

DIFFERENTIAL COSTS OF AMYLOID-RELATED IMAGING ABNORMALITY MANAGEMENT BETWEEN ANTI-AMYLOID TREATMENTS: ESTIMATES BASED ON A DELPHI PANEL



POSTER COPY

Marwan N. Sabbagh¹, Dean G. Smith², Medi Stone³, Richard Perry³, Jerome Barakos⁴, R. Scott Turner⁵

1. Department of Neurology, Barrow Neurological Institute, Phoenix, AZ, United States. 2. School of Public Health, University of Michigan, Ann Arbor, MI, United States. 3. Adelphi Values PROVE, Bollington, Cheshire, United Kingdom. 4. Sutter Health California Pacific Medical Center, San Francisco, CA, United States. 5. Department of Neurology, Georgetown University, Washington, DC, United States

Introduction

- Early stages of Alzheimer’s Disease (AD), characterized by mild cognitive impairment and/or mild dementia, are potentially treatable with anti-amyloid treatments (AATs).
- One estimate of the prevalence of early stages of AD is 1,300,000 persons in the United States, which corresponds to about 1.7% of age 60 and older population¹
- The risks associated with AATs include amyloid-related imaging abnormalities (ARIA) that may require additional medical treatment
 - ARIA with edema/effusion (ARIA-E), involving fluid leakage (vasogenic edema or sulcal effusion)
 - ARIA with hemorrhage/hemosiderin deposition (ARIA-H), involving blood products leaking through damaged vessel walls as microhemorrhage or low-volume bleeding into the subarachnoid space
- Although both lecanemab and donanemab have demonstrated slowed disease progression in early Alzheimer’s disease, these AATs have different mechanisms of action and, consequently, different safety profiles²⁻⁴
 - An indirect treatment comparison estimated a 4.6% lower incidence of any ARIA for lecanemab compared to the modified dosing regimen of donanemab
- Approaches to managing amyloid-related imaging abnormalities (ARIA) associated with AATs are gradually becoming better understood
- The objective of this study was to estimate the added economic burden of ARIA associated with AATs based on resources required to manage events in real-world settings in the United States

Methods

- A modified Delphi panel, guided by Alzheimer’s specialists and comprised of physicians and allied healthcare professionals, delivered a detailed list of required resources⁵ (type of providers, visits, etc.) for management of ARIA-E and ARIA-H
- For resources with consensus ranges (e.g., 2 or 3 visits), the more conservative estimate was employed
- In the absence of ARIA-specific billing codes, the costs of clinical resources were based on general CPT-4 codes and Medicare payments at national average amounts (2025)
- Telehealth visits were costed as office visits, in line with Medicare reimbursement
- Bureau of Labor Statistics wage data for office personnel were applied to estimate scheduling costs
- The differential costs of ARIA management were estimated using results from an indirect treatment comparison
- A summary of ARIA events from clinical trial data for lecanemab and donanemab by clinical severity is presented in **Table 1**
- Cost calculations are based upon any ARIA, net (incremental) rates which are the difference between observed rates with AAT and observed rates with placebo or adjusted placebo

Table 1. ARIA Rate by Severity in Lecanemab and Donanemab Clinical Trials*^{2,4,6}

	Mild	Moderate	Severe	Any
Lecanemab				
ARIA-E	4%	7%	1%	13% vs. 2% Placebo
ARIA-H microhemorrhage	9%	2%	3%	14% vs. 8% Placebo
ARIA-H superficial siderosis	4%	1%	0.4%	
Any ARIA				21% vs. 9% Placebo
Donanemab Standard Dosing				
ARIA-E	7%	15%	2%	24% vs. 2% placebo
ARIA-H microhemorrhage	16%	4%	5%	25% vs.11% placebo
ARIA-H superficial siderosis	5%	4%	6%	16% vs. 2% placebo
Any ARIA				36% vs. 14% Placebo
Donanemab Modified Titration Dosing*				
Any ARIA				29% vs. 12% adjusted placebo

*APOE ε4 homozygous prevalence in TB-ALZ 6 (10%) is lower compared to TB-ALZ 2 (17%) and Clarity AD (16%)

- The estimated added burden of managing an ARIA event is \$2,415.27 - comprised of MRI scans, neurologist calls to discuss MRI scans, neurologist follow-up visits, neurologist telehealth calls and office staff time for scheduling visits (**Table 2**)

Table 2. Total Cost for an ARIA event

Resources	Count	Code	Cost	Total
MRI scans	3	70553	\$461.00	\$1,383.00
Neurologist calls to discuss MRI scans	3	99213	\$88.95	\$266.85
Neurologist visits for ARIA follow-up	3	99214	\$125.18	\$375.54
Neurologist telehealth calls to manage ARIA	3	99214	\$125.18	\$375.54
Office calls to schedule neurologist visits (15 minutes each)	3		\$4.78	\$14.34
TOTAL COST				\$2,415.27

- Using incremental ARIA rates, per-patient management costs are conservatively estimated at \$287.42 for lecanemab and \$398.52 for donanemab- a 39% difference (**Table 3; Figure 1**)

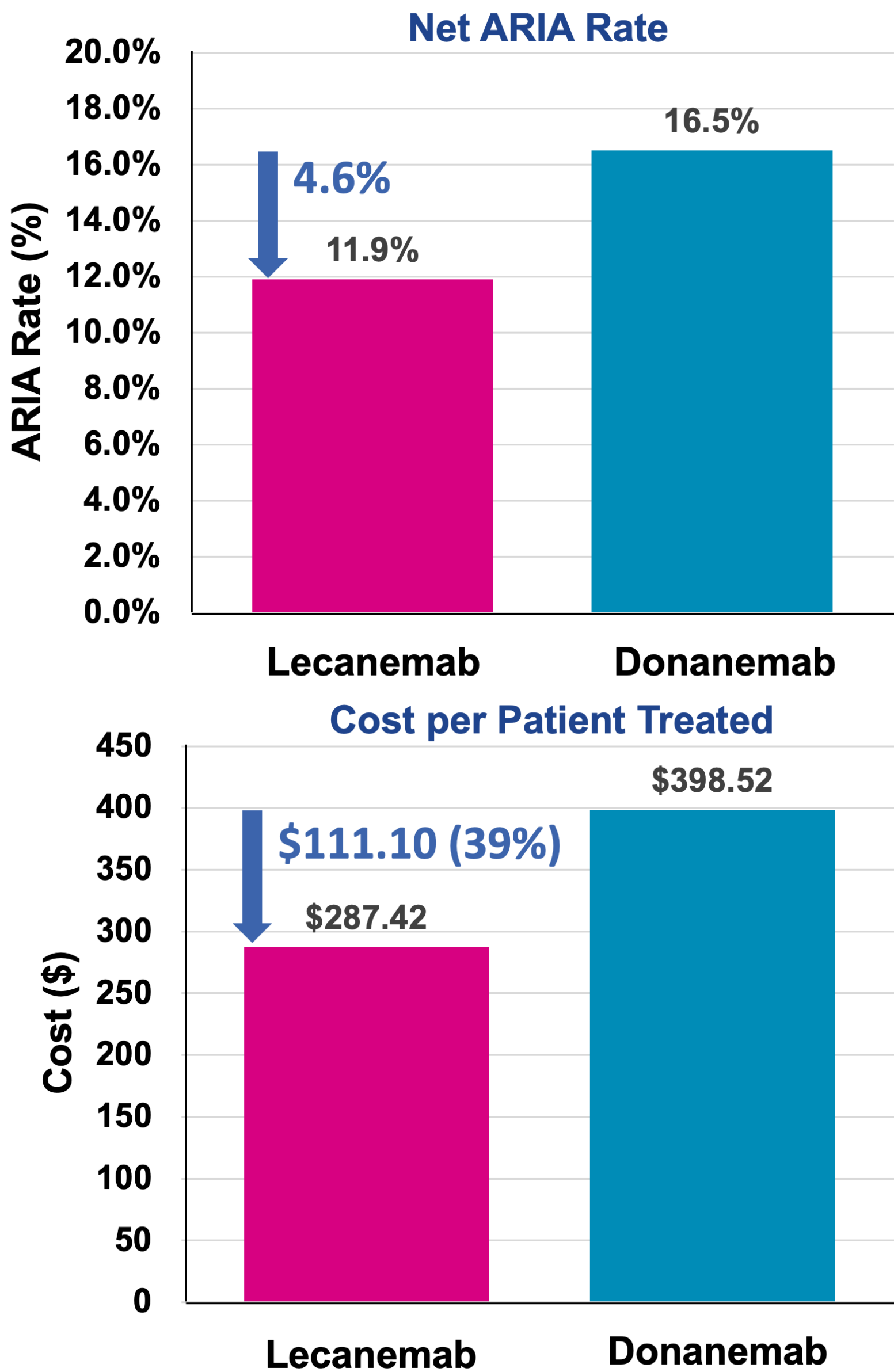
Table 3. ARIA Cost per Patient Treated with an AAT

	Lecanemab	Donanemab	Difference 39% lower
ARIA Rate*	11.9%	16.5%	(4.6%)
Cost per Patient Treated**	\$287.42	\$398.52	(\$111.10)

*The difference between lecanemab/donanemab treated and placebo arms. For donanemab, the net rate was derived based on both TB2 and TB6 results and represents the modified titration dosing.
** To estimate the cost per patient treated with an AAT associated with ARIA, event rates for ARIA from the lecanemab, donanemab indirect comparison (Sabbagh, et al., 2025a) were applied to the Total Cost.

Results

Figure 1. ARIA Rate* and Cost per Patient Treated



Limitations

- Estimated resources and costs for ARIA management did not differentiate by type of ARIA or severity, and did not include hospitalization costs
- The coding of services is generic and not specifically tailored to billing for ARIA events
- This cost analysis is from the physician office’s perspective, which may differ from the payer’s or patient’s perspective

Conclusions

- ARIA events add economic burden to AATs
 - ARIA management incurs approximately \$2,400 per event
- Incremental ARIA risk should be considered when selecting AATs
- Careful treatment selection in early Alzheimer’s disease is warranted, as ARIA events are associated with additional economic burden and risk appears to differ between lecanemab and donanemab, with a lower ARIA risk observed for lecanemab
 - The lower ARIA rate is associated with a 39% reduction in costs
- Further research in real-world settings, including examination of heterogeneity of ARIA severity and associated treatment protocols, could provide insights into the impact on patients and care partners

Acknowledgments: Funding for the study, analyses, editorial support (Mayville Medical Communications) was provided by Eisai Inc. and Biogen
References: 1. Spargo D, et al. Alz Dementia: DADM. 2023;15: e12497. 2. van Dyck CH, et al. NEJM; 2023;388:9-21. 3. Sims JR, et al. JAMA. 2023;6:512-527. 4. Zimmer JA, et al. JAMA Neurol. 2025;82:461-469. 5. Sabbagh M, et al. CTAD 2025; Poster P103. 6. Wang et al. J Prev Alz Dis. 2025;12:100266.