

OBJECTIVES

- Systemic Lupus Erythematosus (SLE) is a chronic autoimmune disease characterized by immune system dysregulation, which can lead to multi-organ involvement.
- Lupus nephritis (LN) represents a type of glomerulonephritis, which is among the most severe organ manifestations of SLE, causing inflammation and the potential for renal impairment.
- A targeted literature review was performed to assess economic modelling approaches utilized in published economic evaluations of pharmacological interventions for LN/SLE.

METHODS

- Biomedical databases, including EMBASE® and MEDLINE®, were searched to identify published economic evaluations for pharmacological interventions in the lupus population (LN/SLE), with a focus on studies published in the English language that reported on economic modelling associated with LN/SLE patients.
- All the records retrieved from the literature search were screened against the pre-defined inclusion and exclusion criteria (Table 1), first based on the title and abstract and then on the full-text citations.
- Data was extracted from the full-text articles that were included.

Table 1: Inclusion and exclusion criteria

Criteria	Inclusion	Exclusion
Population	<ul style="list-style-type: none"> Patients with LN/ SLE 	<ul style="list-style-type: none"> Healthy individuals Animal/In-vitro study
Intervention	<ul style="list-style-type: none"> Pharmaceuticals 	<ul style="list-style-type: none"> Other than pharmaceuticals
Comparator	<ul style="list-style-type: none"> No restriction 	<ul style="list-style-type: none"> No restriction
Outcome	<ul style="list-style-type: none"> Total cost, QALY, LY, etc. Cost/QALY gained, Cost/LY gained ICER 	<ul style="list-style-type: none"> Other than economic outcomes
Study design	<ul style="list-style-type: none"> Cost-effectiveness analysis Cost-utility analysis Cost-consequence analysis Cost-minimisation analysis Budget impact analysis 	<ul style="list-style-type: none"> Other than economic evaluation

Key: LN, lupus nephritis; SLE, systemic lupus erythematosus; QALY, quality-adjusted life years; ICER, incremental cost-effectiveness ratio

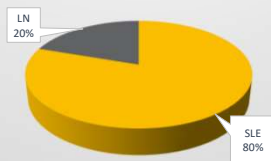
RESULTS

- A total of 18 studies were identified from 3,353 citations assessing unique models in the lupus population included.

Population

- Out of these, 13 studies were based on the SLE while the remaining five belong to the LN patient population, as depicted in Figure 1.

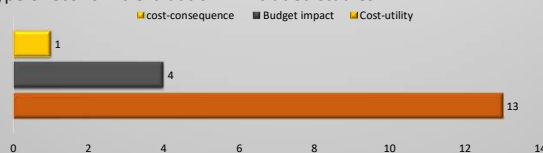
Figure 1: Population



Types of economic evaluations

- More than half of the studies (n = 13) were cost-utility analysis (eight SLE and five LN studies), followed by some budget impact analyses (n = 4; all SLE studies) with one cost-consequence analysis (SLE study), as represented in Figure 2.

Figure 2: Type of economic evaluation in included studies



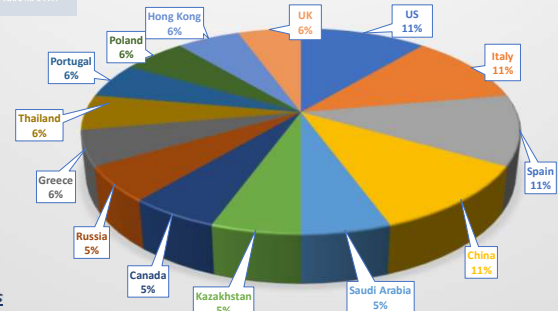
Treatments

- The biologics studied included belimumab, anifrolumab, tacrolimus and mycophenolate mofetil (MMF), azathioprine, prednisolone plus intravenous cyclophosphamide or prednisolone plus MMF. The majority of the studies evaluated belimumab treatment compared to standard of care (n=13; 12 SLE studies and one LN study).
- Belimumab was shown to be cost-effective, in terms of both ICER and ICUR (ICUR: \$95,000 - \$101,757) across North America, in Europe (ICER: €18,350 - €25,619; ICUR: €27,254 - €35,640) and among rest of the world.

Countries

- Economic evaluation studies were conducted in the following countries: the United States, Italy, China, and Spain (n=2 each), and in Saudi Arabia, Kazakhstan, Canada, Russia, Greece, Thailand, Portugal, Poland, Hong Kong, and the United Kingdom (n=1 each), as represented in Figure 3.

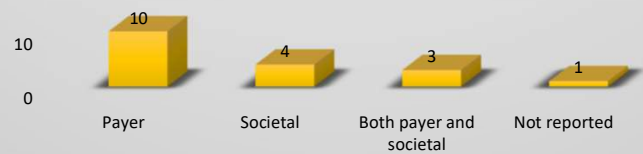
Figure 3: Countries



Perspectives

- Among 18 studies most common perspective was payer (n = 10; nine SLE and one LN), followed by societal (n = 4; one SLE and three LN), and three studies reported both payer and societal (two SLE and one LN), as represented in Figure 4.

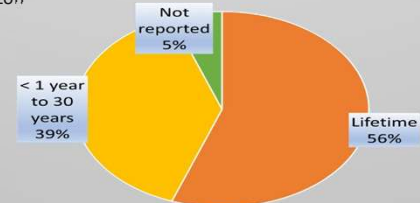
Figure 4: Type of perspective



Time horizon

- The time horizons for the analyses ranged from less than 1 year to a lifetime. The majority of the studies used a lifetime time horizon, as depicted in Figure 5.

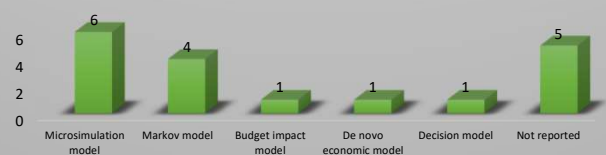
Figure 5: Time horizon



Model type

- The economic models employed included microsimulation model (n = 6; all SLE studies), followed by Markov model (n = 4; one SLE and three LN studies). Different types of models are depicted in Figure 6. Key health states assessed included complete response, partial response, active disease, kidney failure and death.

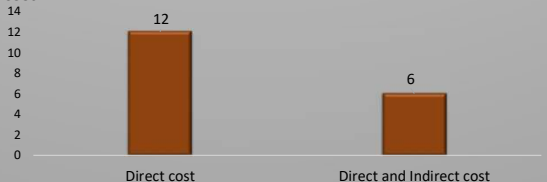
Figure 6: Model type



Type of cost

- Most common type of cost reported was direct cost (n = 12) and both direct and indirect cost in six studies as shown in Figure 7.

Figure 7: Type of cost



CONCLUSIONS

- The research landscape reveals a discrepancy in economic evaluations, with more studies focused on SLE compared to LN. Greater attention is needed in evaluating the economic aspects of LN care. Notably, belimumab appears as a cost-effective addition to standard SLE treatments, highlighting its potential value in lupus management.

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