Instructions on Completing the Module

Screening for Cognitive Impairment

*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 in the syllabus.

3. **After** reading the module, please complete the Post-Test. Use the questions in Appendix C and record your answers on the examination form marked Post-Test. *(Found at the end of Appendix C.*) Keep the completed answer form to turn in with the pre-test at the completion of the module.

Complete the Module Evaluation. *(Found after the post-test.*) Keep the completed module evaluation form to turn in with the pre-test and post-test at the completion of the module.

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

Rachael Zins  
MTGEC/IPHARM  
Skaggs Building Room 317
University of Montana  
32 Campus Drive
Missoula MT, 59812-1522

Email: IPHARM@umontana.edu
Phone# (406) 243-2339 & Fax# (406) 243-4353
Pre-test:  Screening for Cognitive Impairment

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) 75% of people with dementia worldwide have not been diagnosed.
   c) Over 40% 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) Increasing age.
   b) Family history and genetics.
   c) Changes in the brain, including plaques, tangles, and fewer nerve cells.
   d) Other medical conditions and poor health.
   e) All of the above.
   f) A and c.

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) Confusion with time or place
   e) Withdrawal from work or social activities

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

7) The Mini-Cog screening test is composed of which two activities:
   a) Word recall and clock drawing test
   b) Reverse serial sevens and word recall
   c) Mood assessment and clock drawing test
   d) Reverse serial sevens and clock drawing test
8) If 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 an occupational therapist to diagnose Alzheimer’s disease.
   e) To a lawyer to name a durable power of attorney for medical affairs.

9) 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.
   e) Art or music therapy.

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

*Screening for Cognitive Impairment*

### Participant Information

1. Name: ______________________________

2. Mailing address: ____________________

   ____________________________________

   ____________________________________

   ____________________________________

3. Date exam completed ________________

### Questions: (Please circle one response per question)

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**Rachael Zins**  
**MTGEC/IPHARM**  
Skaggs Building Room 317  
University of Montana  
32 Campus Drive  
Missoula MT, 59812-1522  
Phone# (406) 243-2339 & Fax# (406) 243-4353
Screening for Cognitive Impairment

Diana Reetz-Stacey, MSW
In consultation with Jane C. Wells, MD, MHS

A 2-hour Geriatric Health Screening Module from the

Montana Geriatric Education Center

A Consortium of
The University of Montana, Missoula
St. Vincent Healthcare
Montana Tech

http://mtgec.montana.edu

May 2012

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Montana Geriatric Education Center
MONTANA GERIATRIC EDUCATION CENTER
Required Disclosures to Participants

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

Successful Completion of this Continuing Education Activity:

- Completion of Participant Profile
- Completion of Pre-Test
- Reading of Text
- Completion of Post-Test with at least 70% accuracy
- Completion of module evaluation

Contact Hours: 2

MT Nurses Association Continuing Education Expiration Date: May 28, 2014

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There is no Commercial Company Support for this CE activity

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Description of Module

Content: This module will present

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

Objectives

1. Review the impact of cognitive decline 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 decline in older adults.
Table of Contents

I. Incidence and prevalence of cognitive impairment and types of dementia .................. 10
II. Symptoms of cognitive decline in older adults......................................................... 16
III. Screening tests commonly used to identify cognitive decline in older adults .......... 18
IV. How to conduct and score the Mini-Cog for cognitive screening ............................ 22
V. Types of referrals and referral sources for patients with cognitive impairment ......... 24
VI. Summary of interventions and follow up for cognitive impairment ...................... 28
   A. Pharmaceutical Treatments for AD .................................................................. 29
   B. Psycho-educational Interventions ..................................................................... 30
VII. Cognitive Screening – Video Review ................................................................. 32
VIII. Cognitive Impairment Web Resources .............................................................. 33
IX. Cognitive Impairment Glossary ......................................................................... 34
X. References ........................................................................................................... 35
XI. Appendix A: Alzheimer’s Association’s Ten Warning Signs of AD ....................... 39
XII. Appendix B: Additional Screening Tools ............................................................ 40
XIII. Appendix C: Post Test ..................................................................................... 41
XIV. Appendix D: Evaluation .................................................................................... 45
Screening for Cognitive Impairment

I. Incidence and prevalence of cognitive impairment and types of dementia in older adults

People fear dementia and its related loss of dignity, demands on family caregivers and resources, and institutional placement almost as much as they fear cancer (Mozes, 2011). Throughout history, senility has been 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, particularly from the time when President Ronald Reagan was publically diagnosed with Alzheimer’s disease (AD) in 1994. As the population of older adults grows, the devastating, progressive decline of dementia will affect more and more individuals, families, and the entire health care system (Sanders & Osterhaus, 2011).

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. The urgency of the looming crisis has produced a flurry of research. Alzheimer’s Disease International, in its World Alzheimer Report 2011, reviewed thousands of scientific studies and concluded:

- Of the estimated 36 million people with dementia worldwide, 75% have not been diagnosed.
- Failure to diagnose is based on the false belief that dementia is a normal part of aging and nothing can be done about it.
- Early detection could save around $10,000 per person over the course of the disease.
- 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.
- A national dementia strategy should include early diagnosis, networks of specialist centers and a continuum of care.
- Physicians and other health care professionals should be taught to detect dementia early.
- Governments should spend more money on diagnosis, treatment and research (Prince, Bryce, & Ferri, 2011; Reinberg, 2011).

Here are the hard statistics from the Alzheimer’s Association:

- An estimated 5.4 million Americans of all ages have AD in 2011. This figure includes 5.2 million people aged 65 and older and 200,000 individuals under age 65 who have early-onset Alzheimer’s.
- One in eight people aged 65 and older (13%) has AD.
- Nearly half of people aged 85 and older (43%) have AD.
- Of those with AD, an estimated 4% are under age 65, 6% are 65 to 74, 45% are 75 to 84, and 45% are 85 or older (Alzheimer’s Association, 2011a).
Two-thirds of those with the disease – 3.4 million – are women.

AD is the 6th leading cause of death in the United States and the 5th leading cause of death for those aged 65 and older.

AD is the only cause of death among the top 10 in America 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.

Deaths from AD increased 66% between 2000 and 2008, while deaths from other major diseases, including the number one cause of death, heart disease, decreased.

In 2010, 14.9 million family and friends provided 17 billion hours of unpaid care to those with AD or other dementias, for an estimated value of $202.6 billion.

In 2011, the cost to American society of caring for those with AD will total an estimated $183 billion. This is an $11 billion increase over 2010 – a rate of increase more than four times inflation (Alzheimer's Association, 2011a).

In Montana, an estimated 21,000 people had AD in 2010, a 31% increase from 2000. It is estimated that in 2020 there will be 25,000 cases in Montana and in 2025, 29,000 (Alzheimer's Association, 2011c).

In addition, as Healthy People 2020 points out,

People living with dementia are at greater risk for general disability and experience frequent injury from falls. Older adults with dementia are 3 times more likely to have preventable hospitalizations. As their dementia worsens, people need more health services and, oftentimes, long-term care. Many individuals requiring long-term care experience major personal and financial challenges that affect their families, their caregivers, and society (U.S. Department of Health & Human Services [USDHHS], 2011).

These “facts” are estimates only, and only show part of the picture, for three main reasons. With new 2011 guidelines, Alzheimer’s, for the first time, 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 the seven stages of AD. This definition could double some of the above numbers (Albert, et al., 2011). Secondly, cognitive impairments, like 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.

The term “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. Dementia is a loss of cognitive functioning 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 and/or personality changes. A diagnosis of dementia identifies a significant cognitive impairment or decline which persists over time, affects three
or more areas of cognitive functioning and interferes with the activities of daily life (Lunde, 2007; Richardson & Barusch, 2006; Sanders & Osterhaus, 2011).

Common causes of cognitive impairment in later life include delirium, depression, mild cognitive impairment (MCI) and various types of dementia, of which Alzheimer’s disease is the most common and best known.

**Delirium** is a condition with sudden and severe changes in cognition and brain function that should be reversible when the underlying cause is addressed. 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 become worse at night. Delirium is the result of some 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 psychotropic drugs, or even over-the-counter medications. People over 65 are at the highest risk for delirium, due to their reduced ability to metabolize, break down and excrete drugs, and their 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 (Smyer & Qualls, 1999; Multidisciplinary Center on Aging, n.d., Miller, 2012).

**Depression** may be difficult to distinguish from dementia; patients or their families may seek professional help due to cognitive impairment, when depression may actually be the cause. 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.

**Mild Cognitive Impairment (MCI),** similar to dementia, is actually a term describing a cluster of symptoms including changes in memory, language and processing information. 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. For unknown reasons, MCI appears to affect men more than women. 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 (National Center on Caregiving, 2011; Sanders & Osterhaus, 2011). With the recent expansion of the diagnostic definition, MCI is now classified as a predementia phase of AD (Albert, et al., 2011).

The causes of cognitive impairment are complex, but with a comprehensive assessment, a skilled clinician can now identify the primary cause 90% of the time (Sanders & Osterhaus, 2011). Outside of delirium, depression, and MCI, the vast majority of dementia cases fall into two diagnoses: roughly 60-80% are Alzheimer’s disease and 5-10% are vascular dementia (Corey-Bloom, 2000; Alzheimer’s Association, 2011a). Since Alzheimer’s disease is the most common, AD will be referred to in the rest of the module.
Common Types of Dementia and Their Typical Characteristics (Alzheimer’s Association, 2011a, pp. 5-6), with additional notes:

<table>
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<th>Type of Dementia</th>
<th>Characteristics</th>
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| Alzheimer’s disease (AD)                     | Most common type of dementia; accounts for an estimated 60 to 80% of cases. Considered a terminal disease; can survive 3-20 years, with average of 4-8 years.  
Difficulty remembering names and recent events is often an early clinical symptom; apathy and depression are also often early symptoms. Later symptoms include impaired 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) and twisted strands of the protein tau (tangles). |
| Vascular dementia (also known as multi-infarct or post-stroke dementia or vascular cognitive impairment) | Considered the second most common type of dementia. Impairment is caused by decreased blood flow to parts of the brain, often due to a stroke or series of small strokes. Symptoms often overlap with those of Alzheimer’s, although memory may not be as seriously affected. Stair step decline is seen, rather than gradual decline seen with AD. |
| Mixed dementia                               | Characterized by the hallmark abnormalities of 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. |
| Dementia with Lewy bodies                   | Pattern of decline may be similar to Alzheimer’s, including problems with memory and judgment as well as behavior changes. Alertness and severity of cognitive symptoms may fluctuate daily. Visual hallucinations, muscle rigidity and tremors are common. Hallmark abnormalities include Lewy bodies (abnormal deposits of the protein alpha-synuclein) that form inside nerve cells in the brain. |
| Parkinson’s disease                          | Many people who have Parkinson’s disease (a disorder that usually involves movement problems) also develop dementia in the later stages of the disease. The hallmark abnormality includes Lewy bodies (abnormal deposits of the protein alpha-synuclein) that form inside nerve cells in the brain. |
| Frontotemporal dementia                     | Nerve cells in the front and side regions of the brain are especially affected. Typical symptoms include changes in personality and behavior and difficulty with language. No distinguishing microscopic abnormality is linked to all cases. Pick’s disease, characterized by Pick’s bodies (nerve cells containing an abnormal accumulation of fibers made of the protein tau), is one type of frontotemporal dementia. |
| Creutzfeldt-Jakob disease                    | Rapidly fatal disorder that impairs memory and coordination and causes behavior changes. Caused by the misfolding of prion protein throughout the brain. Variant Creutzfeldt-Jakob disease is believed to be caused by consumption of products from cattle affected by mad cow disease. |
| Normal pressure hydrocephalus                | Caused by the buildup of fluid in the brain. Symptoms include difficulty walking, memory loss and inability to control urination. Can sometimes be corrected with surgical installation of a shunt in the brain to drain excess fluid. |
Causes and Risk Factors

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 major risk factors associated with AD are discussed below (Alzheimer’s Association, 2011c).

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 (U.S. Department of Health and Human Services, 2011).

Family History and Genetics: Individuals with a close relative with AD are two to three times more likely to develop AD (Sanders & Osterhaus, 2011). 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. Genetics currently is an area of concentrated dementia research searching for causes and a cure (Dallas, 2011). Although families no longer have to wait for a post-mortem autopsy for confirmation of the diagnosis, autopsies can provide family members with more information which may help predict their own risk for AD (U.S. Department of Health and Human Services, 2011).

Gender: Although the development of dementia does not differ between men and women, more women have cognitive impairment, possibly because women currently live longer. The life expectancy rate difference for men and women is shrinking, which may bring a change in this statistic. 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 (Sanders & Osterhaus, 2011).

Health: People with conditions that can affect brain blood vessels are eight times more likely to develop AD. This includes diabetes, vascular conditions, heart disease, high cholesterol, high blood pressure and stroke. AD also is correlated with frequent falls, sleep apnea, high salt consumption, loss of teeth, bone loss, substance abuse, lack of exercise, head trauma and Post Traumatic Stress Disorder in combat veterans (National Center on Caregiving, 2011).

It has recently been speculated that lifestyle changes could prevent more than half of AD cases globally. Modifiable risk factors seem to prevent normal circulation in the brain that correlates with AD, although they have not been shown to actually cause it. 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).

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 (Sanders & Osterhaus, 2011).
Race and Ethnicity: AD is under-diagnosed 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. 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 (Sanders & Osterhaus, 2011).

In the Alzheimer's brain:

- The cortex shrivels up, damaging areas involved in thinking, planning and remembering.

- Shrinkage is especially severe in the hippocampus, an area of the cortex that plays a key role in formation of new memories.

- Ventricles (fluid-filled spaces within the brain) grow larger.

(Alzheimer's Association, 2011b)

Brain cells in AD: Alzheimer's tissue has many fewer nerve cells and synapses than a healthy brain.

Neuritic Plaques, abnormal clusters of protein fragments called beta-amyloid peptide, build up between nerve cells.

Neurofibrillary Tangles, which are made up of twisted strands of the protein tau, are contained in dead and dying nerve cells.

Loss of connections among brain cells responsible for memory, learning and communication. These connections, or synapses, transmit information from cell to cell.

(Alzheimer’s Association, 2011b)
Scientists are not absolutely sure what causes cell death and tissue loss in the Alzheimer’s brain, but plaques and tangles are prime suspects. Plaques and tangles develop in all aging brains, but those with AD have considerably more and experience greater damage as a result. Plaques and tangles interfere with the communication between nerve cells. Once a nerve cell is damaged, damage occurs to other neighboring cells, resulting in the cells ceasing to function and eventually dying (Alzheimer’s Association, 2011b). The buildup of aluminum, lead, mercury, and other substances in the brain is no longer believed to be a cause of AD (A.D.A.M. Medical Encyclopedia, 2010).

- If you are interested in learning more about the changes in an Alzheimer’s brain, see The Alzheimer’s Association’s “Inside the Brain: Alzheimer’s Brain Tour”.

II. Symptoms of cognitive decline in older adults

Normal age-related changes in the brain do bring slower mental processing and some difficulty with memory, particularly learning and recalling information and 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’s helpful to look at what is and what is not dementia.
Distinguishing Normal “Senior Moments” From More Worrisome Memory Lapses

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<th>Normal Age-Related Forgetfulness</th>
<th>Mild Cognitive Impairment</th>
<th>Dementia</th>
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<td>Sometimes misplaces keys, eyeglasses, or other items.</td>
<td>Frequently misplaces items.</td>
<td>Forgets what an item is used for or puts it in an inappropriate place.</td>
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<td>Momentarily forgets an acquaintance’s name.</td>
<td>Frequently forgets people’s names and is slow to recall them.</td>
<td>May not remember knowing a person.</td>
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<td>Occasionally has to “search” for a word.</td>
<td>Has more difficulty using the right words.</td>
<td>Begins to lose language skills. May withdraw from social interaction.</td>
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<td>Occasionally forgets to run an errand.</td>
<td>Begins to forget important events and appointments.</td>
<td>Loses sense of time. Doesn’t know what day it is.</td>
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<td>May forget an event from the distant past.</td>
<td>May forget more recent events or newly learned information.</td>
<td>Has serious impairment of short-term memory. Has difficulty learning and remembering new information.</td>
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<td>When driving, may momentarily forget where to turn; quickly orients self.</td>
<td>May temporarily become lost more often. May have trouble understanding and following a map.</td>
<td>Becomes easily disoriented or lost in familiar places, sometimes for hours.</td>
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<td>Jokes about memory loss.</td>
<td>Worries about memory loss. Family and friends notice the lapses.</td>
<td>May have little or no awareness of cognitive problems.</td>
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(MediZine LLC., 2009)

The Alzheimer’s Association has identified a list of warning signs for consumers which mirror the examples above, see Appendix A. 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 doctor (Alzheimer’s Association, 2009).

As the AD progresses, other 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 i.e. leaving the stove on
- Loss of initiative
- Wandering

- “Sundowning” - 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
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 or complications from surgery. AD patients may live anywhere from 3 - 20 years after diagnosis (Sanders & Osterhaus, 2011; A.D.A.M. Medical Encyclopedia, 2010).

III. Screening tests commonly used to identify cognitive decline 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 consider routine memory screenings to be a low priority. Additionally, the stigma of AD results in avoidance because no one, the individual, the family or the health professional, wants to think or talk about the possibility of dementia (U.S. Department of Health and Human Services, 2011; Prince, Bryce, & Ferri, 2011).

Early diagnosis, however, is the key to effective treatment and care. When AD is not diagnosed until later, 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 slowed progression of cognitive decline through use of medications and treatments. In addition, early diagnosis may benefit the patient through opportunities to participate in clinical trials and access to future AD research breakthroughs (Doerflinger, 2007).

Memory screens have increasingly been recommended as 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. A memory screen does NOT diagnose but only indicates whether diagnostic tests should be considered (Alzheimer’s Foundation of America, 2011; U.S. Preventive Services Task Force [USPSTF], 2003).

Some 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 and behavior. For the primary health care provider, 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, depression and physical strains (Tuokko & Hadjistavropoulos, 1998).

A thorough cognitive evaluation addresses a variety of cognitive functions and Activities of Daily Living (ADLs) which are covered in more detail in the MTGEC module Cognitive Decline & Dementia in Older
Persons. 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; therefore, combining several basic assessments may increase accuracy (Tuokko & Hadjistavropoulos, 1998; Medical Association Communications, 2003; Sanders & Osterhaus, 2011).

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 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 clinical experience and/or 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 dementia (MediZine LLC., 2009; Alzheimer's Association, 2011; Newport, 2008; DeMarco, 2009).

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 (MediZine LLC., 2009). Similarly, a coin counting test asks “If I give you a nickel, a quarter, a dime and a penny, how much money have I given you?” The denominations should not be presented in ascending or descending order (Alzheimer’s Association, 2011d).

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 (MediZine LLC., 2009).

Reverse Recall: Tests working memory, attention and executive functioning.

- **Reverse Spelling.** Using 2-, 3-, 4- or 5-letter words. The 5-letter word, such as WORLD – “D,L,R,O,W”, is difficult for many non-demented people, and the difficulty increases with age and lower educational levels (Tuokko & Hadjistavropoulos, 1998).

- **Reverse Word Recall:** An example is asking for the months of the year listed backwards (MediZine LLC., 2009).

- **Reverse Serial Sevens:** Measuring attention, concentration, and calculation abilities. A person is asked to count backward from 100 by 7s (100, 93, 86, 79, etc.) Once a common assessment, it
has been removed from several assessments, as several studies found that many people cannot perform the test without error; only 1 in 9 over 55 can, nor can those with lower educational levels (Tuokko & Hadjistavropoulos, 1998).

**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 (MediZine LLC., 2009).

**Others:** Orientation questions such as the date, season, current president, and the person’s current location are common. Cognitive flexibility can be tested by asking that picture-word incongruities be read, such as the word “red” in green ink. Card sorting assesses executive functioning and proverb interpretation is used to assess abstract thinking (Tuokko & Hadjistavropoulos, 1998; Sanders & Osterhaus, 2011).

**The most popular formal cognitive assessments** include a combination of many of the above components:

**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 10-15 minutes to administer. Research indicates that it is 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 (Tuokko & Hadjistavropoulos, 1998; Corey-Bloom, 2000; USPSTF, 2003).

MMSE scores in the moderately impaired range can indicate either cognitive impairment associated with depression or an independent cognitive disorder (Osterweil & Brummel-Smith, 2000). Free versions of the MMSE are available on the internet, but the official version is copyrighted and must be ordered through Psychological Assessment Resources. 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, 2011d).

**The 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 (3-5 minutes to administer), can be given with minimal training, 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, 2011d; Borson, Brush, Vitaliano & Dokmak, 2000; Doerflinger , 2007; Medical Association Communications, 2003). The Mini-Cog is reviewed in detail in the next section.
The 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 (Brodaty, Pond, & Drapen, 2009).

Memory Impairment Screen (MIS): A four-minute, four-item delayed memory recall test assesses free and cued words. The person is given four words and four different categories, for example: monkey (animal); Chicago (city), broccoli (vegetable), and guitar (musical instrument). 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 (Medical Association Communications, 2003).

Short Portable Mental Status Questionnaire (SPMSQ): This test consists of ten questions exploring short-term memory, long-term memory, orientation, and ability to conduct serial operations. The SPMSQ is brief and reliable, but may miss mild deficits (Tuokko & Hadjistavropoulos, 1998).

Other related assessments include:

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 (USPSTF, 2003; Chronic Care Networks for Alzheimer's Disease initiative, 2003).

Mood Assessment: Depression screenings such as the GDS are important, as depression can cause memory problems, loss of interest in life, and other symptoms that can mimic or overlap dementia symptoms.

Blood Screens, Genetic Tests or MRI Scans are being developed to detect changes years before symptoms exist, with the hope that they may someday be clinically relevant and cost-effective.

Assessment Tools for Staging AD:

- Global Deterioration Scale (GDS): Assesses the current AD stage. Can be administered over the telephone (Richardson & Barusch, 2006).

- Functional Assessment Staging Tool (FAST): Categorizes the seven stages of AD progression including stage one to two - early, stage four - moderate need for assistance, stage six- severe, and stage seven - mostly bedbound. Results are not necessarily linear (Sanders & Osterhaus, 2011).

Notes on Assessments for Cognitive Impairments:

- 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, visual or hearing impairments, learning disabilities, and the stress of taking a cognitive assessment. Efforts to make the person as comfortable as possible and to address specific conditions should be made.
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 (2003).

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, include informed consent, practice confidentiality and proper storage or disposal of assessment results, and be able to sensitively provide feedback and referrals when needed (Tuokko & Hadjistavropoulos, 1998).

IV. How to conduct and score the Mini-Cog for cognitive screening

One must be sensitive when approaching a person about a 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 could easily affect the person’s thinking. It is a difficult topic to discuss because there are few things dreaded more in old age than dementia. Be straight-forward, relaxed, and normalize the experience. The screening should take place in a quiet, private setting, with the following considerations:

- It is important to 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 (Emlet, 1996; Smith, 2011).

- 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 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 to be given a chance to talk.

- Be aware that a fear may exist that seeking mental health help is the first step to being institutionalized. Gently address those fears (Hinrichsen & Clougherty, 2006).

- “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.
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 people [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.” (Emlet, 1996, p. 191).

The Mini Cog Screening Test consists of three simple steps:

1. **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.” The last two examples are from the MMSE.

2. **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.

3. **Word Recall**: Ask the patient to repeat the three previously stated words (Borson, et al, 2000).

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

1. 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.

2. **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

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

After a screening, the person who administers the screening reviews the results with the person screened. If the results indicate potential cognitive impairment, the person should be given the test results, and encouraged to take the results to their primary care provider for follow-up. Explain that a number of conditions could be causing memory difficulties and, if that is the case, there may be treatment which could make them feel better and think more clearly (Powers, Ashford, & Peschin, 2008; Alzheimer’s Foundation of America, 2011).

Considerations:

- The CDT can significantly be affected 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.

Background Information and the Mini-Cog are available in a two page handout at:


V. Types of referrals and referral sources for patients with cognitive impairment

The Healthy People 2020 goals give a frame-work for discussion of referrals that centers on improving diagnosis and early treatment, reducing the severity of symptoms, supporting family caregivers, and encouraging healthy behaviors that limit the risk of co-occurring conditions (USDHHS, 2011).

A. Decreasing the number of people with undiagnosed dementia.

Initial Referral: Primary Care Provider (PCP)

There is no single, specific test that identifies Alzheimer’s disease. As many as 75% of 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 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.
Complete physical exam for any medical or neurologic conditions that may be causing the symptoms, such as infections, dehydration, strokes, hearing or vision loss, 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.

Further referrals may be made to a multi-disciplinary team and/or specialists for more in-depth mental status evaluations. These may include geriatricians, neurologists, psychiatrists, psychologists, social workers, therapists, psychiatric nurse practitioners or researchers (National Center on Caregiving, 2011; Alzheimer’s Association, 2011d).

A common next step might be a referral for a neurological exam with in-depth assessment of cognitive and memory function and possibly further testing such as evaluation of cranial nerves, motor system, sensory system, deep tendon reflexes, coordination, and gait (Remedy Health Media, 2007). Brain scans may be performed to check for brain tumors or strokes.

More sophisticated tests can now 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. 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. 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 (HealthDay, 2011; Steenhuysen, 2011; National Health Information Center, 2011).

Rural professional care can be difficult to find. Some Montanans need to travel great distances to consult with specialists, adding to the burden of AD.

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

B. 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.

Counselors may not be routinely recommended, but can be of great assistance with managing dementia. See the Treatment section below for more details.
C. Supporting family caregivers with social, behavioral, and legal resources.

There is a saying “If you’ve seen one person with Alzheimer’s disease, you’ve seen one person with Alzheimer’s disease.” One could say the same for caregivers (Shriver, 2010; Lunde, 2007). 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, and family resources (Richardson & Barusch, 2006). Environmental factors can profoundly affect, either positively or negatively, an individual’s capacity for independent functioning and quality of life. Proper support can make all the difference. A multi-disciplinary support team which regularly checks in about the current needs is usually recommended and 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 (Sanders & Osterhaus, 2011).

- **Counselors:** Psychologists and therapists assess cognitive, emotional, and personality functioning and assist with psychological supports. See Treatment section below for more information (Sanders & Osterhaus, 2011).

- **Pharmacy consultants and psychiatrists:** Often contribute to the evaluation of the effects of illnesses and medications on physical and psychological functioning, cognitive as well as mood.

- Other health professionals such as **Physical Therapists (PTs), Occupational Therapists (OTs), Dentists and Registered Nurses (RNs):** 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.

- **Legal and Financial Planning:** **Elder Law and Estate Attorneys and Accountants** should be consulted as soon as possible to assist with durable healthcare power of attorney, durable power of attorney, living will/advance directives and estate planning. If planning is not completed while the person is deemed competent, state statutes may define the decision-maker, usually the spouse, then 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. Preparation for the staggering costs of care, which can range from roughly $10,000 annually during the early stages, and can grow to $20,000 annually for homecare up to $50,000 or more per year for a long-term care facility should be discussed (Sanders & Osterhaus, 2011).

- **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 individual 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. The Eldercare Locator (see Web Resources), Family Caregiver Alliance, social workers and health care systems can help with local referrals (Sanders & Osterhaus, 2011; National Center on Caregiving, 2011).

- **Health Care Organizations:**
  - **Home Health Care:** Offers assistance and respite for caregivers with home health aides, certified nursing assistants (CNAs) and/or skilled nursing care (LPNs or RNs) who provide for basic and medical care. They may also be able to provide a RN or SW case manager, physical therapist or occupational therapist. Nationally, the average cost for such services is $18-19 per hour, which may be covered by Medicare, long-term care insurance, veterans’ benefits, or Medicaid waiver programs, if ordered by a physician (Sanders & Osterhaus, 2011).
  
  - **Long-Term Care facilities** (Assisted Living Facilities or Nursing Homes): Thirty percent of AD patients are receiving services in long-term care; within long-term care facilities, 50% have some form of AD. 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. Nursing home care of individuals with AD has greatly improved with the regulations and standards for quality care enacted with the Federal Nursing Home Reform Act of 1987 (Sanders & Osterhaus, 2011). It is, of course, a difficult decision for a family to place someone in long-term care.

  - **Hospice:** Provides 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 six months life expectancy, which is usually stage 7 on the FAST assessment. Hospice is a service that is underutilized by AD patients; approximately 10% of hospice patients have a primary diagnosis of dementia at the time of admission. It is sometimes difficult for both the family and PCP to discuss the six month life expectancy estimate (Sanders & Osterhaus, 2011).

- **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 national identification program from the Alzheimer’s Association that assists in the safe and timely return of individuals with AD who wander and become lost. See Web Resources listed below.
D. Encouraging healthy behaviors to reduce the risk of co-occurring conditions.

**Occupational Therapists, Nutritionists, Chronic Disease Self-Management Programs, Counselors, and Life Coaches** may be called upon as needed. The Family Caregiver Alliance and John Hopkins’ University recommend these common sense tips to enhance memory, health and well-being:

- What’s good for the heart is also what’s good for the brain! Take good care of your body.
- Keep hydrated by drinking plenty of water. Eat a low-fat, healthy diet, with plenty of fruits and vegetables.
- Move more! Walking five to six miles per week helps retain cognitive abilities or even slows down the progression of MCI.
- Maintain an updated list of your medications and contact information, both for doctors and family. Keep it with you at all times.
- Reduce clutter at home; enlist a friend to help organize and label important files, documents and medications.
- Decrease your consumption of alcohol; it can have a negative effect on your mental abilities.
- Don't smoke.
- Continue to engage in social activities with friends and family.
- Never stop learning. Read a book, enroll in a class, or attend a concert or play.
- Talk with friends or a trained counselor about your feelings.
- Stay focused and alert. Use memory enhancement strategies such as working puzzles and keeping lists and journals.
- Get plenty of sleep.

(National Center on Caregiving, 2011; RemedyLife, 2011)

VI. Summary of interventions and follow up for cognitive impairment

Unfortunately, there is no cure for AD yet. However, drug treatments may, in some cases, temporarily slow the progression of the disease, and non-drug treatments may help with both cognitive and behavioral symptoms and address the psychosocial needs of the person and caregiver.

As the most common form of dementia, most treatment discussions are focused on AD. 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 and/or minimize the symptoms of vascular dementia. Creutzfeldt-Jakob disease, on the other hand, has no known treatment, so the comfort of the patient becomes the object of treatment (Mayo Clinic, 2011).
A. Pharmaceutical Treatments for AD

Pharmaceutical treatments cannot currently repair brain damage, but they can slow the rate of decline and lessen or stabilize some symptoms, for a limited time. They may also be able to treat the secondary symptoms of depression, anxiety, agitation and sleep disorders. Clinical drug trials are also available which help 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 (USPSTF, 2003).

Currently two types of medications are approved for AD:

1) Cholinesterase Inhibitors: These drugs act to prevent the breakdown of acetylcholine, which supports communication between brain cells. This improves memory loss, confusion, and problems with language, thinking and reasoning, but only for about half of the people who take it. Side effects are usually minimal, but may include muscle cramps, fatigue, bradycardia, and digestive problems such as nausea, vomiting, diarrhea and loss of appetite. Used to treat AD, Parkinson’s, vascular, and Lewy body dementias, four agents are available:
   - Donepezil (Aricept™), which is approved to treat all stages of AD and is the most commonly prescribed medication.
   - Rivastigmine (Exelon™), which is approved to treat mild to moderate AD.
   - Galantamine (Razadyne™), which is approved to treat mild to moderate AD.
   - Tacrine (Cognex™) was the first cholinesterase inhibitor approved, but it is rarely prescribed today because of its more serious side effects.

2) Memantine (Namenda™): This drug regulates glutamate, another chemical messenger involved in brain function. Its benefits may include temporarily improving memory, attention, reason, language and the ability to perform simple tasks, and is used to treat moderate to severe AD. Its side effects include dizziness, headache, constipation, agitation, anxiety and confusion. It is primarily used with AD, but may also be used with other dementias.

The combination of a cholinesterase inhibitor and memantine may have added benefit in some patients (Alzheimer’s Association, 2011e; A.D.A.M. Medical Encyclopedia, 2010; Mayo Clinic, 2011).

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 to help with behavioral difficulties. Side effects and drug interactions need to be monitored.

Supplements: Some doctors prescribe high doses of vitamin E, with careful supervision. Some people take folate (vitamin B9), vitamin B12, ginkgo biloba, caprylic acid, coconut oil, Coenzyme Q10, coral
calcium, 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 (Alzheimer's Association, 2011e; A.D.A.M. Medical Encyclopedia, 2010; Mayo Clinic, 2011).

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 cognitive impairment 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 FAST Assessment, 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 care-giving 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 (Sanders & Osterhaus, 2011).

Counseling

Counseling for the person with AD: Psychotherapy hasn’t traditionally been recommended for persons with dementia, but will 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 don’t. 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 (Rollins, 2008; Mellace, 2011).

Counseling for Caregivers: Although care giving is not without its rewards and personal satisfaction, caregivers are at high risk for depression, anxiety, high stress, 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 care giving, family and work. They may find themselves in the center of family conflict around care giving decisions and struggle with guilt over long-term care. In short, they can use all of the coping strategies and support that they can get (Sanders & Osterhaus, 2011).

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, and social events
- Personal history documentation through storytelling, dictation, or scrapbooks
- Reality Orientation, which is a program that includes frequent reminders of date, time, weather, current events and family relationships. It is a controversial program, with some believing that the constant drilling of facts causes undue stress and frustration for the person with AD, the staff and family members. (Richardson & Barusch, 2006; Duffy, 2002).

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 respite assistance
- Educational sessions about AD
- Skills training with 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 (Sanders & Osterhaus, 2011).

**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 (National Center on Caregiving, 2011). *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 into 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, messages on the answering machine, and setting alarms.
- Create intimacy, slow down, and stay in the present moment. The psychological connection actually makes task accomplishment possible.
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. A person may quickly forget what caused an emotional response, either positive or negative, but the feeling itself may remain for extended periods of time.

Accept the lack of memory and identification. Constant corrections just frustrate everyone.

Use touch often to connect, to reorient, 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. It is more important than people realize.

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. Further research is also needed to understand how lifestyle factors influence the risk of developing AD (USDHHS, 2011).

Cognitive screening is one important step in that process.

VII. Cognitive Screening – Video Review

FOR REVIEW: Watch this 31-minute video from the Hartford Institute for Geriatric Nursing. 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 copy, cut and paste this website into the internet browser:

http://consultgerirn.org/resources/media/?vid_id=4361918#player_container

Click on the Administering and Interpreting the Mini-Cog, the sixth link on the right.

Background Information and the Mini-Cog are available in a two page handout at:

VIII. Cognitive Impairment Web 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, and care consultation.

- National - http://www.alz.org
- Montana Service Area located in Billings, Montana - 1-800-272-3900 (24/7 Help Line) - http://www.alz.org/montana
- AlzOnline: Caregiver Support online - http://alzonline.phhp.ufl.edu

Alzheimer’s Disease Research – http://www.ahaf.org


Children of Aging Parents – http://www.caps4caregivers.org

ConsultGeriRN.org – Try This Resources - http://consultgerirn.org/resources

Eldercare Locator – http://www.eldercare.gov


Mayo Clinic Dementia page - http://www.mayoclinic.com/health/dementia/DS01131


National Institute on Aging – http://www.nia.nih.gov/Alzheimers

Patient Advocate Foundation (PAF) – http://www.patientadvocate.org
IX. Cognitive Impairment Glossary

**Acetylcholine:** A neurotransmitter crucial to memory and learning.

**Diagnostic Procedures:**

- **CAT or CT scan:** Computed tomography (CT) - An imaging technique that uses x-rays to create a two-dimensional image of the brain or other parts of the body.

- **MRIs:** Magnetic Resonance Imaging, which uses magnetic fields to create a 3-D image of the body while a person lies quietly inside a narrow tube. Particularly useful for brain scans because the image shows contrast with soft tissues. Does not use radiation.

- **EEGs:** An electroencephalogram (EEG) is a test that measures and records the electrical activity of a brain. Electrodes that are attached to the head are hooked by wires to a computer for approximately 20-40 minutes for a recording. Often used to diagnose or monitor epilepsy.

**Cerebral cortex:** The convoluted outer layer of gray matter that constitutes the "thinking" portion of the brain.

**Glutamate:** A neurotransmitter that stimulates nerve cells. High glutamate levels in the brain may contribute to neuron toxicity and death in Alzheimer’s dementia.

**Hippocampus:** A small, "S"-shaped structure in the brain that appears to play a major role in the process of forging memories.

**Measurement Research Terms:**

- **Reliability:** The measure of how stable, dependable, trustworthy, and consistent a test is in measuring the same thing each time, including interrater or rate-rater consistency.

- **Sensitivity:** The probability of true positives.

- **Specificity:** The probability of true negatives.

- **Validity:** The degree to which the measure accomplishes the purpose for which it is being used; its accuracy.

**Psychotropic drugs:** Drugs which affect the central nervous system and change emotions, behavior or perception.

**Psychosis:** A loss of contact with reality, usually including false beliefs about what is taking place or who one is (delusions) and seeing or hearing things that aren’t there (hallucinations). May be caused by a variety of substances, or psychiatric and medical conditions, including dementia and depression with psychotic features.

**Syndrome:** A group or set of symptoms, as opposed to a specific disorder or disease.
X. References


Rollins, J. (2008, March). *Untapped potential: Could holistic counseling hold the key to reducing the number of future Alzheimer’s dementia cases?* Retrieved July 2011, from Counseling Today: 
http://ct.counseling.org/2008/03/untapped-potential/


http://www.alz.org/shriverreport/shriver.html


http://www.uspreventiveservicestaskforce.org/3rduspsf/dementia/dementr.htm

VandenBosch, J., Kany, K. & Jousma, J. (Producers) & Kany, K. (Director) (no date). *Hartford Institute Video: How to Try This: Mini-Cog* [Video]. US: Terra Nova Films. (Available from American Journal of Nursing 
http://consultgeriirn.org/resources/media/?vid_id=4361918#player_container
XI. Appendix A: Alzheimer’s Association’s Ten Warning Signs of Alzheimer's Disease (AD)

1) Memory loss that disrupts daily life: forgetting recently learned information, important dates or events, asking for the same information repeatedly, heavily relying on family or memory aides more than in the past.

2) Challenges in planning or solving problems: difficulty developing and following a plan, working with numbers, tracking bills, following recipes or other directions, and concentrating on these activities.

3) Difficulty completing familiar tasks at home, work or leisure: finding it hard to drive to a once-familiar location, remembering how to play a game, or accomplishing common tasks at work.

4) Confusion with time or place: losing track of dates, seasons, when things may happen, or where they are or how they got there.

5) Trouble understanding visual images and spatial relationships: having vision problems and difficulty reading, judging distance, or determining color or contrast; may not recognize their own reflection in a mirror.

6) New problems with words in speaking or writing: joining, following, or holding a conversation, repeating themself, struggling with vocabulary, or calling things by the wrong name.

7) Misplacing things and losing the ability to retrace steps: putting things in unusual places, frequently losing items, or accusing others of stealing.

8) Decreased or poor judgment: falling prey to financial scams, paying less attention to grooming, having difficulty making decisions.

9) Withdrawal from work or social activities.

10) Changes in mood and personality: being confused, suspicious, depressed, fearful or anxious; being easily upset, especially when out of their comfort zone (Alzheimer's Association, 2009).
XII. APPENDIX B: Additional Screening Tools

- Alzheimer’s Disease Assessment Scale (ADAS): This scale consists of 21-items, requiring 30 minutes to complete. It includes cognitive functioning measures, practitioner observations, and caregiver information. It detects early AD, identifies the current stage, and tracks changes over time (Richardson & Barusch, 2006).

- Brief Alzheimer Screen (BAS): A shorter version of the MMSE uses three memory items, date orientation, and spelling “world” backwards. It also adds naming animals in 30 seconds. Effective for identifying MCI (Medical Association Communications, 2003).

- Mental Status Questionnaire (MSQ): The MSQ consists of 10 questions covering orientation, memory, calculation, and general personal information (Tuokko & Hadjistavropoulos, 1998).

- Mattis Dementia Rating Scale (MDRS): A rating scale equivalent of the extended mental status examination which can distinguish mild cognitive impairment (Mendez Ashla, 2000).

- Blessed Dementia Rating Scale (BDR or BDS): A combination of mental status testing and informant interview; scores correlate with the number of neuritic plaques in the neocortex in AD (Mendez Ashla, 2000).

- Multifocus Assessment Scale (MAS): A 45 minute assessment, with three rating and five performance subscales covering mental status, orientation, mood, expressive language skills, social behavior skills, receptive language skills, accessibility, and sensory abilities (Tuokko & Hadjistavropoulos, 1998).

- Kingston Standardized Cognitive Assessment Battery: This test requires 25-45 minutes to administer with 17 sections to evaluate concentration, various aspects of memory and language, spatial and psychomotor skill, calculation, abstract thought, and perseveration (Tuokko & Hadjistavropoulos, 1998).
XIII. Appendix C: Post-test: Screening for Cognitive Impairment

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) 75% of people with dementia worldwide have not been diagnosed.
   c) Over 40% 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) Increasing age.
   b) Family history and genetics.
   c) Changes in the brain, including plaques, tangles, and fewer nerve cells.
   d) Other medical conditions and poor health.
   e) All of the above.
   f) A and c.

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) Confusion with time or place
   e) Withdrawal from work or social activities

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

7) The Mini-Cog screening test is composed of which two activities:
   a) Word recall and clock drawing test
   b) Reverse serial sevens and word recall
   c) Mood assessment and clock drawing test
   d) Reverse serial sevens and clock drawing test
8) If 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 an occupational therapist to diagnose Alzheimer’s disease.
   e) To a lawyer to name a durable power of attorney for medical affairs.

9) 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.
   e) Art or music therapy.

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

*Screening for Cognitive Impairment*

**Participant Information**

1. Name: ______________________________________

2. Mailing address: ______________________________________
   ______________________________________
   ______________________________________
   ______________________________________
   ______________________________________

3. Date exam completed ______________________

**Questions: (Please circle one response per question)**

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<th>B</th>
<th>C</th>
<th>D</th>
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</tbody>
</table>

For credit, please return this completed page to:

Rachael Zins  
**MTGEC/IPHARM**  
Skaggs Building Room 317  
University of Montana  
32 Campus Drive  
Missoula MT, 59812-1522  
Phone# (406) 243-2339 & Fax# (406) 243-4353
XVI. Appendix D: Evaluation for MTGEC Module:
Screening for Cognitive Impairment

Please Circle your profession: Dietitian • Nursing Home Administrator • APRN • RN • LPN • Pharmacist • Physical Therapist • Physician • Social Worker • Other_____________________

<table>
<thead>
<tr>
<th>Please circle or underline the appropriate number.</th>
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<th></th>
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<th>Don't Know</th>
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<tr>
<td>1 The overall visual presentation of the material enhanced my learning.</td>
<td>5</td>
<td>4</td>
<td>3</td>
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<tr>
<td>2 The module content was understandable.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
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<td>3 The content was presented without bias.</td>
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<td>4 The content will be useful for health-care professionals working with the elderly.</td>
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<td>3</td>
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<td>5 The objectives were clear.</td>
<td>5</td>
<td>4</td>
<td>3</td>
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<td>6 This approach met my learning objectives.</td>
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<td>7 To what extent have you achieved each objective?</td>
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<td>4</td>
<td>3</td>
<td>2</td>
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<tr>
<td>8 The module objectives related well to the overall purpose/goal of the web-based curriculum.</td>
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<td>4</td>
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<td>9 The test questions were unambiguous.</td>
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<td>10 The test questions were appropriate to the module content.</td>
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<td>11 This teaching method was appropriate and used effectively.</td>
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<td>12 I would recommend this course to other health care professionals.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>X</td>
</tr>
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13 How did you learn about the modules?
14 Describe how you plan to use the information you obtained from these modules:

☐ Establish a new program
☐ Provide patient information
☐ Change your practice with elderly patients
☐ Other: (Describe)

15 How many hours did you take to complete this module including the pretest, posttest, and evaluation? Please use decimals, for example, 2.25 hours.

__________________ Hours

16 Any other suggestions?

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