

Know the Signs of Early Alzheimer's Disease

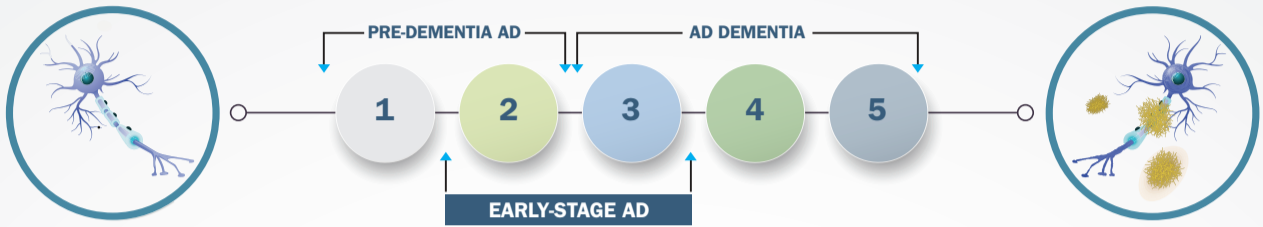


Alzheimer's disease (AD) is a progressive neurological condition that impairs thinking, memory and independence, leading to premature death.^{1,2} This devastating disease currently cannot be stopped, delayed or prevented.³

Alzheimer's disease is a continuum that consists of several stages.¹ The length of each stage and how long individuals spend in each varies from person to person.¹ AD is believed to be caused by the buildup of two proteins in the brain, amyloid beta and tau, which may begin 20 years or more before clinical symptoms occur.⁴

Early-stage Alzheimer's disease should not be confused with early-onset Alzheimer's disease. Alzheimer's disease is considered to be early onset Alzheimer's if it affects a person under the age of 65.⁵ Early-stage Alzheimer's refers to the general stage of disease progression, regardless of age.⁶

The Stages of AD



1 PRECLINICAL ALZHEIMER'S DISEASE occurs in people who have not developed symptoms but have the earliest signs of brain changes – like abnormal buildup of beta amyloid (a protein in the brain).¹

2 MILD COGNITIVE IMPAIRMENT (MCI) DUE TO ALZHEIMER'S DISEASE occurs in people with evidence of brain changes and symptoms that may be visible to friends and family, but do not significantly interfere with daily life.¹ **This is one of the early stages that represent an important opportunity to intervene with a therapy, if available, that can modify the course of AD, before further disease progression.**³

ALZHEIMER'S DISEASE DEMENTIA includes three stages of disease progression characterized by Alzheimer's-related brain changes and further decline, including worsening symptoms and functional impairment.¹

3 Mild AD dementia: People often function independently but need assistance with some activities.

4 Moderate AD dementia: The longest stage of the disease when people may have difficulties communicating and experience increased confusion.

5 Severe AD dementia: Requires constant caregiving as people may lose awareness of their surroundings and experience loss of physical abilities.

Current research efforts are focused on catching and treating the disease as early as possible – such as in the MCI due to AD stage – for the best chance of slowing or stopping the progression of AD.³

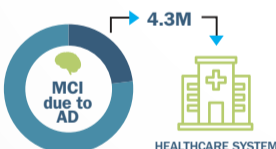
- Though 15-20% of people 65 or older have MCI, it is not part of normal aging.^{7,8}
- Symptoms: A noticeable change in cognition, such as short-term memory loss, problems with wordfinding, or losing track of the day or date.^{3,9} These symptoms should not be dismissed as “senior moments” but rather thoughtfully discussed with a healthcare provider.^{3,10}

Globally

- **50 million** people worldwide are living with AD or another form of dementia, with **10 million** new cases each year.¹¹
- AD represents about 60–70 percent of dementia cases, making its estimated worldwide prevalence approximately **35 million**.¹¹



60-70% OF DEMENTIA CASES WORLDWIDE



18.7M OF DEMENTIA CASES 67 COUNTRIES

- Based on Biogen's analysis of published studies for the G7* countries, the prevalence of probable MCI due to AD is approximately **18.7 million**, with about **4.3 million** of these already in the healthcare system.¹²

*Biogen G7 countries: France, Germany, Italy, Japan, Spain, United Kingdom and United States.

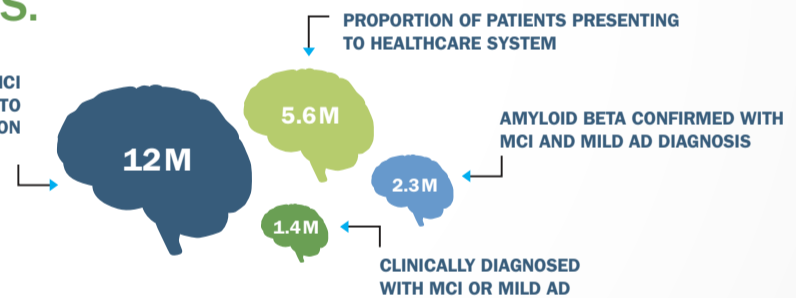
Early diagnosis

may lead to better disease management and may provide potential benefits.³

- Provides opportunity to begin health measures like exercise, mental activity and social engagement
- Maximizes the chances of participation in a clinical trial
- Allows time to plan for the future – including caregiving needs and helping to prevent or treat medical concerns
- Gives families and loved ones time to prepare
- Provides opportunity to initiate treatment earlier to slow disease progression (if a therapy becomes available)

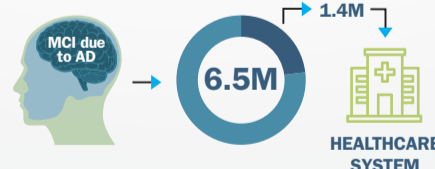
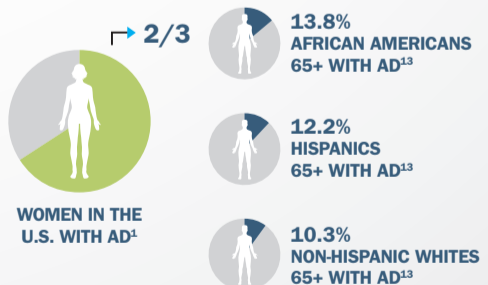
In the U.S.

PREVALENCE OF MCI AND DEMENTIA DUE TO ANY REASON



- Based on Biogen's analysis of published studies for the U.S., the prevalence of MCI suspected to be AD and mild dementia suspected to be AD is approximately 12 million.¹²
- It is important to note that MCI and dementia can be brought on by other causes that are not AD.⁷ To confirm an MCI due to AD or mild dementia due to AD diagnosis, patients need to be tested to confirm the abnormal accumulation of amyloid beta.⁷
- Based on Biogen's analysis of published data, the estimated number of people who have MCI due to AD or mild AD dementia with amyloid beta pathology in the U.S. is 6.5 million, of which 1.4 million are in the healthcare system.¹²

- AD is the sixth leading cause of death.^{1,3}
- Caregivers in the U.S. provided 18.4 billion hours of unpaid care to Alzheimer's disease and other dementia patients in 2017, which equals \$232.1 billion in economic value.³
- Women and racial and ethnic minority groups are particularly burdened by AD:



Know the continuum of AD, recognize the signs and symptoms and talk to your doctor about your cognitive health.

According to the Alzheimer's Association, **82% of seniors say it's important** to have their thinking or memory checked, **but only 16% say they receive regular cognitive assessments.**¹ Cognitive assessments are evaluations of brain function that are critical for early detection of AD.¹⁴ However, healthcare providers may often lack the information and resources they need to support brain health. Nine in ten primary care physicians say they want more guidance on nearly all aspects of the brief cognitive assessment process.¹⁵

¹ Alzheimer's Association. 2020 Alzheimer's Disease Facts and Figures. *Alzheimers Dement* 2020;16(3):391+.

² Liu, Jodi L., Jakub P Hlavka, Richard Hillestad, and Soeren Matkic, Assessing the Preparedness of the U.S. Health Care System Infrastructure for an Alzheimer's Treatment. Santa Monica, CA: RAND Corporation, 2017. https://www.rand.org/pubs/research_reports/RR2272.html. Last accessed 6/17/2020.

³ Alzheimer's Association. 2018 Alzheimer's Disease Facts and Figures. *Alzheimers Dement* 2018;14(3):367-429.

⁴ Dubois B, Hampel H, Feldman H, et al. Preclinical Alzheimer's disease: Definition, natural history, and diagnostic criteria. *Alzheimer's Dement*. 2016;12(3):292-323.

⁵ Alzheimer's Association. Younger-Onset Alzheimer's. <https://www.alz.org/help-support/have-alz/younger-onset>. Last accessed 6/17/20.

⁶ Alzheimer's Association. Stages of Alzheimer's. <https://www.alz.org/alzheimers-dementia/stages>. Last accessed 6/17/20.

⁷ Alzheimer's Association. Mild Cognitive Impairment (MCI). Available at https://www.alz.org/alzheimers-dementia/what-is-dementia/related_conditions/mild-cognitive-impairment. Last accessed 6/17/2020.

⁸ UsAgainstAlzheimer's. The Alzheimer's Crisis. <https://www.usagainstalzheimer.org/learn/alzheimers-crisis>. Last accessed 6/17/2020.

⁹ Jack CR, Bennett DA, Blennow K, et al. NIA-AA Research Framework: Toward a biological definition of Alzheimer's disease. *Alzheimer's Dement*. 2018; 14(4):535-562.

¹⁰ Wilcox J, Duffy PR. Is it a "senior moment" or early dementia? Addressing memory concerns in older patients. *Current Psychiatry*. 2016 May;15(5):28-30,32-34,40.

¹¹ World Health Organization (WHO). Dementia Key Facts. <https://www.who.int/news-room/fact-sheets/detail/dementia>. Last accessed 6/17/2020.

¹² Biogen Data on File.

¹³ Matthews KA, Xu W, Gaglioti AH, Holt JB, Croft JB, Mack D, et al. Racial and ethnic estimates of Alzheimer's disease and related dementias in the United States (2015-2060) in adults aged ≥ 65 years. *Alzheimers Dement*. 2019;15(1):17-24.

¹⁴ Alzheimer's Association. Cognitive Assessment. <https://www.alz.org/professionals/health-systems-clinicians/cognitive-assessment>. Last accessed 6/17/2020.

¹⁵ Alzheimer's Association. 2019 Alzheimer's Disease Facts and Figures. *Alzheimers Dement* 2019;15(3):321-87.