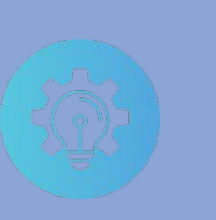


# An Overview of Systematic Literature Review of Economic Evaluation of Treatment on Patients with Alzheimer’s Disease and Related Dementia

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## CONCLUSION

We recommend using Markov models to assess the cost-effectiveness of future treatments in ADRD due to their versatility in adopting different types of health states that patients can potentially experience

## Background

- Alzheimer’s disease and related dementias (ADRD) constitute a public health crisis affecting the US aging population and society .
- An estimated 6.7 million Americans age 65 and older are living with Alzheimer’s in 2023. Seventy-three percent are age 75 or older.<sup>1</sup>
- By 2050, the total estimated prevalence of AD is expected to be 12.7million.<sup>1</sup>
- The pharmacological managements of Alzheimer’s disease include two symptomatic approaches: The inhibition of acetylcholinesterase and the inhibition of N-methyl-D-aspartate receptors.
- Acetylcholinesterase inhibitors (AChEIs) such as donepezil, galantamine, and rivastigmine are the recommended treatments for managing mild and moderate AD.<sup>1,2,3</sup>
- In 2023, Alzheimer’s and other dementias will cost the nation \$345 billion — not including the value of unpaid caregiving.<sup>1</sup>
- Medicare and Medicaid are expected to cover \$222 billion.<sup>1</sup>

## Methodology

- Overview of systematic reviews according to PRISMA Was conducted using Cochrane Library, Embase, and PubMed from 2012-2022 for economics evaluations of pharmacological treatments for ADRD.
- Inclusion criteria were :** Population should be AD or AD related Dementia, Intervention should be Pharmaceutical, study design should be SLR or MA on CEA or CUA, Outcome for the effect should be QALY or LYs, and The criteria score should be at least 5%.
- Studies were excluded if published in Non-English language
- Data were extracted from each study included in the analysis .
- We used extraction forms to collect and summarize the characteristics of reviews (e.g., authors, publication year, country, study objective, interventions compared, sample size, time horizon, journal impact factor, and conclusion)
- Data extracted at the second level include target population, type of economic evaluation, study design perspective, measure of effectiveness, discounting, sensitivity, and incremental analysis.
- Findings were further divided into two categories: single treatments and combination treatments.

## RESULTS

- After screening 411 publications from all the database, 18 publications were eligible for full text screen After linking, Three SLR studies were finally included.
- Within the SLR, we screened 39 studies eligible for Full text screen , 17 Economics studies were eligible for Data extraction and The quality checks were performed using Drummond and Philips checklists.
- The flow of publications through the entire SLR process is depicted in the PRISMA diagram (Fig 2)

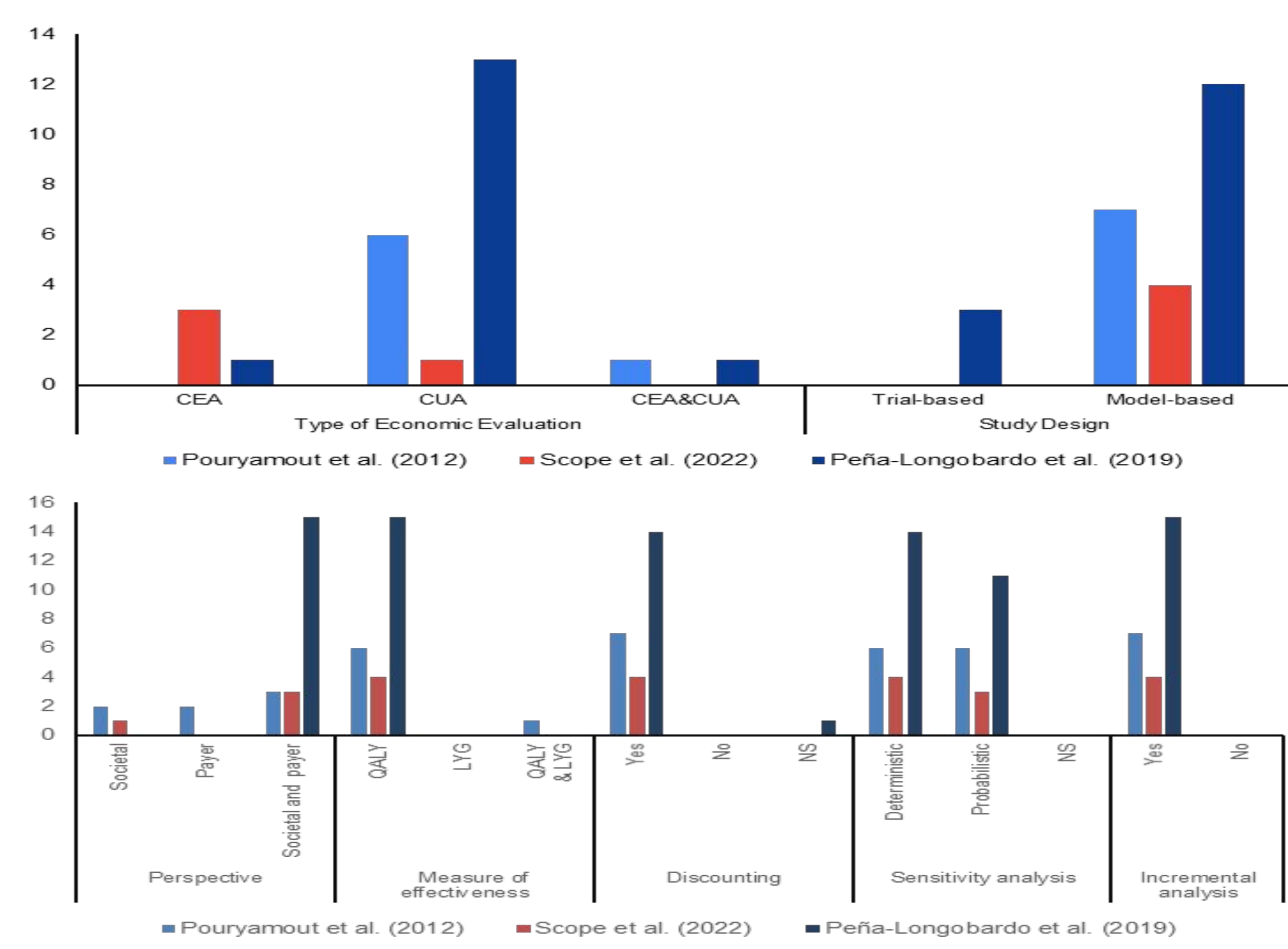


Figure 2: Characteristics of the systematic review studies targeting Alzheimer's Disease – Part A-B

Table 1: Summary of health states across the economic evaluations in patients with AD

Study Name	Health States
Fuh and Wang 2008	Mild, Moderate, Severe, Dead
Gagnon et al 2007	Moderate Independent Community or institution / Moderate dependent Community or institution/ Moderately Severe Independent Community or institution/ Moderately Severe dependent Community or institution / Severe Independent Community or institution/ Severe dependent Community or institution/ Death
Getsios et al 2010	DES
Lopez-Bastida et al 2009	Mild, Moderate, Severe, Dead
Suh 2009	Pro-FTC, FTC, Death
Teipel et al 2007	Mild, Mild-Moderate, Moderate, Severe, Dead
Weycker et al 2007	NA
Getsios et al 2012	DES
Hartz et al 2012	DES
Neumann et al 1999	Mild, Moderate Severe, Dead
Knapp et al 2017	NA
Saint-Laurent et al 2015	DES
Touchon et al 2014	Non-Institutionalised , Institutionalised, Deceased
Pfeil et al 2012	Home, Nursing Home, Deceased
Rive et al 2011	Pro-FTC, FTC, Death
Lachaine et al 2011	Non-Institutionalised , Institutionalised, Deceased
Nagy et al 2010	NA

Table 2: Findings of the individual cost effectiveness analysis including in Systematic Review for AD

Treatment	Individual paper	Intervention	Comparator	Perspective	Time Horizon	Outcome	Decision		
Donepezil	ST*	Fuh and Wang,	Donepezil	No drug tx	Societal	5 Years	QALY	Dominant	
					Payer	5 Years	QALY	CE	
			Getsios et al, (20	Donepezil	No drug tx	Societal/Healthca	10 Years	QALY	Donepezil Dominant
			Lo'pez-Bastida e	Donepezil	No drug tx	Societal	6 months	QALY	Donepezil is NCE
						12 months	QALY	Donepezil is CE	
						18 months	QALY	Donepezil Dominant	
						24 months	QALY	Donepezil Dominant	
						30 months	QALY	Donepezil Dominant	
					Societal/Healthca	6 months	QALY	Donepezil is NCE	
						12 months	QALY	Donepezil is NCE	
						18 months	QALY	Donepezil is NCE	
						24 months	QALY	Donepezil is NCE	
						30 months	QALY	Donepezil is NCE	
					Healthcare Payer	6 months	QALY	Donepezil is NCE	
						12 months	QALY	Donepezil is NCE	
						18 months	QALY	Donepezil is CE	
						24 months	QALY	Donepezil is CE	
						30 months	QALY	Donepezil is CE	
			Teipel et al, (200	Donepezil	Placebo	health insurance c	5-10 years	QALY	Donepezil not cost saving
							LYG	Donepezil not cost saving	
	Neumann et al, (1D	Donepezil	No drug tx	Societal	6 months	QALY	Donepezil is NCE		
					12 months	QALY	Donepezil is CE		
					18 months	QALY	Donepezil is CE		
					24 months	QALY	Donepezil Dominant		
					6 months	QALY	Donepezil is NCE		
					12 months	QALY	Donepezil is NCE		
					18 months	QALY	Donepezil is NCE		
					24 months	QALY	Donepezil is CE		
					30 months	QALY	Donepezil is CE		
	Hartz et al (2012)	Donepezil 10 mg	No drug tx	Societal	10 Years	QALY	Donepezil Dominant		
			No drug tx	Healthcare payer	10 Years	QALY	Donepezil Dominant		
			Memanline 20 r	Societal	10 Years	QALY	Donepezil Dominant		
			Memanline 20 r	Healthcare Payer	10 Years	QALY	Donepezil Dominant		
CT*		Getsios et al, (20	Donepezil + Early	without early as	Societal,	10 Years	QALY	Donepezil + Early assessment Dominant	
					Healthcare Payer	QALY	Donepezil + Early assessment Dominant		
					without early as	Societal,	QALY	Donepezil + Early assessment Dominant	
					Healthcare Payer	QALY	Donepezil + Early assessment Dominant		