

**NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE**

**Health Technology Evaluation**

**Lecanemab for treating mild cognitive impairment or mild dementia caused by Alzheimer's disease**

**Final scope**

**Remit/evaluation objective**

To appraise the clinical and cost effectiveness of lecanemab within its marketing authorisation for treating mild cognitive impairment or mild dementia caused by Alzheimer's disease.

**Background**

Alzheimer's disease is a progressive neurological disease and is the most common type of dementia, accounting for 50 to 75% of dementia cases.<sup>1</sup> It is thought to be caused by the abnormal build-up of proteins in and around brain cells. One of these proteins is called beta-amyloid. Deposits of amyloid proteins form plaques around brain cells and disrupt neurone function.<sup>2</sup> Mild cognitive impairment caused by Alzheimer's disease refers to the set of symptoms that occur before the dementia stage of Alzheimer's disease. These can include mild problems with memory, reasoning, attention, language or visuospatial function. Alzheimer's disease usually develops slowly from these initial symptoms and progression is characterised by deterioration in cognition, functional ability and associated behavioural and psychiatric symptoms. Differential diagnosis of Alzheimer's disease as the cause for people presenting with mild cognitive impairment compared with other causes of mild cognitive impairment is not straightforward from a clinical perspective. However, diagnostics used for Alzheimer's disease, such as positron emission tomography (PET) scan or cerebrospinal fluid (CSF) testing, can be used to differentiate mild cognitive impairment due to Alzheimer's disease from mild cognitive impairment due to other causes.<sup>3</sup>

The number of people with dementia in England was estimated as 748,000 in 2019, with 107,100 cases of mild dementia.<sup>4</sup> Therefore, the number of people diagnosed with mild dementia due to Alzheimer's disease has been estimated to be around 80,000, however, many of these will not have been confirmed by biomarker tests. The largest risk factor for dementia is age, with over 95% of all cases in people aged over 65.<sup>5</sup>

The exact number of people with mild cognitive impairment is unknown. Mild cognitive impairment is prevalent in 5% to 20% of all people over 65. There is a higher risk of developing dementia in people with mild cognitive impairment than people without mild cognitive impairment, with approximately 5% to 20% of people with mild cognitive impairment developing dementia, although there is variation in risk estimates.<sup>6</sup>

There is no cure for Alzheimer's disease and there are currently no disease modifying treatments approved for use in the UK. Current management of mild cognitive impairment and mild dementia due to Alzheimer's disease aims to improve cognitive, non-cognitive and behavioural symptoms, but does not slow progression of

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the underlying disease.<sup>7</sup> NICE guidance (TA217 and NG97) recommends acetylcholinesterase (AChE) inhibitors (donepezil, galantamine and rivastigmine) as options for managing mild to moderate Alzheimer’s disease and memantine alone or in addition to an AChE inhibitor as an option for managing moderate or severe Alzheimer’s disease depending on existing treatment and intolerance to AChE inhibitors. There is no pharmacological management recommended for mild cognitive impairment due to Alzheimer’s disease. Non-pharmacological management for mild to moderate Alzheimer’s disease includes risk factor modification, social support, increasing assistance with day-to-day activities, information and education, carer support groups, community dementia teams, home nursing and personal care, community services, befriending services, day centres, respite care and care homes.

**The technology**

Lecanemab (██████████, Eisai Ltd) does not currently have a marketing authorisation in the UK. It has been studied in clinical trials compared with placebo in people with early Alzheimer’s disease who meet the criteria for mild cognitive impairment due to Alzheimer’s disease or mild dementia due to Alzheimer’s disease.

<b>Intervention(s)</b>	Lecanemab plus established clinical management
<b>Population(s)</b>	People with mild cognitive impairment or mild dementia due to Alzheimer’s disease
<b>Subgroups</b>	<p>If the evidence allows the following subgroups will be considered:</p> <ul style="list-style-type: none"> <li>• Apolipoprotein E 4 (ApoE4) gene carrier status</li> <li>• Mild cognitive impairment due to Alzheimer’s disease</li> <li>• Mild dementia due to Alzheimer’s disease</li> </ul>
<b>Comparators</b>	<p>Established clinical management without lecanemab, including but not limited to:</p> <ul style="list-style-type: none"> <li>• For mild cognitive impairment due to Alzheimer’s disease: <ul style="list-style-type: none"> <li>○ Non-pharmacological management</li> </ul> </li> <li>• For mild dementia due to Alzheimer’s disease: <ul style="list-style-type: none"> <li>○ An AChE inhibitor plus non-pharmacological management</li> </ul> </li> </ul>

<b>Outcomes</b>	<p>The outcome measures to be considered include:</p> <ul style="list-style-type: none"> <li>• cognitive and functional impairment</li> <li>• non-cognitive symptoms (e.g. behavioural and psychiatric symptoms)</li> <li>• mortality</li> <li>• ability to remain independent</li> <li>• admission to full-time care</li> <li>• adverse effects of treatment</li> <li>• health-related quality of life.</li> </ul>
<b>Economic analysis</b>	<p>The reference case stipulates that the cost effectiveness of treatments should be expressed in terms of incremental cost per quality-adjusted life year.</p> <p>The reference case stipulates that the time horizon for estimating clinical and cost effectiveness should be sufficiently long to reflect any differences in costs or outcomes between the technologies being compared.</p> <p>Costs will be considered from an NHS and Personal Social Services perspective.</p> <p>The use of lecanemab is conditional on the presence of amyloid pathology. The economic modelling should include the costs associated with diagnostic testing for amyloid pathology in people with Alzheimer’s disease who would not otherwise have been tested. A sensitivity analysis should be provided without the cost of the diagnostic test. See section 4.8 of the guidance development manual (available here: <a href="https://www.nice.org.uk/process/pmg36/chapter/introduction-to-health-technology-evaluation">https://www.nice.org.uk/process/pmg36/chapter/introduction-to-health-technology-evaluation</a>).</p>
<b>Other considerations</b>	<p>Guidance will only be issued in accordance with the marketing authorisation. Where the wording of the therapeutic indication does not include specific treatment combinations, guidance will be issued only in the context of the evidence that has underpinned the marketing authorisation granted by the regulator.</p>
<b>Related NICE recommendations</b>	<p><b>Related Technology Appraisals:</b></p> <p><a href="#">Donepezil, galantamine, rivastigmine and memantine for the treatment of Alzheimer’s disease</a> (2011; updated 2018) NICE technology appraisal guidance 217.</p> <p><b>Related Guidelines:</b></p> <p><a href="#">Dementia: assessment, management and support for people living with dementia and their carers</a> (2018) NICE guideline 97.</p>

	<p><a href="#">Dementia, disability and frailty in later life – mid-life approaches to delay or prevent onset</a> (2015) NICE guideline 16</p> <p><b>Related Quality Standards:</b></p> <p><a href="#">Dementia</a> (2019) NICE quality standard 184</p>
<b>Related National Policy</b>	<p>NHS England (2015) <a href="#">Dementia 2020 challenge</a></p> <p>The NHS Long Term Plan, 2019. <a href="#">NHS Long Term Plan</a></p> <p>NHS England (2018/2019) <a href="#">NHS manual for prescribed specialist services (2018/2019)</a></p> <p>Department of Health and Social Care (2016-2017) <a href="#">NHS Outcomes Framework</a>: Domain 2</p>

## References

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