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

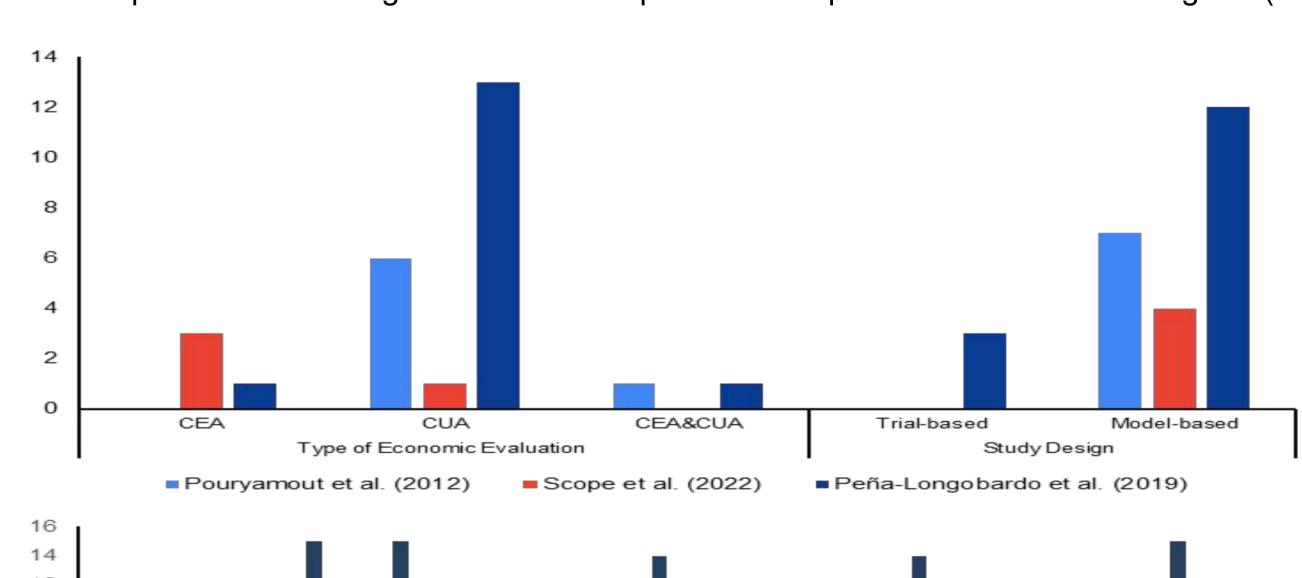
- An estimated 6.7 million Americans age 65 and older are living with Alzheimer's in 2023. Seventy-three percent are age 75 or older.¹
- By 2050, the total estimated prevalence of AD is expected to be 12.7million.¹
- The pharmacological managements of Alzheimer's disease include two symptomatic approaches: 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. 1,2,3
- In 2023, Alzheimer's and other dementias will cost the nation \$345 billion — not including the value of unpaid caregiving.¹
- Medicare and Medicaid are expected to cover \$222 billion.¹

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 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)



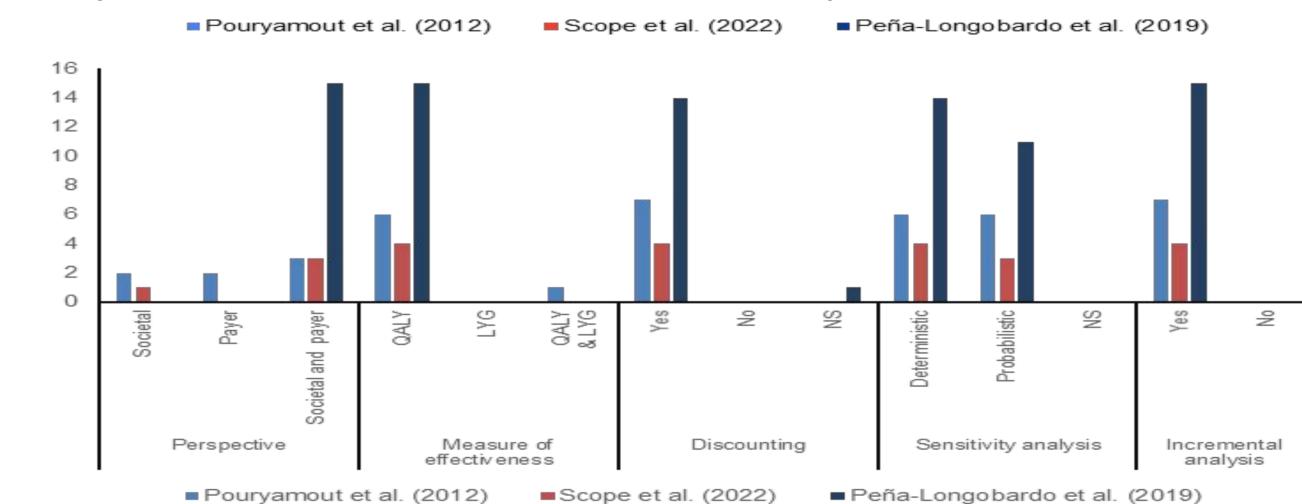


Figure 2: Characteristics of the systematic review studies targeting Alzheimer's Disease – Part A-B



Study Name	Health States
Fuh and Wang 2008	Mild, Moderate, Sever, Dead
Gagnon et al 2007	Moderate Independent Community or instituition / Moderate dependent Community or instituition/ Moderately Sever Independent Community or instituition/ Moderately Sever dependent Community or instituition , Sever Independent Community or
	instituition/ Sever dependent Community or instituition/ ,Death
Getsios et al.2010	DES
Lo'pez-Bastida et al 2009	Mild, Moderate, Sever, Dead
Suh 2009	Pro-FTC, FTC, Death
Teipel et al 2007	Mild, Mild-Moderate, Moderate, Sever, Dead
Weycker et al 2007	NA
Getsios et al 2012	DES
Hartz et al 2012	DES
Neumann et al 1999	Mild, Moderate Sever, 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 .

Disclosure

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

D		In dividual pape	intervention	Comparator	Perspective	Time Horizon	Outcome	Decision
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		Lo'pez-Bastida e	Donepezil	No drug tx	Societal	6 months	QALY	Donepezil is NCE
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						18 months	QALY	Don epe zil Domin ant
						24 months	QALY	Don epe zil Domin ant
						30 months	QALY	Don epe zil Domin ant
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						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
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	_		NI			VII	LYG	Donepezilnot cost saving
	_	Neumann et al, (1	Donepezil	No drug tx	Societal	6 months	QALY	Donepezil is NCE
	_	VIII.				12 months	QALY	Donepezil is CE
	_					18 months	QALY	Donepezil is CE
						24 months	QALY	Donepezil Dominant
	_					6 months	QALY	Donepezil is NCE
d.						12 months	QALY	Donepezil is NCE
	_					18 months	QALY	Donepezil is NCE
	_					24 months	QALY	Donepezil is CE
	_	Hartz et al (2012)	Donepezil 10 mg	No drug tx	Societal	10 Years	QALY	Don epe zil Domin ant
	_			No drug tx		10 Years	QALY	Don epe zil Domin ant
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OBJECTIVE

 To evaluate the economic impact of pharmacological management of Alzheimer's Disease, such as acetylcholinesterase and N-methyl-D-aspartate receptor inhibition.

To compared the model structures and input parameters.

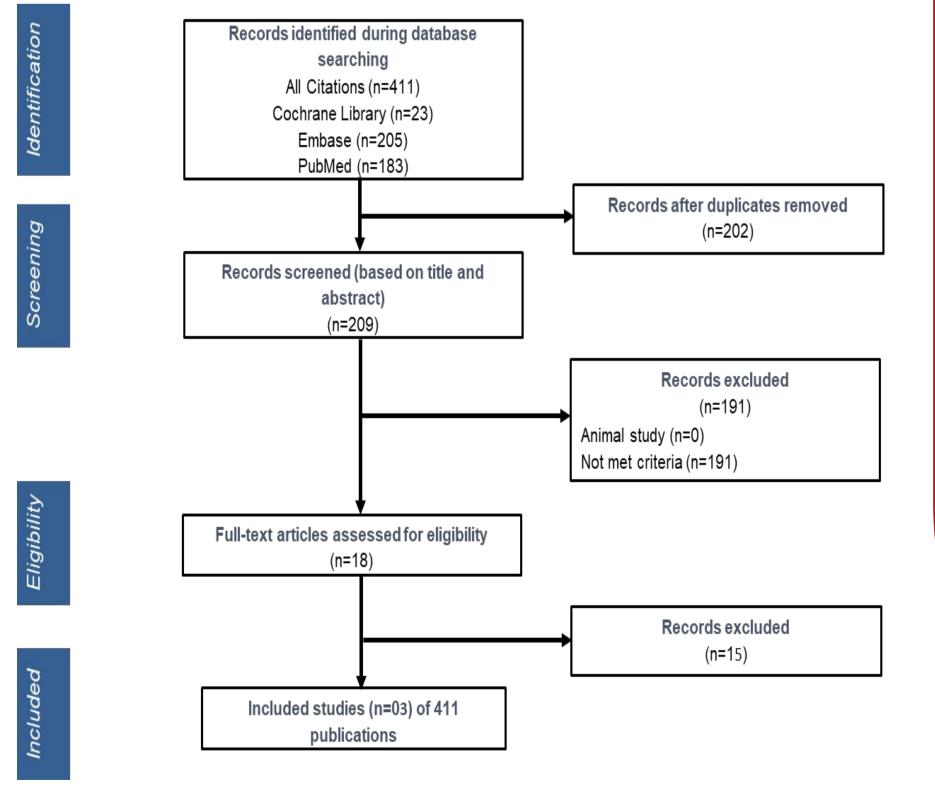


Figure 1: PRISMA diagram for the screening process

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