Technoleg Iechyd Cymru
Health Technology Wales

Topic Exploration Report [1]

PrecivityAD2 blood test for the assessment of Alzheimer's Disease

What is a Topic Exploration Report?

Topic Exploration Reports are not health technology assessments. These reports provide a high-level briefing on new topics submitted to Health Technology Wales and are not based on exhaustive or systematic literature searches. Instead, they rely on a focussed scan of key resources.

What evidence is used in a Topic Exploration Report?

Priority is given to summarising the most relevant or useful evidence, rather than covering all possible evidence. Information reported is typically based on abstracts and study authors' own conclusions, rather than detailed scrutiny of full texts.

What are the aims of a Topic Exploration Report?

Topic Exploration Reports offer an overview of the available evidence on a topic and aim to highlight any uncertainties or gaps in the evidence. These reports outline the quantity and type of evidence found, but no critical appraisal or formal evidence synthesis is conducted.

How should a Topic Exploration Report be used?

Topic Exploration Reports can be used to indicate what evidence may be available for a topic, and do not provide definitive guidance on how a technology should be used. The evidence presented within the reports should be interpreted with caution.

[1] Cyfieithu dogfennau HTW wedi'u cyhoeddi o'r Saesneg i'r Gymraeg
Translation of published technical HTW documents from English into Welsh

Topic exploration report number	TER630
Topic	PrecivityAD2 blood test for the assessment of Alzheimer's Disease
Summary of findings	The PrecivityAD2 test is a blood-based biomarker assay designed to determine the presence or absence of amyloid plaque pathology in people being assessed for Alzheimer's disease. It could reduce reliance on more invasive tests like cerebrospinal fluid (CSF) sampling or amyloid PET imaging. We identified evidence on the diagnostic accuracy, clinical utility and cost-effectiveness of PrecivityAD2. Two studies reported sensitivity of the test as 88% and 90%; equivalent figures for specificity were 89% and 92%. Two further studies suggest that adding PrecivityAD2 to standard diagnostic protocols improves the accuracy of clinicians' diagnosis of Alzheimer's disease, and alters their recommendations about treatment. One economic analysis provides an estimate of the value-based price in the US healthcare system, and suggests that the cost-effectiveness of the test could differ depending on where it is used in the diagnostic pathway. Some key uncertainties remain, including how PrecivityAD2 would fit into current UK diagnostic pathways. Also, no published studies have directly measured how using PrecivityAD2 during Alzheimer's disease diagnosis changes patient-relevant outcomes, or estimated the economic impact of the test in UK practice.

Introduction and aims

Diagnosis of Alzheimer's disease is usually based on cognitive and neurological tests, alongside patient history. Sometimes, a definite diagnosis requires an assessment of the presence of amyloid, which is a pathological feature of Alzheimer's disease. When needed, the presence of amyloid is assessed by a positron emission tomography (PET) scan or by sampling the cerebrospinal fluid (CSF). PrecivityAD2 is an alternative method of determining the presence or absence of amyloid, by measuring a combination of biomarkers in a blood sample. Such a test could be a simpler or less invasive way of determining the likelihood of the presence of amyloid, and could remove the need for people suspected of having Alzheimer's disease to have a PET scan or lumbar puncture to inform their diagnosis. PrecivityAD2 has UK regulatory approval as an in vitro diagnostic test.

Health Technology Wales researchers searched for evidence on the effectiveness of the PrecivityAD2 test in the assessment, management or diagnosis of Alzheimer's disease.

Evidence overview

HTW has previously published TER557: PrecivityAD blood test for the assessment of Alzheimer's Disease. PrecivityAD and PrecivityAD2 are both tests for the likely presence of amyloid in people with Alzheimer's disease, but they use different combinations of biomarkers in their diagnostic algorithm. So, they are distinct from each other in terms of their accuracy and clinical utility.

Guidelines and guidance

The Alzheimer's Association have published a Clinical Practice Guideline (Palmqvist et al, 2025) on the use of blood-based biomarkers in the diagnostic workup of suspected Alzheimer's disease within specialised care settings. This guideline was informed by a systematic review of the diagnostic accuracy of blood-based biomarkers for detecting Alzheimer's disease pathology in cognitively impaired individuals in specialized care settings (Pahlke et al, 2025). This review included 31 different tests measuring plasma phosphorylated tau (p-tau) and amyloid beta (Aβ).

The Clinical Practice Guideline recommends that:

- Blood biomarker tests with ≥90% sensitivity and ≥75% specificity can be used as a triaging test (whereby a negative result would rule out Alzheimer's disease pathology, but a positive result should be confirmed with further diagnostic methods)
- BBM tests with ≥90% sensitivity and specificity can serve as a substitute for amyloid PET imaging or CSF AD biomarker testing in patients with cognitive impairment presenting to specialized care for memory disorders

Both NICE and SIGN have issued guidelines on assessment of Alzheimer's disease. NICE Guideline NG97 Dementia: assessment, management and support for people living with dementia and their carers was published in 2018; SIGN Guideline 168 Assessment, diagnosis, care and support for people with dementia and their carers was published in 2023. Neither makes specific recommendations about the use of PrecivityAD2 or any blood biomarker tests in the diagnosis and assessment of Alzheimer's disease.

Individual studies

We identified evidence on the diagnostic accuracy (two studies), clinical utility (two studies) and cost-effectiveness (one study) of PrecivityAD2.

Evidence overview

Diagnostic accuracy

Two studies provide evidence on the diagnostic accuracy of PrecivityAD2 during its development and validation, both using amyloid PET findings as the reference standard. Meyer and colleagues used blood samples and amyloid PET findings from 583 individuals with suspected Alzheimer's disease to develop the algorithm used by the PrecivityAD2 test, and determine the most appropriate interpretation of the Amyloid Prediction Score (APS2, the output of the test). At the optimal APS2 cut point (47.5), overall accuracy was 88% (95% CI: 85–91), with sensitivity of 88% (95% CI: 84–91) and specificity of 89% (95% CI: 84–92). Coppinger and colleagues evaluated the PrecivityAD2 test (using the same APS2 cut point as the study by Meyer et al) in 191 individuals with cognitive impairment from the Alzheimer's Disease Neuroimaging Initiative Biorepository. Overall test accuracy was reported as 91% (95% CI: 86–94); sensitivity was 90% (95% CI: 83–94), and specificity 92% (95% CI: 84–96).

Clinical utility

Palmqvist and colleagues studied 1,213 patients undergoing clinical evaluation for cognitive symptoms in Sweden. Alzheimer's disease pathology was assessed using CSF analysis or PET, and compared to standard diagnostic methods with or without APS2 results. Primary care physicians had 61% diagnostic accuracy (95% CI: 53–69) using standard methods versus 91% (95% CI: 86–96) with APS2. Dementia specialists' accuracy was 73% (95% CI: 68–79) using standard methods and 91% (95% CI: 88–95) with APS2.

The Quality Improvement PrecivityAD2 (QUIP II) Clinician Survey (Monane, 2025) study evaluated the clinical utility of the PrecivityAD2 test in a cohort of 203 patients presenting with symptoms of Alzheimer's disease or other causes of cognitive decline across 12 memory specialists. Clinicians completed surveys on management strategies for each patient, with and without availability of the PrecivityAD2 test results. In 75% of patients (153/203), clinicians reported that availability of the PrecivityAD2 test results would change their Alzheimer's disease diagnostic certainty and/or recommendations for management (drug therapy, or additional brain amyloid evaluation).

Cost effectiveness

Mattke et al (2025) developed an economic model which aimed to assess the economic value of the PrecivityAD2 test. The authors developed a Markov model to estimate the test's value-based price in the US healthcare setting. The value based price was defined as the price of the test at which overall diagnostic cost per true positive case of early-stage Alzheimer's disease would equal the cost of standard care. In primary care, the value-based price was estimated to be $290 for a triage and $1150 for a confirmatory test; in speciality care the value based price was estimated as $450 for a triage test and $1950 for a confirmatory test. Depending on setting, the model found use of PET, CSF testing, or blood tests to decline with PrecivityAD2 in use.

Ongoing studies

The topic proposer highlighted two recently initiated trials.

The SANDBOX trial plans to recruit 1000 patients in the UK. Eligible participants will be people referred to NHS memory clinics with cognitive concerns. They will be assessed using the PrecivityAD2 blood biomarker test, the results of which will be considered as part of a wider dataset incorporating genetic/epigenomic markers, and measures of cognition, speech and clinical metadata. The aim of the trial is to integrate collection of this data into routine memory clinical workflows, and provide a dataset that can be used for developing, validating and calibrating next generation multimodal AI systems for dementia diagnosis. People in the

Evidence overview

trial will be followed up for 12 months after initial referral and their diagnostic outcomes and disease progression assessed.

The BEAD-PC trial aims to evaluate the clinical utility of blood biomarker testing (using PrecivityAD2) to aid in early and accurate diagnosis of Alzheimer's disease, in primary care settings, and examine its concordance with CSF analyses. The study will recruit up to 1000 people with suspected cognitive impairment at 5 primary care centres in London, UK. The primary objective of the study is to compare the performance of diagnosis using PrecivityAD2 in primary care against confirmatory diagnosis based on CSF analysis.

Areas of uncertainty

- We identified evidence on the diagnostic accuracy of PrecivityAD2, and some evidence on how the test could influence clinicians' decisions about assessment of people with suspected Alzheimer's disease, and guide their choice of treatment. However, we did not identify any evidence on other outcomes likely to be important to patients, such as the time to diagnosis, or health related quality of life.
- It is unclear how UK practice could alter with the PrecivityAD2 test in use. It could be used to potentially rule out Alzheimer's disease, meaning some patients would avoid the need for a PET scan or other investigations such as CSF sampling, but it is not clear how widely used amyloid PET or CSF sampling are in UK practice for assessing or diagnosing Alzheimer's disease (NICE Guideline NG97 recommends these tests are only used in certain circumstances, and not as part of routine dementia diagnosis and assessment).
- The use of novel medicines and therapeutics for Alzheimer's disease, and the need for a definitive diagnosis to determine eligibility for these treatments, means practice in this area might change in the future.
- We did not identify any published evidence on the likely economic impact of introducing this test into UK practice. One economic model was identified, but this was in the USA healthcare setting, and so its relevance to UK decision making is likely to be limited.

Literature search results

Health technology assessments and guidance

Palmqvist S, Whitson HE, Allen LA, Suarez-Calvet M, Galasko D, Karikari TK, Okrahvi HR, Paczynski M, Schindler SE, Teunissen CE, Zetterberg H, Carrillo MC, Edelmayer RM, Mahinrad S, McAteer MB, Kahale LA, Pahlke S, Tampi MP. Alzheimer's Association Clinical Practice Guideline on the use of blood-based biomarkers in the diagnostic workup of suspected Alzheimer's disease within specialized care settings. Alzheimers Dement. 2025 Jul;21(7):e70535. https://doi.org/10.1002/alz.70535

Evidence reviews and economic evaluations

Pahlke S, Kahale LA, Mahinrad S, Sousa-Pinto B, Vieira RJ, McAteer MB, Claessen T, Contador J, Hofmann A, Kuchenbecker LA, Machado LS, Warmenhoven N, Yakoub Y, Palmqvist S, Schindler SE, Teunissen C, Whitson HE, Zetterberg H, Edelmayer R, Tampi MP. Blood-based biomarkers for detecting Alzheimer's disease pathology in cognitively impaired individuals within specialized care settings: A systematic review and meta-analysis. Alzheimers Dement. 2025 Nov;21(11):e70828. doi: 10.1002/alz.70828. https://doi.org/10.1002/alz.70828

Individual studies

Monane M, Maraganore DM, Carlile RM, Johnson KG, Merrill DA, Gitelman DR, Sharlin KS, VandeVrede LA, George KK, Wang J, West T, Jacobs L, Verghese PB, Braunstein JB. Clinical Utility of an Alzheimer's Disease Blood Test Among Cognitively Impaired Patients: Results from the Quality Improvement PrecivityAD2 (QUIP II) Clinician Survey Study. Diagnostics (Basel). 2025 Jan 13;15(2):167. https://doi.org/10.3390/diagnostics15020167

Meyer MR, Kirmess KM, Eastwood S, Wente-Roth TL, Irvin F, Holubasch MS, Venkatesh V, Fogelman I, Monane M, Hanna L, Rabinovici GD, Siegel BA, Whitmer RA, Apgar C, Bateman RJ, Holtzman DM, Irizarry M, Verbel D, Sachdev P, Ito S, Contois J, Yarasheski KE, Braunstein JB, Verghese PB, West T. Clinical validation of the PrecivityAD2 blood test: A mass spectrometry-based test with algorithm combining %p-tau217 and Aβ42/40 ratio to identify presence of brain amyloid. Alzheimers Dement. 2024 May;20(5):3179-3192. https://doi.org/10.1002/alz.13764

Coppinger J, West T, Kirmess KM, Fogelman I, Ray S, Verghese PB, Braunstein JB, Yarasheski KE; Alzheimer's Disease Neuroimaging Initiative (ADNI). Independent validation of the PrecivityAD2™ blood test to identify presence or absence of brain amyloid pathology in individuals with cognitive impairment. NPJ Dement. 2025;1(1):23. https://doi.org/10.1038/s44400-025-00026-y

Palmqvist S, Tideman P, Mattsson-Carlgren N, Schindler SE, Smith R, Ossenkoppele R, Calling S, West T, Monane M, Verghese PB, Braunstein JB, Blennow K, Janelidze S, Stomrud E, Salvadó G, Hansson O. Blood Biomarkers to Detect Alzheimer Disease in Primary Care and Secondary Care. JAMA. 2024 Oct 15;332(15):1245-1257. https://doi.org/10.1001/jama.2024.13855

Mattke S, Chen J, Hanson M, Johnson KG, Leahy C, Merrill DA, Shada V, Ruiz JG. Estimation of the value-based price of a blood test for Alzheimer's disease pathology in primary and specialty care in the U.S. J Prev Alzheimers Dis. 2025 Aug;12(7):100219. https://doi.org/10.1016/j.tjpad.2025.100219

Ongoing research

Holt H, Ganbat J, Samuel G, O'connor S, Madan H, Wan J, Solanki R, Koychev I. The SANDBOX Study: An NHS-Embedded Multimodal Platform for AI-Enabled Dementia Diagnostics. Poster presentation (2025).

Other

Date of search	December 2025

Concepts used	Biomarkers, Alzheimer's disease, Amyloid, PrecivityAD2

Proposed research question and evidence selection criteria (if selected)

Proposed Research question	**What is the effectiveness of the PrecivityAD2 blood test in the diagnosis or assessment of Alzheimer's Disease?**

	Inclusion criteria	Exclusion criteria
Population	People being evaluated for Alzheimer Disease or other causes of cognitive decline	
Intervention	PrecivityAD2 blood test, used either as an adjunct to existing methods of diagnosis, or a replacement for some methods of diagnosis	
Comparison/ Comparators	Other methods of AD assessment (in non-specialist and/or specialist settings)	
Outcome measures	Diagnostic accuracy Time to diagnosis Changes in disease management as a result of testing Test-related adverse events Health related QoL Resource use Economic outcomes	

Proposed specialities	**Caring for older people, Mental and behavioural disorders, Nervous system**