Updated 08/17/2021

COGNITIVE DYSFUNCTION IN HIV AND ALZHEIMER'S: A TOOLKIT FOR PROFESSIONALS

Michigan ADRC
Alzheimer's Disease Research Center

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MDHHS
Michigan Department of Health & Human Services

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RESOURCES

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PROTECTING YOUR BRAIN WHILE LIVING WITH HIV

Thanks to improvements in HIV treatment, people living with HIV are living longer than ever before. As a result, it's important for people living with HIV to take care of their brain for a long, healthy life while aging. Below are some tips to age well while living with HIV:

Monitor your heart health

Follow a healthy diet

Maintain regular physical activity

Keep your mind active

Manage your other health conditions, including your HIV

Stay socially engaged

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For more information, contact Kate Pierce at kpierce@alz.org

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10 WARNING SIGNS OF ALZHEIMER'S

HOW TO IDENTIFY AND ADDRESS CONCERNS

Currently, an estimated 50 million people worldwide are living with dementia, including more than 5 million Americans. In collaboration with experts in the field, the Alzheimer's Association® created a list of warning signs to help people identify symptoms that may be related to Alzheimer's or another dementia.

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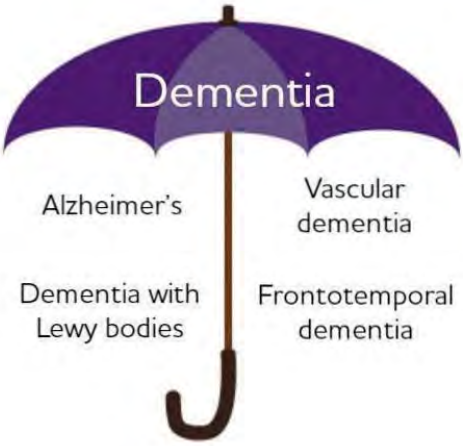
1. UNDERSTANDING ALZHEIMER'S AND DEMENTIA

It's common to experience some issues with memory, thinking and behavior as we age. However, changes that interfere with daily life could be a sign of something more serious, such as dementia.

Dementia is the umbrella term for a person's decline in memory and other cognitive abilities that is severe enough to interfere with daily life. It is not a normal part of aging. The most common cause of dementia is Alzheimer's (AHLZ-high-merz), a progressive brain disease that results in the loss of brain cells and function.



2. 10 WARNING SIGNS OF ALZHEIMER'S

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 OR PERSONALITY

1 MEMORY LOSS THAT DISRUPTS DAILY LIFE

One of the most common signs of Alzheimer's disease, especially in the early stage, is forgetting recently learned information. Others include forgetting important dates or events, asking the same questions repeatedly, and increasingly needing to rely on memory aids (e.g., reminder notes or electronic devices) or family members for things the person used to handle on their own.

What's a typical age-related change?
Sometimes forgetting names or appointments, but remembering them later.

2 CHALLENGES IN PLANNING OR SOLVING PROBLEMS

Some people living with dementia may experience changes in their ability to develop and follow a plan or work with numbers. They may have trouble following a familiar recipe or keeping track of monthly bills. They may have difficulty concentrating and take much longer to do things than they did before.

What's a typical age-related change?
Making occasional errors when managing finances or household bills.

NOTE: It's possible for individuals to experience one or more of these signs in varying degrees. It is not necessary to experience every sign in order to raise concern.

3 DIFFICULTY COMPLETING FAMILIAR TASKS

People living with Alzheimer's disease often find it hard to complete routine tasks. Sometimes they may have trouble driving to a familiar location, organizing a grocery list or remembering the rules of a favorite game.

What's a typical age-related change?
Occasionally needing help to use microwave settings or to record a TV show.

4 CONFUSION WITH TIME OR PLACE

People living with Alzheimer's can lose track of dates, seasons and the passage of time. They may have trouble understanding something if it is not happening immediately. Sometimes they may forget where they are or how they got there.

What's a typical age-related change?
Getting confused about the day of the week, but figuring it out later.

5 TROUBLE UNDERSTANDING VISUAL IMAGES AND SPATIAL RELATIONSHIPS

For some people, vision problems are a sign of Alzheimer's. This may lead to difficulty with balance or trouble reading. They may also have problems judging distance and determining color or contrast, causing issues with driving.

What's a typical age-related change?
Vision changes related to cataracts.

6 NEW PROBLEMS WITH WORDS IN SPEAKING OR WRITING

People living with Alzheimer's may have trouble following or joining a conversation. They may stop in the middle of a conversation and have no idea how to continue, or repeat themselves. They may struggle with vocabulary, have trouble naming a familiar object or use the wrong name.

What's a typical age-related change?
Sometimes having trouble finding the right word.

7 MISPLACING THINGS AND LOSING THE ABILITY TO RETRACE STEPS

A person living with Alzheimer's may put things in unusual places. They may lose things and be unable to go back over their steps to find them again. He or she may accuse others of stealing, especially as the disease progresses.

What's a typical age-related change?
Misplacing things from time to time and retracing steps to find them.

8 DECREASED OR POOR JUDGMENT

Individuals may experience changes in judgment or decision-making. For example, they may use poor judgment when dealing with money or pay less attention to grooming or keeping themselves clean.

What's a typical age-related change?
Making a bad decision or mistake once in a while, like neglecting to change the oil in the car.

9 WITHDRAWAL FROM WORK OR SOCIAL ACTIVITIES

A person living with Alzheimer's disease may experience changes in the ability to hold or follow a conversation. As a result, he or she may withdraw from hobbies, social activities or other engagements. They may have trouble keeping up with a favorite team or activity.

What's a typical age-related change?
Sometimes feeling uninterested in family or social obligations.

10 CHANGES IN MOOD AND PERSONALITY

Individuals living with Alzheimer's may experience mood and personality changes. They can become confused, suspicious, depressed, fearful or anxious. They may be easily upset at home, with friends or when out of their comfort zone.

What's a typical age-related change?
Developing very specific ways of doing things and becoming irritable when a routine is disrupted.

WHAT'S THE DIFFERENCE?

Warning signs of Alzheimer's/dementia	Typical age-related changes
Poor judgment and decision-making	Making a bad decision once in a while
Inability to manage a budget	Missing a monthly payment
Losing track of the date or the season	Forgetting which day it is and remembering later
Difficulty having a conversation	Sometimes forgetting which word to use
Misplacing things and being unable to retrace steps to find them	Losing things from time to time

3. WHAT TO DO IF YOU NOTICE A SIGN

If you notice one or more signs in yourself or another person, it can be difficult to know what to do. It's natural to feel uncertain or nervous about discussing these changes with others. Voicing worries about your own health might make them seem more "real." Or, you may fear upsetting someone by sharing observations about changes in his or her abilities or behavior.

However, these are significant health concerns that should be evaluated by a doctor, and it's important to take action to figure out what's going on.

Have a conversation

If you've noticed any of the signs in yourself, confide in someone you trust. Similarly, if you've noticed memory changes in someone else, think about who would be best to approach the person, whether it's you or another trusted family member or friend. Have the conversation as soon as possible in a location that will be comfortable for everyone involved.

Visit **alz.org/memoryconcerns** for tips on approaching memory concerns.

See a doctor

Multiple conditions can cause cognitive changes, so it's essential to obtain a full medical evaluation to determine whether symptoms are related to Alzheimer's or something else. If the cause is not Alzheimer's or another dementia, it could be a treatable condition. If it is dementia, there are many benefits to receiving an early and accurate diagnosis, including an opportunity to plan for the future, access support services and explore medication that may address some symptoms for a time.

To learn more about the diagnostic process, visit **alz.org/evaluatememory**.

alz.org/10signs

Learn more about the 10 Warning Signs of Alzheimer's.

alz.org/CRF

We're in communities nationwide.

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24/7 Helpline – Available all day, every day.

alzheimer's association®

The Alzheimer's Association is the leading voluntary health organization in Alzheimer's care, support and research. Our mission is to eliminate Alzheimer's disease through the advancement of research; to provide and enhance care and support for all affected; and to reduce the risk of dementia through the promotion of brain health.

Our vision is a world without Alzheimer's disease®.

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UNDERSTANDING ALZHEIMER'S AND DEMENTIA

Geri T., living with Alzheimer's, and her husband and care partner, Jim

THE IMPACT OF ALZHEIMER'S AND DEMENTIA

Currently, an estimated 50 million people worldwide are living with dementia, including more than 5 million Americans. Without changes in prevention or treatment, this number could reach nearly 14 million by 2050.

The disease also affects the 16 million Americans who provide unpaid care for people living with Alzheimer's or another dementia. More than 80% of care provided at home is delivered by family members, friends or other unpaid caregivers.

The Alzheimer's Association® is available across the country and online to help people understand Alzheimer's and dementia, and receive information and support they can trust.

CONTENTS

1. ALZHEIMER'S AND DEMENTIA

The terms "dementia" and "Alzheimer's" are often used as though they mean the same thing. They are related, but there are important differences between the two.

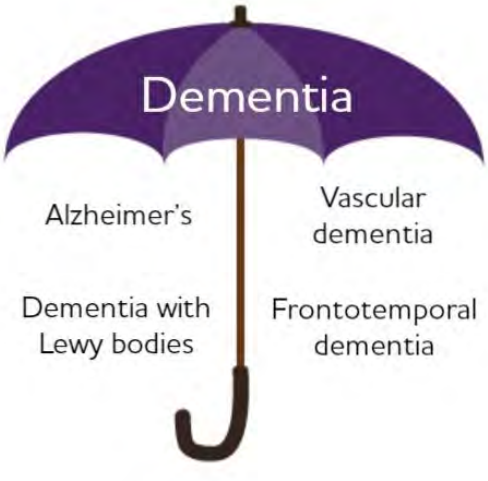
Dementia

Dementia is a broad ("umbrella") term for an individual's changes in memory, thinking or reasoning. There are many possible causes of dementia, including Alzheimer's.

Alzheimer's

Alzheimer's disease is the most common cause of dementia. It makes up 60% to 80% of all dementia cases. Alzheimer's is not a normal part of aging — it's a progressive brain disease, meaning it gets worse over time.

Two abnormal brain structures called plaques and tangles are the main features of Alzheimer's disease. Scientists believe they damage and kill nerve cells. Plaques are pieces of a protein fragment called beta-amyloid that build up in the spaces between nerve cells. Tangles are twisted fibers of another protein called tau that build up inside cells.



Other common dementias

- **Vascular dementia** is a decline in thinking skills that happens when blood flow to the brain is blocked or reduced so that brain cells can't get important oxygen and nutrients. Sometimes these changes occur suddenly, such as during a stroke that blocks major brain blood vessels. Vascular dementia is the second most common cause of dementia after Alzheimer's disease.
- **Dementia with Lewy bodies** is a type of progressive dementia related to buildup of a protein called alpha-synuclein that damages brain cells. Early symptoms include hallucinations and sleep problems.
- **Frontotemporal dementia (FTD)** is a group of disorders. Progressive cell degeneration (or breakdown) causes FTD in two places. One is in the brain's frontal lobes (the areas behind the forehead). The other is in the brain's temporal lobes (the regions behind the ears).

Visit **alz.org/dementia** to learn about other types of dementia.

John W., living with dementia with Lewy bodies, and his wife and care partner, Gail

2. ALZHEIMER'S IN THE BRAIN

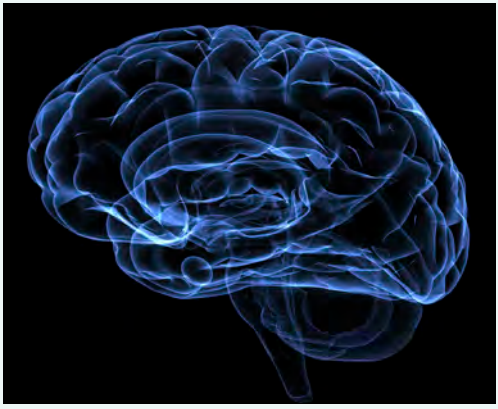
More than 100 years ago, Dr. Alois Alzheimer described specific changes in the brain. Scientists now call them beta-amyloid plaques and tau tangles. Today we know that Alzheimer's is a progressive brain disease. It is marked by these key changes and impacts memory, thinking and behavior.

What goes wrong in the brain

The brain has three main parts: the cerebrum, cerebellum and brain stem. Each has a job to do to make the body work properly.

The cerebrum fills up most of the skull. It's the part of the brain most involved in remembering, problem-solving and thinking. There are about 100 billion nerve cells called neurons throughout the brain that send messages in order to make memories, feelings and thoughts.

TAKE A CLOSER LOOK



Visit **alz.org/brain** to explore *Inside the Brain: A Tour of How the Mind Works*.

Alzheimer's disease causes nerve cells to die. This causes the brain to lose tissue (also called shrinkage) and the loss of function and communication between cells. These changes can cause the symptoms of Alzheimer's disease. These include memory loss; problems with thinking and planning; behavioral issues; and, in the last stage, a further decline in functioning, which can even include trouble swallowing.

3. RISK FACTORS

Scientists know that nerve cell failure is a part of Alzheimer's disease, but they don't yet know why this happens. However, they have identified certain risk factors that increase the likelihood of developing Alzheimer's.

Age

The greatest known risk factor for Alzheimer's is age. After age 65, a person's risk of developing the disease doubles every five years. Thirty-two percent of people age 85 or older have Alzheimer's.

Family history

Researchers have learned that people who have a parent, brother or sister with Alzheimer's are more likely to develop it than those who do not. The risk increases if more than one family member has the disease.

Genetics

Two types of genes influence whether a person develops a disease: risk genes and deterministic genes. Risk genes increase the chance of developing a disease but do not guarantee it will happen. Deterministic genes cause a disease. This means anyone who inherits a deterministic gene will develop a disorder.

Rare deterministic genes cause Alzheimer's in a few hundred extended families worldwide. Scientists estimate these genes cause less than 1% of cases. Individuals with these genes usually develop symptoms in their 40s or 50s.

Hispanics, African Americans and women

Research shows that older Hispanics are about one-and-a-half times as likely as older whites to have Alzheimer's and other dementias, while older African Americans are about twice as likely. No one knows the exact reason for these differences, but researchers believe they are connected to higher rates of vascular disease in these groups.

Also, women live longer than men, making them more likely to develop Alzheimer's. However, living longer doesn't completely explain this difference. Researchers are exploring how genetic differences may impact disease risk.

Lowering the risk of cognitive decline

Age, family history and genetics are all risk factors we can't change. However, research is starting to show clues about other risk factors that we may be able to influence. Studies show a strong connection between serious head injury and future risk of Alzheimer's. For this reason, it's important to protect your head by buckling your seat belt, wearing a helmet when playing sports and making sure your home is safe to avoid falls.

Research also shows there are healthy lifestyle habits that people can adopt to help keep their brain healthy and lower their risk of cognitive decline. These include eating a healthy diet, staying socially active, and exercising the body and the mind. Not using tobacco and avoiding excess alcohol is also good for brain health.

Science tells us there is a strong connection between brain health and heart health. The risk

of developing Alzheimer's or vascular dementia appears to be increased by many conditions that damage the heart and blood vessels. These include heart disease, diabetes, stroke, high blood pressure and high cholesterol.

The Alzheimer's Association used this research to develop 10 Ways to Love Your Brain, a collection of tips that can help lower the risk of cognitive decline. Learn more at **alz.org/10ways**.

4. STAGES OF ALZHEIMER'S DISEASE

Alzheimer's usually progresses slowly in three general stages: early, middle and late. In a medical setting, these stages are sometimes called "mild," "moderate" and "severe."

The symptoms of Alzheimer's worsen over time, but because the disease affects people in different ways, the rate of progression varies. On average, a person with Alzheimer's may live four to eight years after diagnosis, but some people live as long as 20 years.

The following descriptions provide a general idea of changes at each stage. Stages of Alzheimer's may overlap, which can make it difficult to know which stage a person is in.

Early-stage Alzheimer's

In the early stage, a person may function independently, but people who know the individual well may begin to notice difficulties. These can include:

- Problems coming up with the right word or name for something.
- Trouble remembering names when introduced to new people.
- Difficulty with familiar tasks.
- Forgetting something that was just read.
- Getting lost in familiar places.
- Increasing trouble with planning or organizing.

Middle-stage Alzheimer's

Middle-stage Alzheimer's is usually the longest stage and can last for many years. As the disease progresses, the person living with Alzheimer's will need more help. In the middle stage, symptoms will be noticeable to others and may include:

- Forgetting events or one's own personal history.
- Feeling frustrated, angry or withdrawn, especially in socially or mentally challenging situations.
- Confusion about where they are or the day of the week.
- Needing help to choose the right clothes for the weather or occasion.
- Trouble controlling bladder and bowels.
- Changes in sleep patterns. This may include sleeping during the day and restlessness at night.
- A higher risk of wandering and becoming lost.

» Personality and behavioral changes. The person may become suspicious or delusional, believing that others are lying. Or, the person might repeat a behavior over and over.

Late-stage Alzheimer's

Major personality changes can happen in the final stage of Alzheimer's. The person will need a lot of help with daily activities and personal care. In the late stage, individuals may:

» Lose awareness of recent experiences as well as of their surroundings.

» Go through changes in physical abilities. This may affect their ability to walk, sit and, eventually, swallow.

» Have more trouble communicating.

» Be at higher risk of infections, especially pneumonia.

5. FDA-APPROVED TREATMENTS FOR SYMPTOMS

Currently, there is no cure for Alzheimer's, but non-drug treatments and medications may help with memory, thinking and behavioral symptoms for a while. It's important to talk about treatments with your doctor, starting with non-drug options.

Non-drug treatments

Non-drug treatments for behavioral symptoms can offer physical and emotional comfort. Many of these strategies aim to identify and take care of the needs of the person living with Alzheimer's.

Tips for coping with symptoms include:

- Check for personal comfort. Look for pain, hunger, thirst, constipation, full bladder, fatigue, infections and skin irritation. Keep the room temperature comfortable.
- Don't argue about facts. For example, if a person would like to visit a parent who died years ago, don't point out that the parent is no longer alive. Instead, say, "Your mother is a wonderful person. I would like to see her, too."
- Redirect the person's attention by getting them to think about something new. Try to be flexible, patient and supportive. Respond to the emotion, not the behavior.
- Create a calm environment. Avoid noise, bright lights and television, which causes distraction.
- Have rest times between lively events.
- Give the person an object to hold that makes them feel safe.

» Show the person that you hear them and answer his or her questions.

» Look for reasons behind each behavior. Talk to a doctor about behaviors that could be connected to medications or illness.

» Try to find more than one solution.

Medications

Three types of drugs are currently approved by the Food and Drug Administration (FDA) to treat cognitive symptoms of Alzheimer's disease.

The first type is cholinesterase (KOH-luh-NES-ter-ays) inhibitors. These drugs prevent the breakdown of acetylcholine (a-SEA-til-KOH-lean). Acetylcholine is a chemical messenger important for memory and learning. These drugs support communication between nerve cells. The cholinesterase inhibitors most commonly prescribed are:

» Donepezil (Aricept®)

» Rivastigmine (Exelon®)

» Galantamine (Razadyne®)

The second type of drug works by regulating the activity of glutamate. Glutamate is a different chemical messenger that helps the brain process information. This drug is known as:

» Memantine (Namenda®)

The third type of drug is a combination of a cholinesterase inhibitor and a glutamate regulator:

» Donepezil and memantine (Namzaric®)

These treatments produce different results in different people. They might help symptoms for a while, but they do not slow or stop the brain changes that cause Alzheimer's to become more severe over time.

6. ADVANCING ALZHEIMER'S RESEARCH

Research in the last 10 years shows that Alzheimer's starts many years before people living with the disease notice symptoms. With this knowledge, researchers are working to find people who are at risk before they have symptoms and try to prevent the disease. This effort may lead to a medication to stop or slow the disease.

To help advance important research to understand Alzheimer's and find treatments, the Alzheimer's Association funds researchers looking at new treatment strategies and advocates for more federal research funding.

Clinical studies drive progress

Taking part in a clinical study is one way that everyone can help fight Alzheimer's disease. Without volunteers for research, scientists cannot find ways to prevent, treat and, ultimately, cure the disease.

Clinical trials test new drugs to be sure they are safe and effective. *Clinical studies* test non-drug treatments to learn how they affect things such as quality of life. Every clinical trial or study gives us important knowledge, whether or not the study was successful.

For people currently living with dementia, there are other benefits to taking part in clinical trials, including access to expert medical care and promising treatments.

Visit **alz.org/TrialMatch** to learn more about **Alzheimer's Association TrialMatch®**, a free, easy-to-use clinical studies matching service for people living with dementia, caregivers and healthy volunteers who don't have dementia. TrialMatch has a database with hundreds of studies taking place across the country and online. It's your chance to learn about opportunities to participate in Alzheimer's research.

alz.org

Access reliable information and resources, such as:

- Alzheimer's Navigator® – Assess your needs and create customized action plans.
- Community Resource Finder – Find resources, including your local Association chapter.
- ALZConnected® – Connect with other caregivers or people with dementia.
- Online Caregiver Resources – Get information for all stages of the disease.

alz.org/education

Free online workshops, including:

- *Understanding Alzheimer's and Dementia*

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24/7 Helpline – Available all day, every day.

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Our vision is a world without Alzheimer's disease®.

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 Rev.Jul19 770-10-0003

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PRINCIPLES FOR A DIGNIFIED DIAGNOSIS

The first statement of its kind written by people living with dementia on the subject of the Alzheimer's disease diagnosis experience.

Talk to me, the person living with dementia, directly.

I am the person living with the disease, and though those close to me will also be affected, I am the person who needs to know first.

Tell the truth.

Even if you don't have all of the answers, be honest about what you do know and why you believe it to be so.

Test early.

Helping me get an accurate diagnosis as soon as possible gives me more time to cope, live to my fullest potential and access information and resources.

Take my memory concerns seriously, regardless of my age.

Age may be the biggest risk factor for Alzheimer's, but Alzheimer's is not a normal part of aging. Don't discount my concerns because of my age. At the same time, don't forget that the disease can also affect people in their 40s, 50s and 60s.

Deliver the diagnosis in plain but sensitive language.

My diagnosis may be one of the most important things I ever hear. Please use language that I can understand and be sensitive to how this may make me feel.

Coordinate with other care providers.

I may be seeing more than one doctor. It's important that you talk to my other care providers to ensure everyone has the information so that changes can be identified early and I won't have to unnecessarily repeat tests.

Explain the purpose of different tests and what you hope to learn.

Testing can be very physically and emotionally challenging. It would help me to know the purpose of the test, how long it will take and what you expect to learn from the process. I would also appreciate the option of breaks during longer tests and an opportunity to ask questions.

Give me tools for living with this disease.

Please don't give me my diagnosis and then leave me alone to confront it. I need to know what will happen to me, what medical treatments are available, and what support and resources are offered through the Alzheimer's Association® and my community.

Work with me on a plan for living a quality life.

Medication may help modify some of my neurological symptoms, but I am also interested in recommendations for keeping myself as healthy as possible through diet, exercise and social engagement.

Recognize that I am an individual and the way I experience this disease is unique.

This disease affects each person in different ways and at a different pace. Please be sure to couch your explanation of how this disease may change my life with this in mind.

Alzheimer's is a journey, not a destination.

Treatment doesn't end with the writing of a prescription. Please continue to be an advocate — not just for my medical care but for my quality of life as I continue to live with Alzheimer's disease.

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 Rev.Apr18 773-10-0003

BUILDING BETTER OUTCOMES:

Partnering to support health systems and clinicians in Alzheimer's Diagnosis and Care

More than 5 million Americans are living with Alzheimer's, the most expensive disease in the United States. As a leader in dementia care and a trusted resource, the Alzheimer's Association is uniquely positioned to support clinicians across your network as they diagnose and care for patients living with dementia.

Together, we can improve how Alzheimer's is addressed in clinical practice.

From screening and early detection to diagnosis and care management, the Alzheimer's Association will partner with you to develop a customized strategy for patient management based on your resources and clinic flow. The Alzheimer's Association can help clinicians gain the knowledge they need to:

Build clinical capabilities

- Deliver a difficult diagnosis in a clear and compassionate way.
- Provide follow-up care through an interdisciplinary approach that optimizes the roles of the patient's health care team.

Our resources include:

Project ECHO

The Alzheimer's and Dementia Care ECHO® (Extension for Community Healthcare Outcomes) Program a free telementoring program that provides an opportunity to build your expertise and become a leader in dementia care. Project ECHO offers:

- Practical, case-based presentations from participants.
- Interactive video conferencing technology.
- Access to experts and specialists across disciplines.

Challenging Conversations Online CME

This free continuing medical education (CME) activity offered by the Alzheimer's Association will help primary care clinicians, nurse practitioners and physician assistants to confidently approach:

- Assessment and diagnosis of cognitive impairment and dementia.
- Care-planning and ongoing health care management.

Quality Improvement Coaching

Trained Association staff can provide coaching sessions to help Quality Improvement Teams address dementia at key points in the disease process.

Provide a timely and accurate diagnosis

- Assess cognition.
- Detect cognitive impairment.
- Provide a timely diagnosis of Alzheimer's or dementia.

Our resources include:

Cognitive Assessment Toolkit

The Alzheimer's Association Cognitive Assessment Toolkit offers a practical, step-by-step process to efficiently assess cognition during office visits, including:

- Three patient assessment instruments and three informant instruments.
- Guidance on how to meet the cognitive assessment requirement of the Medicare Annual Wellness Visit.

Take next steps in care management

- Provide patients with educated answers and well-planned next steps.
- Help individuals and their families access care services and plan for the future.
- Manage the cost of care and improve patient adherence.

Our resources include:

Care Planning Toolkit

Person-centered care planning results in a higher quality of life for patients. The Alzheimer's Association offers a comprehensive toolkit of information and resources for this clinical visit, which can be reimbursed through CPT code 99483. The kit includes:

- Easy access to validated measures, such as the Mini-Cog™ and Dementia Severity Rating Scale.
- Newly designed tools and checklists to assess safety, caregiver needs, end-of-life preferences and more.

24/7 Helpline

Free nationwide 24/7 Helpline, staffed by specialists and mater's-level clinicians, providing confidential support and information any time a patient, caregiver, or clinician needs it. The national Helpline provides free Information and referral and care consultation services to anyone who calls.

- General information about medications and treatment options, and legal, financial, and care decisions.
- Receive assistance in their preferred language through our bilingual staff or translation services.

UCLA Alzheimer's and Dementia Care (ADC) Program

The Alzheimer's Association can connect you with the UCLA Alzheimer's and Dementia Care program, which promotes an evidence-based model of care that maximizes patient function, independence and dignity; minimizes caregiver strain and burnout; and reduces unnecessary costs. The program includes:

- Structured needs assessments of patients and their caregivers.
- Individualized dementia care plans.
- Monitoring and assistance 24/7, 365 days a year.

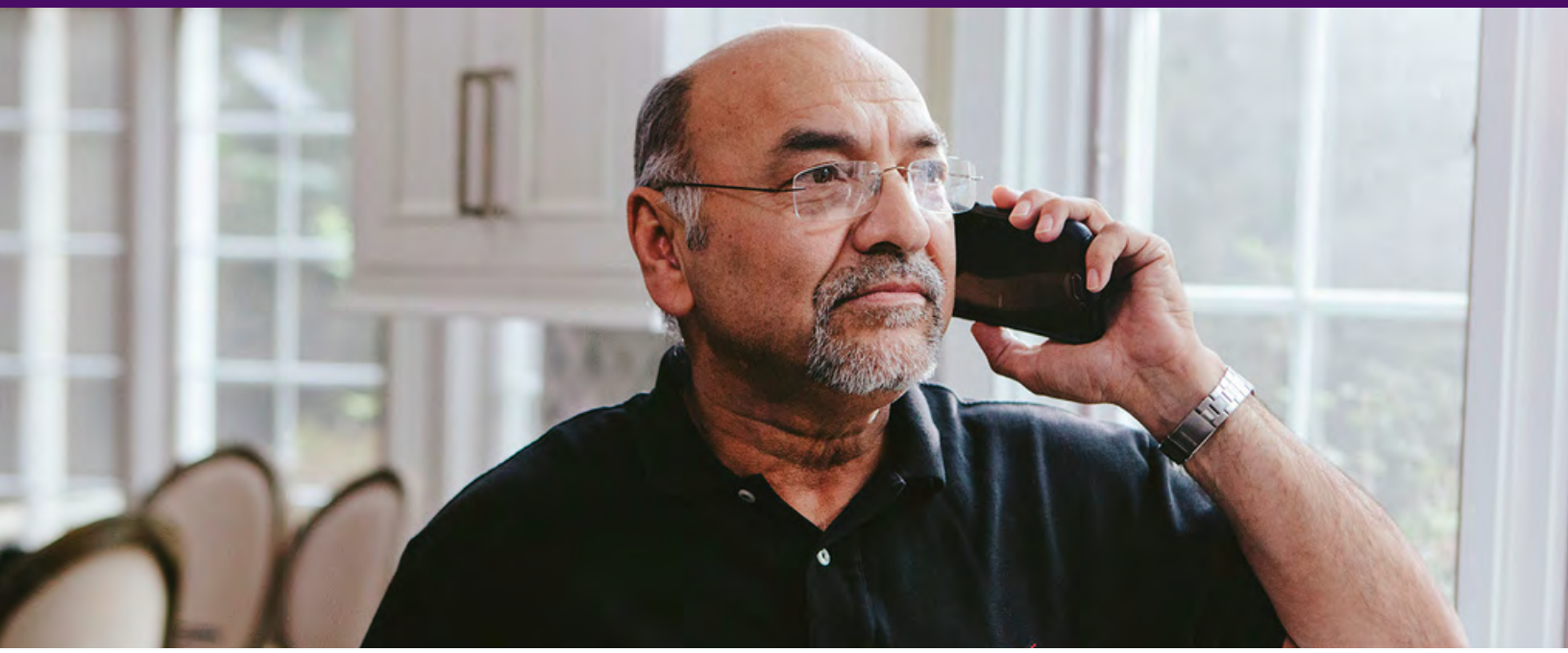
Let's talk.

By working within the unique characteristics of your health system, the Alzheimer's Association can develop solutions tailored to your needs. **Contact Amy Boehm, Health Systems Director, at 937.610.0933 or amboehm@alz.org to get started.**

alzheimer's association

PROGRAMS AND SERVICES

ALZHEIMER'S ASSOCIATION MICHIGAN CHAPTER



The Alzheimer's Association Michigan Chapter offers virtual programs and events to keep individuals living with Alzheimer's or other dementia, caregivers and family members, professionals and the general public connected and engaged.

The following dial-in and virtual programs and services are free and available from the safety of your home.

- 24/7 Helpline
- Support Groups
- Education Programs
- Care Consultations
- Social Engagement Programs
- COVID-19 Tips for Caregivers
- Professional Training Programs

Join us!

To view a complete list of offerings, visit alz.org/gmc/virtual today! For more information, email helplinegmc@alz.org or call our 24/7 Helpline at 800.272.3900.

Connect with us @alzmichigan:

MICHIGAN MEDICINE
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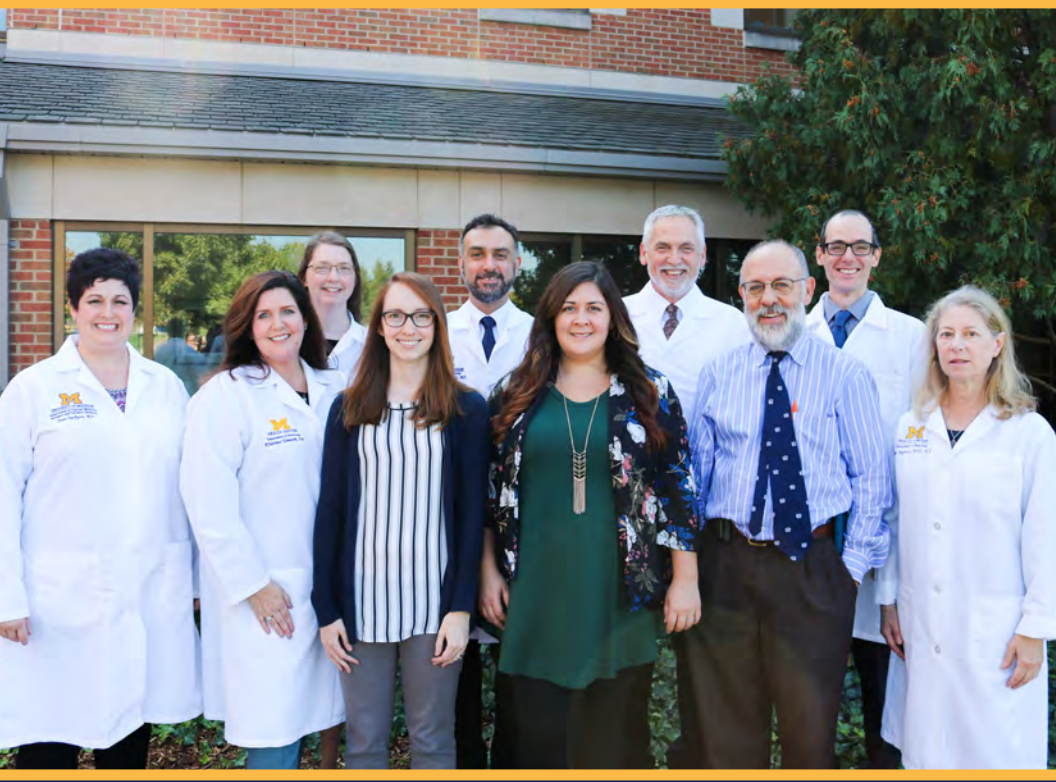
COGNITIVE DISORDERS PROGRAM



Excellence in medical education,
patient care and research.

WELCOME to the Cognitive Disorders Program at the University of Michigan Geriatrics Center. Our goal is to properly determine your diagnosis and create a treatment plan that allows for the best quality of life possible. We strive to help you understand and manage your changes in memory and thinking.

WHO WE ARE

The Cognitive Disorders Program brings together experts in neurology, nursing and social work to provide high quality care to our patients.

Multidisciplinary Team:

- Judith Heidebrink, MD — Director
- Roger Albin, MD
- Nancy Barbas, MD, MSW
- Sami Barmada, MD, PhD
- Benjamin Bly, MD
- Navid Seraji-Bozorgzad, MD
- Toni Jackson, RN
- Selina Mathis, MSW
- Marie Milliken, LLMSW
- Henry Paulson, MD, PhD
- Kristina Tomasik, NP

Our team of experts consistently rank in "Metro Detroit's Best Doctors" in the field of neurology.

PROGRAM GOALS

- To provide the best clinical care to all our patients.
- To serve as a resource to patients, families and the community by providing support, education and awareness of cognitive disorders.
- To educate the next generation of health professionals in caring for patients with cognitive disorders.
- To conduct quality research and translate these findings into clinical practice.

WHAT ARE COGNITIVE DISORDERS?

Cognitive disorders are neurological conditions that affect thinking, memory, behavior, mood and personality.

WHOM WE CARE FOR

We care for individuals, generally ages 50 and older, with a variety of conditions including:

- Alzheimer's dementia
- Mild cognitive impairment
- Frontotemporal dementia
- Lewy body dementia
- Vascular dementia
- Younger onset (Familial) dementia
- Other related diseases

WHAT TO EXPECT

Our team approach allows us to fully address the needs of each patient. As a new patient, you will be scheduled for one to three comprehensive appointments depending on your needs. Appointments you might be scheduled for include:

- **Appointment 1:** During an approximately one hour visit, a neurologist will review your symptoms and medical history, and perform an exam to assess thinking, strength, coordination and more. Diagnostic tests may be ordered. **This appointment will take place at the East Ann Arbor Health and Geriatrics Center, 4260 Plymouth Road, Ann Arbor, MI 48109.**

- **Appointment 2:** You will meet with a member of the Neuropsychology team to participate in paper, pencil and computer exercises that assess your memory and thinking skills. This evaluation measures patterns of strengths and weaknesses that will assist your doctor with diagnosis and treatment decisions. **This appointment generally lasts two to four hours and will take place at the Neuropsychology Building, 2101 Commonwealth Boulevard, Suite C, Ann Arbor, MI 48109.**

- **Appointment 3:** Our neurologist will review your test results and provide a diagnosis and treatment plan. Treatment recommendations may include medications. You may receive a referral to a sub-specialty clinic, such as physical therapy, occupational therapy, speech therapy and/or geriatric psychiatry. You may have the opportunity to meet with a social worker at this time, or you may be referred for a follow-up social work consultation at a later date. Additional members of our team who provide information and assistance include a neuropsychologist and a nurse practitioner. **This appointment will take place at the East Ann Arbor Health and Geriatrics Center, 4260 Plymouth Road, Ann Arbor, MI 48109.**

TO SCHEDULE AN APPOINTMENT WITH THE COGNITIVE DISORDERS CLINIC

Ask your family physician for a referral.

For more information, call **734-764-6831**.

"Our goal is to partner with patients and families to provide the best possible understanding and management of memory and thinking difficulties. We offer comprehensive, yet personalized care, with access to state-of-the-art diagnostic tools and treatments."

Judy Heidebrink, MD
Director,
Cognitive Disorders Program

MOVING FORWARD

Many people experience changes with memory as they get older. Some changes are normal. Other changes may be a sign of a memory loss condition. We have the resources to support you through the different stages of your disease. Once a diagnosis is established, our dedicated team aims to help you gain a greater understanding of your illness. Our clinic takes pride in our multidisciplinary approach. We can assist you now and in the future by providing emotional support and information and referrals in matters such as legal care, financial planning, residential living options, home health care services, transportation planning and driving assessment. As your care team, we promote the best quality of life possible.

RESEARCH STUDIES & CLINICAL TRIALS

We work closely with the Michigan Alzheimer's Disease Center to offer opportunities to participate in clinical research. This research includes observational studies, memory training studies, imaging and biomarker studies, and trials that study the effectiveness of new drugs. Other studies include caregiving, genetics, and driving. The Center is one of 30 National Institutes of Health funded research centers across the country, and is located just down the road. A member of the medical team will provide you with information about current research opportunities with the Center. Though not all individuals are eligible to participate in these programs, your interests and questions about participation will be addressed, and you may add yourself to our registry for future research opportunities.

EDUCATIONAL & WELLNESS ACTIVITIES

We are an educational resource for patients, families, healthcare professionals and the general community. We also provide support and wellness programs for patients and their families.

TO INQUIRE ABOUT RESEARCH, EDUCATION OR WELLNESS ACTIVITIES

Please contact the Michigan Alzheimer's Disease Center at **734-936-8803**.

To schedule an appointment, call us at

734-764-6831

Rinne Lewy Body Dementia Initiative

The Rinne Lewy Body Dementia Initiative is an extension of our educational and wellness activities. This initiative supports care partners and people with an early Lewy body dementia (LBD) diagnosis, educates health care professionals, and builds public awareness of LBD in Michigan.

We offer several LBD support groups across the state, as well as ongoing educational opportunities.

For upcoming LBD support groups and educational events visit our website at alzheimers.med.umich.edu/lbd or call 734-764-5137.

Interested in making a gift?

Our Center is able to continue pushing the boundaries on dementia research, and offer many of our programs to the community, because of generous donations.

If you are interested in making a gift to our Center, please visit alzheimers.med.umich.edu/supportus for more information.

Any gift is greatly appreciated.

Contact us

2101 Commonwealth Blvd, Suite D
Ann Arbor, MI 48105

734-936-8803

alzheimers.med.umich.edu

@umichalzheimers

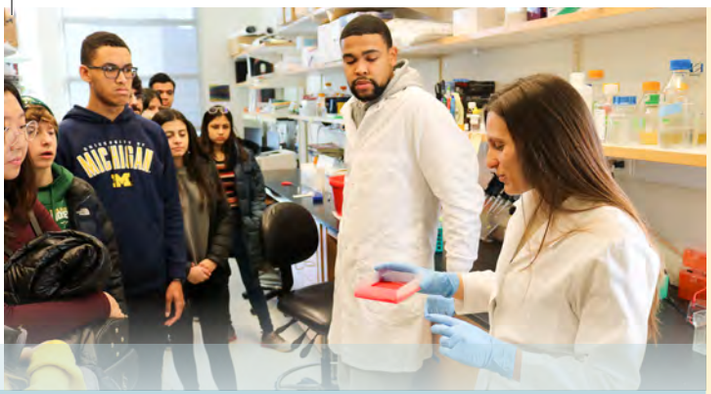
To subscribe to our monthly e-newsletters, visit alzheimers.med.umich.edu/education-outreach and click Subscribe.

Committed to memory and aging research, clinical care, education, and wellness.

Image from a previous patient's brain donation.

MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

MICHIGAN ALZHEIMER'S DISEASE CENTER



Research

We conduct memory and aging research on the following topics: dementia disease mechanisms, medications and treatments, neuroimaging and biomarkers, lifestyle interventions, and caregiving. We also have a particular interest in recruiting underrepresented minorities, including African Americans, into dementia research. If you are interested in participating in research, please visit our website for a list of studies at alzheimers.med.umich.edu/research or call 734-936-8332.

Michigan Brain Bank

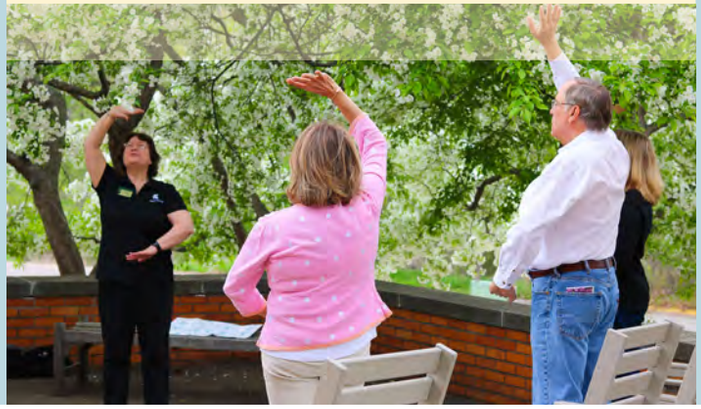
The Michigan Brain Bank collects, stores, and distributes donated brain tissue to help scientists around the world advance the understanding of brain disorders and to find treatments and cures. Brain donation is an incredible gift that advances dementia research and knowledge. If you are interested in learning more about the brain donation program, please visit brainbank.umich.edu or call 734-647-7648.

Clinical Care

We partner with the Cognitive Disorders Program at the University of Michigan Turner Geriatrics Clinic to provide high quality clinical care for adults seeking medical evaluation for their cognitive changes and concerns. The clinic provides a multidisciplinary team of experts in neurology, nursing, and social work to offer the best quality care. Read more about this clinic and participating clinicians by visiting our website at alzheimers.med.umich.edu/clinical-care or call the clinic directly to book an appointment at 734-764-6831.

Wellness

Our Wellness Initiative supports individuals and families affected by dementia and mild cognitive impairment. We offer programs focused on social engagement and art-based therapy for those living with dementia or mild cognitive impairment. We also offer mindfulness-based programs for caregivers to practice self-care. For more information on these programs or to register for an upcoming session please visit our website at alzheimers.med.umich.edu/wellness-initiative or call 734-615-8293.



Education

We are committed to increasing awareness about dementia and brain health through education across the state of Michigan. We offer a variety of educational resources for distribution to friends, family, and professionals at alzheimers.med.umich.edu/education-outreach.

We also offer a monthly community lecture series in the Ann Arbor and Detroit areas. This series brings our experts to the community to educate on a variety of dementia and brain health-related topics.

For information on upcoming educational lectures, please visit the event calendar on our website at alzheimers.med.umich.edu/events or subscribe to our e-newsletter to stay informed.

Lastly, we provide ongoing research information, lists of recruiting studies, and upcoming events via a monthly e-newsletter. If you're interested in subscribing, visit alzheimers.med.umich.edu/education-outreach and click Subscribe.

Dementia VS. Alzheimer's

What's the difference?

Dementia is a general term for a decline in mental ability severe enough to interfere with everyday life.

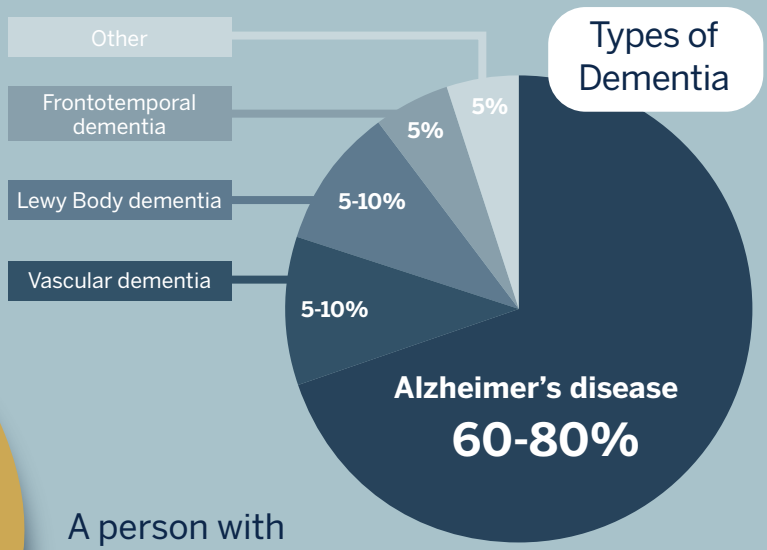
There are hundreds of types of dementia. Here are some that fall under this **umbrella term**:

- **Vascular dementia**
- **Alzheimer's disease**
- **Mild Cognitive Impairment**
- **Lewy Body dementia**
- **Frontotemporal dementia**

Dementia doesn't just refer to age-related cognitive diseases, but can also be caused by many reversible medical conditions, including:

Lyme Disease	Hypo-thyroidism	Vitamin B12 deficiency	Head injury
			

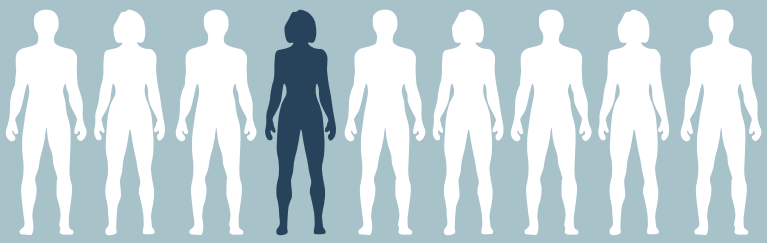
Alzheimer's disease is the **most common type of dementia** causing problems with memory, thinking, and behavior.



A person with Alzhiemer's disease has difficulty:

- **Communicating**
- **Remembering**
- **Solving problems**

In Michigan, approximately **190,000 people** over the age of 65 are living with Alzheimer's disease. This is around **12%** of people 65+ or **one in ten** people 65+ in Michigan.



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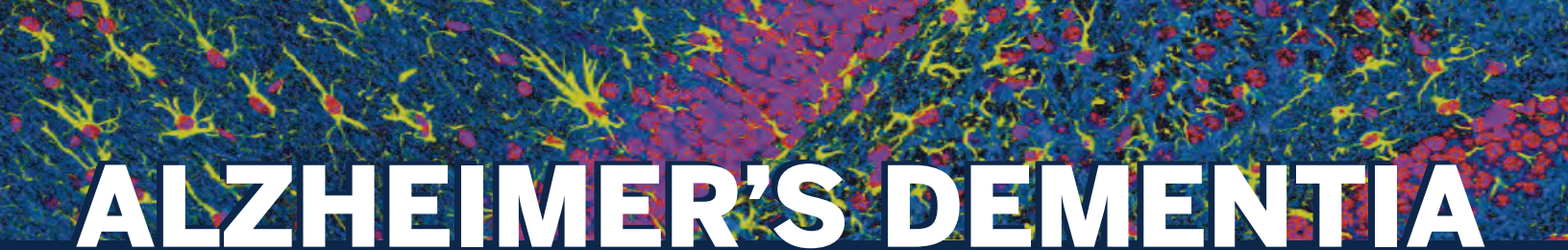
Michigan Alzheimer's Disease Center

UM-Ask-MADC@med.umich.edu
734-936-8803
alzheimers.med.umich.edu
@umichalzheimers



ALZHEIMER'S DEMENTIA

SIGNS & SYMPTOMS

Alzheimer's dementia (AD) is the most common form of dementia, particularly in those over the age of 65. In addition to memory difficulties, people often experience problems in other thinking abilities including word-finding, visual/spatial abilities, and reasoning and judgment.

CAUSES & RISK FACTORS

AD is caused, in part, by deposits of the proteins amyloid and tau in the brain. Risk factors include family history, certain genes such as APOE ε4, poor diet, lack of exercise, and health conditions such as hypertension, diabetes, heart disease, or obesity. The likelihood of developing AD doubles every 5 years after age 65.

BEHAVIORAL CHANGES

Behavioral changes may include confusion, sleeplessness, wandering, impulsivity, anxiety, and agitation. Research has shown that treating behavioral symptoms can improve quality of life for both individuals with Alzheimer's and their caregivers.

See signs? Talk to your doctor. For more information about AD: www.alz.org

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Michigan Alzheimer's Disease Center

UM-Ask-MADC@med.umich.edu
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@umichalzheimers

SCREENING TOOLS

Michigan ADRC
Alzheimer's Disease Research Center

alzheimer's association®

MDHHS
Michigan Department of Health & Human Services

COGNITIVE ASSESSMENT TOOLKIT

A guide to detecting cognitive impairment during the Medicare Annual Wellness Visit

alzheimer's association®

800.272.3900 | alz.org®

TABLE OF CONTENTS

Overview

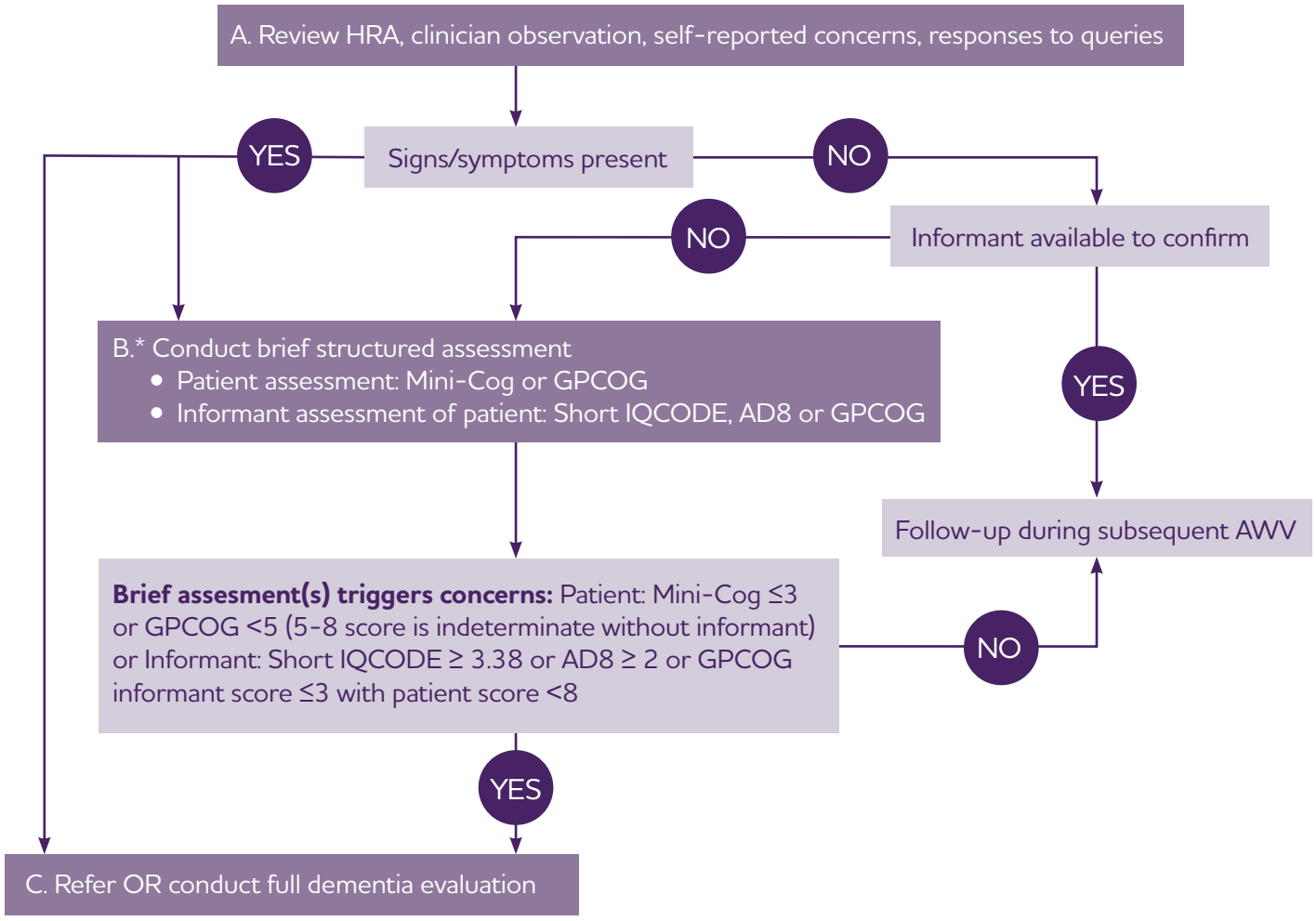
The Alzheimer's Association®, the leading voluntary health organization in Alzheimer's care, support and research, is dedicated to driving early detection and diagnosis of dementia. To help, the Association has created an easy-to-implement process to assess cognition during the Medicare Annual Wellness Visit. Developed by a group of clinical dementia experts, the recommended process outlined on Page 4 allows you to efficiently identify patients with probable cognitive impairment while giving you the flexibility to choose a cognitive assessment tool that works best for you and your patients.

This Cognitive Assessment Toolkit contains:

- The Medicare Annual Wellness Visit Algorithm for Assessment of Cognition, incorporating patient history, clinician observations, and concerns expressed by the patient, family or caregiver
- Two validated patient assessment tools: the General Practitioner Assessment of Cognition (GPCOG) and the Mini-Cog©. Both tools:
  - Can be administered in five minutes or less
  - Are equal or superior to the Mini-Mental State Exam (MMSE) for detecting dementia
  - Are easily administered by medical staff who are not physicians
  - Are relatively free from educational, language and/or cultural bias
- Three validated informant assessment of patient tools: the Short Form of the Informant Questionnaire on Cognitive Decline in the Elderly (Short IQCODE), the Eight-Item Informant Interview to Differentiate Aging and Dementia (AD8) and the GPCOG
- The "Alzheimer's Association Recommendations for Operationalizing the Detection of Cognitive Impairment During the Medical Annual Wellness Visit in a Primary Care Setting," as published in *Alzheimer's & Dementia®: The Journal of the Alzheimer's Association*

For more information on the detection, diagnosis and treatment of Alzheimer's disease, as well as direct access to patient and caregiver resources, please visit our Health Systems and Clinicians Center at **alz.org/hcps**.

Medicare Annual Wellness Visit Algorithm for Assessment of Cognition



* No one tool is recognized as the best brief assessment to determine if a full dementia evaluation is needed. Some providers repeat patient assessment with an alternate tool (e.g., SLUMS, or MoCA) to confirm initial findings before referral or initiation of full dementia evaluation.

AD8 = Eight-Item Informant Interview to Differentiate Aging and Dementia; **AWV =** Annual Wellness Visit; **GPCOG =** General Practitioner Assessment of Cognition; **HRA =** Health Risk Assessment; **MoCA =** Montreal Cognitive Assessment; **SLUMS =** St. Louis University Mental Status Exam; **Short IQCODE =** Short Informant Questionnaire on Cognitive Decline in the Elderly

Cordell CB, Borson S, Boustani M, Chodosh J, Reuben D, Verghese J, et al. Alzheimer's Association recommendations for operationalizing the detection of cognitive impairment during the Medicare Annual Wellness Visit in a primary care setting. *Alzheimers Dement.* 2013;9(2):141-150. Available at https://alz-journals.onlinelibrary.wiley.com/journal/15525279

GENERAL PRACTITIONER ASSESSMENT OF COGNITION (GPCOG)

A web-based GPCOG and downloadable paper-and-pencil versions of the GPCOG (in many languages) are available at gpcog.com.au. Both ask the same questions, the only difference being the web-based GPCOG automatically scores the test.

Preparation & Training

Before you administer GPCOG for the first time, please review the following:

1. Make sure you have read the instructions (on the first page of the test)

2. Watch the training video (approx. 5 minutes)

   https://www.youtube.com/watch?v=If7nv2_B89M

Patient name: _____

Testing date: _____

GPCOG

STEP 1 – PATIENT EXAMINATION

Unless specified, each question should only be asked once.

Name and address for subsequent recall test

I am going to give you a name and address. After I have said it, I want you to repeat it. Remember this name and address because I am going to ask you to tell it to me again in a few minutes: John Brown, 42 West Street, Kensington. (Allow a maximum of 4 attempts.)

		Correct	Incorrect
Time orientation			
1.	*What is the date?* (exact only)	☐	☐
Clock drawing (use blank page)			
2.	*Please mark in all the numbers to indicate the hours of a clock.* (correct spacing required)	☐	☐
3.	*Please mark in hands to show 10 minutes past eleven o'clock.* (11.10)	☐	☐
Information			
4.	*Can you tell me something that happened in the news recently?* (Recently = in the last week. If a general answer is given, e.g. "war", "lot of rain", ask for details. Only specific answer scores.)	☐	☐
Recall			
5.	*What was the name and address I asked you to remember?*		
	John	☐	☐
	Brown	☐	☐
	42	☐	☐
	West (St)	☐	☐
	Kensington	☐	☐
		▬	
Add the number of items answered correctly:	**Total score:**	☐	**out of 9**

9	**No significant cognitive impairment** Further testing is not necessary
5 – 8	**More information required** Proceed with informant interview in step 2 on next page
0 – 4	**Cognitive impairment is indicated** Conduct standard investigations

Brodaty et al, *JAGS* 2002; 50:530-534

Patient name: _____

Testing date: _____

GPCOG

STEP 2: INFORMANT INTERVIEW

Informant name: _____

Relationship to patient, i.e. informant is the patient's: _____

Ask the informant:

Compared to 5–10 years ago,	YES	NO	Don't know	N/A
1. *Does the patient have more trouble remembering things that have happened recently than s/he used to?*	☐	☐	☐	
2. *Does s/he have more trouble recalling conversations a few days later?*	☐	☐	☐	
3. *When speaking, does s/he have more difficulty in finding the right word or tend to use the wrong words more often?*	☐	☐	☐	
4. *Is s/he less able to manage money and financial affairs (e.g. paying bills and budgeting)?*	☐	☐	☐	☐
5. *Is s/he less able to manage his or her medication independently?*	☐	☐	☐	☐
6. *Does s/he need more assistance with transport (either private or public)?* (If the patient has difficulties only due to physical problems, e.g. bad leg, tick 'no'.)	☐	☐	☐	☐

Add the number of items answered with 'NO', 'Don't know' or 'N/A':

Total score: ☐ **out of 6**

4 – 6	**No significant cognitive impairment** Further testing is not necessary
0 – 3	**Cognitive impairment is indicated** Conduct standard investigations

When referring to a specialist, mention the individual scores for the two GPCOG test steps:

STEP 1 **Patient examination:** __ **/ 9**

STEP 2 **Informant interview:** __ **/ 6** or **N/A**

Mini-Cog©

Instructions for Administration & Scoring

ID: _____ Date: _____

Step 1: Three Word Registration

Look directly at person and say, "Please listen carefully. I am going to say three words that I want you to repeat back to me now and try to remember. The words are [select a list of words from the versions below]. Please say them for me now." If the person is unable to repeat the words after three attempts, move on to Step 2 (clock drawing).

The following and other word lists have been used in one or more clinical studies.[1-3] For repeated administrations, use of an alternative word list is recommended.

Version 1	Version 2	Version 3	Version 4	Version 5	Version 6
Banana	Leader	Village	River	Captain	Daughter
Sunrise	Season	Kitchen	Nation	Garden	Heaven
Chair	Table	Baby	Finger	Picture	Mountain

Step 2: Clock Drawing

Say: "Next, I want you to draw a clock for me. First, put in all of the numbers where they go." When that is completed, say: "Now, set the hands to 10 past 11."

Use preprinted circle (see next page) for this exercise. Repeat instructions as needed as this is not a memory test. Move to Step 3 if the clock is not complete within three minutes.

Step 3: Three Word Recall

Ask the person to recall the three words you stated in Step 1. Say: "What were the three words I asked you to remember?" Record the word list version number and the person's answers below.

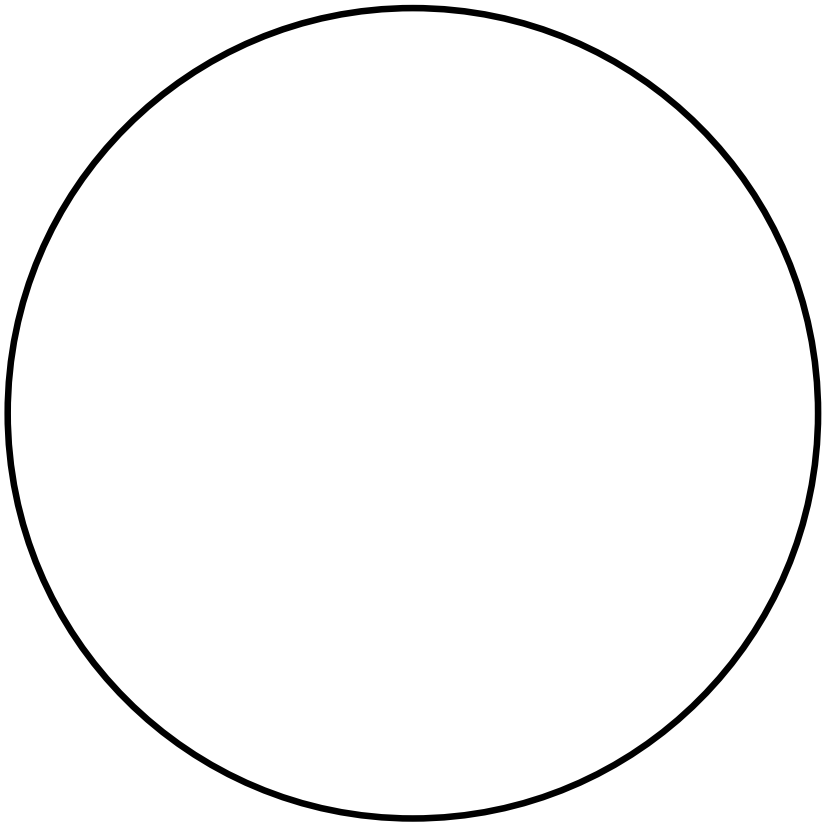
Word List Version: _____ Person's Answers: _____ _____ _____

Scoring

Word Recall: _____ (0-3 points)	1 point for each word spontaneously recalled without cueing.
Clock Draw: _____ (0 or 2 points)	Normal clock = 2 points. A normal clock has all numbers placed in the correct sequence and approximately correct position (e.g., 12, 3, 6 and 9 are in anchor positions) with no missing or duplicate numbers. Hands are pointing to the 11 and 2 (11:10). Hand length is not scored. Inability or refusal to draw a clock (abnormal) = 0 points.
Total Score: _____ (0-5 points)	Total score = Word Recall score + Clock Draw score. A cut point of <3 on the Mini-Cog™ has been validated for dementia screening, but many individuals with clinically meaningful cognitive impairment will score higher. When greater sensitivity is desired, a cut point of <4 is recommended as it may indicate a need for further evaluation of cognitive status.

Clock Drawing

ID:_____ Date:_____



References

1. Borson S, Scanlan JM, Chen PJ et al. The Mini-Cog as a screen for dementia: Validation in a population based sample. J Am Geriatr Soc 2003;51:1451–1454.

2. Borson S, Scanlan JM, Watanabe J et al. Improving identification of cognitive impairment in primary care. Int J Geriatr Psychiatry 2006;21: 349–355.

3. Lessig M, Scanlan J et al. Time that tells: Critical clock-drawing errors for dementia screening. Int Psychogeriatr. 2008 June; 20(3): 459–470.

4. Tsoi K, Chan J et al. Cognitive tests to detect dementia: A systematic review and meta-analysis. JAMA Intern Med. 2015; E1-E9.

5. McCarten J, Anderson P et al. Screening for cognitive impairment in an elderly veteran population: Acceptability and results using different versions of the Mini-Cog. J Am Geriatr Soc 2011; 59: 309-213.

6. McCarten J, Anderson P et al. Finding dementia in primary care: The results of a clinical demonstration project. J Am Geriatr Soc 2012; 60: 210-217.

7. Scanlan J & Borson S. The Mini-Cog: Receiver operating characteristics with the expert and naive raters. Int J Geriatr Psychiatry 2001; 16: 216-222.

Short Form of the Informant Questionnaire on Cognitive Decline in the Elderly (Short IQCODE)[1]

by A. F. Jorm

Centre for Mental Health Research
The Australian National University
Canberra, Australia

Note: As used in published studies, the IQCODE was preceded by questions to the informant on the subject's sociodemographic characteristics and physical health.

Now we want you to remember what your friend or relative was like 10 years ago and to compare it with what he/she is like now. 10 years ago was in 20__.* Below are situations where this person has to use his/her memory or intelligence and we want you to indicate whether this has improved, stayed the same or got worse in that situation over the past 10 years. Note the importance of comparing his/her present performance with 10 years ago. So if 10 years ago this person always forgot where he/she had left things, and he/she still does, then this would be considered "Hasn't changed much". Please indicate the changes you have observed by circling the appropriate answer.

Compared with 10 years ago how is this person at:

	1	2	3	4	5
1. Remembering things about family and friends e.g. occupations, birthdays, addresses	Much improved	A bit improved	Not much change	A bit worse	Much worse
2. Remembering things that have happened recently	Much improved	A bit improved	Not much change	A bit worse	Much worse
3. Recalling conversations a few days later	Much improved	A bit improved	Not much change	A bit worse	Much worse
4. Remembering his/her address and telephone number	Much improved	A bit improved	Not much change	A bit worse	Much worse
5. Remembering what day and month it is	Much improved	A bit improved	Not much change	A bit worse	Much worse
6. Remembering where things are usually kept	Much improved	A bit improved	Not much change	A bit worse	Much worse
7. Remembering where to find things which have been put in a different place from usual	Much improved	A bit improved	Not much change	A bit worse	Much worse
8. Knowing how to work familiar machines around the house	Much improved	A bit improved	Not much change	A bit worse	Much worse
9. Learning to use a new gadget or machine around the house	Much improved	A bit improved	Not much change	A bit worse	Much worse
10. Learning new things in general	Much improved	A bit improved	Not much change	A bit worse	Much worse
11. Following a story in a book or on TV	Much improved	A bit improved	Not much change	A bit worse	Much worse
12. Making decisions on everyday matters	Much improved	A bit improved	Not much change	A bit worse	Much worse
13. Handling money for shopping	Much improved	A bit improved	Not much change	A bit worse	Much worse
14. Handling financial matters e.g. the pension, dealing with the bank	Much improved	A bit improved	Not much change	A bit worse	Much worse
15. Handling other everyday arithmetic problems e.g. knowing how much food to buy, knowing how long between visits from family or friends	Much improved	A bit improved	Not much change	A bit worse	Much worse
16. Using his/her intelligence to understand what's going on and to reason things through	Much improved	A bit improved	Not much change	A bit worse	Much worse

*The original tool was published in 1994.
The Alzheimer's Association updated the year 19__ as published in the original tool to 20__ .
Tool Reference: Jorm AF. A short form of the Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE): development and cross-validation. Psychol Med 1994; 24: 145–153.

AD8® Dementia Screening Interview

Patient ID#:_____

CS ID#:_____
Date:_____

Remember, "Yes, a change" indicates that there has been a change in the last several years caused by cognitive (thinking and memory) problems.	**YES, A change**	**NO, No change**	**N/A, Don't know**
1. Problems with judgment (e.g., problems making decisions, bad financial decisions, problems with thinking)			
2. Less interest in hobbies/activities			
3. Repeats the same things over and over (questions, stories, or statements)			
4. Trouble learning how to use a tool, appliance, or gadget (e.g., VCR, computer, microwave, remote control)			
5. Forgets correct month or year			
6. Trouble handling complicated financial affairs (e.g., balancing checkbook, income taxes, paying bills)			
7. Trouble remembering appointments			
8. Daily problems with thinking and/or memory			
TOTAL AD8 SCORE			

Adapted from Galvin JE et al, The AD8, a brief informant interview to detect dementia, Neurology 2005:65:559-564.

The AD8® Administration and Scoring Guidelines

A spontaneous self-correction is allowed for all responses without counting as an error.

The questions are given to the respondent on a clipboard for self–administration or can be read aloud to the respondent either in person or over the phone. It is preferable to administer the AD8 to an informant, if available. If an informant is not available, the AD8 may be administered to the patient.

When administered to an informant, specifically ask the respondent to rate change in the patient.

When administered to the patient, specifically ask the patient to rate changes in his/her ability for each of the items, ***without*** attributing causality.

If read aloud to the respondent, it is important for the clinician to carefully read the phrase as worded and give emphasis to note changes due to cognitive problems (not physical problems). There should be a one second delay between individual items.

No timeframe for change is required.

The final score is a sum of the number items marked "Yes, A change".

Interpretation of the AD8 (Adapted from Galvin JE et al, The AD8, a brief informant interview to detect dementia, Neurology 2005:65:559-564)

A screening test in itself is insufficient to diagnose a dementing disorder. The AD8 is, however, quite sensitive to detecting early cognitive changes associated many common dementing illness including Alzheimer disease, vascular dementia, Lewy body dementia and frontotemporal dementia.

Scores in the impaired range (see below) indicate a need for further assessment. Scores in the "normal" range suggest that a dementing disorder is unlikely, but a very early disease process cannot be ruled out. More advanced assessment may be warranted in cases where other objective evidence of impairment exists.

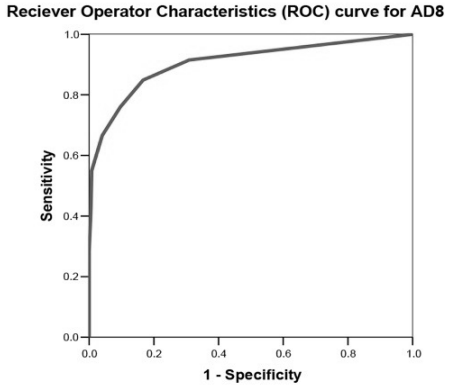
Based on clinical research findings from 995 individuals included in the development and validation samples, the following cut points are provided:

- 0 – 1: Normal cognition
- 2 or greater: Cognitive impairment is likely to be present

Administered to either the informant (preferable) or the patient, the AD8 has the following properties:

- Sensitivity > 84%
- Specificity > 80%
- Positive Predictive Value > 85%
- Negative Predictive Value > 70%

Area under the Curve: 0.908; 95%CI: 0.888-0.925



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Alzheimer's Association recommendations for operationalizing the detection of cognitive impairment during the Medicare Annual Wellness Visit in a primary care setting

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Abstract The Patient Protection and Affordable Care Act added a new Medicare benefit, the Annual Wellness Visit (AWV), effective January 1, 2011. The AWV requires an assessment to detect cognitive impairment. The Centers for Medicare and Medicaid Services (CMS) elected not to recommend a specific assessment tool because there is no single, universally accepted screen that satisfies all needs in the detection of cognitive impairment. To provide primary care physicians with guidance on cognitive assessment during the AWV, and when referral or further testing is needed, the Alzheimer's Association convened a group of experts to develop recommendations. The resulting Alzheimer's Association Medicare Annual Wellness Visit Algorithm for Assessment of Cognition includes review of patient Health Risk Assessment (HRA) information, patient observation, unstructured queries during the AWV, and use of structured cognitive assessment tools for both patients and informants. Widespread implementation of this algorithm could be the first step in reducing the prevalence of missed or delayed dementia diagnosis, thus allowing for better healthcare management and more favorable outcomes for affected patients and their families and caregivers.

Keywords: Annual Wellness Visit; AWV; Cognitive impairment; Assessment; Screen; Dementia; Alzheimer's disease; Medicare; Algorithm; Patient Protection and Affordable Care Act

1. Introduction

The Patient Protection and Affordable Care Act of 2010 added a new Medicare benefit, the Annual Wellness Visit (AWV), effective January 1, 2011. The AWV includes routine measurements such as height, weight, and blood pressure; a review of medical and family history; an assessment to detect cognitive impairment; and establishment of a list of current medical providers, medications, and schedule for future preventive services. In addition, during the first AWV only, beneficiaries are to be screened for depression (if

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not completed under a separate Medicare benefit) and for functional difficulties using nationally recognized appropriate screening questions or standardized questionnaires. Although the U.S. Preventive Services Task Force (USPSTF) in 2003 concluded that there was insufficient published evidence of better clinical outcomes as a result of routine screening for cognitive impairment in older adults, the Task Force recognized that the use of cognitive assessment tools can increase the detection of cognitive impairment [1]. As per the Centers for Medicare and Medicaid Services (CMS) regulation, the AWV requires detection of cognitive impairment by "… assessment of an individual's cognitive function by direct observation, with due consideration of information obtained by way of patient report, concerns raised by family members, friends, caretakers, or others" [2]. During the public comment period, several organizations, including the Alzheimer's Association, noted that the use of a standardized tool for assessment of cognitive function should be part of the AWV.

These comments are supported by a number of studies showing that cognitive impairment is unrecognized in 27%–81% of affected patients in primary care [3–7]. The use of a brief, structured cognitive assessment tool correctly classifies patients with dementia or mild cognitive impairment (MCI) more often than spontaneous detection by the patients' own primary care physicians (83% vs 59%, respectively) [8].

In response to concerns submitted during public comment, CMS elected not to recommend a specific tool for the final AWV benefit because "There is no nationally recognized screening tool for the detection of cognitive impairments at the present time…" [9]. However, CMS recognizes that without clarification, the full intended benefits of the AWV cognitive assessment may not be realized [10]. CMS is working with other governmental agencies (e.g., National Institutes on Aging) on recommendations for use of specific tools.

Understanding that, under the present regulation, each healthcare provider who conducts an AWV would have to determine how best to "detect cognitive impairment," the Alzheimer's Association convened the Medicare Detection of Cognitive Impairment Workgroup to develop recommendations for operationalizing the cognitive assessment component in primary care settings. This workgroup was comprised of geographically dispersed USA experts with published works in the field of detecting cognitive impairment during primary care visits. The focus on primary care was deliberate, as most Medicare beneficiaries will receive their AWV in this setting.

2. Guiding principles for recommendations

2.1. Consensus on general principles

Based on their expertise, the workgroup agreed on the following general principles to guide the development of recommendations for cognitive assessment:

- Detection of cognitive impairment is a stepwise, iterative process.
- Informal observation alone by a physician is not sufficient (i.e., observation without a specific cognitive evaluation).
- Detection of cognitive impairment can be enhanced by specifically asking about changes in memory, language, and the ability to complete routine tasks.
- Although no single tool is recognized as the "gold standard" for detection of cognitive impairment, an initial structured assessment should provide either a baseline for cognitive surveillance or a trigger for further evaluation.
- Clinical staff can offer valuable observations of cognitive and functional changes in patients who are seen over time.
- Counseling before and after cognitive assessment is an essential component of any cognitive evaluation.
- Informants (family member, caregiver, etc.) can provide valuable information about the presence of a change in cognition.

2.2. Principles specific to the AWV

- The AWV requires the completion of a Health Risk Assessment (HRA) by the patient either before or during the visit. The HRA should be reviewed for any reported signs and symptoms indicative of possible dementia.
- The AWV will likely occur in a primary care setting. Tools for initial cognitive assessments should be brief (<5 min), appropriately validated, easily administered by non-physician clinical staff, and available free of charge for use in a clinical setting.
- If further evaluation is indicated based on the results of the AWV, a more detailed evaluation of cognition should be scheduled for a follow-up visit in primary care or through referral to a specialist.

3. Review of available brief tools for use during the AWV

3.1. Workgroup review process

Although there is no single cognition assessment tool that is considered to be the gold standard, there is a plethora of tools in the literature. A MEDLINE (PubMed) search conducted in October 2011, using the key words "screening or detection of dementia or cognitive impairment," yielded over 500 publications. To narrow the search to tools more applicable to the AWV, the workgroup sought to determine whether the literature offered a consensus regarding brief cognitive assessment during time-limited primary care visits.

The workgroup focused on systematic evidence review (SER) studies published since 2000 resulting in four studies by Lorentz et al, Brodaty et al, Holsinger et al, and Milne et al [11–14]. Although each SER had a similar objective—to determine which tools were best for administration during

Table 1
Review articles of brief cognitive assessment tools—select inclusion and comparison criteria

	Lorentz et al, 2002 [11]	Brodaty et al, 2006 [12]	Holsinger et al, 2007 [13]	Milne et al, 2008 [14]	Ismail et al, 2010 [15]	Kansagara and Freeman, 2010 [16]
Inclusion criteria	• Admin ≤10 min • Performance characteristics evaluated in ≥1 community or clinical setting	• Admin ≤5 min and simple • Validated in community or PC • Misclassification rate ≤ MMSE • NPV ≥ MMSE	• Studied in patients ≥60 years • Criterion to diagnose dementia acceptable	• Admin time suitable for PC in UK • Geriatric PC screens for cognitive change	• Tools most frequently used in PC • Tools recommended or newly used in PC	• Tools identified by the VA as alternatives to the MMSE
Comparison criteria	• Face validity, sensitivity, and specificity • Sociodemographic biases • Comparison with MMSE • Acceptability • Ease of use by nonspecialists	• Study validity • Applicability to PC • Psychometric properties • Administration characteristics	• Admin time • Study quality • Likelihood ratios • Domains tested • Utility in special situations	• Practicality • Feasibility • Applicability • Psychometric properties	• Summary of other studies and strength/weaknesses of tools • Newer tools that address weaknesses	• Relevance of study to the VA setting • Admin time • Sensitivity • Specificity • Cost

Abbreviations: MMSE, Mini-Mental State Examination; NPV, negative predictive value; PC, primary care; UK, United Kingdom; VA, US Department of Veteran Affairs.

primary care visits—different comparison criteria to select the tools were applied (Table 1). Two other studies were also considered relevant to the development of the workgroup recommendations: Ismail et al [15] conducted a literature review designed to identify widely used and most promising newer brief cognitive tools being used in primary care and geriatrics, and an SER by Kansagara and Freeman [16] of six brief cognitive assessment tools that could serve as possible alternatives to the Mini-Mental State Examination (MMSE) for use by the U.S. Department of Veterans Affairs (VA). Neither study was designed to determine which brief tool is the "best," but both provided evidence related to primary care use and performance characteristics of brief assessments of cognition (Table 1).

3.2. Workgroup review results

Of the five publications that focused specifically on identifying brief cognitive assessments most suitable or most used in primary care settings [11–15], all selected the Memory Impairment Screen (MIS), and four of these publications [11,12,14,15] also selected the General Practitioner Assessment of Cognition (GPCOG) and the Mini-Cog (Table 2).

The following attributes of the GPCOG, Mini-Cog, and the MIS contributed to their selection as most suited for routine use in primary care:

- Requires 5 minutes or less to administer.
- Is validated in a primary care or community setting.
- Is easily administered by medical staff members who are not physicians.
- Has good to excellent psychometric properties.
- Is relatively free from educational, language, and/or culture bias.
- Can be used by clinicians in a clinical setting without payment for copyrights.

Charging a fee for clinical use of brief cognitive assessment tool has become an issue because of increased enforcement of the MMSE copyright. First published in 1975 [17], the MMSE copyright is now held by Psychological Assessment Resources, Inc., which charges a fee for each use (for exact fees see www.parinc.com). The comparative SER within the VA [16] evaluated alternatives to the proprietary MMSE, including the GPCOG and the Mini-Cog, along with four other brief tools (Table 2). The Mini-Cog and MIS are copyrighted, but the owners, Soo Borson, MD, and Albert Einstein College of Medicine, respectively, allow free use by clinicians as clinical tools with distribution restrictions for other entities (e.g., commercial companies). The GPCOG has similar use rules.

3.3. Patient structured cognitive assessment tools recommended for AWV

In alignment with the workgroup's guiding principles and supported by data in the six selected SERs/reviews,

Table 2
Brief cognitive assessment tools evaluated in multiple review articles

Assessment Tool	Lorentz et al, 2002 [11]	Brodaty et al, 2006 [12]	Holsinger et al, 2007 [13]	Milne et al, 2008 [14]	Ismail et al, 2010 [15]	Kansagara and Freeman, 2010* [16]
7-Minute Screener	X	X	X	X		
AMT		X	X	X	X	
CAMCOG		X	Suited†			
CDT	X	X	Suited‡	X	X	
GPCOG	Most suited	Most suited	X	Most suited	Most suited	X
Mini-Cog	Most suited	Most suited	X	Most suited	Most suited	X
MIS	Most suited	Most suited	Suited‡	Most suited	Most suited	
MMSE	X	X	Suited§	X	X	
MoCA			Suited†		X	X
RUDAS		X			X	
SAS-SI	X	X	X			
SBT (BOMC, 6-CIT)	X	X	X	X		X
SPMSQ	X			X		
STMS	X	X	X			X
T&C	X	X				

Abbreviations: 6-CIT, 6-Item Cognitive Impairment Test; AMT, Abbreviated Mental Test; BOMC, 6-item Blessed Orientation-Memory-Concentration Test; CAMCOG, Cambridge Cognitive Examination; CDT, Clock Drawing Test; GPCOG, General Practitioner Assessment of Cognition; MIS, Memory Impairment Screen; MMSE, Mini-Mental State Examination; MoCA, Montreal Cognitive Assessment; RUDAS, Rowland Universal Dementia Assessment; SAS-SI, Short and Sweet Screening Instrument; SBT, Short Blessed Test; SLUMS, St Louis Mental Status; SPMSQ, Short Portable Mental Status Questionnaire; STMS, Short Test of Mental Status; T&C, Time and Change Test.

X = assessment reviewed, but not identified as most suited for general use in primary care.

Suited = tool appropriate for the following clinical issue: † available time is not limited; ‡ available time is limited; and § cognitive impairment is at least moderate. Most suited = tool identified as most suited for routine use in primary care.

*Kansagara and Freeman evaluated six tools, including the SLUMS, which was not evaluated in any other review.

the GPCOG, Mini-Cog, and MIS are brief structured tools that are suitable for assessment of cognitive function during the AWV. Each tool has unique benefits. The GPCOG has patient and informant components that can be used alone or together to increase specificity and sensitivity [18]. The Mini-Cog has been validated in population-based studies and in community-dwelling older adults heterogeneous with respect to language, culture, and education [19–22]. The MIS is a verbally administered word-recall task that tests encoding as well as retrieval [23], and is an option for patients who have motor impairments that prevent use of paper and pencil.

3.4. Structured cognitive assessment tools for use with informants

Cognitive assessment combined with informant-reported data improves the accuracy of assessment [24–27]. If an informant is present during the AWV, use of a structured informant tool is recommended. Similar to cognitive assessment tools for use with patients, there is no single "gold standard" informant tool; however, relatively few brief informant tools have been validated in community and/or primary care settings. Brief tools appropriately validated include the Short IQCODE [25], the AD8 [28], which can be administered in-person or by telephone, and the aforementioned GPCOG [18], which has both patient and informant components.

4. Recommended algorithm for detection of cognitive impairment during the AWV

4.1. Incorporating assessment of cognition during the AWV

The Alzheimer's Association Medicare Annual Wellness Visit Algorithm for Assessment of Cognition for consistency (Figure 1) illustrates a stepwise process. The process is intended to detect patients with a high likelihood of having dementia. The AWV algorithm includes both structured assessments discussed previously and other less structured patient- and informant-based evaluations. By assessing and documenting cognitive status on an annual basis during the AWV, clinicians can more easily determine gradual cognitive decline over time in an individual patient—a key criterion for diagnosing dementia due to Alzheimer's disease and other progressive conditions affecting cognition.

For patients with a previous diagnosis of MCI or dementia, this should be documented and included in their AWV list of health risk factors. Annual unstructured and structured cognitive assessments could be used to monitor significant changes in cognition and potentially lead to a new diagnosis of dementia for those with MCI or new care recommendations for those with dementia.

4.2. Detection of cognitive impairment during the AWV—initial HRA review, conversations, and observations

The first step in detection of cognitive impairment during the AWV (Fig. 1, Step A), involves a conversation between

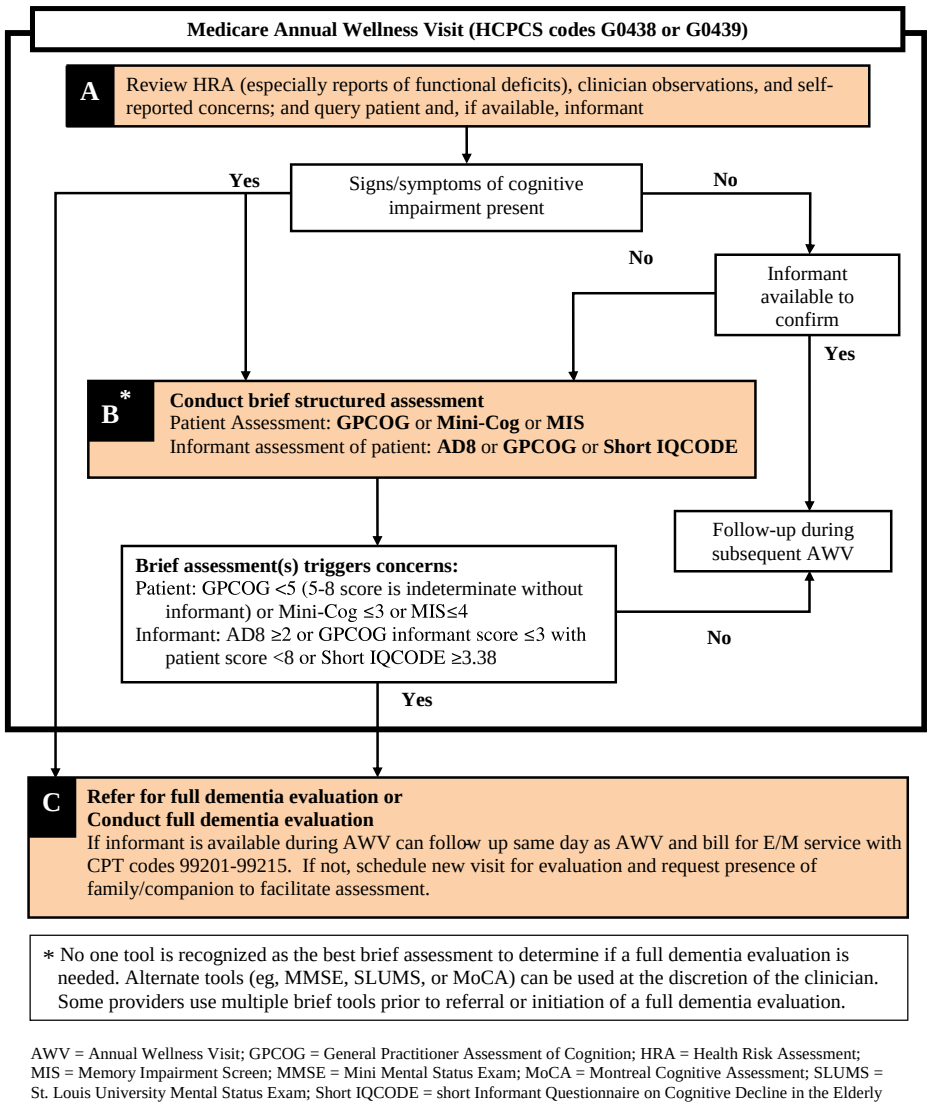

Fig. 1. Alzheimer's Association Medicare Annual Wellness Visit Algorithm for Assessment of Cognition.

a clinician and the patient and, if present, any family member or other person who can provide collateral information. This introduces the purpose and content of the AWV, which includes: a review of the HRA; observations by clinicians (medical and associated staff); acknowledgment of any self-reported or informant-reported concerns; and conversational queries about cognition directed toward the patient and others present. If any concerns are noted, or if an informant is not present to provide confirmatory information, further evaluation of cognition with a structured tool should be performed.

Patient completion of an HRA is a required element of the AWV and can be accomplished with the help of a family member or other knowledgeable informants, including a professional caregiver. Published CMS guidance offers healthcare professionals flexibility as to the specific format, questions, and delivery methods that can be used for an AWV HRA [29]. The following questions may be suitable for the AWV HRA and have been tested and evaluated in the general population through the Behavioral Risk Factor Surveillance System or presented as HRA example questions:

1. During the past 12 months, have you experienced confusion or memory loss that is happening more often or is getting worse [30]?
2. During the past 7 days, did you need help with others to perform everyday activities such as eating, getting dressed, grooming, bathing, walking, or using the toilet [29]?
3. During the past 7 days, did you need help from others to take care of things such as laundry and housekeeping, banking, shopping, using the telephone, food preparation, transportation, or taking your own medications [29]?

A noted deficit in activities of daily living (ADLs) (e.g., eating and dressing) or instrumental activities of daily living (IADLs) (e.g., shopping and cooking) that cannot be

attributed to physical limitations should prompt concern, as there is a strong correlation between decline in function and decline in cognitive status across the full spectrum of dementia [31]. In addition to clinically observed concerns, any patient- or informant-reported concerns should trigger further evaluation [13]. Positive responses to conversational queries, such as "Have you noticed any change in your memory or ability to complete routine tasks, such as paying bills or preparing a meal?" should be followed up with a structured assessment of cognition.

Upon realizing the time constraints of a typical primary care visit, if no cognitive concerns surface during the initial evaluation and this information is corroborated by an informant, the clinician may elect not to perform a structured cognitive assessment and assume that the patient is not currently demented. This approach is supported by studies in populations with low rates of dementia that suggest the absence of memory difficulties reported by informants and patients reduces the likelihood that dementia is present [32,33].

4.3. Structured cognitive assessment tools for use with patients and informants during the AWV

The second step in detection of cognitive impairment during the AWV (Figure 1, Step B) requires cognitive assessment using a structured tool. Based on synthesis of data from the six review articles previously discussed, patient tools suitable for the initial structured assessment are the GPCOG, Mini-Cog, and MIS.

Recognizing that there is no single optimal tool to detect cognitive impairment for all patient populations and settings, clinicians may select other brief tools to use in their clinical practice, such as those listed in Table 3. The 15 brief tools listed were evaluated in multiple review articles (passed through at least two review search criteria for tools possibly suited for primary care) or are used in the VA. Tools listed in Table 3 are subject to the inclusion/exclusion criteria of each review and do not represent the entire listing of the >100 brief cognitive assessment tools that may be suitable for primary care practices.

If an informant is present, defined as someone who can attest to a patient's change in memory, language, or function over time, it is suitable to use the AD8, the informant component of the GPCOG, or the Short IQCODE, during the AWV.

4.4. Primary care workflow considerations

According to the algorithm, any patient who does not have an informant present should be assessed with a structured tool. For such patients (and for practices that implement structured assessments during all AWVs), completion of this structured assessment can be administered by trained medical staff as the first step for cognitive impairment detection. This could improve office efficiency. To increase acceptance of a structured assessment, the reason provided to the patient can be normalized with a statement such as, "This is something I do for all of my older patients as part of their annual visit." When the initial assessment prompts further evaluation, explanation of results should be deferred until a more comprehensive evaluation has been completed. "There are many reasons for not getting every answer correct. More evaluation will help us determine that," is an example statement that may encourage patients to pursue further testing.

5. Full dementia evaluation

Patients with assessments that indicate cognitive impairment during the AWV should be further evaluated to determine appropriate diagnosis (e.g., MCI, Alzheimer's disease) or to identify other causes. As reflected in the algorithm (Figure 1, Step C), initiation of a full dementia evaluation is outside the scope of the AWV, but can occur in a separate visit either on the same day, during a newly scheduled visit, or through referral to a specialist. Specialists who have expertise in diagnosing dementia include geriatricians, geriatric psychiatrists, neurologists, and neuropsychologists. The two-visit approach has been cited as a time-effective process to evaluate suspected dementia in primary care [34] and is consistent with the two-step approach widely used in epidemiologic research on dementia. Regardless of the timing and setting, clinicians are encouraged to counsel patients to include an informant in the diagnostic process.

Components of a full dementia evaluation can vary depending on the presentation and include tests to rule in or out the various causes of cognitive impairment and establish its severity. Diagnostic evaluations include a complete medical history; assessment of multiple cognitive domains, including episodic memory, executive function, attention, language, and visuospatial skills; neurologic exam (gait, motor function, reflexes); ADL and IADL functioning; assessment for depression; and review for medications that may adversely affect cognition. Standard laboratory tests include thyroid-stimulating hormone (TSH), complete blood count (CBC), serum B_{12}, folate, complete metabolic panel, and, if the patient is at risk, testing for sexually transmitted diseases (human immunodeficiency virus, syphilis). Structural brain imaging, including magnetic resonance imaging (MRI) or computed tomography (CT), is a supplemental aid in the differential diagnosis of dementia, especially if neurologic physical exam findings are noted. An MRI or CT can be especially informative in the following cases: dementia that is of recent onset and is rapidly progressing; younger onset dementia (<65 years of age); history of head trauma; or neurologic symptoms suggesting focal disease.

6. Discussion

Unfortunately, up to 81% of patients who meet the criteria for dementia have never received a documented diagnosis

Table 3
Key advantages and limitations of brief cognitive assessment tools evaluated in multiple reviews and/or for use in the VA

Assessment*	Time (~min)	Advantages	Limitations
7-Minute Screener [48]	7–12	• Little or no education bias • Validated in primary care	• Difficult to administer • Complex logarithmic scoring
AMT [49]	5–7	• Easy to administer • Verbal memory test (no writing/drawing)	• Education/language/culture bias • Limited use in US (mostly used in Europe) • Does not test executive function or visuospatial skills
CAMCOG [50]	20	• Tests many separate domains (7)	• Difficult to administer • Long administration time
CDT [51]	≤1	• Very brief administration time • Minimal education bias	• Lacks standards for administration and scoring
GPCOG† [18]			
Patient	2–5	• Developed for and validated in primary care	• Patient component scoring has an indeterminate range that requires an informant score to assess as pass or fail
Informant	1–3	• Informant component useful when initial complaint is informant-based • Little or no education bias • Multiple languages accessible at www.gpcog.com.au	• Informant component alone has low specificity • Lacks data on any language/culture biases
Mini-Cog† [8, 19]	2–4	• Developed for and validated in primary care and multiple languages/cultures • Little or no education/language/race bias • Short administration time	• Use of different word lists may affect failure rates • Some study results based on longer tests with the Mini-Cog elements reviewed independently
MIS [23,52]	4	• Verbal memory test (no writing/drawing) • Little or no education bias	• Does not test executive function or visuospatial skills
MMSE [17]	7–10	• Most widely used and studied worldwide • Often used as reference for comparative evaluations of other assessments • Required for some drug insurance reimbursements	• Education/age/language/culture bias • Ceiling effect (highly educated impaired subjects pass) • Proprietary—unless used from memory, test needs to be purchased at www.parinc.com • Best performance for at least moderate cognitive impairment
MoCA† [53]	10–15	• Designed to test for mild cognitive impairment • Multiple languages accessible at www.mocatest.org • Tests many separate domains (7)	• Lacks studies in general practice settings • Education bias (≤12 years) • Limited use and evidence due to published data relatively new (2005) • Admin time ≥10 min
RUDAS [54]	10	• Designed for multicultural populations • Little or no education/language bias	• Validated in Australian community • Limited use and evidence due to published data relatively new (2004)
SAS-SI [55]	10	• Detected dementia better than neuropsychologic testing in a community population	• Does not test memory • Lacks data on any education/language/culture biases
SBT (BOMC† and 6-CIT) [56,57]	4–6	• Verbal test (no writing/drawing)	• Education/language/cultural/race bias • Scoring can be cumbersome • Does not test executive function
SLUMS† [58]	7	• No education bias • Tests many separate domains (7) • Available at: http://aging.slu.edu/pdfsurveys/mentalstatus.pdf	• Limited use and evidence due to published data relatively new (2006) • Studied in VA geriatric clinic (predominantly white males)
SPMSQ [59]	3–4	• Verbal test (no writing/drawing)	• Scoring can be cumbersome • Does not test short-term memory
STMS† [60]	5	• Validated in primary care • Tests many separate domains (7)	• Education/language/race bias • Studied in relatively educated subjects, may not be applicable to general population
T&C [61]	≤1	• Very brief administration time • Little or no education bias	• Strong language/cultural bias

Abbreviations: 6-CIT, 6-Item Cognitive Impairment Test; AMT, Abbreviated Mental Test; BOMC, 6-item Blessed Orientation-Memory-Concentration Test; CAMCOG, Cambridge Cognitive Examination; CDT, Clock Drawing Test; GPCOG, General Practitioner Assessment of Cognition; MIS, Memory Impairment Screen; MMSE, Mini-Mental State Examination; MoCA, Montreal Cognitive Assessment; RUDAS, Rowland Universal Dementia Assessment; SAS-SI, Short and Sweet Screening Instrument; SBT, Short Blessed Test; SLUMS, St Louis University Mental Status; SPMSQ, Short Portable Mental Status Questionnaire; STMS, Short Test of Mental Status; T&C, Time and Change Test.

*References provide descriptions of assessments.

†Brief tools used in the VA healthcare system reviewed by Kansagara and Freeman.

[35]. Delayed or missed diagnosis deprives affected individuals of available treatments, care plans, and services that can improve their symptoms and help maintain independence. Studies show that interventions tailored to patients with dementia can improve quality of care, reduce unfavorable dementia-related behaviors, increase access to community services for both the patient and their caregivers, and result in less caregiver stress and depression [36–42]. Early diagnosis of dementia also provides families and patients an opportunity to plan for the future while the affected individual is still able to participate in the decision-making processes.

Early detection and medical record documentation may improve medical care. The medical record could inform all clinicians, including those who may be managing comorbidities on a sporadic basis, that treatment and care should be adjusted to accommodate cognitive impairment. According to a 2004 Medicare beneficiary survey, among patients with dementia, 26% had coronary heart disease, 23% had diabetes, and 13% had cancer [43].

It is important to note that the unstructured and structured cognitive assessments being recommended for the AWV are only the first steps in diagnosing dementia, and cognitive assessment is best as an iterative process. For example, clinicians concerned with HRA information about decline in function may proceed directly to a structured assessment or continue to query the patient for additional information; a self-reported memory concern coupled with a failed structured cognitive assessment should always result in a full dementia evaluation.

Not all who are referred for further assessment will ultimately receive a dementia diagnosis. In a USA primary care population aged $\geq$65 years (N = 3340), 13% failed a brief screen for cognitive impairment and approximately half (n = 227) agreed to be further evaluated for dementia [7]. Among the 107 patients ultimately diagnosed with dementia, 81% were newly diagnosed based on the absence of any medical record of dementia, thus facilitating appropriate medical and psychosocial interventions [7].

Despite the many advantages of early dementia diagnosis, several barriers to diagnosis still exist. These include physician concerns of the time burden resulting from testing and counseling [35] and stigma concerns among physicians, patients, and caregivers [35,44,45]. Despite these barriers, successful widespread implementation of a brief cognitive assessment has been reported. McCarten et al [22] evaluated the Mini-Cog for routine cognitive assessment of veterans presenting for primary care. Of the 8342 veterans approached, >96% agreed to be assessed and those that failed the brief assessment exhibited no serious reactions upon disclosure of test results.

The AWV provides an unprecedented opportunity to overcome current barriers and initiate discussions about cognitive function among the growing population most at risk for Alzheimer's disease. Detection of cognitive impairment during the AWV is further supported by previously published quality indicators that state all vulnerable elders (defined as persons $\geq$65 years who are at risk for death or functional decline) should be evaluated annually for cognitive and functional status [46].

There are limitations to these recommendations. They are based on assessment of recommendations from review articles and on expert opinion, not on a new, comprehensive review of original research to define the optimal approach to detection of cognitive impairment or review of emerging technologies that could assist in testing (e.g., use of online or electronic tablet applications). Further complicating SERs of brief cognitive assessment tools is that sensitivity and specificity will vary depending on the dementia prevalence of the study population, the tool(s) used, and the cut score selected for each tool. Brodaty et al [12] recognized that published research concerning cognitive impairment screening tools is uneven in quantity and quality. The literature also is lacking in comparative validity of brief cognitive assessment tools in low-education or illiterate populations.

The Alzheimer's Association Medicare Annual Wellness Visit Algorithm for Assessment of Cognition is based on current validated tools and commonly used rule-out assessments. The use of biomarkers (e.g., CSF tau and beta amyloid proteins, amyloid tracer positron emission tomography scans) was not considered as these measures are not currently approved or widely available for clinical use.

In 2011, greater than two million Medicare beneficiaries received their AWV preventive service [47]. There are no data available as to what methods were used to detect cognitive impairment or how many beneficiaries were assessed as having cognitive impairment. For future AWVs, the Alzheimer's Association Medicare Annual Wellness Visit Algorithm for Assessment of Cognition provides guidance to primary care practices on a process to operationalize this required AWV element. With widespread implementation of the algorithm, the AWV could be the first step in reducing the prevalence of missed or delayed dementia diagnoses, thus allowing for better healthcare management and more favorable outcomes for affected patients and their families and caregivers.

7. Author Disclosures

Soo Borson is the developer of the Mini-Cog and is the owner of its copyrights.

Over the past 5 years, Malaz Boustani has received research support for investigator- initiated projects from Forest Pharmaceutical and Novartis; honoraria from Norvartis and Pfizer, Inc.; and research support for investigator-initiated projects from the NIH and AHRQ. Dr Boustani was a member of the US Preventive Services Task Force that published

the systematic evidence review, *Dementia Screening*, for the AHRQ in 2003.

RESEARCH IN CONTEXT

1. Systematic review: Our research included comparing five systematic evidence reviews (SER) of brief dementia screening tools published since 2000 and a 2010 literature review of newer brief assessments of cognition. Our research focused on determining if there was a consensus among the published SERs as to which tool is most suited for primary care and if there were any common results across the publications.
2. Interpretation: Our research concluded there is a consensus in the literature concerning suitable tools for screening for dementia in primary care. We also reaffirmed that many validated tools are available, and that screening for dementia should not be solely based on a tool, but should be a stepwise process to include other assessments.
3. Future directions: Further validation of existing and emerging screening tools (e.g., iPad applications, gait monitoring) may result in newer tools being recognized more suitable and practical for primary care settings.

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MONTREAL COGNITIVE ASSESSMENT (MOCA)

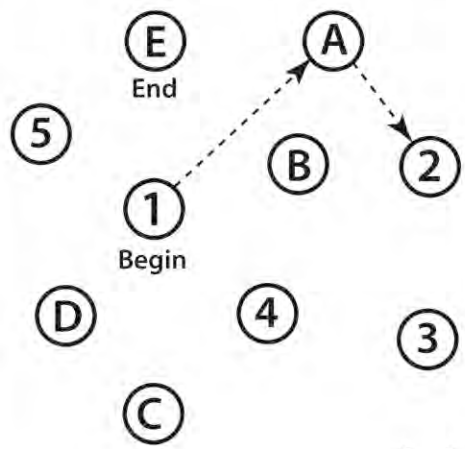
Version 7.1 Original Version

NAME :

Education : Date of birth :

Sex : DATE :

VISUOSPATIAL / EXECUTIVE



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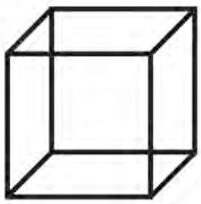


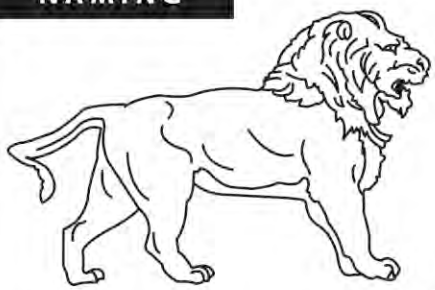
[ ] [ ]

Draw CLOCK (Ten past eleven)
(3 points)

[ ] Contour [ ] Numbers [ ] Hands

POINTS ___/5

NAMING



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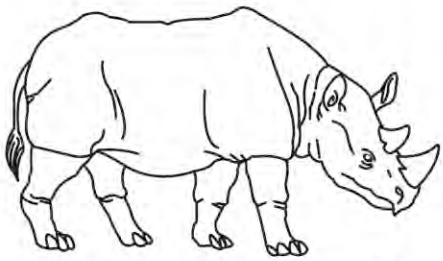

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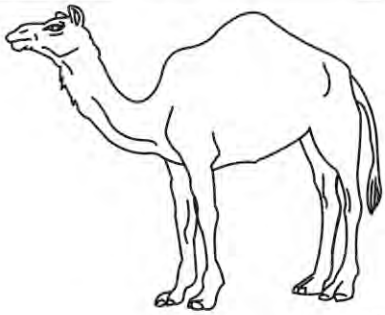

[ ]

___/3

MEMORY

Read list of words, subject must repeat them. Do 2 trials, even if 1st trial is successful. Do a recall after 5 minutes.

	FACE	VELVET	CHURCH	DAISY	RED
1st trial					
2nd trial					

No points

ATTENTION

Read list of digits (1 digit/ sec.).

Subject has to repeat them in the forward order [ ] 2 1 8 5 4

Subject has to repeat them in the backward order [ ] 7 4 2

___/2

Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors

[ ] F B A C M N A A J K L B A F A K D E A A A J A M O F A A B

___/1

Serial 7 subtraction starting at 100 [ ] 93 [ ] 86 [ ] 79 [ ] 72 [ ] 65

4 or 5 correct subtractions: **3 pts**, 2 or 3 correct: **2 pts**, 1 correct: **1 pt**, 0 correct: **0 pt**

___/3

LANGUAGE

Repeat : I only know that John is the one to help today. [ ]

The cat always hid under the couch when dogs were in the room. [ ]

___/2

Fluency / Name maximum number of words in one minute that begin with the letter F [ ] _____ (N ≥ 11 words)

___/1

ABSTRACTION

Similarity between e.g. banana - orange = fruit [ ] train – bicycle [ ] watch - ruler

___/2

DELAYED RECALL

Optional

	FACE	VELVET	CHURCH	DAISY	RED
Has to recall words **WITH NO CUE**	[ ]	[ ]	[ ]	[ ]	[ ]
Category cue					
Multiple choice cue					

Points for UNCUED recall only

___/5

ORIENTATION

[ ] Date [ ] Month [ ] Year [ ] Day [ ] Place [ ] City

___/6

www.mocatest.org

Normal ≥ 26 / 30

TOTAL ___/30

Add 1 point if ≤ 12 yr edu

Administered by: _____

I. International HIV Dementia Scale

Memory Registration						
Give the patient 4 words to recall.	*English*	Dog	Hat	Bean	Red	
Motor Speed						
Have the patient tap the first two fingers of the **non-dominant hand** as wide and as quickly as possible.		0 – 2 in 5 seconds	3 – 6 in 5 seconds	7 – 10 in 5 seconds	11 – 14 in 5 seconds	>15 in 5 seconds
Circle score:		0	1	2	3	4
Psychomotor Speed						
Have the patient perform the following movements with the **non-dominant hand** as quickly as possible. Demonstrate and have the patient perform twice for practice. 1. Clench the hand in fist on flat surface 2. Put hand flat on surface with the palm down 3. Put hand perpendicular on flat surface on the side of the 5th digit		Unable to perform	1 sequence in 10 seconds	2 sequences in 10 seconds	3 sequences in 10 seconds	4 sequences in 10 seconds
Circle score:		0	1	2	3	4
Memory Recall						
Ask the patient to recall the four words. For words not recalled, prompt with a semantic clue as follows: animal (dog); piece of clothing (hat); vegetable (bean); color (red). Give 1 point for each word spontaneously recalled; give 0.5 points for each correct answer after prompting. Maximum = 4 points						

UPCOMING EVENTS & PROGRAMS

Michigan ADRC
Alzheimer's Disease Research Center

alzheimer's association®

MDHHS
Michigan Department of Health & Human Services

COGNITIVE DISFUNCTION IN HIV AND ALZHEIMER'S: SIMILARITIES AND DIFFERENCES

Thanks to improvements in treatment and the changing demographics of when people are diagnosed with HIV, the majority of people living with HIV (PLWH) are over the age of 50 years in the US, with the Michigan statistics being 44%. Because advancing age and common comorbid conditions (e.g., heart disease, diabetes) increase the risk of Mild Cognitive Impairment (MCI) and Alzheimer's disease (AD) and also appear frequently in PLWH, it is becoming increasingly important that HIV clinicians are able to differentiate between symptoms of HAND and MCI/AD for proper treatment.

In this presentation, attendees will learn:

- Common changes in cognition that can be seen among PLWH
- Shared comorbid features leading to potential increases in cognitive difficulties in HAND and MCI/AD
- Which cognitive or behavioral symptoms evident in PLWH may require a more comprehensive evaluation
- Basic health behaviors and risk prevention for both HAND and MCI/AD

Join us for a webinar to learn more

Tuesday, June 15
5:30 - 7:00pm

Register here:
https://michmed.org/wONrk

-

Tuesday, June 22
10:30am - Noon

Register here:
https://michmed.org/Kk4DD

Michigan ADRC
Alzheimer's Disease Research Center

alzheimer's association

MDHHS
Michigan Department of Health & Human Services

CMEs for physicians, psychologists, nurses and social workers pending.

CONTACT US

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alzheimer's association
Michigan Chapter

HIV SUPPORTIVE SERVICES PROGRAM REFERRAL FORM

The Alzheimer's Association provides numerous programs and services to individuals with cognitive changes for any reason. To be connected to our local HIV Specialist, please complete the information below.

Referral Source Information			
Name:		**Agency or Hospital :**	
Phone Number:		**Email Address:**	

Identifying Information			
Name of Person with Cognitive Changes:		**Date of Birth:**	
Diagnosis:			
Name of Caregiver (if applicable):		**Relationship to Person with Cognitive Changes:**	

Contact Information			
Name of Contact Person:	☐ Person with Cognitive Changes *(same as above)* ☐ Caregiver *(same as above)* ☐ Other *(please specify relationship)*:		
Phone Number:		**Email Address:**	
Address:			

I would like more information on the following programs and services (not all programs are available in all areas):

☐ Care Consultation/Counseling regarding cognitive changes
☐ Education Programs
☐ Support Groups
☐ Social Engagement Programs
☐ Early Stage Programs
☐ Lists of local resources (ie. Transportation, Nursing Homes, Assisted Living Facilities, etc.):

_____

☐ Other

_____

The signature below indicates that I understand that a referral is being made on my behalf to the Alzheimer's Association. I give authorization for a representative of the Alzheimer's Association to contact me.

_____ _____ _____

Signature of Contact Person *Printed Name of Contact Person* *Date*

Please send the completed form via fax: **(248) 592-7375, Attn: Kate Pierce** or email: **kpierce@alz.org**

For more information on programs, please call our 24/7 Helpline at 800-272-3900 or visit our website at www.alz.org/gmc

CONTACT US

Would you like to talk with a professional about cognitive dysfunction in HIV and Alzheimer's? Need up-to-date resources, such as a physician referral, support groups, or other information?

We're available to help.

- Kate Pierce at kpierce@alz.org or 248-996-1036
- Alzheimer's Association 24/7 helpline at helplinegmc@alz.org or 800-272-3900

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