Expert Views

Alzheimer's Disease

Recent advances in the detection and treatment of Alzheimer's disease: What's the impact for insurers?



SCOR
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Executive summary

- In recent years, there have been significant advancements in the diagnosis of Alzheimer's disease (AD), which is now being detected earlier than ever before. This is good news for the treatment of patients suffering from this disease, bringing hope in terms of new therapeutic approaches and maybe even deferring or slowing down the progression of symptoms.

- New biomarker-based definitions will most likely lead to a significant increase in the number of Alzheimer's disease diagnoses over the coming decades, irrespective of cognitive impairment or the aging population.

- There are positive signals from new therapeutic approaches with GLP-1 receptor agonists, which are currently in phase 3 trials and seem to have neuroprotective effects in the development of Alzheimer's disease. This could help to curb the trend of increasing cases.

- From an insurer's point of view, earlier diagnoses could impact Long-Term Care (LTC) and Critical Illness (CI) products. These scientific advances need to be taken into account through updated medical questionnaires and definitions, to address the risk of information asymmetry that might otherwise arise.

- Adverse selection could strongly affect Long-Term Care products if Alzheimer's disease can be diagnosed based purely on biomarkers, whereas earlier diagnoses could pose an issue for Critical Illness contracts.



Introduction

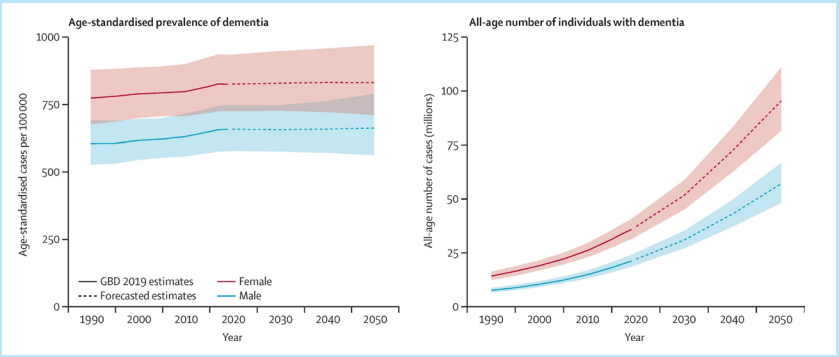
Dementia is one of the leading causes of dependency and disability worldwide. It is estimated that more than 50 million people suffer from this condition, with Alzheimer's disease (AD) being the primary dementia subtype (60–70%).[1] [2] [3]

Dementia is commonly seen as hereditary, and indeed there are known genetic risk factors such as the number of APOE-e4 genes. However, science has identified 14 modifiable, treatable or environmental dementia risk factors, namely hearing loss, high LDL cholesterol, lower level of education, social isolation, depression, head injury, air pollution, arterial hypertension, smoking, physical inactivity, diabetes mellitus, visual loss, obesity, and excessive alcohol consumption, which collectively account for almost 45% of global dementia cases.[4]

Alzheimer's Disease is a particularly pressing issue in regions with aging populations, such as Western Europe and North America. However, countries in Latin America and China are also experiencing this challenge. The fastest growth areas for the disease in the coming years look set to be low- and middle-income countries, which are predicted to account for 71% of global dementia cases by 2050.[3]

Even without considering the changes in AD definition as discussed below, global dementia cases are expected to rise to 152 million by 2050.[3] Because no disease-modifying therapies are clinically available at the present time, this prediction considers the efforts being made to modify known risk factors.

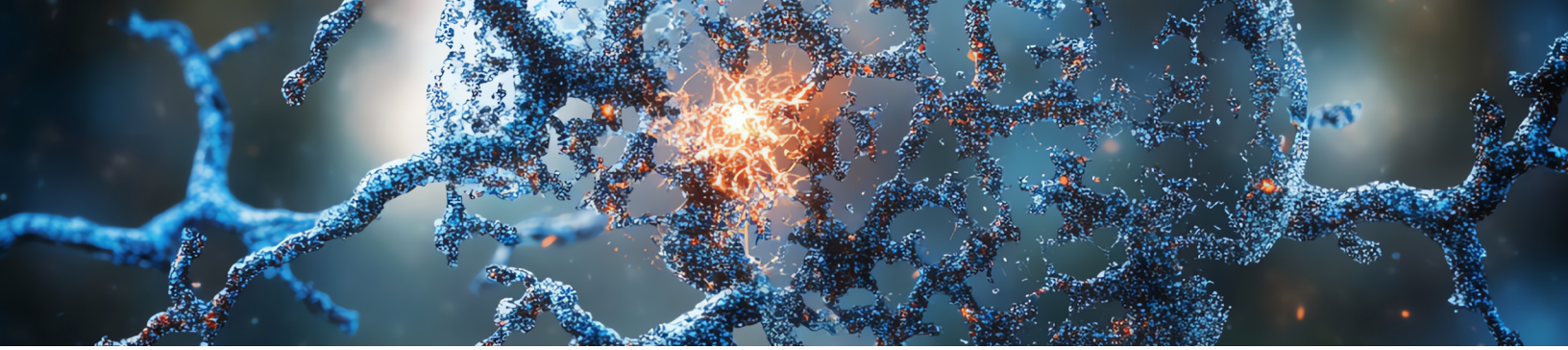
Figure 1: Estimated trends in the global age-standardised dementia prevalence (A) and all-age number of cases (B), with 95% uncertainty intervals, 2019–50. GBD=Global Burden of Diseases, Injuries, and Risk Factors Study.



Source: GBD 2019 Dementia Forecasting Collaborators.

Source: GBD 2019 Dementia Forecasting Collaborators. Estimation of the global prevalence of dementia in 2019 and forecasted prevalence in 2050: an analysis for the Global Burden of Disease Study 2019. Lancet Public Health. 2022 Feb;7

The World Health Organization estimated that the global cost of dementia was around USD 818 billion in 2015, equivalent to 1.1% of global gross domestic product, ranging from 0.2% in low- and middle-income countries to 1.4% high-income countries. Therefore, dementia is considered a global public health priority. The global cost of dementia is estimated to reach 16.9 trillion USD by 2050.[5]



The introduction of new biomarkers is changing the definition of Alzheimer's disease

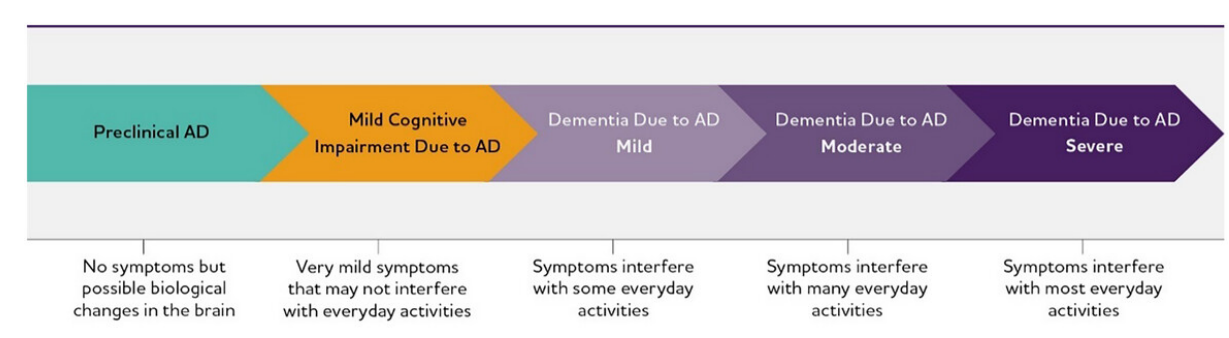
The diagnosis of Alzheimer's disease (AD) is currently undergoing a profound transformation, marked by an evolution towards a biomarker-based approach.

Biomarkers can be separated into two categories: (1) cerebrospinal fluid (CSF), or blood plasma analytes (such as Amyloid-beta 42 and tau protein)[6 7] and (2) imaging results (amyloid PET and tau PET).[8] However, many blood-based tests do not yet meet clinical standards, and CSF markers require an invasive medical procedure, while PET scans are costly.

Based on biomarkers, the US Alzheimer's Association has proposed revised criteria for the diagnosis and staging of Alzheimer's disease.[9 10] They advocate the use of biomarkers for a diagnosis of AD, without requiring clinical symptoms. The rationale behind this is that Alzheimer's disease should be defined biologically, like other diseases, and not based on a clinical syndrome. Consequently, a biomarker-positive cognitively normal person can be diagnosed with AD, thus allowing for earlier intervention.[11] Several international expert groups recognize the importance of biomarkers in the diagnostic approach, but recommend associating these with clinical data for diagnosis criteria.[12] The conceptual approach proposed by the International Working Group is to maintain the essential clinical-pathological concept of AD. They recommend separating asymptomatic at-risk individuals (with positive biomarkers) from those who already have the clinical disease. Thus, under this approach, a biomarker-positive cognitively normal person cannot be diagnosed with AD.

Other definitions will most likely be proposed and discussed until an official one is accepted by neurology experts.
However, and importantly for insurance, all the new definitions will permit earlier diagnosis. From an epidemiological point of view, an increase in prevalence will be observed in the coming years due to diagnostic accuracy. This increase can be viewed as partially artificial, as the incidence is actually just sooner in the diagnosis and represents a temporal shift as opposed to additional cases.

Figure 2: Alzheimer's disease (AD) continuum. Although these arrows are of equal size, the components of the AD continuum are not equal in duration.



Source: Alzheimers & Dementia, Volume 20, Issue 5, May 2024, Pages 3708-3821



In fact, in the US, from 2008 to 2018, the prevalence of amyloid positivity in asymptomatic individuals aged 80–89 years was estimated at around 40%, and for adults aged older than 50 years around 22%.[8] This means that 26 million people in the United States alone may be amyloid-positive and, according to the AA 2024 criteria, such individuals can now be classified as having AD.[7]

Promising new treatments could delay the onset of the disease

Amyloid-beta monoclonal antibody treatment has emerged as a promising approach for the treatment of Alzheimer's disease, with substances including Bapineuzumab, Solanezumab, Gantenerumab, Aducanumab, Crenezumab, Lecanemab, and Donanemab entering clinical trials. However, several of these have been discontinued after they failed to show significant cognitive benefits in patients, despite reducing key biomarkers. But even for those that obtained FDA approval, amyloid removal has not translated into clinically significant cognitive or functional benefits, while serious adverse effects have been observed such as cerebral haemorrhage and oedema.

Coming from a different direction altogether, recent articles have shown that the use of certain diabetes medications could prevent AD.

Emerging preclinical evidence suggests that Semaglutide, a glucagon-like peptide receptor agonist (GLP-1RA) used for type 2 diabetes and obesity treatment, protects against neurodegeneration and neuroinflammation. Semaglutide may have a disease-modifying, neuroprotective effect in AD through multimodal mechanisms including neuroinflammatory, vascular, and other AD-related processes. Studies have conducted emulation target trials based on a nationwide database of the electronic health records of 116 million US patients. Semaglutide has been associated with significantly reduced risk for first-time AD diagnosis.[13]

In another study, GLP-1RAs were also found to reduce the incidence of dementia in people with type 2 diabetes; researchers assessed exposure to GLP-1RAs and subsequent diagnosis of dementia in data sources with long-term treatment exposure. The decreased rate of dementia with increasing exposure to GLP-1RAs was statistically significant throughout different calendar intervals.[14]

More insights are expected from the "evoke" and "evoke+" studies, which are randomized, double-blind, placebo-controlled phase 3 trials investigating the efficacy, safety, and tolerability of once-daily oral Semaglutide versus placebo in early-stage symptomatic AD.[15] Participants are aged 55–85 years, with mild cognitive impairment or mild dementia due to AD with confirmed amyloid abnormalities. Patients in each trial are randomized (1:1) into one of two treatments: Semaglutide or a placebo for 156 weeks (104-week main treatment phase and 52-week extension). Randomized participants follow an eight-week dose escalation regimen (3 mg [weeks 0–4], 7 mg [weeks 4–8], and 14 mg [weeks 8–156]). The primary endpoint is the Semaglutide–placebo difference on change from baseline to week 104 in the Clinical Dementia Rating (CDR) – Sum of Boxes score. CDR scale evaluates cognitive and global functions. The examiner asks the patient questions to assign a severity score to each cognitive function (memory, orientation and judgement capacity) and activities of daily life. Analyses of plasma biomarkers collected from all participants, along with a CSF sub-study, will explore Semaglutide effects on AD biomarkers and neuroinflammation. Completion of the trials' main phase is expected in late 2025, and the 52-week extension (in which participants and investigators remain blinded to treatment assignment) will continue until October 2026.



SCOR Life & Health definition of Alzheimer's disease for Critical Illness

Deterioration or loss of intellectual capacity and/or abnormal behaviour, as diagnosed and certified by a consultant neurologist. The diagnosis of Alzheimer's disease or other organic dementia must be evidenced by the clinical state, accepted questionnaires, and tests relating to Alzheimer's Disease or irreversible organic degenerative disorders. The disease must result in a significant reduction in both mental and social functioning, thus requiring continuous supervision and assistance for the insured. Diagnosis must be established before age 60. Neurosis and psychiatric disorders are excluded.

Consequences for insurers: risks of adverse selection and rising claims

From an insurance perspective, it is mandatory for patients to inform their insurers about all relevant medical developments. In the case of shifting diagnosis criteria as described above, there is a risk of adverse selection, with asymptomatic individuals who present positive biomarkers seeking CI or LTC insurance. They would be acting in the knowledge that they have a higher-than-average risk, thereby going against the fundamental insurance principle of acting in utmost good faith. To continue to treat all applicants fairly, it will be important to review the definition of the disease and the acceptance rules for each product.

For CI covers, the definition of Alzheimer's disease needs to be checked to confirm that, in terms of claims, there will be no impact if the medical definitions are changed by the inclusion of biomarkers. The definition for insurers must include the notion of a significant reduction in mental and social functioning.

Several LTC products have a waiting period of three years for neurological diseases (this is due to the low discrimination of questions on the underwriting form). With a broader use of biomarkers, the waiting period will become ineffective at stopping adverse selection.

To mitigate adverse selection, the underwriting form may include a question such as "Have you ever undergone a biological screening for dementia biomarkers?"

We do not expect an increase in Alzheimer's disease claims under CI covers if (1) the definition continues to include the deterioration of mental health and the diagnosis is established before 60 years of age, and (2) if the underwriting conditions are reviewed (selection form and waiting period).



Conclusion

In summary, recent advances surrounding GLP-1 receptor agonists offer new hope for the prevention and treatment of Alzheimer's disease, particularly thanks to their neuroprotective effects and the observed reduction in dementia risk among patients with type 2 diabetes. Ongoing clinical studies, such as the "evoke" and "evoke+" trials, will provide further insight into their efficacy in the early stages of the disease. From an insurance perspective, evolving diagnostic criteria raise important issues, especially regarding risk selection and the management of existing contracts. It will be crucial to adapt definitions and acceptance conditions to ensure fairness and sustainability of coverage. Thus, the convergence of medical innovation and insurance policy will determine the ability to meet the needs of an aging population while managing risks for insurance systems.

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This article was written by:



Gabriela BUFFET
M.D., Associate Medical Director



Perrine BAYLE
M.D., Associate Medical Director
pbayle@scor.com



Antoine MOLL
Head of Medical Underwriting Modelling
amoll@scor.com

Please feel free to visit us at scor.com

SCOR SE
5 avenue Kléber - 75795 PARIS Cedex 16
France

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