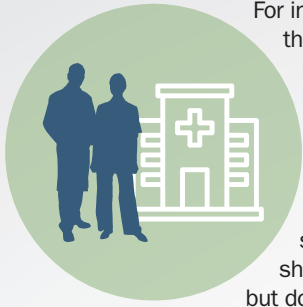


Confronting Health System Challenges

for New Alzheimer's Disease Therapies



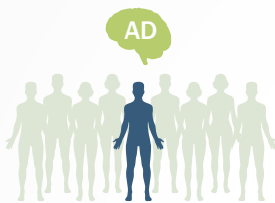
For individuals, families and society at large, the impact of Alzheimer's disease (AD) can be crippling.¹ Despite decades of research, AD remains a progressive neurological condition that currently cannot be stopped, delayed or prevented.² In the U.S., someone develops Alzheimer's disease every 65 seconds.² Current therapies provide short-term treatment of cognitive symptoms, but do not change the course of the disease.³

If a new treatment that can slow the progression of AD becomes available, research indicates that current health systems will need to be better prepared to handle the potentially high volume of people showing signs of AD who may be eligible for the therapy.^{4,5} Without urgent action and collaboration among stakeholders, a model from the RAND Corporation shows that people around the world may experience long wait times as they seek to access specialists, diagnostics and treatment, when a disease-modifying drug is approved.^{4,5} These patients may progress to more advanced stages of the disease before receiving the treatment due to healthcare system constraints.^{4,5}

A Growing Public Health Crisis

Alzheimer's disease is a growing global health crisis affecting those living with the disease and their families. According to the World Health Organization, tens of millions of people worldwide live with AD, and the number will grow in the years ahead, outpacing the healthcare resources needed to manage it and costing billions of dollars.^{4,6}

According to speculative simulation modeling conducted by the RAND Corporation, **health systems are not prepared to handle the high number of patients who could benefit from AD treatments being developed to change the course of the disease when and if they become available.**^{4,5}



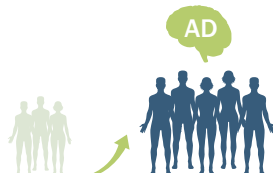
IN THE U.S., 1 IN 10 PEOPLE AGED 65 AND OLDER HAVE ALZHEIMER'S DEMENTIA.²



AD IS THE SIXTH LEADING CAUSE OF DEATH IN THE U.S. AND THE ONLY TOP TEN CAUSE OF DEATH THAT CANNOT BE PREVENTED, DELAYED, OR CURED.^{2,7}



ALZHEIMER'S DISEASE IS THE MOST FEARED DISEASE IN THE U.S.¹



THE NUMBER OF PEOPLE WITH ALZHEIMER'S DISEASE IS EXPECTED TO GROW RAPIDLY AS THE POPULATION AGES.²

• **Around 15 million Americans with mild cognitive impairment (MCI) would have to be evaluated by specialists and undergo diagnostic testing if a treatment becomes available.⁴**

- The main constraint to access in the U.S. will be a lack of available specialists.⁴

• **There is a limited availability of tests required to confirm AD diagnosis.⁴**

- Testing to confirm the presence of amyloid, a biomarker for AD, is conducted via positron emission tomography (PET) scan or a spinal tap to assess cerebrospinal fluid (CSF).⁴

- Access to these tests remains limited and insurance coverage varies by country.

• **Long waiting times for diagnosis and potential treatment are anticipated.⁴**

- In the U.S., patients may need to wait an average of 18+ months for intravenous infusion treatment after approval of a new therapy.⁴

- Failure to increase capacity would mean that, in the 20 years after a possible approval, as many as 2.1 million patients might develop AD while on a waiting list for treatment, potentially leading to further lack of independence, increased needs for caregiver support and further cognitive decline.⁴

Stakeholder Collaboration Is Essential to Meet the Needs of the Evolving AD Landscape

There are multiple stakeholders involved in the care of patients with AD. From healthcare professionals, health plans, and specialty pharmacy providers to providers of diagnostic products and infusion centers, stakeholders can take a leadership role by partnering with others to understand, manage and support the evolving AD landscape. A multifaceted approach involving stakeholders across the healthcare ecosystem will be required in order to address these challenges.

POTENTIAL SOLUTIONS INCLUDE:



TRAIN

more providers in dementia care and develop tools to make them more efficient.⁴



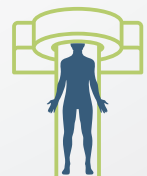
EXPAND

the range of diagnostic options.⁴



UTILIZE

all options for infusion therapy, including the home setting.⁴



ENSURE

appropriate coverage of services and tests.⁴



Biogen is committed to collaborating with partners to advance healthcare systems readiness to more effectively diagnose and treat people living with Alzheimer's disease.

¹ UsAgainstAlzheimer's. The Alzheimer's Crisis. <https://www.usagainstalzheimer.org/learn/alzheimers-crisis>. Last accessed 6/17/20.

² Alzheimer's Association. 2018 Alzheimer's Disease Facts and Figures. *Alzheimers Dement* 2018;14(3):367-429.

³ Cummings J, Fox N. Defining Disease Modifying Therapy for Alzheimer's Disease. *J Prev Alz Dis*. 2017;4(2):110-116.

⁴ Liu, Jodi L., Jakub P Hlavka, Richard Hillestad, and Soeren Mattke, 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 4/2/2020.

⁵ Hlavka, Jakub P, Soeren Mattke, and Jodi L. Liu, Assessing the Preparedness of the Health Care System Infrastructure in Six European Countries for an Alzheimer's Treatment. Santa Monica, CA: RAND Corporation, 2018. https://www.rand.org/pubs/research_reports/RR2503.html.

⁶ World Health Organization. Dementia. <https://www.who.int/news-room/fact-sheets/detail/dementia>. Last accessed 6/17/20.

⁷ Kochanek KD, Murphy SL, Xu J, et al. National Vital Statistics Reports. 2016;65(4). Hyattsville, MD: National Center for Health Statistics.