Montana Geriatric Education Center

Instructions on Completing the Module

Screening for Cognitive Impairment in Older Adults

*The results of the assessments and evaluations are confidential, and the data is used to meet requirements of our federally funded grant.

Please make sure to turn in Pre-Test, Post-Test, and Module Evaluation.

1. **Before** reading the module, and without looking at it, complete the Pre-Test.
   
   Record your answers on the examination form marked Pre-Test. *(Found at the start of the module.)* Keep the completed answer form to turn in at the completion of the module.

2. Complete the module as outlined.

3. **After** reading the module, please complete the Post-Test.
   
   Record your answers on the examination form marked Post-Test. *(Found at the end of the module.)* Keep the completed answer form to turn in at the completion of the module.
   
   Complete the Module Evaluation. *(Found after the post-test.)* Keep the completed module evaluation form to return with the pre-test and post-test at the completion of the module.

4. To obtain credit for the module you must:
   
   
   b. Turn in the Pre-Test, Post-Test, and Module Evaluation
   
   c. Obtain a score of 70% or better on the Post-Test

MTGEC/IPHARM

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Pre-test: Screening for Cognitive Impairment in Older Adults

Record responses on examination form.

1. Dementia is under-diagnosed and under-treated in older adults for all of the following reasons EXCEPT:
   a. Healthcare providers consider screening a low priority because of the lack of effective treatment options.
   b. A diagnosis of dementia can only be made after death with an autopsy.
   c. People try to avoid talking about their memory loss and compensate for it so others won’t notice.
   d. People believe “senior moments” are normal and to be expected.

2. Delirium, dementia, and depression:
   a. Are interchangeable terms.
   b. Are different degrees of severity of the same symptoms.
   c. Cannot be accurately diagnosed except through an autopsy after death.
   d. Are different disorders but may have similar symptoms

3. Which of the following statements is NOT true?
   a. The incidence of dementia is expected to dramatically decline over the next thirty years because of improved health care.
   b. A significant number people with dementia worldwide have not been diagnosed.
   c. More than a third of people over the age of 85 have dementia.
   d. Alzheimer’s is the only cause of death among the top 10 in America without a way to prevent, cure, or even slow its progression.

4. Important risk factors for the development of Alzheimer’s disease include:
   a. Family history and genetics
   b. Changes in the brain, including plaques, tangles, and fewer nerve cells
   c. Other medical conditions and poor health
   d. All of the above

5. Which of these is NOT usually a symptom of cognitive impairment?
   a. Difficulty completing familiar tasks
   b. Excessive sleeping
   c. Forgetting recently learned information
   d. Withdrawal from work or social activities

6. Which physiologic condition(s) can produce dementia-like symptoms?
   a. Depression
   b. Reactions to medications
   c. Urinary tract infection
   d. All of the above

7. The Mini-Cog screening test is composed of which two activities:
   a. Word recall and clock draw test
   b. Reverse serial sevens and word recall
   c. Mood assessment and clock drawing test
   d. Reverse sevens and clock drawing test
8. Which is true about mild cognitive impairment?
   a. It almost always leads to dementia
   b. It can be dealt with through the use of antidepressants.
   c. Symptoms of MCI are noticeable but don’t interfere with independent living.
   d. It is closely associated with depression.

9. If cognitive impairment or dementia is suspected on a screening, the person should be referred:
   a. To a neurologist for a complete neurological exam.
   b. To a psychiatrist for medications.
   c. To a primary health care provider for further evaluation of the symptoms.
   d. To a lawyer to name a durable power of attorney for medical affairs.

10. After a diagnosis of dementia is confirmed, all of the following may be recommended EXCEPT:
    a. Cholinesterase inhibitor medication to slow the progression of the disease.
    b. Electroconvulsive therapy (ECT) to improve communication between brain cells.
    c. Support groups for both the patient and caregiver.
    d. Environmental and behavioral management training for the caregiver.

11. Dementia research is currently focused on:
    a. Early diagnosis of Alzheimer’s disease with brain imaging scans, spinal fluid tests and blood tests.
    b. Developing evidenced-based effective psycho-educational programs for patients and caregivers.
    c. Clinical trials of drugs that delay or prevent dementia.
    d. All of the above
PRE-TEST: Examination Form

Screening for Cognitive Impairment in Older Adults

PARTICIPANT INFORMATION:

1. Name: ________________________________

2. Mailing address: _______________________
   _______________________
   _______________________
   _______________________

3. Date exam completed ____________________

QUESTIONS: (PLEASE CIRCLE ONE RESPONSE PER QUESTION):

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Screening for Cognitive Impairment

Revised by Cindy Garthwait, MSSW

A 2.0-hour Geriatric Health Screening Module from the

Montana Geriatric Workforce Enhancement Program

Montana Geriatric Education Center Website

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Montana Geriatric Education Center (MTGEC)

Screening for Cognitive Impairment

Disclosures

Montana Geriatric Workforce Enhancement Program Goals/Purpose

Improve health outcomes for older adults in rural Montana via increased knowledge of older adult care and treatment of health problems by health care professionals.

Successful completion of this continuing education activity includes:

▪ Completion of the Pre-Test
▪ Reading of text
▪ Visiting websites as directed in module
▪ Completion of the Post-Test with at least 70% accuracy
▪ Completion of the module evaluation

Contact Hours: 2.0

Conflicts of Interest

The planners and authors of the CE activity have disclosed no relevant financial relationship with any commercial companies pertaining to this activity.

The Montana Geriatric Workforce Enhancement Program is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under grant number U1QHP28733, Geriatric Workforce Enhancement Program (GWEP); the total award is $3,750,000 and supports the program 100%. This information or content and conclusions are those of the author and should not be construed as the official position or policy of, nor should any endorsements be inferred by HRSA, HHS or the U.S. Government.

Description of Module
Content:

This module will present:

1. An overview of the incidence and prevalence of cognitive impairment in the older adult population;
2. A review of signs and symptoms of cognitive impairment in older persons;
3. Discussion of screening tests used to identify cognitive impairment; and
4. A summary of treatment and follow-up, including appropriate referral sources for older adults with cognitive impairment.

Module Purpose:

Participants will improve their knowledge of screening and follow-up for cognitive impairment in older adults.

Learning Objectives:

Specifically, the learner will:

1. Review the impact of cognitive impairment in older adults.
2. Describe the procedures for conducting basic cognitive assessments, including the Mini-Cog.
3. Summarize the need for referral and the treatments for cognitive impairment in older adults.
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Screening for Cognitive Impairment

I. Introduction

Because you are starting this online module about cognitive impairment, and how to screen for it, it can be assumed that you are interested in gaining knowledge about not only cognitive impairment itself, but you are also interested in gaining skills to use with real people. That includes both older adults and their families and potential caregivers. To make the best use of the information included in this module, picture yourself in interaction with those people who have real and personal questions about cognitive health and impairment. They will come to you, no matter your discipline or profession, with questions that you need to be prepared to answer, at least to some degree. Below is a list of common questions asked by older adults and their families, and each of them is addressed within this module. Read the questions, think about which ones you might encounter, even if they are not directly related to your work, and look for information imbedded in this module that can get you started on responses and referrals.

Questions Posed by Older Adults

When and why should I have a cognitive impairment screening?
What screening tests are used?
What will the results tell me?
Is a screening the same thing as a diagnosis?
Who should see my results and scores?
If I have some cognitive impairment, will that continue to get worse?
What can I do, if anything, to prevent cognitive impairment and dementia?
What are the types and causes of cognitive impairment and dementia?
Are there other conditions that appear to be dementia but are not?
If I have cognitive impairment or dementia at some point, what can I expect the progression to be like?
What can I do to stay cognitively intact as possible?

Questions Posed by Family and Caregivers

When and why should my loved one have a cognitive impairment screening?
What will the scores tell me?
If my loved one has cognitive impairment, what can be done?
Is cognitive impairment the same thing as dementia?
What types of dementia are there, and are they treated the same or differently?
What role do medications play?
If dementia is diagnosed, what is the course of the condition?
What resources are available to help us?
What do they cost and does insurance cover them?
What positive research is being done on dementia?
II. Incidence and Prevalence of Cognitive Impairment and Types of Dementia in Older Adults

As people live longer and the Baby Boomers age, the population of older adults is growing. Because advanced age is the greatest risk factor for dementia, the devastating, progressive decline of cognition will affect more and more individuals, families, and the entire health care system. Alzheimer’s Disease International estimates that by the year 2018, Alzheimer’s disease will be a trillion-dollar disease, with the number of individuals with the condition doubling every 20 years (Alzheimer’s Disease International, 2015). According to projections by the Alzheimer’s Association, by the year 2050, there will be 13.8 million people in the U.S over 65 with Alzheimer’s Disease, barring any major medical breakthroughs in treating, curing or slowing the condition (Alzheimer’s Association, 2020a).

Throughout history, “senility” was seen as a normal condition of old age. Since Dr. Alois Alzheimer’s description of brain tissue changes associated with cognitive impairment in a 55-year-old woman in 1906, awareness of and knowledge about cognitive impairment has gradually increased over the last century. The publicity around President Ronald Reagan’s diagnosis of Alzheimer’s disease (AD) in 1994 was a turning point in the recognition and discussion of the tragic and personal impact of the disease. It is now clear that Alzheimer’s disease and other types of dementia are disease processes and not a normal part of aging, and for that reason professionals must keep abreast of research and practice advancements.

Health care providers do not yet completely understand the cause of Alzheimer’s disease (AD) and other cognitive impairment disorders, nor are there effective treatments currently. The urgency of the looming crisis has produced a flurry of support and research into the factors thought to be most responsible for the condition: genetics, environmental concerns, and lifestyle. In 2019 Congress drafted and updated the National Plan to Address Alzheimer's Disease and asked for additional funding of $289 million to research epidemiology, molecular and cellular mechanisms, diagnosis, prediction, health disparities, caregiving, clinical trials, and brain aging. The National Institutes of Health estimate that $3.1 billion will be needed to reach its goal of preventing and effectively treating Alzheimer’s Disease by 2025 (NIH, 2019). Although this is a significant increase, it can be considered an insignificant amount compared to the cost to the American society of caring for those with AD (NIH, 2020).

Alzheimer’s Disease International (2015), in the World Alzheimer Report, reviewed thousands of scientific studies and in regard to diagnosis of dementia, concluded:

- Of the estimated 47 million people with dementia worldwide, a large majority have not been diagnosed. In high income countries, only about 40-50% are diagnosed, and in low to moderate income countries, only 5-10% of those living with Alzheimer’s Disease have been diagnosed. Failure to diagnose AD is based on the false belief that dementia is a normal part of aging and that nothing can be done about it.
- Failure to diagnose deprives people of access to care, treatment, and quality of life.
- Dementia diagnosis provides access to a pathway of evidence-based treatment, care, and support.
- Drugs and psychological treatment can improve cognition, independence and quality of life.
- Physicians and other health care professionals should be taught to detect dementia early.

The 2020 report by the same organization shows that of World Health Organization members, 31 have dementia plans for their country, and 28 nations do not. This highlights the importance of nations dealing with dementia as a public health issue (Alzheimer’s Disease UK, 2020).

In relation to the above findings, the statistics from the Alzheimer’s Association include the following (Alzheimer’s Association, 2020b):

- It is estimated that 5.5 million Americans of all ages have AD. This figure includes 5 million people aged 65 and older and 200,000 individuals under age 65 who have early-onset Alzheimer’s.
- One in ten people aged 65 and older (10%) has AD.
- Over a third of people aged 85 and older (38%) have AD.
- Half of the estimated 5.5 million Americans with AD may not yet know they have it. When AD can be detected earlier, this estimate may be proven to be low.
- Among the top 10 diseases causing death in America, AD is the only one without a way to prevent, cure, or even slow its progression.
- Most people survive an average of four to eight years after an AD diagnosis, but some live as long as 20 years with the disease.
- The number of the oldest-old (85+) is expected to grow by 12 million between 2012-2050, which means that many of them will have AD or a dementia of some sort.
- In 2016, 15 million family and friends provided 17.7 billion hours of unpaid care to those with AD or other dementias, for an estimated value of $220.2 billion.
- Older adults with AD have more home health care visits, more hospital stays, and more skilled nursing facility stays than any other group of older adults.
- In Montana, an estimated 20,000 people had AD in 2017. It is estimated that in 2025 there will be 27,000 cases in Montana, an increase of 35%.

These “facts” are estimates only, and only show part of the picture for three main reasons. Alzheimer’s is being defined as a continuum of stages from the “preclinical” stage when changes are occurring in the brain but there are no symptoms, to mild cognitive impairment (MCI), through seven stages of AD. Adding the “preclinical” stage to the definition could double some of the above numbers (Albert et al., 2011). Secondly, cognitive impairments, similar to depression, are difficult to quantify not only because they are largely undiagnosed, but also because the causes and symptoms are complex and only partially understood at this time. Finally, although Alzheimer’s disease is the most common type of cognitive impairment, there are individuals suffering from other types of dementia. Because many people do not know they have dementia or do not have access to screening or diagnosis, much work needs to be done
to provide them with the resources they need. In the U.S., screening and diagnostic services are much more available, and in light of those resources, the following definitions are provided.

“Dementia” does not refer to one specific diagnosis or disease, but actually is an umbrella term, or syndrome, covering a set of cognitive symptoms and conditions that are produced by many disorders. The term is derived from the Latin word for “mad” or “insane”. In 2013, the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5) chose to replace the term with new terms that were believed to more accurately depict a decline from a previous level rather than a cognitive deficit, and to hopefully reduce the stigma. The new terms are “major or minor neurocognitive disorder”. In practice, the common use of the term “dementia” continues (American Psychiatric Association, 2013). Dementia is a loss of cognitive functioning persisting over time which includes memory impairment and may also include difficulty with planning, reasoning, decision-making, perception, language, orientation, behavior, motor functioning, and judgment as well as confusion, emotional changes, and/or personality changes. The DSM-5 (American Psychiatric Association, 2013) differentiates minor and major neurocognitive disorder as follows:

- **Minor neurocognitive disorder**: Has evidence of modest cognitive decline from a previous level of performance in one or more of the domains listed above, ranging roughly from one to two standard deviations below appropriate norms in formal evaluation. Despite the deficits, the individual may remain independent with effort, compensatory strategies and/or accommodation.

- **Major neurocognitive disorder**: Has evidence of substantial cognitive decline from a previous level of performance in one or more of the domains listed above, performing at two or more standard deviations below appropriate norms in formal evaluation. The individual’s deficits interfere with independence, requiring at least minimal assistance with instrumental activities of daily living.

The subtypes of neurocognitive disorders in the DSM-5 are (1) Alzheimer’s disease; (2) vascular neurocognitive disorder; (3) frontotemporal neurocognitive disorder; (4) neurocognitive disorder due to traumatic brain injury, (5) Lewy body dementia, (6) Parkinson’s disease, (7) HIV infection; (7) substance-induced neurocognitive disorder; (8) neurocognitive disorder due to Huntington’s disease, Prion disease, or to another medical condition; (9) and neurocognitive disorder not elsewhere classified (American Psychiatric Association, 2013). Each of these subtypes has specific markers, causes, and treatments, although in some ways, because no totally effective treatments are available, much of the medical and behavioral treatment may be the same no matter which type of neurocognitive disorder a patient may have (American Psychiatric Association, 2013).

**A. Three diagnostic stages of Alzheimer’s Disease**

Because Alzheimer’s Disease is a progressive disease, it is helpful to view it in terms of stages. This is important information for clinicians, patients, and family support systems. Two such listings of stages are indicated below.

The National Institute on Aging (NIA) of the National Institutes of Health has identified criteria and guidelines for the diagnosis and study of AD. They are helpful in terms of focusing on any modifiable risk
factors that could be influenced prior to symptoms appearing, leading to diagnosis. Professionals need to educate themselves about the ways in which various organizations view, define, and categorize types and stages of AD or dementia based on their own discipline (National Institute on Aging, 2011).

1) **Preclinical stage of AD**: Recent research has discovered that functional and structural changes occur in the brain years, and probably decades, prior to the diagnosis of clinical dementia. Neuroimaging, cerebrospinal fluid assays, genetic testing and other biomarkers are being used to track amyloid accumulation, helical filament tau formation ("tangles"), neuronal loss, and brain tissue deterioration, as well as genetic, cardiovascular disease, and life-style associations. The hope is that by understanding these changes (and also similar changes that do NOT develop into AD), early interventions may be developed in the near future. Biomarkers may also eventually be used to confirm an AD diagnosis. Individuals in the preclinical stage are not aware of their condition, and the changes in their brains do not impact their ability to function.

2) **Mild Cognitive Impairment (MCI) due to AD**: Similar to the term dementia, MCI is actually a term describing a cluster of symptoms including changes in memory, language and processing information. Although MCI has been replaced by minor neurocognitive disorder within the DSM-5, previous use in diagnosis, inclusion in the three stages of AD and common usage assure that use of the term will likely continue. Although the signs of MCI are severe enough to be noticed by family and friends and to register on assessments, they are not severe enough to significantly interfere with daily independent living. MCI may or may not be pre-dementia; about half of the cases do progress to AD. This is important information, as professionals can reassure patients that MCI does not necessarily lead to AD. People suffering from MCI are able to live independently and continue most of their normal activities, but often recognize that their problems are gradually worsening over time. Unlike delirium, the symptoms do not occur suddenly, but MCI may also be accompanied by depression, anxiety, irritability or apathy, in part perhaps because of the frustration of experiencing MCI.

3) **Dementia due to AD**: Also known as “major neurocognitive disorder”, the dementia of Alzheimer’s disease is marked by more serious and progressive memory loss, communication problems, thinking and behavioral symptoms, and visual/spatial problems that impair a person’s ability to function independently in daily life.

**B. Seven stages of Alzheimer’s Disease progression**

Another staging model developed by Dr. Barry Reisberg, using the [Global Deterioration Scale](https://alzheimers.org.uk/en/local/treatment-tips/dementia-practical-advice/), is helpful for discussing the progression of AD with families and health professionals, although it is not used for DSM-5 diagnosis. There are, of course, individual differences in how (or even if) AD progresses and the specific symptoms may overlap several stages at any given time. This model is useful for patients and families because it helps them identify minor but important shifts in cognition and overall functioning as the disease progresses, allowing them to adapt their treatment and behavioral management approaches.

**Stage 1: No impairment**: “preclinical stage”; normal function
Stage 2: Very mild decline: “mild cognitive decline” may be normal age-related changes or earliest symptoms of AD

Stage 3: Mild decline: “mild cognitive decline”, “early stage AD”; first time changes may be noticed with cognitive screenings

Stage 4: Moderate decline: “mild or early stage AD”; marked changes on cognitive screenings, some difficulties with instrumental activities of daily living, possible mood and personality changes

Stage 5: Moderately severe decline: “moderate or mid-stage AD”; need assistance with many daily tasks

Stage 6: Severe decline: “moderately severe or mid-stage AD”; need extensive help with daily activities, including dressing and toileting, may wander and have trouble with sleeping, extreme difficulty with memory

Stage 7: Very severe decline: “severe or late-stage AD”; lose the ability to respond to their environment and eventually to control movement, including swallowing

C. WHO codes for dementia and dementia stages

ICD Codes: The International Classification of Diseases, Version 10 (ICD-10) specifies insurance codes that support skilled intervention (World Health Organization, 2020). Dementia related codes include:

- Dementia (F00-F03). This category includes dementia in Alzheimer’s disease, vascular dementia, dementia in other diseases (e.g., Pick Disease, Creutzfeldt-Jakob Disease, Dementia in Huntington’s Disease, Dementia in HIV, Dementia in Parkinson’s Disease, and unspecified).
- Mild cognitive impairment (F06.7).

Therapists should use diagnosis codes that are provided by the patient’s medical provider because they will be reimbursed for their services if their treatment is in line with the diagnosis of a physician.

The World Health Organization also describes dementia in terms of progressive stages (WHO, 2020).

Early stage: Because the onset of dementia is gradual, the early stage of dementia is often overlooked. Symptoms include:

- forgetfulness
- losing track of the time
- becoming lost in familiar places

Middle stage: The signs and symptoms of dementia become clearer and more restricting. These include:
• forgetting recent events and peoples’ names
• becoming lost at home
• experiencing increasing difficulty with communication
• requiring some help with personal care
• experiencing behavior changes such as wandering and repeated questions

Late stage: This stage is marked by total dependence and inactivity. Memory disturbances are serious and the physical signs and symptoms become more obvious, including:

• becoming unaware of the time and place
• having difficulty recognizing relatives and friends
• needing much help in self-care
• experiencing difficulty walking
• experiencing behavior changes that may escalate and include aggression

D. Related conditions that may be confused with dementia

Delirium is a condition with sudden and severe changes in cognition and brain function that should be reversible when the underlying cause is addressed. The definition for delirium has been slightly altered with the DSM-5, adding changes in attention and orientation to the environment. It develops over hours or days, rather than months or years, and presents with unpredictable confusion, disorientation and difficulty with memory and focus. Symptoms often fluctuate during the day and become worse at night.

Delirium is the result of physiologic conditions (e.g., pain, poor functional status), illness (a urinary tract infection is a common culprit in older adults), disrupted sleep, or reaction to medication, particularly psychototropic drugs or even over-the-counter medications. Older adults are at the highest risk for delirium due to their reduced ability to metabolize, break down and excrete drugs, and their typically larger number of prescriptions. Delirium can be easily misdiagnosed or confused with depression or psychosis. It is considered a medical emergency, as it is associated with increased morbidity and mortality rates. Delirium is treatable but is often misdiagnosed, sometimes as dementia. Delirium is missed diagnostically 50% of the time (Fick, et al., 2020).

Depression may be difficult to distinguish from dementia and, as a result, patients or their families may seek professional help due to cognitive impairment, when depression may actually be the cause. One of the characteristics of depression is loss of interest and concentration, which can impact memory or ability to focus. These characteristics can be misinterpreted as signs of cognitive decline. In addition, depression and dementia can, and often do, co-exist. Depressed patients may score better on cognitive scales than many patients with dementia, but they may also give “I don’t know” responses. A trial of antidepressant therapy may be indicated to distinguish between depression and dementia.

E. Common Types of Dementia
The causes of cognitive impairment are complex, but with a comprehensive assessment, a skilled clinician can now differentiate between dementia, depression and delirium, the 3 D’s. Differentiating the 3 D’s is an important part of an age-friendly health system; screening for cognitive impairment plays an important role in this. This module will focus primarily on dementia. The MTGEC module *Cognitive Decline and Dementia in Older Adults* discusses the 3 D’s in more depth.

The vast majority of dementia cases fall into two diagnoses: roughly 60-80% are Alzheimer’s disease and 5-10% are vascular dementia. Since Alzheimer’s disease is the most common, AD will be the primary focus of the rest of this module.

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<td>Alzheimer’s disease (AD)</td>
<td>Most common type of dementia; accounts for an estimated 60 - 80% of cases. Considered a terminal disease; can survive 3-20 years, with average of 4-8 years. Difficulty remembering names and recent events, apathy and depression are often early symptoms. Later symptoms include impaired communication and judgment, disorientation, confusion, behavior changes and difficulty speaking, swallowing and walking. Hallmark abnormalities in the brain are deposits of the protein fragment beta-amyloid (plaques), twisted strands of the protein tau (tangles), nerve cell damage and death in the brain.</td>
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<td>Vascular dementia (also known as multi-infarct or post-stroke dementia or vascular cognitive impairment)</td>
<td>The second most common type of dementia, accounting for 5 - 10% of dementia cases. Impairment is caused by brain injuries such as microscopic bleeding and blood vessel blockage. Injury type and location will determine type of impairment. Symptoms often overlap with those of Alzheimer’s, although impaired judgment is usually the initial symptom and memory may not be as seriously affected. Stair step decline is seen, rather than gradual decline seen with AD.</td>
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<td>Mixed dementia</td>
<td>Abnormalities linked to more than one type of dementia occurring simultaneously in the brain. Often Alzheimer’s and another type of dementia — most commonly vascular dementia, but also other types, such as dementia with Lewy bodies. Recent studies suggest that mixed dementia is more common than previously thought.</td>
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<td>Dementia with Lewy bodies (DLB)</td>
<td>Pattern of decline may be similar to Alzheimer’s, including problems with memory and thinking, but are more likely to have early symptoms of sleep disturbances, hallucinations, muscle rigidity or tremors. Lewy bodies are abnormal deposits of the protein alpha-synuclein that develop in the cortex.</td>
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<tr>
<td>Parkinson’s disease</td>
<td>Problems with movement are a common symptom early in the disease. As it progresses, dementia often develops similar to that of Alzheimer’s or dementia with Lewy bodies. Alpha-synuclein clumps are likely to begin in an area deep in the brain called the substantia nigra. These clumps are thought to cause degeneration of the nerve cells that produce dopamine.</td>
</tr>
</tbody>
</table>
**Type of Dementia** | **Characteristics**
--- | ---
Frontotemporal dementia (FTD) | Includes dementias such as behavioral variant FTD (bvFTD), primary progressive aphasia, Pick’s disease and progressive supranuclear palsy.
Typical symptoms include changes in personality and behavior and difficulty with language. Nerve cells in the front and side regions of the brain are especially affected.
No distinguishing microscopic abnormality is linked to all cases. People with FTD generally develop symptoms at a younger age (about 60) and survive for fewer years than those with AD.

### F. Causes and risk factors for dementia

Research indicates that dementia is caused by a number of factors interacting over many years, as is the case with other chronic conditions. Some risk factors such as age and genetics cannot be modified while other risk factors have the potential for modification. The importance of modifiable risk factors cannot be underestimated, but they may require lifestyle changes long before dementia appears. The major risk factors associated with AD are discussed below (Alzheimer’s Association, 2020c).

**Age:** Like depression, dementia is NOT a normal part of the aging process. Aging, however, is the greatest risk factor for AD. The prevalence of dementia doubles every five years after the age of 65.

**Family History:** Individuals with a close relative with AD are two to three times more likely to develop AD. If more than one family member has AD, the risk increases. Heredity, environmental, or lifestyle factors, or all three, may affect a person’s risk.

**Genetics:** To date, researchers have identified three gene mutations that are associated (50% chance) with early-onset AD (before age 60), and four gene mutations that are correlated with late-onset AD. Scientists estimate that risk genes (such as APOE-e4) may be a factor in about 20-25% of AD cases, and deterministic “familial” genes – ones that directly cause AD – may be a factor in less than 5% of AD cases. Although there is no one gene identified as causing AD, there are at least 20 influencing the possibility of AD. Until preventive treatments are available, routine clinical genetics testing for AD genes is not currently recommended (U.S. Department of Health and Human Services, 2017; Alzheimer’s Society, 2017).

**Gender:** Although the development of dementia does not differ between men and women, more women have AD, in part because women currently live longer. However, longer lifespan does not account for all of the difference. There is no difference shown between men and women in the development of other types of dementia. Men seem to be at greater risk of developing AD if they have chronic medical conditions, while women at risk are those who are socially isolated, have a disability, or are overall in poor health (Alzheimer’s Society, 2017).
**Health Status:** People with conditions that can affect brain blood vessels are eight times more likely to develop AD. This includes head trauma, diabetes, vascular conditions, heart disease, high cholesterol, high blood pressure and stroke. AD also is correlated with tobacco use, frequent falls, sleep apnea, high salt consumption, loss of teeth, bone loss, substance abuse, lack of exercise, lack of cognitive stimulation, depression, alcohol abuse, and Post Traumatic Stress Disorder in combat veterans (Alzheimer’s Society, 2017; U.S. Preventive Services Task Force, 2014). It is important to note that some of these conditions and lifestyle choices are considered modifiable risk factors, meaning that changes in them could potentially help prevent dementia.

In the U.S., researchers estimate that 21% of AD cases might be traced to low physical activity, 15% to depression, 11% to smoking, 8% to mid-life hypertension, 7% to mid-life obesity, 7% to low education, and 3% to diabetes (Barnes & Yaffe, 2011). A recent study indicated that a number of modifiable risk factors and co-morbidities can account for the development and thus the prevention of dementia (Edwards et al., 2019). Such factors include lifestyle, depression, diabetes, epilepsy, traumatic brain injury, and vascular dementia.

**Education and Socioeconomic Status:** People who have lower educational and socioeconomic levels tend to have poorer overall health, and cognitive diagnostic disparities on assessments are no exception (U.S. Preventive Services Task Force, 2014). Possible reasons for this connection are that a lack of education about health promotion could contribute to lifestyle choices that are associated with AD, and that low income could result in less access to health care that could identify AD early. The task force also notes that tobacco use, learning disabilities, physical frailty, low social support, and never having been married are potential contributors as well, many of which can be modified earlier in life.

**Race and Ethnicity:** AD is underdiagnosed and undertreated in minority groups, making it difficult to assess risk. African Americans, Latinos, and Asians seem to have a higher risk, but this may be due to differences in education, economic factors and health factors. Globally, individuals from India and Pakistan have been shown to have a higher incidence of AD. Cultural views of dementia vary, including stigmas about mental health conditions, fear of public disclosure, fear of the health care system, and family values of care within the family instead of involving outsiders (Alzheimer’s Society, 2017).

### G. Brain Changes with Cognitive Impairment

Because understanding AD could be increased by viewing the brain as it changes from healthy status to AD, watch these videos to learn more:

- **Inside the Brain Parts 1 & 2** (Alzheimer’s Association, 2020d) and **What Happens to the Brain in Alzheimer’s Disease** (National Institute on Aging, 2020).

### III. Symptoms of Cognitive Impairment in Older Adults
Normal age-related changes in the brain bring slower mental processing and some difficulty with memory, particularly in learning and recalling information and in selective attention. The earliest symptom of MCI and AD is memory impairment and is often overlooked or attributed to “senior moments”, stress, depression or some other temporary disorder. Decline may initially come in only a few areas of cognitive functioning, and people are often able to find ways to compensate, sometimes with the help of those close to them. It is helpful to look at what is and what is not dementia.

Table 2: Distinguishing Normal Age-Related Cognitive Changes from Dementia

<table>
<thead>
<tr>
<th>Normal age-related memory changes</th>
<th>Symptoms that may indicate dementia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Able to function independently and pursue normal activities, despite occasional memory lapses.</td>
<td>Difficulty performing simple tasks (paying bills, dressing appropriately, washing up); forgetting how to do things you’ve done many times.</td>
</tr>
<tr>
<td>Able to recall and describe incidents of forgetfulness.</td>
<td>Unable to recall or describe specific instances where memory loss caused problems.</td>
</tr>
<tr>
<td>May pause to remember directions, but doesn’t get lost in familiar places.</td>
<td>Gets lost or disoriented even in familiar places; unable to follow directions.</td>
</tr>
<tr>
<td>Occasional difficulty finding the right word, but no trouble holding a conversation.</td>
<td>Words are frequently forgotten, misused, or garbled; repeats phrases and stories in same conversation.</td>
</tr>
<tr>
<td>Judgment and decision-making ability the same as always.</td>
<td>Trouble making choices; may show poor judgment or behave in socially inappropriate ways.</td>
</tr>
</tbody>
</table>

(HelpGuide.org, 2020)

The above guide is useful to older adults, their families, and professionals because it describes basic areas in which cognitive functioning may change for those experiencing normal age-related changes as well as those who may be developing dementia. It can be used for patient education to show patients and families the differences and to stress that there are normal age-related changes that will not necessarily progress to dementia.

The Alzheimer’s Association has identified a list of signs and symptoms for consumers which mirror the examples above. Every individual may experience one or more of these signs in different degrees. The Alzheimer’s Association recommends that if any of them are present, one should see a physician (Alzheimer’s Association, 2019a). They also offer a 10 Signs Worksheet to note your concerns so you can address them with a friend, family member or doctor (Alzheimer’s Association, 2019b).
Alzheimer’s Association’s Ten Signs and Symptoms of Alzheimer’s Disease (AD)

1. Memory loss that disrupts daily life
2. Challenges in planning or solving problems
3. Difficulty completing familiar tasks
4. Confusion with time or place
5. Trouble understanding visual images and spatial relationships
6. New problems with words in speaking or writing
7. Misplacing things and losing the ability to retrace steps
8. Decreased or poor judgment
9. Withdrawal from work or social activities
10. Changes in mood and personality

If you or someone you know experience any of these warning signs, please see a doctor.
For more information, call 800.272.3900 or visit alz.org/10signs.
As the AD progresses, other specific symptoms may include:

- Forgetting events of one’s own life history, losing awareness of who one is and eventually who family members are
- Diminishing ability to do self-care and basic tasks, including incontinence
- Diminishing ability to understand language and interact
- Safety issues, such as leaving the stove on
- Loss of initiative
- Wandering
- “Sundowning” which is confusion, anxiety, agitation, and disorientation, beginning at dusk and continuing through the night
- Paranoia
- Aggression, even violence
- Hallucinations
- Inappropriate sexual behavior
- Swallowing problems
- Inability to adapt to temperature changes

The above symptoms are very troubling and challenging to manage for families and friends. Health and mental health professionals must be prepared to answer questions about how to deal with such behaviors and conditions. As the condition worsens, the challenges to caregivers increase markedly, and knowing how to help them identify and use informal and formal resources to support themselves is a necessary part of professional responsibility.

Patients with AD often die earlier than normal. Since cognitive deterioration impacts most of the body’s systems, death may be caused by pneumonia, falls and hip fractures, complications from surgery, or organ failure. AD patients may live anywhere from 3 - 20 years after diagnosis, and in the later stages of the disease total dependence and disability may occur (Mayo Clinic, n.d.a.).

IV. Screening Tests Commonly Used to Identify Cognitive Impairment in Older Adults

Many individuals with AD remain undiagnosed for a number of reasons. The belief that memory deterioration is a normal part of aging often prevents people from seeking professional help. Due to the lack of effective treatment options, primary care providers may decide that routine memory screenings are a low priority. Additionally, the stigma of AD results in avoidance because the individual, the family or the health professional, may be hesitant to think or talk about the possibility of dementia.

Early diagnosis, however, may be the key to effective treatment and care. When AD is not diagnosed until it has already progressed, the patient and family miss out on access to information, treatment, care and support. Patients with early diagnosis have the time to plan for the future and possibly slow the progression of cognitive decline with medications and other interventions. In addition, early diagnosis may provide the patient opportunities to participate in clinical trials and have access to future AD research breakthroughs. Numerous tools and resources are available for health and mental health professionals to utilize in assessment, diagnosis, and treatment of A.D. The Alzheimer’s Association has a free app entitled Clinican Pocketcard App. This resource offers clinical information on diagnosis and
management of AD, interactive assessment tools, and educational materials that can be sent directly to patients and families (Alzheimer’s Association, 2020e).

ACT on Alzheimer’s (2016) offers a resource entitled “Managing Dementia Across the Continuum (Mid-to Late Stage)”. Some of its most useful guidelines include the concept of promoting positive behavioral health, changing treatment as patients’ conditions change, optimizing medical therapy, and assessing safety in patients. This organization also provides a resource called “Dementia Specific Practice Tools and Resources for the Provider” (2016) that offers additional information on caregiving and advance care planning, both very important areas of dementia care. The organization offers a variety of training videos geared toward helping professionals learn how to administer cognitive assessments and how to deliver the results of tests that indicate dementia. Observing trained and experienced professionals administer screenings and talking to patients and families about the results is the first step toward learning how to do them effectively, and a link to these videos is provided in the references section (ActOnAlzheimer’s, 2019). Finally, the National Institutes of Health (n.d.) publishes online resources for health and mental health professionals, including diagnostic information and professional training.

A. To screen or not to screen

There are a number of cognitive or memory screenings which can be the first step of a diagnosis, but they are NOT in themselves diagnostic. They only indicate whether diagnostic tests should be considered based on scoring guidelines. The use of these cognitive screens has recently been widely debated. The difference between screening and diagnosis is that screening is shorter and less comprehensive, and screening results point to the likelihood of a condition. Diagnosis involves a broad examination of history and symptoms using a variety of tools, rules out other potential explanations, and confirms that a condition exists based on symptoms and progression.

Memory screens are increasingly being recommended as quick, simple, safe and cost-effective tools for use in a variety of locations from community settings to clinical or research settings. They can reassure healthy individuals, encourage discussion within families and with health care providers, and indicate when further assessment may be needed by a qualified healthcare professional. Screenings may be used as base-line data for future assessments, or may be recommended whenever an individual, family member or professional is concerned about cognitive decline. The Alzheimer’s Foundation of America (2019), which promotes community screening, points out that early identification is helpful to patients and families, and that screenings do not replace full diagnosis and assessment.

Early screening also offers patients and families the opportunity to learn about ways in which they can promote cognitive functioning to maximize overall well-being. This could include learning about the importance of physical activity, nutrition, social involvement, brain stimulation, and other activities that promote overall health as well as promoting cognitive functioning. Health professionals can help patients see that each of these lifestyle choices interacts positively with all of the others, creating a positive environment that will promote cognitive functioning.
In early 2020, the U.S. Preventive Services Task Force updated their recommendation on the value of routine cognitive dementia screenings for older adults. Similar to their earlier stance, they concluded “the current evidence is insufficient to assess the balance of benefits and harms of screening for cognitive impairment” (U.S. Preventive Services Task Force, 2020). Their specific rationale states that more research was needed before they could determine the balance of benefits and harms of screening for cognitive impairment. This means that they do not recommend for or against such screening, and they do recognize that it is done in hospitals or nursing homes. They also recommend that physicians individualize their decision-making based on specific patient situations. They also stated that

“Although the evidence on routine screening is insufficient, there may be important reasons to identify early cognitive impairment. In addition to its potential to help patients make diagnostic and treatment decisions, including treatment of reversible causes of dementia and management of comorbid conditions, early recognition of cognitive impairment allows clinicians to anticipate problems patients may have in understanding and adhering to recommended therapy. This information may also be useful to patients and their caregivers and family members in anticipating and planning for future problems that may develop as a result of progression of cognitive impairment. Although the overall evidence on routine screening is insufficient, clinicians should remain alert to early signs or symptoms of cognitive impairment (for example, problems with memory or language) and evaluate as appropriate (U.S. Preventive Services Task Force, 2014).”

Some argue that screening and early diagnosis comes with a relatively high risk of misdiagnosis (false positives), increasing the stigma of dementia, and redirecting resources away from research and treatment of more advanced dementia. False positives may disrupt the lives of the 40-70% of people diagnosed with MCI who do not, in fact, eventually develop AD. In addition, even if a person with diagnosed MCI does develop AD, some believe that it is hard to justify the resulting anxiety, fear and disruption of a diagnosis when treatments are not available. Some believe prevention efforts would be better spent on smoking, obesity and cardiovascular disease prevention, which might, in turn, prevent cognitive impairment.

Some suggest that because dementia has many causes, because there is no definitive test that can diagnose AD, and because there is no effective treatment at this time, it is not clearly beneficial for all older adults to be screened. They suggest that before all physicians should be encouraged to screen for dementia, clinical trials need to be done that show improved outcomes with early identification (Kaiser Health News, 2020; Borson et al., 2013; Fox, Lafortuno, Boustani, & Brayne, 2013; Rabin, 2013;). Most experts who decline to recommend universal screening for older adults, including those who are asymptomatic, indicate that the evidence does not indicate clear benefits of screening or intervention and that the evidence of potential harm has not been sufficiently studied. By contrast, it is important to consider whether older adults want early screening or not, and if so, how it should be provided.
Arguing for cognitive screenings are powerful national groups and initiatives, such as the Alzheimer’s Association, the National Plan to Address Alzheimer’s Disease, and Healthy People 2020. The National Plan to Address Alzheimer’s Disease has set a specific strategy (1C) to “Accelerate Efforts to Identify Early and Presymptomatic Stages of Alzheimer’s Disease” (HHS, 2020). Because brain changes that lead to dementia begin up to 10 years before any symptoms can be detected, they support developing techniques to identify and monitor those early changes, with the new Alzheimer’s Disease Neuroimaging Initiative.

The Alzheimer’s Association recommends that anyone with concerns about their cognition or with caregiver concerns about their cognition should be screened (Alzheimer’s Association, 2014a). Another proponent, Healthy People (HP) 2020, is a federal project which sets 10-year national objectives for improving the health of Americans. HP 2020 added two new objectives in 2010 for dementia including Alzheimer’s disease. The first is to “increase the proportion of persons with diagnosed Alzheimer’s disease and other dementias, or their caregivers, who are aware of the diagnosis” (U.S. Department of Health and Human Services, 2016, DIA-1). Reasons given for such screening include helping individuals access information, treatment, support, and services.

The American Psychiatric Association (2013) also addresses the issue of whether to disclose a diagnosis of dementia to patients or not, describing concerns about sharing such a diagnosis as potentially demoralizing a patient in its Diagnostic and Statistical Manual of Mental Disorders. However, the organization also points to data that shows that people do not want to have important medical or psychiatric information withheld from them and that they want to make life plans in view of specific diagnoses. The association recommends that psychiatrists and others share the diagnosis openly, sensitively, and factually, not being afraid of patient reaction.

In reality, despite the debate, cognitive screens are being performed in larger numbers than ever before since the Affordable Care Act in 2011 recommends a brief assessment to detect cognitive impairment in Medicare’s Annual Wellness Visit (Alzheimer’s Association, 2020e). However, the American Association of Retired Persons (2020) reports that only 1 in 7 older adults is routinely screened by their primary care provider.

In an effort to improve the care of older adults, The John A. Hartford Foundation and the Institute for Healthcare Improvement (IHI), in partnership with the American Hospital Association (AHA) and the Catholic Health Association of the United States (CHA), are promoting the concept of Age-Friendly Health Systems.

The goal is to provide older adults with age-friendly care, utilizing evidence-based practices, causing no harm, and aligning with what matters to the older adult and their family caregivers. A framework of four evidence-based elements of high-quality care, known as the 4Ms, includes What Matters, Mobility, Medication, and Mentation. The latter element includes the prevention, identification, treatment, and management of dementia, depression, and delirium across settings of care. To accomplish that goal in the ambulatory care setting, age-friendly health systems are asked to screen for dementia using a tool
such as the Mini-Cog, SLUMS, MOCA or another of their choice at least annually. In follow up, the site should share results with the older adult, provide educational materials to the patient and family caregivers, and refer them to community organizations for education and/or support. Many health systems across the country have adopted this concept and others are considering its implementation, thus increasing the number of older adults screened for cognitive impairment.

In summary, there are various views on the importance of screening all older adults. In light of that, professionals should watch for those patients who may be interested in cognitive screening and consider offering it to all patients or at least those who may display or report cognitive changes. For physicians and others who wish to engage in cognitive screening, the Gerontology Society of America offers guidelines for such screenings, with specific recommendations that are very helpful to practitioners (Gerontology Society of America, 2017). Its model operates in four areas, titled (1) Kickstart, (2) Assess, (3) Evaluate, and (4) Refer which provides ideas for how to start the process of assessment and carry it through to treatment.

**B. Types of screening**

A thorough cognitive evaluation addresses a variety of cognitive functions and Activities of Daily Living (ADLs) which are covered in more detail in the Montana Geriatric Education Center Module *Cognitive Decline & Dementia in Older Adults*. Because memory and language deficits are key symptoms of MCI, most of the brief screening tests focus on just those indicators. Numerous assessments exist and many brief assessments have been developed which are easy to administer and score. No one instrument is perfect and no one test is recommended for the Medicare Annual Wellness Visit; therefore, combining several basic assessments may increase accuracy (Alzheimer's Association, 2014a; Centers for Medicare and Medicaid, 2017). Additionally, using the same tool over time to show changes in patient condition is recommended. The Alzheimer’s Association (2017b) offers a Cognitive Assessment Toolkit which describes brief assessment tools and provides information on how to administer them.

Some screenings and assessments include input from the individual’s caregiver or family member, either with a formal section of a screening instrument or with an informal interview, as they may be able to provide information about relevant medical conditions, changes in functioning, stress level, and behavior. Family and caregivers may also be able to provide family and personal medical histories and more details about when changes have occurred. Caregivers should also be assessed for their support system, stress level, depression, strengths, and physical strains (Family Caregiver Alliance / National Center on Caregiving, 2011).

1. **Brief self-assessment question:** One or two questions may be included on routine Health Risk Assessments for employers’ annual wellness exams or in preparation for a doctor’s visit. One example would be “During the past 12 months, have you experienced confusion or memory loss that is happening more often or is getting worse?” An affirmative answer should, of course, trigger a more complete assessment (Centers for Disease Control, 2017).
2. **Common basic cognitive assessments** consist of a series of tasks or questions designed to test memory, language skills, thinking ability and other cognitive functions. Some common components of assessments are:

**Clock Drawing Test (CDT):** Tests memory, adaptive functioning, information processing, visual-spatial and executive functioning. A person is asked to draw a clock face (with or without a pre-drawn circle) and indicate a specified time. Scoring is based on a professional scoring system, taking into account the circular face (if not pre-drawn), the symmetry of number placement, the correctness of the numbers, and the accuracy of the time placement. The more distorted and inaccurate the drawings are, the more likely the person has cognitive impairment (Johns Hopkins Health Alerts, 2014).

**Time and Change Test:** Tests comprehension, working (or task completion) memory, planning and calculating skills. A person is given 60 seconds and two attempts to read the time on a clock, and then is given three minutes and two attempts to make change for a dollar with three quarters, seven dimes, and seven nickels (Family Practice Notebook, 2010).

**Word Recall:** A person without memory problems should be able to remember at least three unrelated words and be able to recite them back after interruption with a distracting task. Someone who cannot remember at least two words out of three may have cognitive impairment. Another test is to ask a person to name as many items as possible in a given category, such as fruits or animals. Naming fewer than 10 items in one minute suggests slowed mental functioning (Alzheimer’s Reading Room, 2017).

**Sniff Test:** The loss of the sense of smell is an early warning sign of AD because beta-amyloid plaques first accumulate in areas of the brain responsible for perception of odors. People who misidentify odors may be more likely to progress to AD (Johns Hopkins Health Alerts, 2014).

3. **The most popular formal cognitive assessments** include a combination of many of the above components. They are described below.

**Mini-Mental State Examination (MMSE):** Developed in 1975, with several modifications released since the MMSE is the most widely known and researched screening tool. It is divided into two sections and takes 7-8 minutes to administer. Research indicates that it has satisfactory reliability and validity. It covers six areas of cognitive functioning: orientation, immediate recall, attention and calculation, language (including following verbal and written instructions and writing a spontaneous sentence), and copying interlocking pentagons. Because research has shown it has testing variations (it is most accurate with Caucasians with at least a high school education), scoring now is calculated by age and educational level. Cultural backgrounds can also skew results (BioMed Central Neurology, 2017).
MMSE scores in the moderately impaired range can indicate either cognitive impairment associated with depression or an independent cognitive disorder. Free versions of the MMSE are available on the internet, but the official version is copyrighted and must be purchased through Psychological Assessment Resources (www4.parinc.com). Directions provided for the official version indicate the test should be administered by someone who has been trained to test individuals with cognitive impairment. Translations have been done in ten languages. The test is designed for moderate to severe cognitive impairment, but is also used at annual physicals to assess changes. A person with AD declines about two to four points each year. Accuracy is improved by adding the Clock Drawing Test (Alzheimer’s Association, 2017b).

**Mini-Cog:** This test has been proven to assess a person’s registration, recall and executive function and be effective culturally and educationally. It is popular because it is at least twice as fast as the MMSE (about 3 minutes to administer), can be administered with minimal training, is available for free, is effective in a variety of settings, and researchers have found it to be valid, reliable, and to have sensitivity and specificity. It also is effective at identifying MCI (Alzheimer's Association, 2017c; Hartford Institute for Geriatric Nursing, 2013). The Mini-Cog is reviewed in detail in the next section of the module.

**The Saint Louis University Mental Status Examination (SLUMS):** The SLUMS was designed as an alternative test to the Mini-Mental State Exam (MMSE). An advantage of the SLUMS is its ability to detect mild cognitive impairment better than other screening assessments. The SLUMS contains 11 items which measure orientation, short-term memory, calculations, animal naming, the clock draw test and recognition of geometric shapes. It takes about seven minutes to administer and is free to use (Cruz-Oliver et al., 2012; Szcześniak & Rymaszewska, 2016)

**General Practitioner Assessment of Cognition (GPCOG):** This tool, developed in 2002, is used for screening cognitive impairment in the primary care setting. The GPCOG includes a four-minute patient assessment and a two-minute caregiver interview. A web-based tool is available. Research has shown it to perform at least as well as the MMSE (Alzheimer's Association, 2017b).

**Memory Impairment Screen (MIS):** The MIS is a four-minute, four-item delayed memory recall test that assesses free and cued words. The person is given four words and four different categories, for example: checkers (game); saucer (dish); telegram (message); and Red Cross (organization). Categories are used as cues several minutes later. The MIS has greater specificity and sensitivity for free recall than the three-word recall used in other measures (Alzheimer’s Association, 2017g; Cavagna et al., 2016). The Alzheimer’s Association recommends that primary care physicians use the Mini-Cog, CPCOG or MIS in the annual Medicare Wellness Visit if there are any concerns about cognition, judging them to be suitable alternatives to the MMSE (Alzheimer’s Association, 2017b)
**Montreal Cognitive Assessment (MoCA):** The MoCA is an 11-item, 10-minute cognitive screening test designed to assist health professionals in the detection of MCI; it has been validated for 55-85-year olds. The test may only be interpreted by health professionals (Nasreddine, 2014). The MoCA is becoming commonly used because of its claim that it can detect mild forms of cognitive decline better than the MMSE. It comes in several forms, including the full and basic forms, and a mini version is being developed. Administration of the MoCA takes 10-12 minutes, making it challenging to complete in some screening settings. Questions and tasks required in this instrument may be too challenging for individuals with moderate to advanced dementia. If there is time to administer the MoCA, it may be more sensitive in detecting mild cognitive impairment (Trzepacz et al., 2015).

**The Mini-Cog Screening Test:** The Mini-Cog consists of three simple steps:

**Word Recall:** Instruct the patient to listen carefully to and remember three unrelated words and then to repeat the words. Examples: “cup, box, blue”; “pebble, glass, golf”; “apple, penny, table”; “shirt, brown, honesty.”

**Clock Drawing Test (CDT):** Instruct the person to draw the face of a clock, either on a blank sheet of paper or on a sheet with the clock circle already drawn on the page. After the patient puts the numbers on the clock face, ask him/her to draw the hands of the clock to read a specific time: i.e., 11:10, 3:40, 7:25.

**Word Recall:** Ask the patient to repeat the three previously stated words.

**Scoring** is based on word recall with possible use of the CDT as noted below:

The CDT portion is considered normal if all numbers are present in the correct sequence and position, and the hands readably display the requested time. Word Recall: Give 1 point for each recalled word after the distraction of the CDT test.

**To calculate the score:** Patients recalling none of the three words are classified as potentially cognitively impaired (Score = 0).

Patients recalling all three words are classified as non-cognitively impaired (Score = 3).

Patients with word recall of 1 or 2 words are classified based on the CDT:

- Abnormal CDT & 1 or 2 on Recall = potentially cognitively impaired
- Normal CDT & 1 or 2 on Recall = non-cognitively impaired

(Doerflinger, 2013, 2007; Borson et al., 2000)

Although Borson uses the words “demented” when classifying the scoring, remember that the Mini-Cog does NOT diagnose a person with dementia, but only indicates a need for further assessment.
Considerations:

- The CDT can be affected significantly if the person has visual impairment, arthritis, hand motor difficulty (shakiness or tremor), or if the person is sedated. Judgments on the CDT score must be made accordingly.

- In the case of severe anxiety, a distracting environment, or communication problems, the test could be repeated with different words for the item recall and a different time given for the CDT. If the person is cognitively impaired, a second test will not give a dramatically different score.

Informant Interviews: Three notable assessments are recommended by the Alzheimer’s Association that can be given to an “informant” – a person, such as a caregiver or family member who is very familiar with a person’s abilities and changes. Because people are likely to minimize their own cognitive difficulties, this information can increase the accuracy of an assessment (Alzheimer’s Association, 2017b). They include:

- **GPCOG:** Has a brief two-minute “informant” section to supplement the patient assessment.

- **Short Form of the Informant Questionnaire on Cognitive Decline in the Elderly (Short IQCODE):**
  A questionnaire for a friend or relative assessing on a five-point scale how the person is now compared to ten years ago.

- **Dementia Screening Interview:** Eight-item interview asking whether there has been a change, without any timeframe given. The answers are “YES, a change; NO, no change; N/A don’t know”.

C. Diagnosis and the DSM-5

Note that simple screenings are not sufficient for diagnosis. In order to diagnose a minor neurocognitive disorder according to the Diagnostic and Statistical Manual of the American Psychiatric Association (DSM-5) Criteria (2013), cognitive decline of one or two standard deviations below appropriate norms is required; a major neurocognitive disorder requires cognitive decline two or more standard deviations below appropriate norms. The Mini Mental State Examination and most other common screening tools do not yield results in standard deviations. In addition, a clinical subjective judgment is required to assess whether the cognitive deficit(s) interfere with independence (Creavin et al., 2017).

Other related assessments include:

Blood/fluid screens, genetic tests, or brain imaging scans (such as MRIs or CT scans) are being developed to detect changes years before symptoms exist, with the hope that they may someday be clinically relevant, cost-effective, and more universally accessible. Brain scans and imaging may rule out brain tumors or strokes. Spinal fluid tests can measure protein, and blood tests can check for anemia, infections, electrolyte balance, liver function, vitamin B12 deficiency, thyroid function, and drug levels (Dementia Australia, 2017).
**Mood Assessment:** Depression screenings such as the Geriatric Depression Scale or the Patient Health Questionnaire-9 are important, as depression can cause memory problems, loss of interest in life, and other symptoms that can mimic or overlap dementia symptoms. Because depression is more treatable than dementia, it is important to consider whether symptoms indicate dementia or depression, and sometimes both. Both scales are readily available online.

**Functional Activities Questionnaire (FAQ):** An informant-based measure of functional abilities on ten complex higher-order activities, with sensitivity and specificity comparable to that of the MMSE (Hartford Institute for Geriatric Nursing, 2016).

**Assessment Tools for Staging the Seven Stages of AD:** By describing functionality during the cognitive decline of dementia, the stages provide ways to assess, talk about and, when possible, treat dementia. These stages are not necessarily linear and may overlap (Alzheimer’s Association, 2017c).

- **Global Deterioration Scale (GDS):** Describes staging characteristics to assess the current AD stage. Can be administered over the telephone (Dementia Care Central, 2016).

- **Functional Assessment Staging Tool (FAST):** Also known as the Functional Assessment Staging Test, it categorizes the seven stages of AD progression including stage one – normal aging, stages two and three – mild cognitive decline, stage four – mild dementia, stage five – moderate dementia, stage six- moderately severe, and stage seven – severe dementia. Results are not necessarily linear (McCare.com, n.d.).

**D. Notes on assessments for cognitive impairments**

It is vital that practitioners and patients have confidence in the administration and results of cognitive testing. It is important to know that a number of conditions or problems can affect the results of mental status assessments such as medications; substance use and abuse; head trauma; medical, neurologic or psychiatric conditions including depression; visual or hearing impairments; learning disabilities; and the stress of taking a cognitive assessment. Efforts to identify and address specific conditions should be made, partly to rule out dementia when appropriate and also to provide quality health care for such conditions.

As mentioned above, the U.S. Preventive Services Task Force (USPSTF) cautions about ‘labeling effects’ of dementia screenings. Both false-positive and true-positive results could have adverse psychological effects. Always remind participants that poor results are only an indication of possible cognitive impairment. A more complete evaluation is needed before a dementia diagnosis can be made (U.S. Preventive Services Task Force, 2014).

Finally, ethical considerations for administering a cognitive screening test must be reviewed. Anyone performing a screen should have enough training to be competent and respectful so that the screen is administered and interpreted correctly. Patients must give informed consent, which means they need to know what is being assessed and why. Those professionals administering screens must practice
confidentiality and proper storage or disposal of assessment results and be able to sensitively provide feedback and referrals when needed.

In addition to assessment tools and caregiver reporting, recent attention has been given to what is called subjective cognitive decline, which is an individual’s awareness of his or her own cognitive changes and possible impairment. Self-reporting of concerns about one’s cognitive status is another important way for a clinician to gain information about their patient’s cognitive impairment because those reporting it probably have some legitimate concerns. However, research shows that less than half of people who have awareness of their own cognitive impairments discuss them with their physicians. As a result, it is important to ask in general terms through interviews and discussion with patients about their own perceptions of their cognitive status. If they have concerns, then screening is advised (CDC, 2019).

V. Conducting, Scoring and Sharing Results of Cognitive Screening

Although numerous screening tools, as described above, can be used, this module describes in more detail how to conduct and score the Mini-Cog. One must be sensitive when approaching a person about any screening, including the Mini-Cog screening. Saying, “I’m going to give you a test to see if you have dementia or even Alzheimer’s” would undoubtedly produce anxiety in anyone, and this approach could easily affect the person’s thinking abilities. It is a difficult topic to discuss because there are few things dreaded more in the later years than dementia. Be straight-forward, relaxed, and normalize the experience as much as possible. Do not hide the purpose for the screen, and answer any questions patients or family members may have. If individuals seek the screening themselves, it is still important to discuss the reasons for this, take a history of cognitive changes, and explain the process in as much detail as would be done with those who may not have expected the screen. The screening should take place in a quiet, private setting, with the following considerations:

- Consider the reasons the individual has come for a screening when asking questions and work hard to establish rapport. Individuals who have even a small amount of trust in the person asking them questions or administering tests will be more relaxed and willing to participate. This will improve the outcomes in terms of validity of the scores. Those who have come on their own may have noticed changes and want to establish a baseline for further assessment at a later time. Those who have been urged to come by their family or friend may be a bit more hesitant, but skillful use of open explanations and reassurance can allay most fears. Those who are being screened on a routine basis in a primary care setting or nursing home can be put at ease by stressing that all patients are screened in a similar fashion.

- Develop good interviewing skills. Most importantly, establish a positive rapport with the client. Briefly, but clearly, state the purpose of the assessment, and conduct the assessment in such a way that it is respectful and mindful of the person’s needs. Listen carefully to what is said, offer
to discuss or explain anything, summarize the findings, and, if the person desires, suggest the next steps and referrals.

- It is appropriate to ask what older patients are thinking and feeling, even when these questions may seem intrusive. Despite the cohort’s stoicism, the professional’s belief that people aren’t interested may prevent them from expressing themselves and keep them isolated. Many in fact, are pleased and relieved to be asked, and appreciate being given a chance to talk.

- Be aware that fear may exist that seeking mental health help is the first step to being institutionalized. Gently address those fears. Stage your interview to be considerate of working with older adults. Face the person directly, sit somewhat close and do not cover your face with your hands or other objects. Eliminate background noise by turning off the television or radio and, if at all possible, do not interview in rooms with other conversations or background noise. For those with hearing impairments, lower your voice tone and do not shout.

- Slow down your rate of speech and use simple sentences, but do not talk down to the client or change your tone or inflections. Practice reading the questions so that you feel comfortable saying them out loud without embarrassment, with a normal tone of voice, and without any leading inflections. It is very helpful to be able to put the questions into your own words, and it is fine to tell older adults being screened that the next question will ask about a certain topic. The questions do not always have to be read verbatim.

- Remember not to administer any tests or conduct any interviews in a technical way, but rather be as conversational and supportive as possible. Obtaining a meaningful score is more likely if the interviewer knows what they are looking for in terms of functioning rather than just reading and reporting on specific test questions. Observing such factors as individuals’ comfort levels, hesitancy in responses, anxiety, speed, physical health, and overall wellness is important because they all can influence results.

Depending on the situation, some suggestions for approaching a participant might be:

- “Many people like to try a simple assessment that explores their memory. It is very short and only takes 3-5 minutes. Would you be interested?” Or
- “I have two questions that are a quick and common check of memory. Would you like to try it?” Or
- “I have a few questions we always ask older adults [at a health screening]. [They] help us get an idea of how your memory is. Some of the questions may be easy and some difficult. Some may seem a little odd or silly. But if you will bear with me and answer the questions the best you can, I would appreciate it.”

It can be helpful to think about cognitive screening in three steps in order to conduct them well and for the overall benefit of older adults.

**Pre-Administration of MMSE or Mini-Cog**
• Introduce yourself and inform person what screening you are doing.
• Ask if this is a routine screening or if they have any concerns in regard to possible cognitive changes.
• Ask about history of cognitive changes (i.e., previous diagnosis, observation by the person, observations of significant others).
• Describe the MMSE or Mini-Cog (i.e., screening tool rather than diagnostic test, short, used extensively).
• Ask if they have any questions, concerns, or anxiety.
• Build as much rapport as possible to instill confidence in your ability.

**Administration of MMSE or Mini-Cog**

• Show person the tool and how it will be scored.
• Ask each question and enter appropriate score.
• Reassure the person throughout the process if needed, as most people will be anxious.
• Do not feel constrained by word-for-word administration of the exam.
• Be attentive to educational level and language differences that could affect the score.
• Help the person relax and take the time they need to answer questions.
• Compute score.

**Post-Administration of MMSE or Mini-Cog**

• Show the person his/her score.
• Show the person where this score falls on cognitive functioning chart.
• Ask the person if this sounds accurate.
• If the score is within the normal range, provide reassurance and encouragement to keep active and maintain positive lifestyle choices. Encourage them to engage in an assessment annually or at times when they may have concerns. Encourage activity and healthy lifestyle choices, as well as providing the results to their physician for follow-up.
• If the score is in the mild cognitive impairment range, inform that there are normal age-related changes that do occur, and that this does not mean that dementia will necessarily follow.
• If the score is in the possible dementia range, explain that further assessment can reveal the reasons for the score, including conditions other than dementia. Be factual and informative about definitions and types of dementia, and provide written resources and referral sources for them to use when considering next steps.
• Give written score to the person, encourage them to share with his/her physician.
• Discuss recommendations for maintaining cognitive functioning.
• Refer to potential service providers.
VI. Types of Referrals and Referral Sources for Patients with Cognitive Impairment

Initial Referral: Primary Care Provider (PCP)

There is no single, specific test that identifies AD. Many cases of unusual confusion, disorientation, and forgetfulness may have an underlying physiological cause. A full medical evaluation is needed by a qualified health professional to rule out potentially reversible causes or to diagnose dementia and its cause. Usually that professional is a primary care provider, but it may also be a neurologist or psychiatrist. The evaluation for treatable conditions should include:

- A complete medical history, including a family medical history, previous and current illnesses and conditions, and detailed information about the onset, severity and duration of cognitive problems.
- A complete physical exam for any medical or neurologic conditions that may be causing the symptoms, such as infections, dehydration, strokes, hearing or vision loss, sexually transmitted diseases or chronic disease flare-ups.
- A review of current medications to assess medication side effects, drug interactions, problems with new medications or with incorrect administration of medicines.
- An interview to assess depression, sleep disturbances, substance use or abuse, and assess quality of life and other potential problems from elder abuse to poverty. An interview with a family member or caregiver may also add important observations.
- Laboratory tests of blood and urine. Common suspects are urinary tract infections, vitamin B12 or niacin deficiencies, anemia, and thyroid imbalance.
- Assessment of Activities of Daily Living (ADLs) and Instrumental ADLs (IADLs) to evaluate functional skills and the change of these skills from previous levels.

Further referrals: Interdisciplinary team and/or specialists for more in-depth mental status evaluations.

These may include geriatricians, neurologists, psychologists, pharmacists, social workers, therapists, psychiatric nurse practitioners or researchers. A common next step might be a referral for a neurological exam with in-depth, multi-domain assessment of cognitive and memory function including episodic memory, executive function, attention, language, and visuospatial skills and further neurologic testing such as evaluation of cranial nerves, motor system, sensory system, deep tendon reflexes, coordination, and gait. Brain scans such as MRI or CT may be performed to check for brain tumors or strokes and evaluate changes and injuries. It is important that those professionals involved in assessment and diagnosis communicate with each other so that a coherent and effective treatment plan can be developed that will provide a coordinated care approach.
Rural professional care can be difficult to find, especially when in need of the above specialists. Some Montanans need to travel great distances to consult with specialists, adding to the burden of AD. Telemedicine consultations are increasingly available, but they are not available in every location. Additional technological innovations are becoming more available, and they can be effective and cost-effective means of providing care (Chau and Osborne, 2017). For example, an early result of online self-tests for mild cognitive impairment show promising uses for individuals concerned about their cognitive functioning. These anonymous tests can be shared with health care providers for follow-up, and they could be promoted as one step in the process of watching one’s own cognitive functioning over time. Work is being done to develop tools that will effectively detect mild cognitive impairment, and ways to encourage older adults to use these tools are being explored (Van Mierlo, 2017).

More sophisticated tests are being developed to identify dementia years before symptoms develop and may become more common in the future. Brain imaging scans such as an MRI identify changes in brain structure, such as the shrinkage of the brain’s memory center, the hippocampus. PET scans can identify amyloid-beta plaques in the brain. These scans are accurate but expensive. Spinal fluid tests can find imbalance in beta amyloid and tau, indicating brain cell damage. Retinal scans or blood tests can check for beta amyloid protein. A decline in brain glucose metabolism can be evaluated. Blood tests that identify dementia prior to the appearance of symptoms are being researched, with promising results. However, they are not yet available universally (Stanford Health Care, 2020).

Genetic markers are also being studied, as some cases of early onset AD are currently believed to be caused by extremely rare mutations in one of three genes (accounting for only 1 in 1,000 cases). Research is identifying a growing number of genes related to the risk of late onset dementia but not necessarily causing it, notably APOE. Because the genetic markers relate only to risks, not direct causation of dementia, genetic testing at this point is not recommended (Alzheimer’s Society, 2020; Mayo Clinic, 2020).

Used mainly in research at this point, the development of these “biomarkers” has been included in new diagnostic guidelines to lay the path for future identification when the tests become more affordable and/or when treatments are developed (Alzheimer’s Association, 2017a).

Once a diagnosis of AD has been obtained, treatment and support options should begin immediately.

**Reducing the severity of symptoms through better medical management.**

Primary care providers (PCPs), psychiatrists, neurologists, psychiatric nurse practitioners and pharmacists may be involved in pharmaceutical interventions to slow the progression of AD, which may allow higher functioning for patients for longer periods. See the Treatment section below for more details. With early detection and electronic medical records, better management of preventive services and care of comorbidities can be accomplished by all of the patient’s health care providers. Cognitive impairment should be considered in all aspects of provider visits, treatment and care. Medicare expenditures increase sharply according to the number of co-occurring conditions (Centers for Medicare and Medicaid, 2014). Mental health counselors may not be routinely recommended, but they can be of
great assistance with managing dementia. They can also provide patient education, support families and caregivers, and help patients access the services they need.

**Supporting family caregivers with social, behavioral, and legal resources.**

Family caregivers vary greatly in terms of their needs, resources, strengths, limitations, and ability. Each person, family and living situation is unique and will require unique, specific assistance at each of the various stages of AD. AD challenges the coping strengths of most families and often depletes their emotional, social, financial, and family resources. Proper support can make all the difference between patients and families being overwhelmed or finding ways to cope. An interdisciplinary support team is usually recommended, which should be updated regularly, depending on the current needs of the patient and caregivers. A team may consist of:

- **Social Worker (SW):** A SW can serve as psychosocial evaluator, case manager, counselor, resource referral, crisis consultant, educator, facilitator, and advocate. A SW can help individuals and their families with coping, quality of life improvement, respite care, planning, finding financial resources and navigating the disease from time of diagnosis until death. A SW can assist with family conflict and the difficult decisions and transitions that occur over the course of AD. Adult Protective Services employ social workers who are responsible for supporting families stressed by difficult situations, and for providing services to prevent and intervene in potentially abusive and neglectful circumstances.

- **Psychologists and Psychotherapists:** Psychologists and therapists assess cognitive, emotional, and personality functioning and assist with psychological supports. Neuropsychologists are particularly skilled at assessment related to dementia. Both psychologists and psychotherapists provide counseling for both patients and family. See Treatment section below for more information.

- **Pharmacists and Psychiatrists:** These professionals often contribute to the evaluation of the effects of illnesses and the prescribing, monitoring, and management of medications on physical and psychological functioning, cognition and mood.

- Other health professionals such as **Physical Therapists (PTs), Occupational Therapists (OTs), Dentists and Registered Nurses (RNs):** These professionals may assist with problems in daily activities, assistive devices, posture, and range of motion, movement safety, fall prevention, or oral health. They are also good sources for education on disease, managing behaviors, and problem-solving approaches.

- **Elder Law and Estate Attorneys and Accountants:** They should be consulted as soon as possible to assist with legal tasks such as establishing durable power of attorney for health care, creating a living will/advance directive, and doing estate planning. If planning is not completed while the person is deemed competent, state statutes may define the decision-maker, usually the spouse or an adult child. If needed, a guardian may be appointed by a judge; this is a serious step that
strips an individual of basic rights and liberties. Family mediation might be required to make decisions about current issues and how decisions will be made in the future.

- **Community-based Services:** Organizations such as the local Area Agencies on Aging, Senior Citizens Centers, local non-profit and for-profit organizations and agencies, and churches offer many services for families. These may include case management, support groups for both the AD patient and caregiver, telephone advice lines, adult day programs, therapeutic programs, nutrition programs such as Meals on Wheels, transportation assistance, respite care and other volunteers, home modification, legal and financial assistance, elder abuse referrals, health insurance counseling, etc.

- **Health Care Organizations:**
  - **Home Health Care:** This service offers assistance and respite for caregivers by home health aides, certified nursing assistants (CNAs), and/or skilled nursing care (LPNs or RNs) who provide basic and medical care. They may also be able to provide a RN or SW case manager, PT or OT. The American Elder Care Resource Organization provides an online method for calculating costs of home health care as well as other options, based on patient condition and location.
  - **Long-Term Care Facilities (Assisted Living Facilities or Nursing Homes):** Some facilities have a particular focus for AD assistance, with specialized activities, safety systems, and environments for behavior management, but facilities vary considerably in the level and quality of care provided. It is, of course, a difficult decision for a family to place someone in long-term care. Monthly costs are significant, and families considering placement need to research the sources of payment before placing a family member in either type of facility. Medicare does not cover long term placement, but those on Medicaid may be eligible for payment for their care in a long-term care facility. Other sources include private pay options, some types of veterans care, and personal long-term care insurance (services and length of coverage depend on the individual plan).
  - **Hospice:** Hospice programs provide a Medicare-supported interdisciplinary team for physical, palliative (pain and symptom management) and emotional assistance in the home or in long-term care settings. Individuals must have a terminal diagnosis with less than a six-month life expectancy, which is usually stage 7 on the FAST assessment. It is sometimes difficult for both the family and PCP to discuss the six-month life expectancy estimate, but most families are very satisfied with hospice care because, for example, fewer hospice patients die in the hospital.

- **Nationally-based Services:** Alzheimer’s Association National Helpline, care consultation services, online support groups, and the Patient Advocate Foundation are some of the many national and online organizations which can provide education, consultation, support and sometimes even resources. Safe Return is an example of one program, a 24-hour nationwide emergency response service from the Alzheimer’s Association and MedicAlert™ that assists in
medical emergencies and the safe and timely return of individuals with AD who wander and become lost. See Web Resources listed below.

- **Long term care insurance**: Although only 8% of people 55 and older have long term care insurance, it is recommended because it can cover costs of in-home care as well as care provided in a health care facility. End of life costs for the last 5 years of life for people with dementia are approximately $288,000, compared to those without dementia, at $183,000. It is recommended that people buy long term care insurance when they are young, if possible, and find a plan that does not increase premiums over time, or that increases them at an affordable rate (U.S. Department of Health and Human Services, Administration on Aging, 2020).

**Encouraging healthy behaviors to reduce the risk of co-occurring conditions.**

The Family Caregiver Alliance (2017) recommends these common-sense tips to enhance memory, health and well-being.

- Take good care of your body, which will enhance cognitive functioning.
- Stay hydrated and maintain a low-fat, healthy diet.
- Stay physically active.
- Maintain an updated list of medications, family contacts, and advance directives.
- Decrease consumption of alcohol and do not smoke.
- Engage in regular social contact.
- Keep learning.
- Take to friends or a counselor about your worries and concerns.
- Use memory enhancement activities.
- Get plenty of sleep.

**VII. Summary of Interventions and Follow Up for Cognitive Impairment**

Unfortunately, there is no cure or specific treatment for AD yet. However, drug therapies may, in some cases, temporarily slow the progression of the disease and/or minimize symptoms, and non-drug treatments may help with cognitive, mood and behavioral symptoms and address the psychosocial and quality of life needs of the person and caregiver.

Because AD is the most common form of dementia, most treatment discussions are focused on it. Vascular dementia is actually the most potentially treatable form of dementia, being related to diseases of the heart and blood vessels. Managing blood pressure, weight, blood sugar and cholesterol, and avoiding smoking and excess alcohol may help prevent, slow the decline and/or minimize the symptoms of vascular dementia (Mayo Clinic, n.d.).
A. Drug therapy for AD

Drug therapy cannot currently repair brain damage, but it can lessen or stabilize some symptoms, for a limited time. Drug therapy may also be able to treat secondary symptoms such as depression, anxiety, agitation and sleep disorders. Clinical drug trials are also available in the search for better treatments.

Several drug therapies can delay the natural progression of the disease for 2 to 12 months or even up to a few years, particularly if AD is diagnosed early. That crucial delay can extend independence and buys precious time to plan for the future. It may allow a person to participate in decisions about future care, living options, financial and legal matters, and to build a network of support (Alzheimer’s Association, 2017).

Four medications of two types are currently approved by the U.S. Food and Drug Administration to treat Alzheimer's disease. Science does not know exactly how they work, but it is speculated that they regulate neurotransmitters, supporting communication between neurons. These drugs may help with thinking, memory, speaking, functional abilities and certain behaviors. They don’t, however, alter the disease process or progression, may have side effects, and may not help everyone (Alzheimer’s Association, 2017c; National Institute on Aging, 2014).

Cholinesterase inhibitors are used to treat mild to moderate AD. They are believed to prevent the breakdown of acetylcholine in the brain, which is involved in memory and judgment. They can treat symptoms related to thinking, remembering, judgment, language, and other thought processes. They are not effective for everyone and only effective for a limited time, as the brain produces less acetylcholine as AD progresses. A person may respond better to one drug than another, but all work in a similar way. They may be used to treat Parkinson’s, vascular, and Lewy body dementias, as well as AD.

Moderate to severe AD is treated with an N-methyl D-aspartate (NMDA) antagonist. It is believed to regulate glutamate in the brain, which may help with learning, memory, attention, reason, language and maintenance of some ADL functions for several more months.

These two types of drugs may be prescribed in combination and most are available generically. As with any drug, individual tolerance and side effects vary and interactions with other medications must be assessed (Mayo Clinic, n.d.; National Institute on Aging, 2014; U.S. Preventive Services Task Force, 2014; A.D.A.M. Medical Encyclopedia, 2010).

Table 3: A summary of the AD drugs from the NIH’s National Institute on Aging’s “Alzheimer’s Disease Medications Fact Sheet”
<table>
<thead>
<tr>
<th>Drug Name</th>
<th>How It Works</th>
<th>Drug Type</th>
<th>Common Side Effects</th>
<th>Common Uses</th>
<th>For More Information</th>
<th>Administration Dosage</th>
<th>Medications to Treat Alzheimer's Disease</th>
</tr>
</thead>
</table>

The drug summary does not include all information important for patient use and should not be used as a substitute for professional medical advice. Consult the prescribing doctor.
**Other medications** may be prescribed for treatment of related conditions such as high blood pressure to prevent stroke. Anti-anxiety medications, antidepressants, or sleep aids may help with behavioral difficulties. Side effects and drug interactions need to be monitored, and medications may need to be adjusted when side effects become troublesome or harmful drug interactions are detected. It should be noted that most providers recommend that behavioral and environmental management be used to address behavioral and psychological issues prior to prescribing psychotropic medications, as they may not be necessary if the environment is sufficiently supportive.

**Supplements:** Some doctors prescribe high doses of vitamin E, with careful supervision. Some people take caprylic acid, coconut oil, Coenzyme Q10, coral calcium, ginkgo biloba, huperzine A, omega-3 fatty acids, phosphatidylserine, and tramiprosate. Research has yet to confirm the effectiveness of any of these, and there is no standardization of supplement formulations. Patients should keep their PCP informed of all of the supplements that they choose to use, knowing that most claims about effectiveness and safety of these products are based primarily on testimonials, a small body of scientific research, and tradition (Alzheimer’s Association, 2014b).

**B. Psycho-educational interventions**

Many family and professional goals for AD treatment focus on the quality of life for the patient and caregiver(s). There are many ways to maximize independent functioning and assist with declining cognition and future transitions through support, planning and education. Counseling, structured programs, structured environment and behavior management techniques all play a part.

It may be helpful to periodically administer a Functional Analysis Screening Tool (FAST), or something similar, which categorizes symptoms into seven stages and tracks the progression of the AD. Although the stages are not linear, discussions about the stages assist with family education, communication among the interdisciplinary team, and caregiving decisions. Legal planning should occur during the earlier stages, adult day programs and/or assisted living are options in the middle stages, discussions about long-term care options occur in the later stages, and eventual hospice placement may be made at stage seven.

**C. Counseling**

**Counseling for the person with AD:** Psychotherapy has not traditionally been recommended for persons with dementia, but it may increasingly be seen as an important treatment. Individuals suffering from depression seem to have a higher risk of developing AD and suffer from more severe AD symptoms than those who aren’t depressed. Depression prevention and intervention may actually postpone or improve symptoms of AD. In addition, counselors can concretely assist with the initial feelings of denial, anxiety, fear, loss and shame. Throughout the course of the disease, counselors can improve the quality of life by working with stress management, social integration, and developing a comprehensive wellness plan that can help manage psychological symptoms and reduce the possibility of depression.
**Counseling for Caregivers:** Although caregiving is not without its rewards and personal satisfaction, caregivers are at high risk for depression, anxiety, high stress levels, and other mental and physical health issues. They must cope with the demands of frequent changes in the patient’s condition and personality, challenging behaviors, emotional and physical exhaustion, isolation, and grief and loss. They often must juggle multiple roles, such as caregiving, family and work. They may find themselves in the center of family conflict around caregiving decisions and struggle with guilt over long-term care placement. In short, they can use all of the coping strategies and support that they can get. For more information, see the MTGEC module *Assessment of Caregiver Strain*.

**Structured Programs:** Nationally, a number of models have been developed which may become more widely available. Check with care providers or long-term care facilities in your area to find programs and services. Examples of structured programs for a person with AD include:

- Group therapy
- Expressive therapies – music, storytelling and art
- Massage
- Memory enhancement day programs, which may include brain exercises, physical exercise, stress reduction, dining, story-telling, and social contacts
- Personal history documentation through storytelling, dictation, or scrapbooks
- Live review and reminiscence therapy which allows for memories to be shared and validated

Programs for caregivers include:

- Support groups in a traditional format or alternatives more convenient for a caregiver’s life, i.e., via computer, phone, in-home, 24-hour, or with respite assistance
- Educational sessions about AD
- Skills training for problematic behaviors and disease management strategies
- Resource referral systems
- Respite support with paid professionals, volunteers, and/or organized networks such as churches, families and friends, or hospice

**D. Environmental and behavior management**

Professional help may be needed to structure the person’s environment to be conducive to the greatest possible independence, security, care, and quality of life. Over time, there are multiple functional transitions including changes in driving status, home responsibilities, financial responsibilities, health care, self-care, and end-of-life care. Specific early interventions may include a home safety assessment, installation of an emergency call system or a medication dispensing system, and financial scam protection.
Caregivers may not intuitively grasp how to alter their relationship with a person with AD. Rational schedules and routines, with emphasis on facts, manners and efficiency, will often backfire and result in resistance, agitation or worse. A little education and modeling can make a significant difference in the emotional environment of the home. Examples are:

- Develop reminder strategies that work for the individual, such as notes, a large calendar, and setting alarms. Structure and routine are often helpful.
- Create intimacy, slow down, and stay in the present moment. The psychological connection actually makes task accomplishment possible and helps caregivers see the positives of the present moment rather than focusing on the overall negatives of the situation.
- Relaxation and patience are needed for the feelings of frustration, anxiety, and grief for the loss of some abilities. Watch for the triggers of frustration and strive for prevention by anticipating needs and making accommodations. Flexibility is needed at all times.
- Accept the lack of memory and identification without constant correction which can simply frustrate everyone. Listening with reassurance, kindness and redirection may improve interactions. Do not expect the person with AD to remember persons or events, as this will cause additional stress for all involved.
- Use touch often to connect, to reorient, and to comfort.
- Chores, even imagined ones, can bring satisfaction and ease boredom. Encourage what self-care can be managed, help in the kitchen, sorting and folding laundry, and tasks that the person enjoyed earlier.
- Quality of life comes from humor, pleasant activities, exercise, and social and sensory experiences at every stage.
- Seek outside help, support and respite, even though it can be hard to ask for help.
- Reducing clutter and noise can help with confusion and frustration. Break tasks and communications into small steps.

As noted by Healthy People 2020, much progress has been made in the understanding and management of dementia, primarily via research on Alzheimer’s disease. Further progress in treating and managing dementia lies in research to improve early diagnosis of AD, the development of interventions to delay or prevent the disease, and how to manage dementia when co-morbidities are present.
VIII. Cognitive Screening – Video Review

FOR REVIEW: Watch this 31-minute video from the Hartford Institute for Geriatric Nursing which is required for the 2.0 contact hour module certificate. To view this, you will need the latest version of Adobe Flash Player, plus an audio set up on your computer. It is a ConsultGeriRN.org Hartford Institute Video, from the “How to Try This Video” series (VandenBosch, Kany & Jousma, n.d.).

To view the video, click this link: Administering and Interpreting the Mini-Cog or view on YouTube: Administering and Interpreting the Mini-Cog.

How to score The Mini-Cog includes instructions for scoring and background information.

IX. Engaging in Ongoing Learning about Cognitive Impairment

Competent and effective professionals must keep abreast of new research, practice innovations, and services in order to serve their clients and patients well. To that end, below are a number of areas in which improvements and new knowledge are being developed that relate to cognitive health and impairment. Thinking of these categories can hopefully stimulate individual professional growth in the area of cognitive impairment and dementia.

A. Research

Competent and effective professionals must keep abreast of new research, practice innovations, and services in order to serve their clients and patients well. To that end, below are a number of areas in which improvements and new knowledge are being developed that relate to cognitive health and impairment. Thinking of these categories can hopefully stimulate individual professional growth in the area of cognitive impairment and dementia.

B. Interprofessional Approaches

Serious attention is being paid to the efficacy of and need for interprofessional approaches to preventing and treating dementia, as both the causes and treatments are not singular but rather multifaceted. For example, although various types of dementia are physical in nature, there are social and psychological contributors to both prevention and treatment. Seeing patients from a holistic point of view is best done from a team of interacting professionals who learn from each other how best to serve patients. Developing an interdisciplinary “community of practice” involves working to establish a core group of professionals all working to educate, inform, support and refer to each other. It is also important to learn about the roles, responsibilities, and ethical codes of each profession.
C. Social and Environmental Aspects of Dementia

Seeing the ways in which social and environmental factors impact dementia is important, including disparities in health care and outcomes, socio-economic status, educational levels, family systems, and rural/urban environments. In addition, social concerns include caregiver strain and support, social isolation, family conflict, financial burdens, access to services, respite care for caretivers, and societal stigma. Each of these aspects of dementia care can be recognized and improved to reduce the impact of dementia, support families, and create supportive and healthy social environments.

D. Prevention and Early Detection of Dementia

Much effort is being put into both prevention and early detection of dementia, which is complicated because of the variety of types of dementia. However, it is important to find ways to prevent dementia, if possible, identify modifiable risk factors, develop improved identification and diagnosis, and make those innovations available broadly. Keeping abreast of advances in testing will be very helpful and encouraging to patients, including advances in using blood tests, brain scans, and genetic testing.

E. Dealing with Co-Morbidities

Because it is common for people to have more than one condition or diagnosis that mutually interact and influence each other, it is vital to understand common co-occurring conditions and how to treat them both concurrently. Examples related to dementia are depression, anxiety, hypertension, substance abuse, traumatic brain injury, and Down Syndrome.

F. Innovative Services and Treatments

Clients and families dealing with cognitive impairment and dementia will be interested in available services, and this requires that professionals keep abreast of innovative and existing services. That means understanding what services are available, knowing how to access them, understanding the costs to families, and how to refer families. Such innovations include dementia friendly community efforts, memory cafes for those with dementia, music therapy, web-based activities and support groups, spiritual involvement for those with dementia, and projects geared toward changing attitudes toward dementia. Professionals might also choose to be a part of developing new programs, assist with finding funding, and serve as facilitators or board members.
X. Montana’s Response to Alzheimer’s Disease and Related Dementias (ADRD)

The Montana Alzheimer’s and Dementia State Plan—Addressing the Current and Future Needs of Individuals and Families with Alzheimer’s Disease and Related Dementias was developed by the Montana Alzheimer’s Disease/Dementia Work Group, a voluntary group of health care professionals, advocacy groups, stakeholders, caregivers, educators, and citizens who have been affected by dementia and are passionate about improving dementia care in Montana.

The vision of the 2016 plan is to build dementia-capable programs for the growing number of people in Montana with ADRD. The plan prioritizes major goals that envision a health care system able to manage the needs of individuals living with Alzheimer’s disease and related dementias and their families throughout all stages of the disease. Each goal area includes recommended action steps crucial to reaching these goals. These action steps range from policy changes to improved education to the development of resources for individuals living with dementia and for their families.

See the Montana Alzheimer’s and Dementia State Plan website for more information about how ADRD is being addressed in Montana.

XI. Cognitive Impairment Web Resources

Act on Alzheimer’s offers resources, ideas, and strategies for communities and interested providers about ways to address AD in community settings.

Adult Children and Aging Parents focuses on maintaining respectful relationships with older parents while supporting them through services and resources.

Alzheimer’s Association: Family/community education, resource library, Safe Return (an identification program that assists in the safe and timely return of individuals who wander and become lost), support groups, information and referral, including clinical trial referrals, and care consultation. Their Alzheimer’s Navigator provides guides and helps construct customized action plans. They also support and report on research.

- Inside the Brain: Alzheimer’s Brain Tour
- Montana Service Area located in Billings, Montana - 1-800-272-3900 (24/7 Help Line)
Alzheimer’s Association Mobile App

AlzOnline: Caregiver Support online offers education, research findings, and support online.

American Academy of Neurology offers information on research and practice guidelines.

American Elder Care Resource Organization offers ways to calculate the costs of various levels of care.

Bright Focus: Alzheimer’s Disease Research offers patient toolkits and information on clinical trials.

ConsultGeri offers tools, apps, and webinars about treatment and management.

Dementia Friendly America offers ideas for communities seeking to effectively address dementia.

Eldercare Locator helps families locate appropriate care in their locations.

Family Caregiving Alliance or 1-800-445-8106. Helps with locating local resources, plus provides fact sheets for legal issues and choices and online caregiver support groups.

Institutes of Health:

Age Friendly Health System

Guide to Using the 4 M’s in the Care of Older Adults

Mayo Clinic Dementia provides fact sheets and links to other resources.

Medline Plus Dementia is part of the U.S. Library of Medicine and provides information on research and treatment.

National Institute on Aging Alzheimer’s Disease Education and Referral (ADEAR) Center provides numerous links to information on AD, including medications fact sheet, lists of clinical trials, cognitive assessment toolkit, patient advocate foundation, and resources for professionals.
XII. References


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World Health Organization. (December 2016). *Development of a draft global action plan on the public health response to dementia*. Retrieved from: 
http://www.who.int/mental_health/neurology/dementia/action_plan_consultation/en/

https://www.who.int/news-room/fact-sheets/detail/dementia
POST-TEST: Screening for Cognitive Impairment in Older Adults

Record responses on examination form.

1. Dementia is under-diagnosed and under-treated in older adults for all of the following reasons EXCEPT:
   a. Healthcare providers consider screening a low priority because of the lack of effective treatment options.
   b. A diagnosis of dementia can only be made after death with an autopsy.
   c. People try to avoid talking about their memory loss and compensate for it so others won’t notice.
   d. People believe “senior moments” are normal and to be expected.

2. Delirium, dementia, and depression:
   a. Are interchangeable terms.
   b. Are different degrees of severity of the same symptoms.
   c. Cannot be accurately diagnosed except through an autopsy after death.
   d. Are different disorders but may have similar symptoms.

3. Which of the following statements is NOT true?
   a. The incidence of dementia is expected to dramatically decline over the next thirty years because of improved health care.
   b. A significant number people with dementia worldwide have not been diagnosed.
   c. More than a third of people over the age of 85 have dementia.
   d. Alzheimer’s is the only cause of death among the top 10 in America without a way to prevent, cure, or even slow its progression.

4. Important risk factors for the development of Alzheimer’s disease include:
   a. Family history and genetics
   b. Changes in the brain, including plaques, tangles, and fewer nerve cells
   c. Other medical conditions and poor health
   d. All of the above

5. Which of these is NOT usually a symptom of cognitive impairment?
   a. Difficulty completing familiar tasks
   b. Excessive sleeping
   c. Forgetting recently learned information
   d. Withdrawal from work or social activities

6. Which physiologic condition(s) can produce dementia-like symptoms?
   a. Depression
   b. Reactions to medications
   c. Urinary tract infection
   d. All of the above
7. The Mini-Cog screening test is composed of which two activities:
   a. Word recall and clock draw test
   b. Reverse serial sevens and word recall
   c. Mood assessment and clock drawing test
   d. Reverse sevens and clock drawing test

8. Which is true about mild cognitive impairment?
   a. It almost always leads to dementia
   b. It can be dealt with through the use of antidepressants.
   c. Symptoms of MCI are noticeable but don’t interfere with independent living.
   d. It is closely associated with depression.

9. If cognitive impairment or dementia is suspected on a screening, the person should be referred:
   a. To a neurologist for a complete neurological exam.
   b. To a psychiatrist for medications.
   c. To a primary health care provider for further evaluation of the symptoms.
   d. To a lawyer to name a durable power of attorney for medical affairs.

10. After a diagnosis of dementia is confirmed, all of the following may be recommended EXCEPT:
    a. Cholinesterase inhibitor medication to slow the progression of the disease.
    b. Electroconvulsive therapy (ECT) to improve communication between brain cells.
    c. Support groups for both the patient and caregiver.
    d. Environmental and behavioral management training for the caregiver.

11. Dementia research is currently focused on:
    a. Early diagnosis of Alzheimer’s disease with brain imaging scans, spinal fluid tests and blood tests.
    b. Developing evidenced-based effective psycho-educational programs for patients and caregivers.
    c. Clinical trials of drugs that delay or prevent dementia.
    d. All of the above
**POST-TEST: Examination Form**

*Screening for Cognitive Impairment in Older Adults*

**PARTICIPANT INFORMATION:**

1. Name: ______________________________________

2. Mailing address: ____________________________
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3. Date exam completed ________________

**QUESTIONS: (PLEASE CIRCLE ONE RESPONSE PER QUESTION):**

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For credit, please return: MTGEC/IPHARM, Skaggs Building, Room 217, University of Montana, 32 Campus Dr., Missoula, MT 59812.