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Review Article

Pharmacoeconomic evaluation of Ofatumumab in the management of relapsing-remitting multiple sclerosis patients: Narrative review

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Abstract

Ofatumumab offers new hope as the first medication of its kind for treating relapsing–remitting multiple sclerosis (RRMS); however, questions remain about its long-term effectiveness and affordability. This narrative review aims to provide concise and precise updates on the cost-effectiveness of ofatumumab in the management of RRMS. A literature search was conducted between 2020 and 2025 in English-language databases via the following keywords: RRMS, disease-modifying therapies (DMTs), ofatumumab, economic evaluation, cost-effectiveness, cost-utility, and cost consequences. The overall findings varied significantly by country, reflecting differences in methodological approaches, time horizons, analytical perspectives, and discount rates. The increase in quality-adjusted life years (QALYs) associated with the use of ofatumumab ranged from 0.17 (vs. ocrelizumab) to 1.26 (vs. BSC). The incremental cost-effectiveness ratio (ICER) ranged from $24,189 per QALY (vs. glatiramer acetate) to $28,014 per QALY (vs. BSC) in Canada. In the United Arab Emirates (UAE), ICERs ranged from Arab Emirates Dirham (AED) 108,221 ($29,463.64) per QALY (vs. interferon beta 1-alpha) to AED 256,238 ($69,761.92) per QALY (vs. BSC). However, the ICERs were higher than the WTP threshold compared to those of cladribine: AED was 713,068 ($194,135.90) per QALY in the UAE and $50,969 per QALY in Canada. Collective evidence from available studies indicates that ofatumumab is a cost-effective option compared with a range of DMTs, including ocrelizumab, dimethyl fumarate, fingolimod, intravenous natalizumab, teriflunomide, generic fingolimod, glatiramer acetate, interferon therapies, and BSC. To support informed decision-making further, future research should aim to generate robust data on the costs and health-related quality-of-life outcomes associated with ofatumumab and other DMTs.

Keywords: Cost-effectiveness analysis; Cost-utility analysis; Disease-modifying therapies relapsing-remitting multiple sclerosis; Markov model; Ofatumumab

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INTRODUCTION

Multiple sclerosis (MS) is a chronic autoimmune central nervous system (CNS) disorder that affects approximately 2.8 million individuals worldwide[1,2]. The disease manifests in several forms, such as progressive relapsing MS (PRMS), relapsing-remitting MS (RRMS), primary progressive MS (PPMS), and secondary progressive MS (SPMS). MS (RRMS) is the most diagnosed form[3], and patients frequently experience fatigue, impaired mobility, spasticity, pain, depression, cognitive impairment, sexual dysfunction, bowel and bladder dysfunction, vision and hearing problems, seizures, and difficulty swallowing[2,3,4,5,6]. The global prevalence of MS has increased, with an average annual growth rate of approximately 2.3% reported between 1985 and 2018[4,7]. Furthermore, MS is a common leading cause of neurological disability in young and middle-aged adults[3]. MS occurs in women twice as often as in men[4,6].

Currently, there is no cure for MS; however, considerable progress in its management has been achieved during recent decades[4,8]. Several pharmacological treatments that mostly aim to prevent or delay chronic impairment, such as disease-modifying therapies (DMTs), acute relapse treatment, comorbidity management, and symptom control, are available[1,9,10]. DMTs decrease the frequency of relapses, delay the development of disability, and postpone the overall disease course[1,9,10].

Ofatumumab, the first fully human anti-CD20 monoclonal antibody, was approved for the treatment of RRMS[11]. It has been recognized as one of the most effective and safest DMTs in terms of disease progression and reduction in relapse rates[12,13]. Patients who do not respond to at least one disease-modifying therapy (DMT) typically receive ofatumumab, as recommended by Neurologists[11]. Patients have reported that self-administered subcutaneous injections of ofatumumab at home are more convenient[11,12]. In contrast, other DMTs are administered intravenously in hospital settings, which may make them less desirable for some patients.

The multifaceted symptoms of RRMS are associated with a significant economic burden, in addition to negatively affecting patients' health-related quality of life (HRQoL). Despite advances in treatment, RRMS remains an expensive long-term condition[4,14,15,17,21]. The chronic and progressive nature of RRMS imposes substantial financial strain on healthcare systems, patients, caregivers, and society[3]. The cost of the RRMS consists of direct costs, indirect costs, and intangible costs[17,21]. Direct costs related to RRMS treatment include medications, medication monitoring and administration, patient counseling, hospitalizations, clinic and emergency visits, and nursing services. The indirect cost of the RRMS can result from lost productivity[17,21].The primary cause of

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the high costs of RRMS is the direct expenses of DMTs, which account for 54% of the overall healthcare spending per person with RRMS, as reported in previous studies[3,14]. For example, the total annual cost of the disease in the United States was $85.4 billion in 2019, which included $63.3 billion in direct medical costs and nearly $21.0 billion in indirect costs[3]. This annual cost is projected to increase to $108.1 billion by 2039[3]. Comparison studies revealed that patients with MS had significantly higher medical and prescription drug costs than those without MS did. Medical spending was $20,103.49 higher, and their medication costs were $13,092.16 greater[19,20]. The total cost of treatment is directly correlated with the severity of RRMS. According to a cost-of-illness study, the costs increase significantly as the disease progresses[21]. Patients with mild disability had annual costs averaging $25,677, whereas those with severe disabilities faced average annual costs of $64,56.7[1,21].

Over time, the cost of RRMS medications has risen considerably. Originally, the cost of the first generation of DMTs was approximately between $8,000 and $11,000 per year, but it now costs approximately $60,000 annually[18]. Newer generations of DMTs are approximately 50% more expensive than older therapies are, and the price of medication varies by country[4]. For example, DMT prices in the United States are two to three times higher than those in other comparable countries[18].

The unit cost of ofatumumab is $2,333.33. The estimated annual cost ranges from $32,667 to $35,000 in the first year, depending on the timing of the initial maintenance dose[22]. The cost is approximately $28,000 in the following years[22]. If the medication is administered every four weeks, the cost increases to approximately $37,333 in the first year and $30,333 in subsequent years.[22] However, another study reported lower annual costs for ofatumumab: $6,468.00 in the first year and $5,544.00 in the second year[23].

To enhance decision-making in the prescription of ofatumumab due to its high cost, assessing its economic burden and long-term affordability is critical. This includes evaluating its cost-effectiveness, cost utility analysis and potential impact on healthcare systems compared with other DMTs. One review revealed that ofatumumab was cost-effective compared with other DMTs except for ocrelizumab[4]. However, this narrative review highlighted the outcomes of very recent studies that compared the cost-effectiveness of ofatumumab to other DMTs to provide up-to-date evidence of the economic aspects and cost-effectiveness of ofatumumab in the management of RRMS. The findings of this review may help inform evidence-based decision-making and ensure sustainable access to effective treatments for patients with RRMS.

MATERIALS AND METHODS

Literature search

This narrative review was conducted to evaluate the cost-effectiveness of ofatumumab in the treatment of RRMS. The databases included in this review are Scopus, Web of Science, PubMed, OVID Medline, Embase, and Dimensions. The search was focused on adult patients with RRMS, cost-effectiveness analysis, cost utility, and cost consequences; ofatumumab; kesimpta; and economic outcomes such as the ICER and cost savings from 2020-2025.

The studies were included if they were written in English and examined pharmacoeconomics concepts, including both the cost-effectiveness and cost-utility of ofatumumab compared with other medications used to treat RRMS. Studies were excluded if they did not meet the following criteria written in English, published in 2020 or later, focused specifically on ofatumumab, involved participants aged 18 years or older, and addressed RRMS-related conditions. Additionally, we excluded abstracts, reviews, opinion articles, systematic literature reviews (SLRs), scoping reviews, cohort studies, and case reports. On the basis of the inclusion and exclusion criteria, the articles were selected, analyzed, and interpreted to facilitate a comprehensive discussion and draw informed conclusions.

Research Questions

This narrative review was guided by the following research questions:

- How cost effective is ofatumumab in the treatment of RRMS?

-How does ofatumumab compare with other DMTs?

-How do other factors, such as methods, time horizons, discount rates, and patient characteristics, influence the cost and effectiveness of ofatumumab in RRMS treatment?

RESULTS

A total of six studies were included for inclusion. Among the included studies, two studies were carried out in Canada[12,26]. one study was carried out in the Netherlands[25,] one was conducted in Brazi[23], one was conducted in Saudi Arabia[1], and the last one was conducted in the United Arab Emirates (UAE)[24].

Economic evaluation of ofatumumab

Overall, ofatumumab was considered more cost-effective than other DMTs in several studies[1,12,23,24,25,26]. For example, ofatumumab demonstrated high efficacy compared with teriflunomide, significantly reducing the number of relapses and delaying disability progression[1,12,24]. Compared with treatments such as ocrelizumab, dimethyl fumarate, fingolimod, and natalizumab, ofatumumab are more effective at a lower cost (dominant). However, in some cases, ofatumumab is not considered cost effective, although it continues to offer the best value for money on the basis of the threshold and incremental cost-effectiveness ratios (ICERs)[24].

Table 1. Types of economic evaluations and comparators

ID	Author, year	Study Design, Country	Study population	Intervention	Comparator	Type of evaluation
1	Almalki et al.,(2025) [1]	A Markov model, Saudi Arabia (KSA)	Adult RRMS patients enrolled in ASCLEPIOS I and II clinical trials	Ofatumumab	teriflunomide	CEA
2	Inshasi et al. (2025) [24]	A Markov model, United Arab Emirates (UAE)	Adult patients with RMS are distributed between different EDSS health states, as observed in ASCLEPIOS I and II trials, entered the model (The mean age of the cohort was 27 years, with 32% of patients being male.)	Ofatumumab	ocrelizumab, cladribine, natalizumab IV, fingolimod, beta interferons, glatiramer acetate, teriflunomide, DMF, and BSC	CEA
3	Barros et al., (2025) [23]	Markov model, Brazil	Adult RRMS patients (mean age 36.8) with only EDSS ≤ 6.5 received treatment	Ofatumumab	Alemtuzumab, Interferon beta-1a and Cladribine, Dimethyl fumarate, Fingolimod, Glatiramer acetate and Natalizumab, Ocrelizumab, Ofatumumab, Teriflunomide	CUA and CEA
4	Smets et al., (2023) [25]	Treatment sequence model, the Erasmus MC/ MTA MS model, the Netherlands	naïve adults with relapsing multiple sclerosis (RMS), starting at a mean age of 29, distributed across EDSS 0–3 at baseline	Treatment sequences that include ofatumumab, and DMT sequences containing ublituximab or rituximab	DMT sequences containing ocrelizumab	CEA
5	Bhan et al. (2023)[26]	A cohort multistate Markov transition model, Canada	Adults with relapsing–remitting multiple sclerosis (RRMS) and active disease	Ofatumumab	First line (Ocrelizumab, Teriflunomide, Dimethyl fumarate, Glatiramer acetate, Avonex, Rebif Betaseron, Extavia, BSC) second line (Cladribine, Natalizumab Fingolimod)	CCA
6	Baharnoori et al. (2022)[12]	A Markov cohort model, Canada	Adults with relapsing–remitting multiple sclerosis (RRMS)	Ofatumumab	first line (Ocrelizumab, Teriflunomide, Dimethyl fumarate, Glatiramer acetate, Avonex, Rebif Betaseron, Extavia, BSC), second line (Cladribine, Natalizumab, Fingolimod)	CEA

CEA, cost-effectiveness analysis; CUA, cost-utility analysis; CCA, cost–consequence analysis; BSC, best supportive car

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Table 1 provides a summary of the types of economic evaluations and comparators of the studies included in this review. Most of the evaluations in the included studies were model-based cost-effectiveness analyses conducted on hypothetical cohorts of patients with RRMS[1,12,24,25,26]. One study used network meta-analysis and cost–utility modeling with a Markov structure[23]. Among the six studies included, Almalki et al. and colleagues evaluated the cost-effectiveness of ofatumumab over teriflunomide only.[1] Another study evaluated ofatumumab versus other treatments, including ocrelizumab, dimethyl fumarate, fingolimod, and natalizumab[24]. Another study conducted in Brazil reported that ofatumumab was directly compared with 13 other DMTs[23], including alemtuzumab, teriflunomide, natalizumab, ocrelizumab, cladribine, fingolimod, dimethyl fumarate, glatiramer acetate, interferon beta a, and interferon beta b. Another study conducted in the Netherlands compared ofatumumab with other anti-CD20 monoclonal antibodies, including ocrelizumab, ublituximab, and rituximab[25]. A study in Canada compared ofatumumab with other therapies for RRMS, including teriflunomide, interferons, dimethyl fumarate, ocrelizumab, glatiramer, and best supportive care[12]. This section may be divided by subheadings. It should provide a concise and precise description of the experimental results, their interpretation, as well as the experimental conclusions that can be drawn.

Pharmacoeconomic model technique and other related economic aspects

Table 2 shows a summary of the economic models used, different perspectives, time horizons, costs included, and currencies that were used in all included studies. In general, most of the journal studies included in this review used a Markov state-transition model structure. The Markov models usually include health states stratified by the expanded disability status scale (EDSS)[1,12,23,24,26]. Only one study used a treatment-sequence model to compare DMTs in terms of health states, including EDSS scores and lifetime relapses[25].

Perspectives and time horizons used

The studies included in this review differed in their model parameters, perspectives, and time horizons. Almalki and colleagues[1] developed a Markov model to reflect the progression of RRMS over a 10-year period from a Saudi payer perspective. They designed this model to understand the clinical pathways and health outcomes of a hypothetical group of RRMS patients who were included in the study. In the model, patients moved between EDSS states ranging from 0 (normal neurological function) to 9 and state 10, which was considered the death state. Patients could either remain in their current EDSS state or transition to a higher or lower state, indicating disease progression or improvement, respectively. Another study conducted in the UAE[24]. developed a Markov model-based health state stratified by the EDSS but over a 65-year time horizon from the UAE payer's perspective[24]. Barros and colleagues constructed a Markov model of a hypothetical cohort of 10,000 patients, adapting the Brazilian Public Health System perspective[23]. The model evaluated the annualized relapse rate and sustained disability progression, allowing for disease progression through changes between different levels on the EDSS. The other two studies have developed multistate Markov transition models that run over a lifetime horizon to forecast the costs and outcomes of medications with a first-line indication in patients with RRMS[12,26]. Both studies were conducted from the perspective of the Canadian public healthcare system. In another study conducted in the Netherlands from a societal perspective, Smets et al.[25] employed the previously developed treatment-sequence model to evaluate and compare different sequences of ocrelizumab/ofatumumab and other DMTs over a lifetime horizon[25]. This model was used to predict long-term health outcomes and was stratified by EDSS score.

Costs included and resource utilization

Health-care cost types include direct costs (both medical and nonmedical), indirect costs, and intangible costs, which should be reported in any pharmacoeconomic study. Nevertheless, most of the journal articles examined in this review focused on estimating direct costs[1,12,23,24,26]. Specifically, the direct medical costs frequently calculated in these studies included treatment costs, monitoring costs, the average cost of relapse per event, serious adverse event (AE)-related costs, and EDSS-specific costs[1,23,24,26]. Notably, only one study[25] incorporated both direct and indirect costs, assessing aspects such as DMT costs, DMT monitoring and administration costs, hospitalization costs, and costs related to relapses and caregivers, as well as indirect costs such as caregiver time and lost productivity.

Price year/currency, the discount rate used, and willingness to pay (WTP threshold)

All the articles included in this study presented the currency and price year used and threshold, which differed from country to country. The Canadian studies[12,26]. used a 1.5% annual discount rate for both costs and outcomes, using Canadian dollars (CAD) as the currency and $50,000 per QALY as a WTP threshold. In contrast, the study conducted in the UAE employed a discount rate of 3.5%, with currency in the United Arab Emirates Dirham (AED). [24] Furthermore, a Brazilian study applied an even higher discount rate of 5% for both costs and outcomes, using U.S. dollars (USD) as the currency[23]. The Dutch study[25] used Euro (€) as currency with a discount rate of 4%.

Studies from Gulf countries[1,24], which were conducted in both Saudi Arabia and the UAE, used WTP thresholds of $99,120 per QALY (three times the Saudi gross domestic product per capita) and AED thresholds of 369,854 ($100,695.21)/QALY (twice the UAE gross domestic product per capita), respectively. Barrios et al. (2025) used the threshold adopted in Brazil, which is $8000.00/QALY[23], whereas the WTP threshold of €50,000 per QALY was used in a study conducted in the Netherlands[25]. Further details are presented in Table 2.

Table 2. Information on the economic models and model inputs in the studies included

study ID	Title of the study	model used	Perspective	Time horizon	Cost included in the study	Threshold	Currency
1	Cost-Effectiveness Analysis of Ofatumumab versus Teriflunomide for Relapsing-Remitting Multiple Sclerosis: A 10-Year Markov Model.-1	Markov model	Saudi healthcare payers	10 years	Direct medical costs:treatment cost, monitoring cost, PASI subgroups related cost, average cost of relapse per event, serious infections	$ 99,120/ QALY	US dollars ($) and converted to Saudi Riyal (SR) 2025
2	Cost-effectiveness of ofatumumab for the treatment of relapsing forms of multipleSclerosis in the United Arab Emirates-24	Markov model	United Arab Emirates(UAE) payers	65 years	Direct medical costs: drug acquisition, monitoring, administration costs, relapse costs- EDSS-specific costs	AED 369,854/ QALY	United Arab Emirates Dirham(AED)2025
3	Cost-Utility Analysis and Efficiency Frontier of Drugs Available in Brazil for the Treatment of Relapsing-Remitting Multiple Sclerosis-23	Markov model	Brazilian Public Health System (SUS) Perspective	Lifetime (5,10-, and 50-year models)	Direct costs: drug acquisition, disease management, drug administration, monitoring, relapse costs	$ 8,0000/ QALY	US dollars ($)
4	Health-economic benefits of anti-CD20 treatmentsin relapsing multiple sclerosis estimated using atreatment-sequence model-25	Treatment-sequence model	Dutch societal perspective	Lifetime	Direct medical cost monitoring, administration, relapse, inpatient-Societal costs: Productivity loss,caregiver time	€ 50,000/ QALY	Euro (€)
5	Cost–consequence analysis of ofatumumabfor the treatment of relapsing-remittingmultiple sclerosis in Canada-26	Markov cohort model	Patients with active disease RRMS in Canada (payers perspective)	10 years	Direct medical costs: mild and moderate/severe relapse costs, treatment-related costs: administration and monitoring-Adverse event (AE-related costs) (non-DMT)	$50,000/ QALY	Canadian dollars(CAD)2021
6	CostEffectiveness Analysis of Ofatumumab for the Treatment of RelapsingRemitting Multiple Sclerosis in Canada12	Markov cohort model	Canadian healthcare system (base) Societal (scenario)	65 years	Direct medical costs:EDSS health state costs, relapses, AE, drug acquisition, monitoring-Indirect costs in scenario analysis: informal care, sick leave, and retirement	$50,000/ QALY	Canadian dollars(CAD)2022

Comparative DMTs, outcomes, and ICERs

Table 3 shows the results of cost effectiveness for ofatumumab vs other DMTs. The comparison between ofatumumab and other DTMs varied across the studies included in this review. In one study, a direct head-to-head comparison was conducted to evaluate the efficacy of oral first-line therapy with teriflunomide[1]. Other studies compared ofatumumab with both first- and second-line treatments[12,23,24,25,26]. For example, Inshasi et al. (2025) compared ofatumumab with ocrelizumab, natalizumab, fingolimod, dimethyl fumarate (DMF), teriflunomide, glatiramer acetate, interferons, cladribine, and best supportive care (BSC)[24].

Ofatumumab vs first-line therapies

Among DMTs, several medications can be used as first-line treatments for RRMS, such as teriflunomide, dimethyl fumarate, interferon beta-1a, interferon beta-1b, and glatiramer acetate. Almalkei et al. (2025) reported that the estimated direct medical costs were $150,826 for ofatumumab and $121,463 for teriflunomide. The values of the QALYs for both ofatumumab and teriflunomide were 7.78 and 7.14, respectively, resulting in an incremental QALY gain of 0.64 in favor of ofatumumab. Therefore, ofatumumab is considered cost-effective, as the ICER of $46,188 PER QALY is below the frequently cited WTP threshold of $99,120 per QALY. Inshasi et al. (2025) reported that ofatumumab was cost-effective compared with teriflunomide, with an incremental QALY gain of 1.23 at an ICER of $152,800 per QALY. This ICER value is less than the WTP threshold of AED 369,854 ($100,695.21) per QALY. However, Barros et al. (2025)

Table 3. Summary results of cost-effectiveness parameters

	Study	Intervention	DMTs assessed	Outcome	ICER; Cost/outcome	Conclusion
1	Cost-Effectiveness Analysis of Ofatumumab versus Teriflunomide for Relapsing-Remitting Multiple Sclerosis: A 10-Year Markov Model.	Ofatumumab	Teriflunomide	**QALY:** Absolute difference is 0.64	$ 46,188/QALY	Ofatumumab was dominant and cost-effective over Teriflunomide
2	Cost-effectiveness of ofatumumab for the treatment of relapsing forms of multiplesclerosis in the United Arab Emirates	Ofatumumab	DMTs (Ocrelizumab, Natalizumab IV, Fingolimod (branded), Teriflunomide, DMF, Glatiramer acetate, Interferons, Fingolimod (generic), BSC, and Cladribine)	**QALY:** Ocrelizumab (0.17), Natalizumab IV (0.18), Fingolimod (branded) (0.82), Teriflunomide (1.23), DMF (0.9), Glatiramer acetate (1.12), Interferons (1.03-1.26-1.12), Fingolimod (generic) (0.82), BSC (1.62), and Cladribine (0.23)	Ocrelizumab (Dominant), Natalizumab IV (Dominant), Fingolimod (branded) (Dominant), Teriflunomide (AED 152,800/QALY), DMF (Dominant), Glatiramer acetate (AED 132,035/QALY), Interferons (AED 108,221/QALY-AED 156,433/QALY-AED 110,334/QALY), Fingolimod (generic) (AED 184,129/QALY), BSC (AED 256,238/ QALY) and Cladribine (AED 713,068/QALY)	Ofatumumab was dominant over ocrelizumab, DMF, fingolimod, and natalizumab IV.Ofatumumab was cost-effective compared with teriflunomide, fingolimod (generic), glatiramer acetate, interferons, and BSC. Ofatumumab resulted in an ICER of AED 713,068 per QALY when compared with cladribine (Rejected)
3	Cost-Utility Analysis and Efficiency Frontier of Drugs Available in Brazil for The Treatment of Relapsing-Remitting Multiple Sclerosis	Ofatumumab	Alemtuzumab, Natalizumab, Ocrelizumab, Cladribine, Fingolimod, Cladribine, Dimethyl fumarate, Glatiramer 20, Glatiramer 40, INFB-1a, Teriflunomide, Interferons	**QALY:** Ofatumumab (5.650), Alemtuzumab (6.579), Natalizumab (6.095), Ocrelizumab (6.024), Cladribine 3.5 (5.875), Fingolimod (5.245), Cladribine 5.25 (5.320), Dimethyl fumarate (5.115), Glatiramer 20 (5.077), Glatiramer 40 (5.069), Teriflunomide (4.959), Interferons (5.130-5.026- 5.039)	$ 8,231.87/QALY (Alemtuzumab vs Teriflunomide)	All drugs, including Ofatumumab, were dominated, except for Alemtuzumab and Teriflunomide, which were nondominated and formed the efficiency frontier. The ICER between these two drugs was above the Brazilian threshold. As a result, only Teriflunomide is cost-effective. Ofatumumab is not cost-effective (Rejected)
4	Health-economic benefits of anti-CD20 treatments In relapsing multiple sclerosis estimated using a treatment-sequence model	Ofatumumab	Ocrelizumab	**QALY:** First line: Ocrelizumab (20.4), Ofatumumab (19.7). Second line:Ocrelizumab (20.6), Ofatumumab -19.9	Not reported	Based on the probabilistic sensitivity analysis (PSA), the probability of Ocrelizumab and Ofatumumab being cost-effective is 65% and 35%, respectively. Ofatumumab is not more cost-effective than Ocrelizumab

5	Cost–consequence analysis of ofatumumab for the treatment of relapsing-remitting multiple sclerosis in Canada	Ofatumumab	Ocrelizumab, Cladribine, Natalizumab, Teriflunomide, Dimethyl fumarate, Glatiramer acetate, Avonex, Rebif 44, Betaseron, Extavia, Fingolimod, and BSC	**DALYs:** Ofatumumab (2.30), Ocrelizumab (2.37), Cladribine (2.48), Natalizumab (2.35), Teriflunomide (2.77), Dimethyl fumarate (2.81), Glatiramer acetate (2.65), Avonex (2.77), Rebif 44 (2.70), Betaseron (2.79), Extavia (2.77), Fingolimod (2.63), and BSC (3.04)	NA	Ofatumumab was associated with the lowest disability burden (2.30 DALYs) and lowest nondrug costs ($99,332) compared to both high- and moderate-efficacy DMTs. Clinical and productivity outcomes were also more favorable. While no ICER or QALY was calculated, Ofatumumab is considered cost-saving and clinically beneficial in this Canadian cost-consequence analysis
6	CostEffectiveness Analysis of Ofatumumab for the Treatment Of RelapsingRemitting Multiple Sclerosis in Canada	Ofatumumab	Teriflunomide, Dimethyl Fumarate, Ocrelizumab, Glatiramer	**QALY:** Teriflunomide (7.950), dimethyl fumarate (8.341), ocrelizumab (9.145), Glatiramer Acetate (8.056), BSC (7.367), Avonex (8.118), Rebif 22 (8.085), Rebif 44 (7.994), Betaseron (8.041), Extavia (8.032), Cladribine (8.742), Natalizumab (9.138), and Fingolimod (8.422) Teriflunomide (28.170), dimethyl fumarate (28.238), ocrelizumab (28.383), Glatiramer Acetate (28.190), BSC (28.073), Avonex (28.216), Rebif Rebif, Betaseron, Extavia, Cladribine, Natalizumab, and Fingolimod	$ 24,189/QALY (Ofatumumab vs Glatiramer) $ 28,014/ QALY (Ofatumumab vs BSC) $ 50,969/ QALY (Ofatumumab vs Cladribine) All other drugs were dominated	Ofatumumab is cost-effective and dominant over most alternatives

QALY, quality-adjusted life year; LY, life year; DALY, disability-adjusted life year

reported that both ofatumumab and other DMT therapies were dominated by teriflunomide, which has the lowest cost, and alemtuzumab, which is the most effective treatment, with an ICER of $8,231.87 per QALY. The author also suggested that teriflunomide yielded the highest net health benefit (NHB) and net monetary benefit (NMB) values. A separate study revealed a small disparity in cost-effectiveness between ofatumumab, teriflunomide, and other DMTs, suggesting the use of the least costly DMTs among the group[25]. Baharnoori et al. (2022) reported that ofatumumab was cost effective against teriflunomide and other DMT comparators that were approved and reimbursed as first-line DMTs for RRMS.

Several first-line therapies for RRMS, such as dimethyl fumarate, glatiramer acetate, and Interferon-beta-1a and Interferon-beta-1b, were found to be less cost-effective and more costly than did ofatumumab[12,24]. Specifically, ofatumumab was shown to be cost-effective compared with glatiramer acetate, with an incremental gain of 1.12 QALYs and an associated ICER of 132,035 ($35,947.41) per QALY. Furthermore, Baharnoori et al. (2022) compared ofatumumab with glatiramer acetate and reported that the incremental gain in QALYs was 1.221 and that the ICER was $24,189 per QALY, which is below the Canadian WTP threshold[12]. Additionally, ofatumumab was found to be cost effective at the ICERs of AED 108,221 ($29,463.89) per QALY and AED 156,433 per QALY compared with interferon-beta-1a and interferon-beta-1b, respectively[24]. Furthermore, ofatumumab was cost-effective compared with BSC, with an incremental QALY gain of 1.910 at an ICER of $28,014 per QALY[12].

Ofatumumab vs second-line therapies

Examples of DMTs that can be used as second-line therapies for RRMS include fingolimod, cladribine, and ocrelizumab. Baharnoori et al. (2022) documented the dominance of ofatumumab over fingolimod, with an incremental QALY

of 0.855[12]. Furthermore, ofatumumab yielded an ICER of AED 184,129 ($50,130.34) per QALY, with an incremental gain in QALY of 0.82 compared with fingolimod[24]. However, ofatumumab was not cost-effective compared with cladribine. Although the incremental gain in the QALY of 0.82 was in favor of ofatumumab, the ICER was AED 713,068 per QALY, which is above the WTP threshold[24]. Additionally, another study reported that ofatumumab was not cost-effective in comparison with cladribine, as the ICER was $50,969 per QALY despite the incremental gain in QALY (0.535) for ofatumumab[12].

The results of the comparison between ofatumumab and ocrelizumab differed among the studies included in this review. Most studies reported that ofatumumab was the dominant option, offering both lower costs and greater effectiveness. For example, Baharnoori et al. (2022) reported that the cost reduction, as a result of comparison, was $41,817, and the gain in QALYs was 0.132. Similarly, the UAE study revealed a reduction in cost at AED 276,815 ($75,364.72) and a corresponding increase in QALYs of 0.17 in favor of ofatumumab. Nevertheless, this result contradicts the findings of another study conducted in the Netherlands, which aimed to compare the cost-effectiveness of anti-CD20 monoclonal antibodies and reported no significant difference between ocrelizumab and ofatumumab[25]. Drug sequences that included ocrelizumab as a second-line therapy were associated with higher costs and a greater number of QALYs than those involving ofatumumab. However, the results of the probabilistic analysis indicated a high degree of uncertainty regarding this outcome[4,25].

Utilities and outcomes

Different instruments were used as outcome measures among the studies included in this review. For instance, Barros et al. (2025) employed both the EQ-5D-5 L and the 3-level EQ-5D-3 L as the main outcome measures used in economic models. In another study[24], utility weights for EDSS states were derived from a longitudinal cohort from a UK perspective. In contrast, a study conducted in Canada[12]. derived utility values from normative data for the Canadian population at EDSS 0, using the Health Utilities Index Mark 3 (HUI3) as the modeled functional form.

In this review, the primary outcome was the ICERs per different natural unit, especially the quality-of-life years (QALYs) reported in all the studies included. Other outcomes reported by the studies included sustained disability progression, the time to confirmed disability progression, and a reduction in annual relapse rates[1,12,23,24].

Sensitivity analyses

Deterministic and/or probabilistic sensitivity analyses (PSAs) were used in all the research articles included in this review. They confirmed the robustness of the base-case results across a range of parameter values. However, the findings were sensitive to changes in some input parameters, such as costs and utilities. For example, Inshasi et al. (2025) reported that increasing the annual cladribine retreatment rate from 0% to 23.7% showed that ofatumumab was cost-effective compared with cladribine. In addition, at a retreatment rate of 36.6%, ofatumumab was found to dominate cladribine[24].

DISCUSSION

To the best of our knowledge, this is the first narrative review assessing the cost-effectiveness of ofatumumab in comparison with other first- and second-line therapies for treating RRMS. Evidence on the cost-effectiveness of ofatumumab for the treatment of RRMS was evaluated via the results of six studies published in peer-reviewed journals[1,12,23,24,25,26]. Taken together, the results of this review may draw attention to the use of highly effective DMTs, such as ofatumumab, as the first option for treating RRMS and helping physicians with their decision-making. One of these six studies evaluated ofatumumab against one treatment (teriflunomide) only, where ofatumumab showed high efficacy and low cost compared with teriflunomide. Other studies[12,23,24,25,26]. have evaluated the effects ofatumumab against several DMT agents, such as dimethyl fumarate, glatiramer acetate, interferon-beta-1a, interferon-beta-1b, fingolimod, cladribine, and ocrelizumab. Although two studies examined the cost-effectiveness of using DMTs[4,28], neither of these studies included the three most recent studies[1,23,24] that were published in 2025 to examine the cost-effectiveness of ofatumumab and other DMTs. Furthermore, these studies did not specifically focus on ofatumumab. Therefore, we believe that this narrative review could provide more targeted and comprehensive evidence about the cost-effectiveness of ofatumumab than these published studies do.

All the studies included in this narrative review employed cost-effectiveness as the economic evaluation method. The Markov model was applied in most of these studies, specifically those conducted in Canada, the Netherlands, Brazil, Saudi Arabia, and the UAE. The differences were recognized in prices for DMTs, time horizons, and types of perspectives in all included studies on the basis of the analysis country. These differences contributed to the variation in the ICER values and other outcomes reported among the included articles. Another review documented the variability in ICER within the same treatment because of the parameters that were included in the Markov model and the assumed WTP thresholds[4].

The findings from most of the studies included in this review suggested that ofatumumab was cost-effective compared with all first-line DMT therapies. Compared with most DMTs, ofatumumab stands out for its high effectiveness and low cost. Ofatumumab offers high effectiveness in reducing relapse events, slowing disability progression, and increasing the time spent on lower EDSS health states[12,23,24,25,26]. This can help patients live longer and increase their overall health-related quality of life (HRQoL). This result is consistent with another study in which ofatumumab was associated with lower annualized relapse rates than teriflunomide was[27]. In addition,

ofatumumab was associated with an increase in QALYs in all the studies included. The range of the gain in the QALYs was from 1.327 (vs. teriflunomide) to 0.132 (vs. ocrelizumab). This increase in the QALY indicates a reduced disease burden for patients treated with ofatumumab[12].

Another key benefit of ofatumumab is its affordability compared with most other DMTs, except for glatiramer acetate and basic supportive care in Canada and teriflunomide, interferon-beta 1a, and interferon-beta-1b in the UAE. For example, switching to ofatumumab could save healthcare systems between $12,022 and $41,817 per patient compared with interferon-beta-1b and ocrelizumab, respectively[12]. These savings are especially important in countries such as Saudi Arabia and the UAE, where the high cost of treating RRMS places a heavy financial strain on healthcare budgets[1,24]. These findings can assist policymakers in reallocating funds to increase access to care and invest in other vital areas to meet patients' desired outcomes[1]. Most studies included in this review indicate that ofatumumab was generally found to be both more effective and less costly than other second-line treatments, such as ocrelizumab and fingolimod, thereby demonstrating favorable cost-effectiveness[12,23,24]. For example, two studies[12,24]. reported that ofatumumab was dominant over ocrelizumab, which means that it provided better health outcomes at a lower cost. One study, however, revealed that ocrelizumab was associated with lower treatment costs than ofatumumab was, resulting in superior health benefits, as reflected by a greater increase in QALYs[25].

The results of this review indicate that when ofatumumab was compared with cladribine, the findings did not favor ofatumumab. Specifically, a study carried out in the UAE compared ofatumumab with cladribine and reported that the ICER was AED 713,068 ($194136.47), with a QALY gain of 0.82[24]. This ICER exceeds the assumed WTP threshold, which is set to be at AED 369,854 ($100694.67) per QALY[24]. Another study confirmed that ofatumumab did not result in cost savings, resulting in an ICER of $50,969 versus cladribine. This ICER is higher than what is generally considered an acceptable WTP threshold in Canada. Furthermore, the use of cladribine as an effective and safe alternative treatment option to other DMTs for RRMS has been supported by previous systematic reviews and meta-analyses[4,29,30].

While this narrative review aimed to provide a comprehensive and targeted overview of recent studies evaluating the economic value of ofatumumab, several limitations should be considered. First, since this is a narrative review, we did not follow a systematic, replicable search strategy. This means there is a chance that some studies were unintentionally selected in a way that may favor ofatumumab, introducing potential selection bias. Unlike systematic reviews, our approach to this narrative review may have missed some relevant studies, which could affect the reliability of our conclusions about the ofatumumab's cost-effectiveness. Therefore, it's recommended for future research to conduct a systematic and metanalysis to synthesis the evidence of the pharmacoeconomic evaluation of ofatumumab

Second, we included only studies published in English and those available in the published literature. This might have led to publication and language biases, meaning that we may have overlooked important research from countries where studies are published in other languages, such as parts of Asia, Europe, or South America. Third, we did not carry out a statistical pooling of cost-effectiveness results such as ICERs. Without this information, it is more difficult to judge whether ofatumumab is consistently more cost-effective than other treatment options. Finally, the results should be interpreted with caution because the studies we included used different methods, such as varying time horizons, discount rates, healthcare systems, and perspectives. These differences make it difficult to generalize the results and apply the findings broadly across different settings.

CONCLUSIONS

This narrative review highlights the evidence that supports the cost-effectiveness of ofatumumab in treating RRMS. On the basis of the findings from the review, ofatumumab is not only cost-effective but also a dominant treatment option compared with several other DMTs, including dimethyl fumarate, glatiramer acetate, interferon beta-1a, interferon beta-1b, ocrelizumab, and fingolimod. However, the review also revealed that ofatumumab was not cost-effective in comparison with cladribine. Most importantly, there is a growing argument for initiating ofatumumab early during treatment, as it is seen as a win–win strategy: patients tend to experience better outcomes, and the healthcare system may benefit from reduced overall costs. Further research is needed to generate robust data on the costs and health-related quality-of-life outcomes associated with ofatumumab and other DMTs to help decision makers make the best choice.

COMPETING INTERESTS

The author reports no conflicts of interest in this work.

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