Due to the large number of baby boomers, there will be challenges for the community-based and long-term care systems who serve those individuals with schizophrenia and bipolar disorder.

Substance use disorders

Approximately 3 million adults 50 and older are estimated to have an alcohol or drug abuse disorder in the United States.[114] Mental illness often occurs alongside substance abuse; 37 percent of people with alcohol use disorders and 53 percent of people with drug use disorders have a history of mental illness.[115] Substance abuse is often overlooked due to limited research, ageism, and symptoms that are mistaken for other conditions such as dementia, diabetes, or depression. Substance abusers have a higher risk of falls, illness, and socioeconomic decline.[116]

Prescription drug abuse is becoming more common among older adults. A recent study found that adults 50 and older were more likely to misuse prescription drug medication than younger generations.[116] Although data is limited, the National Survey on Drug Use and Health estimates that nonmedical use of prescription drugs among adults 50 and older will increase to 2.7 million in 2020.[117,119]

Baby boomers are the largest drug using cohort and substance use disorders in history; substance abuse is highest among people born between 1953 and 1964.[118] The number of adults 50 and older with substance abuse problems is expected to double from its current rate of 2.7 million to 5.7 million.[115]

Dementia

Dementia is considered a disease of the very old; the prevalence of dementia more than doubles for adults 85 and older. The prevalence of dementia doubles every 5 years after the age of 65. Research estimates that between 30-50 percent of adults over the age of 85 have some form of dementia.[2,18,19]

Aging researchers identify dementia as one of the central public health challenges facing society in the future. The primary forms of dementia are vascular and Alzheimer's. An elder with dementia will experience progressive cognitive function declines for which there is no treatment. Survival from the point of diagnosis averages approximately 8 years but evidence has demonstrated progressive declines of 20 years or more.[2] Individuals with dementia are also more likely to experience falls, depression, car accidents, and self-neglect.[124]

Dementia affects women, African-Americans, and Latinos disproportionately.[18,19] The prevalence of Alzhiemer's disease is higher in women than men in every age group and the gap widens at older ages.[2] Populations of color are at higher risk for dementia. Studies have demonstrated that African-Americans and Latinos are 2-3 times more likely to develop Alzheimer's disease than Whites.[18] Individuals with low socioeconomic status are more likely to be diagnosed with dementia. However, individuals with higher socioeconomic status are more likely to be diagnosed at more advanced stages.[2,86]

Although age is considered the primary risk factor for developing dementia, studies have also demonstrated that individuals with heart disease, diabetes, or a family history of dementia are also at risk.[120] There is also some association with high intelligence serving as a protective factor for dementia as well as good childhood environment, high education, and high occupational achievement; researchers refer to this as having "cognitive reserves."[86,126] Better cognitive health can be supported through social connections or mental stimulation, although the research is not definitive.[2]

Research also increasingly demonstrates that maintaining good blood circulation through physical activity and a healthy diet can support brain health.[119] Two recent studies linked moderate or high physical activity with reduced incidence of cognitive impairment among elderly populations including better preservation of cognitive function in older women with vascular disease. [120,121,122]

Dementia poses significant challenges for family caregivers. Most seniors with dementia are cared for in their homes by relatives or paid caregivers and smaller percentage live in residential care settings such as nursing homes and assisted living.[2] Research estimates that families of individuals with dementia will spend an average of 7 years and 48 hours per week providing nonpaid care.[2,123]

Research regarding potential dementia rate decreases among the baby boomers is mixed. The recent awareness of dementia and Alzheimer's disease makes measuring changes across generational populations difficult.[124] Researchers estimate that by 2050, the number of individuals with Alzheimer's disease will triple. Much of this increase will be due to the number of individuals who are older

than 85 with some influence coming from affected individuals in the 75-84 age group.[86] Managing dementia in a large aging population will become important as baby boomers age; advances in effective prevention and treatment of dementia are still being researched.

Future challenges

Researchers have estimated that baby boomers will likely experience higher rates of mental illness when they are older adults, increasing from 4 million in 1970 to 15 million in 2030.[125] Baby boomers report lower levels of happiness and well-being than today's elderly population. In addition, studies have found that baby boomers have higher rates of depression and substance abuse than current older adults.[112] Researchers note this is surprising given baby boomers' high educational attainment and wealth. A recent study, however, found that mental distress has not increased among baby boomers compared with their predecessors at the same age.[53] Comparing data across cohorts is challenging due to changing diagnostic criteria and limited mental health data for earlier born cohorts.

Baby boomers are also more likely to seek mental health services for less severe mental illness than older cohorts; researchers expect this trend to continue as baby boomers age due to the reduced stigma around mental health decreases.[126] Unfortunately, estimates have found that there will be shortage of professionals who can care for older adults with psychiatric disorders.[127]

In 2011, Minnesota passed legislation to track prevalence and screening rates for dementia. In addition, the legislation requires public health professionals to develop consistent measurements to determine the rates of dementia diagnoses, prescribed care, and treatment plans. The data measured will be used to compare outcomes and costs for caring for individuals with dementia.

Frailty

Researchers and public health professionals consider frail older elders among the most vulnerable groups in the nation. Frail elders have no one overriding health problem. They suffer from disability and impairments that cause them to be vulnerable to the slightest changes. Frail elders can function day to day but sometimes only with considerable help from others. The frail elderly can move from functioning to helplessness and illness due to small changes such as the heat, colds, or the flu.[2]

Frailty and disability are often used interchangeably but they are distinct groups and concepts. However, measurement of frailty is difficult and frail elders are often lumped in with 'disabled adults.' Clinicians and researchers have been working on a common definition of frailty which often consists of unintentional weight loss, weakness, exhaustion, slowness, and low activity. Older adults with three or more of these characteristics are considered frail.[2,128]

Prevalence, trends, and disparities

National estimates of frailty in clinical samples range from 12-16 percent A recent study using a self-report community sample estimated prevalence of frailty at 22 percent among adults 65 and older and 44 percent among adults 85 and older.[13,14]

Frailty is often referred to as a women's issue because the frail elderly are disproportionately female and typically live alone.[15] Frail women are also more likely to decline sooner and be admitted into the hospital.

There is limited evidence on frailty and disparities although one recent study found that individuals with lower levels of education and income had higher rates of frailty regardless of race.[129] Another study found that Mexican-Americans experienced a lower incidence of frailty than European Americans.[17]

Frailty has also been shown to increase with age and to be a stronger mortality predictor than age.[2] Cognitive impairment is also significantly associated with frailty. Researchers have suggested using physical frailty as a predictor for cognitive impairment.[130]

Baby Boomers

A 2007 Urban Institute analysis found that even if disability rates fall by 1 percent per year –the most optimistic scenario- the number of frail disabled older Americans will still grow by more than 50 percent between 2000 and 2040.[15]

Falls

Falls are the leading cause of unintentional injury and death in the elderly. Due to sensory changes, bone density, slow reflexes and reduced strength, older adults are at a much higher risk of falls than the rest of the population.[131] More than one-third of individuals 65 and older will fall once each year, two-thirds of those who have one fall will fall again within that year.[2] Forty percent of older adults who fall end up in a nursing home and twenty percent are never able to walk again.

The three primary risk factors for falling are poor balance, taking more than four prescription medications, and muscle weakness. Older adults without these risk factors have a 12 percent chance of falling in a year and with all three risk factors have almost a hundred percent chance.[4] Additional risk factors include gait instability, age changes, medication use and environmental factors such as stairs, poor lighting, and inadequate footwear.[132]

Seventy-seven percent of falls occur at home and 44 percent of falls involve home hazards that are modifiable. Most falls involve daily activities such as getting up or sitting down.

Clinical trials have demonstrated that falls can be prevented. A recent review of fall prevention programs found he most effective addressed multiple risk factors. Modifications were done using behavior training, exercise programs, or an environmental changes.[132,133] Researchers agree that maintaining physical functioning also has important implications for preventing falls. Diminished strength and gait instability, risk factors for falls, can be improved with physical activity.

Minnesota has the fourth highest rate of death in the nation from falls among adults 65-85.[135]

For more information on preventing falls in Minnesota, please see: www.mnfalls.prevention.org

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