



CG Analysts

Dementia: An increasing global problem
and a complex underwriting condition
for the Life Settlement industry

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Introduction

The Centers for Disease Control and Prevention emphasises that dementia is not just a specific ailment. It is a broad descriptor for the impairment of cognitive functions such as memory, thinking, and decision-making, which can disrupt daily activities. While dementia predominantly affects the elderly, it is not a natural mode of ageing process. Typical ageing-related changes are physical factors, like muscle and bone weakening, arterial and vessel stiffening, with some minor memory alterations, which tend to leave one's accumulated knowledge, life experiences, old memories, and language capabilities unaltered.¹

When underwriting new applications for a conventional life insurance policy, medical underwriters will not normally come across dementia. This is because the need for life insurance is generally far less by the time someone has reached the age the disease is usually diagnosed (65+), or symptoms begin and medical assistance is sought. Also, from a legal point of view, the application form would need to be completed by the insured (not a Power of Attorney or other third party) so this would often preclude the insurance cover being accepted for someone already suffering from dementia who is unable to complete the relevant documents.

For a life settlements underwriter however, dementia is a condition commonly seen due to older lives being underwritten and the increasing prevalence of the disease. Many factors need to be taken into account when assessing these risks. This article aims to provide a useful overview of the condition and what one needs to be mindful of during the underwriting process.

An increasing global problem

Dementia presents a striking statistical landscape, characterised by a new case emerging approximately every three seconds on a global scale. In 2020, the worldwide count of individuals living with dementia exceeded 55 million, with projections indicating a remarkable near doubling of this figure every two decades. Estimates point towards an increase in case numbers to 78 million by 2030, rising to a staggering 139 million by 2050. This surge is not primarily attributed to an increase in the prevalence of dementia with age but rather to the combined effects of population growth and aging. Nevertheless, research suggests that lifestyle factors may contribute to nearly 7 million cases by 2050, with a significant portion of this increase concentrated in developing nations. Currently, 60% of dementia cases are located in low and middle-income countries, a statistic expected to climb to 71% by 2050.²

According to several studies reported at the 2022 Alzheimer's Association International Conference, socioeconomic deprivation, including neighbourhood disadvantages and persistent low wages, are associated with higher dementia risk, lower cognitive performance, and faster memory decline.

Epidemiologic studies have shown that higher education attainment (as a cognitive-stimulating activity) and household income (permitting more opportunities for healthy lifestyle) are protective for dementia. Conversely, low occupational employment was found to be associated with increased dementia risk.³

¹ [What Is Dementia? | CDC](#)

² [Dementia | WHO](#)

³ [Highlights from AAIC 2022 | Alzheimer's Association](#)

Spiralling costs

The economic implications of this escalating challenge are substantial. In 2015, the estimated global cost of dementia stood at an astounding US\$ 818 billion, constituting approximately 1.09% of the global GDP at that time. Presently, the annual worldwide cost of dementia has surged beyond US\$ 1.3 trillion, with forecasts indicating an impending escalation to US\$ 2.8 trillion by 2030. Dementia has now become the 7th leading cause of death and a major contributor to disability and dependency among older individuals on a global scale.⁴

Different types of dementia

Various types of dementia exist, with the most prevalent including Alzheimer's disease, dementia with Lewy bodies, vascular dementia, fronto-temporal dementia, and young onset dementia.

- Alzheimer's, which comprises approximately 55-70% of all cases, is named after Alois Alzheimer, who first documented the condition, and leads to the destruction of brain cells and disrupts nerve transmissions, particularly those associated with memory storage.
- Vascular dementia is the second most prevalent form and can manifest subsequent to a stroke, or more commonly, several mini strokes where arteries in the brain become obstructed. The impact on cognitive functions following a stroke is proportional to the severity, number, and locations of the stroke.
- Dementia with Lewy bodies, accounting for approximately 10-15% of dementia cases, shares similarities with Alzheimer's. It arises from abnormal protein accumulations in brain cells, causing disruptions in brain chemistry and nerve cell death. This condition is characterised by the presence of Lewy bodies, which are abnormal protein clusters in brain nerve cells. Lewy body dementia results in complex symptoms, including hallucinations, alterations in alertness and sleep disturbances, often affecting cognitive and motor functions. Memory impairment is typically less severe compared to early-stage Alzheimer's. Two subtypes of Lewy body dementia exist, differing in the onset of symptoms:
 - Dementia with Lewy bodies: Initial symptoms include changes in thinking, visual perception, and sleep, with movement issues occurring simultaneously or later.
 - Parkinson's disease dementia: Initial Parkinson's symptoms precede cognitive changes, although not all individuals with Parkinson's will develop dementia; however, their risk is elevated.
- Frontal lobe dementia shares a similar progressive decline pattern with Alzheimer's but involves more localised brain cell damage, primarily affecting the frontal lobe with a characteristic clinical pattern.
- Young onset dementia affects people before the age of 65.

⁴ [Dementia statistics | Alzheimer's Disease International \(ADI\)](#)

Each person's dementia experience is unique, with similar symptoms across age groups; however, younger individuals with dementia have distinct needs, with the impact on their lives likely to be significantly greater than those of older lives.

Risk factors

There are numerous risk factors that affect the likelihood of developing one or more kinds of dementia. These include the following:

- Age - risk increases with age, usually over the age of 65.
- Genetics/family history - researchers have discovered several genes that increase the risk of developing Alzheimer's disease. Having a family history of Alzheimer's disease is generally considered to be a risk factor for developing the disease, however, many people who have relatives with Alzheimer's disease never develop the disease, and many without a family history of the disease do get it.
- Social risk factors - including smoking, alcohol use, lack of exercise and social isolation.
- Diseases causing atherosclerosis - this can be a significant risk factor for vascular dementia, as it interferes with blood supply to the brain and can lead to strokes. High cholesterol levels, smoking, untreated hypertension, and diabetes are the most common risk factors for atherosclerosis.

Signs and symptoms

The signs and symptoms of dementia can vary depending on the specific type of dementia as each type affects different areas of the brain. These can include the following:

- Memory loss.
- Impaired judgment/confusion.
- Communication challenges.
- Disorientation.
- Financial/daily functioning issues.
- Repetitive behaviours.
- Prolonged task completion.
- Diminished interest.
- Hallucinations/delusions.
- Altered behaviour/impulsivity.
- Motor and balance impairments.

It is essential to recognize that the presentation of signs and symptoms and the progression can vary from one person to another. By obtaining and assessing this information, along with more general health data, the underwriter will hopefully be able to build a good, overall picture of the insured's health status and provide an accurate life expectancy estimation.

Stages of dementia

Dementia is a progressive condition that gradually gets worse over time. The disease affects everyone differently; however, it will generally progress in the following stages:

➤ Early stage

In the initial phase of dementia, often referred to as early or mild dementia, individuals begin to manifest symptoms. These early indicators can sometimes go unnoticed. During this stage, individuals typically retain a degree of independence, but they may encounter memory lapses that impact their daily lives, such as difficulties recalling words or locating objects.

Common symptoms associated with early-stage dementia include:

- Early memory impairment, leading to the forgetfulness of recent events
- Alterations in personality, characterised by increased introversion or withdrawal
- Occasional disorientation or difficulties in familiar surroundings
- Challenges with complex problem-solving and tasks, including financial management
- Impaired ability to organise thoughts and express them clearly

Individuals in early phase may also experience heightened feelings of irritation, anxiety, or frustration due to their changing abilities.

➤ Middle stage

Individuals in the middle or intermediate stage of dementia, often referred to as moderate dementia, encounter more pronounced symptoms. The performance of everyday tasks, including dressing, eating, and bathing, become increasingly challenging.

Many individuals may need daily assistance from a caregiver within their home environment. Alternatively, some opt to transition to assisted living facilities that specialise in dementia care.

Key indicators of middle-stage dementia include:

- Confusion and impaired judgement
- Increasing forgetfulness, extending to names of close friends and family members
- Worsened short-term memory loss, often characterised by repetitive behaviours
- Growing long-term memory lapses, leading to the forgetting of events from the distant past
- Occurrence of delirium, paranoia, or hallucinations

Moreover, personality and behavioural alterations may become more frequent, often driven by agitation and unfounded suspicions. These changes may be evident in the following:

- Disturbances in sleep patterns, such as daytime drowsiness and nighttime restlessness
- Episodes of screaming, yelling, or shouting
- Sundowning, a state of confusion, disorientation, or restlessness during the evening
- Expressing inappropriate or socially unacceptable statements

The middle stage of dementia typically extends over the longest duration, lasting an average of two to four years.

➤ Late stage

Individuals in the late or advanced stage of dementia, often referred to as severe dementia, generally necessitate around-the-clock care, whether in a home setting or within a nursing facility.

This stage is associated with a significant reduction in life expectancy.

Noteworthy symptoms during this late stage of dementia may include:

- Profound communication impairment, sometimes limited to speaking in one's childhood language or inarticulate sounds
- Distorted perception of time, leading to a distorted sense of temporal reality
- Complete reliance on others for all daily activities, including eating, dressing, and bathing
- Inability to recognize familiar faces, including those of friends, family, or even their own reflection in a mirror
- Severe loss of physical abilities, encompassing the inability to walk, sit, swallow, or support one's head
- Incontinence, resulting in a lack of control over bladder and bowel functions
- Susceptibility to infections, such as pneumonia

The late stage of dementia is typically the shortest phase in the progression of the condition, spanning an average duration of one to two years.

➤ End stage in Dementia

Individuals in the end stage of dementia face an increased vulnerability to numerous medical complications, primarily due to their limited mobility. Individuals are particularly susceptible to specific conditions, including urinary tract infections (UTIs) and pneumonia, which can be attributed to their immobility. Additionally, they may experience skin breakdown, pressure ulcers and an increased risk of blood clots.

Challenges with swallowing, eating, and drinking often result in weight loss, dehydration, and malnutrition, further elevating the risk of infections. Ultimately, a majority of individuals in the late stage of dementia die due to the underlying dementia itself or complications related to the condition.

Available treatments

Within the realm of Alzheimer's disease, the FDA (Food and Drug Administration) has granted approval to medications that fall into two distinctive categories: The drugs that change disease progression and the drugs that may temporarily mitigate some symptoms of Alzheimer's dementia.

➤ Disease Progression-modifying medications

These are treatments that are tailored to slow the progression of Alzheimer's by targeting the underlying biological mechanisms of the disease. Their aim is to decelerate the decline in memory, cognitive abilities, and overall functioning among individuals living.

– Amyloid-Targeting Approaches

These treatments are focused on the removal of beta-amyloid, a protein that accumulates into plaques in the brain. Various treatments within this category target beta-amyloid at different stages of plaque formation. The meaningful impact of these therapies is evident in the early stages of Alzheimer's, allowing affected individuals more time to engage in daily activities and maintaining independent living. Clinical trials have shown that participants receiving anti-amyloid treatments experienced a reduction in cognitive decline as measured

by cognitive and functional assessments. Aducanumab and Lecanemab received FDA approval for treatment of early Alzheimer's disease, for individuals with mild cognitive impairment or mild dementia. These have proven to effectively reduce cognitive and functional decline in individuals with early-stage Alzheimer's. Each works differently and targets beta-amyloid at a different stage of plaque formation.

➤ Symptom-alleviating medications

These medications primarily target cognitive symptoms, such as memory and thinking. As the disease progresses, it leads to the loss of brain cells and connections. These medicines don't halt the fundamental damage caused, but they can temporarily mitigate or stabilise cognitive symptoms by influencing certain chemicals crucial for inter-neuronal communication.

- Cholinesterase Inhibitors

These prevent the breakdown of acetylcholine, a key chemical messenger important for memory and learning. By supporting communication between nerve cells, they address various aspects of memory, thinking, language, judgement, and other cognitive processes. Notable cholinesterase inhibitors include Donepezil (approved for all stages of Alzheimer's disease), Rivastigmine (approved for mild-to-moderate Alzheimer's as well as mild-to-moderate dementia associated with Parkinson's disease), and Galantamine (approved for mild-to-moderate stages of Alzheimer's disease).

- Glutamate Regulators

These types of medications are designed to enhance memory, attention, reasoning, language, and the ability to perform simple tasks by regulating glutamate activity. Glutamate is a critical chemical messenger, sending messages between nerve cells in the brain and essential for the brain to function properly. Memantine is an FDA approved glutamate regulator, licensed for use in moderate-to-severe Alzheimer's disease.

- Deep Brain stimulation

Brain stimulation therapies involve the use of electrical currents to either activate or deactivate specific brain functions.

The final cause of death in dementia patients

Dementia is a serious, progressive condition which is eventually terminal. Dementia itself may not be the ultimate cause of death, however, complications of the condition frequently are. The following are often noted to be final causes of death in people suffering with dementia:

- Accidents and incidents (can lead to an increased danger of falls and fractures)
- Food and frailty (inability to eat)
- Aspiration and infections (inability to coordinate breathing and swallowing)
- Co-existing illnesses (dementia can cause complications to other chronic conditions)

The potential impact of Artificial Intelligence (AI) in the diagnosis and treatment of dementia

AI has become part of our lives in many ways, not least in the world of medicine. Some areas where AI could have a positive impact on dementia are listed below:

- Reduce the financial burden
 - quicker diagnosis and at a lower cost
 - better management of the condition and reduction in the overall financial cost
- Reduced risk of misdiagnosis
- Early detection which would improve the quality of life for those affected
- More efficient treatment
- Assistance with clinical trials
- Machine learning and deep learning methods for dementia diagnosis and progression detection
- Overall better information/literature for doctors

What to look for when underwriting a dementia case

In any form of medical underwriting, the underwriter needs to build up a clear picture of the insured's health status. No one person is the same, so gathering as much information as possible will provide the underwriter with a holistic overview in order to gauge the extent of cognitive and physical deterioration. The most recent neurological reviews will provide an up-to-date clinical overview and any details pertaining to the insured's ability to carry out *ADLs/IADLs will be very useful. This will assist in deciding which stage of dementia the insured has reached and what their future life expectancy may be. Underwriting considerations should include the following:

- Is there a strong family and care support system?
- Is the insured still socially active?
- Which ADL's and IADL's is the insured still capable of doing?
- Is the insured still mobile and doing regular exercise?
- Is the insured bedridden?
- Is there a history of falls and, if so, how frequent are they?
- Is the insured in a sheltered care facility?
- When was dementia first diagnosed?
- How quickly is the insured declining?
- What form of treatment is the insured receiving?
- How good is the nursing care received?
- What other medical conditions are present?
- Is there a "Do not resuscitate" order in place?

**ADLs - Activities of daily living, for example washing and dressing*

IADLs - Instrumental activities of daily living, for example managing medications or finances

Conclusion

Dementia is very complicated in every aspect, from diagnosis to treatment and management. While some elements, like age and genetic predisposition are beyond our control, other factors, such as lifestyle choices and the management of chronic conditions, offer possibilities for potential risk

reduction. Understanding the relationship of these factors is crucial in developing effective strategies for dementia prevention and intervention.

Recent news from the NHS (the UK's National Health Service) states that scientists are to begin piloting simple blood tests for dementia that could revolutionise detection of the disease and, within five years, lead to people being diagnosed in seconds. Earlier detection could result in earlier treatment and possibly increased longevity. The trialling of new drugs which could potentially improve the cognitive functioning of dementia sufferers could also have a positive impact on longevity. Remaining up to date with these advancements in order to maintain accurate life estimations is, obviously, critically important.

As the population continues to age and the prevalence of dementia rises, we anticipate a corresponding increase in underwriting demands for this condition. Therefore, ensuring underwriting guidelines and predicted survival rates are maintained and updated, when necessary, will be essential.