

REAL-WORLD COST-EFFECTIVENESS AND OPPORTUNITY COSTS OF ANTI-IL-17/23 VERSUS ANTI-TNF THERAPIES FOR PSORIASIS USING DLQI – BRAZILIAN PRIVATE MARKET



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BACKGROUND

Psoriasis biologic evaluations are traditionally driven by PASI, an investigator-reported endpoint that prioritizes skin clearance and often maximizes differentiation among newer biologics. PASI and DLQI show only moderate correlation, and this association often weakens over time, suggesting that patient-perceived value extends beyond skin clearance alone.

However:

1. PASI shows only moderate correlation with quality of life
2. DLQI better reflects patient experience
3. DLQI already influences reimbursement frameworks such as National Institute for Health and Care Excellence
4. Aligns with Value-Based Healthcare
5. Aligns with Value Flower dimensions - social function; productivity; stigma; emotional burden

ARE WE OVERPAYING FOR PASI GAINS THAT PATIENTS MAY NOT MEANINGFULLY PERCEIVE?

OBJECTIVES

To evaluate comparative cost-effectiveness and budget opportunity costs of Anti-IL versus Anti-TNF therapies using DLQI as a patient-centered economic endpoint from a Brazilian private payer perspective.

METHODS

Retrospective observational study using real-world payer data from a Brazilian private insurer covering **130,000 lives**.

Population: Moderate-to-severe psoriasis in Biologics use / n=44 patients

- ✓ Anti-IL → n=38
- ✓ Anti-TNF biosimilars → n=6

Follow-up: Sept 2023 – Aug 2025 (24 months)

Data collection: DLQI outcomes were assessed between months 13–15 because week 52 represents the standard efficacy milestone used in pivotal psoriasis trials for PASI and quality-of-life evaluation. A broader collection window was necessary to reflect real-world outpatient follow-up variability, as some patients returned only after month 12.

Outcomes:

- 1- Mean annual direct treatment cost
- 2- Mean DLQI after 52 week (at 13-15 months)

DLQI – Dermatology Life Quality Index

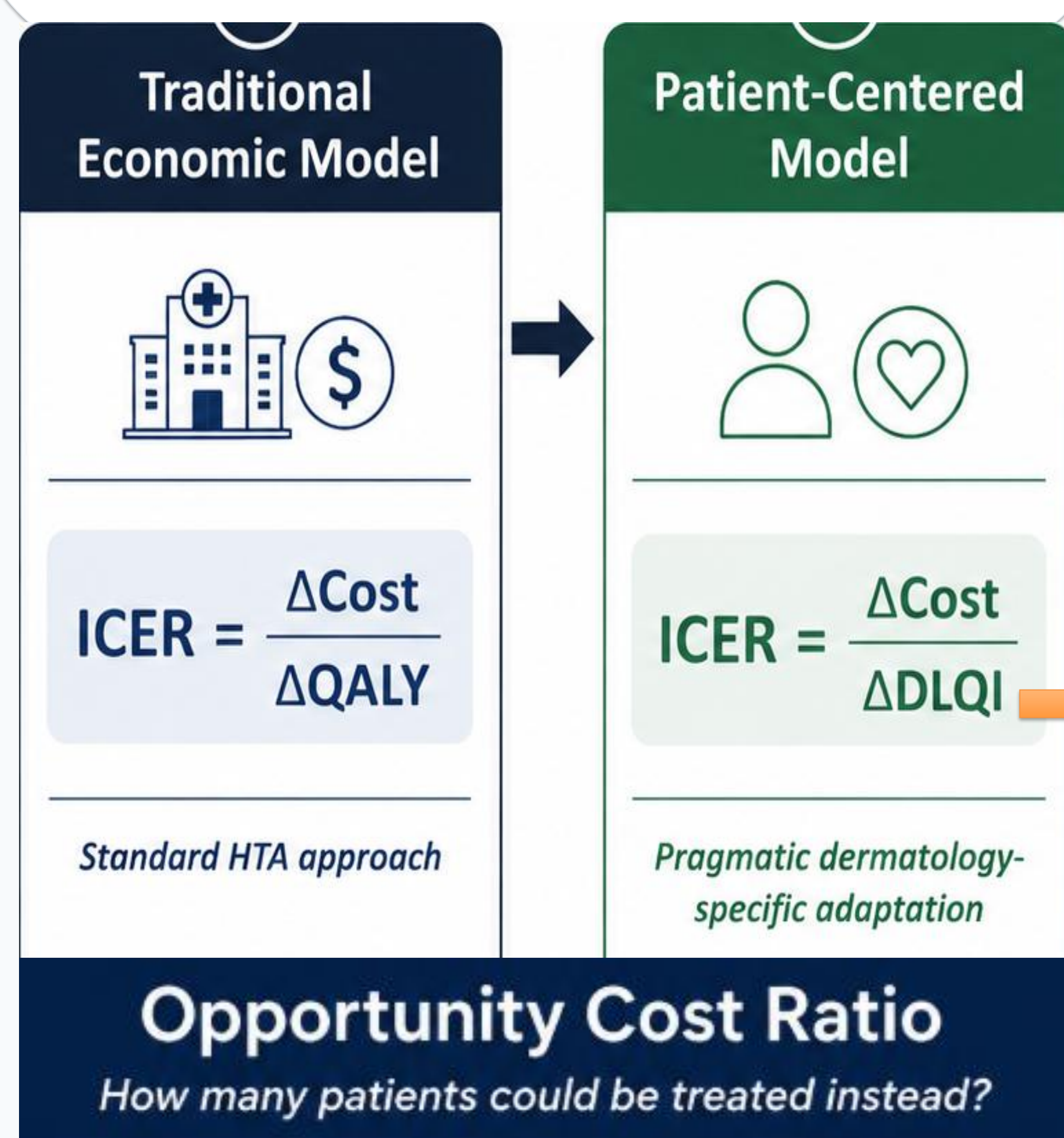
DLQI SCORE	INTERPRETATION
0 - 1	No effect at all on patient's life The skin condition has no impact on the patient's daily life.
2 - 5	Small effect on patient's life The skin condition causes a small impact on daily activities.
6 - 10	Moderate effect on patient's life The skin condition has a moderate impact on daily life.
11 - 20	Very large effect on patient's life The skin condition has a very large impact on daily life.
21 - 30	Extremely large effect on patient's life The skin condition has an extremely large impact on daily life.

THRESHOLD FOR LOW IMPACT: DLQI < 5
Scores below 5 represent low impact of the skin condition on quality of life.

ECONOMIC MODEL

Traditional psoriasis economic models frequently rely on QALYs derived from PASI-driven clinical outcomes. Given the absence of direct utility data and the stronger alignment of DLQI with patient-centered value, we adapted the ICER framework using **incremental DLQI improvement as the effectiveness denominator** for real-world payer decision-making.

Mean DLQI values were calculated for both treatment groups (Anti-IL and Anti-TNFα biosimilars), alongside average annual treatment costs including induction phases. Incremental differences in cost and DLQI between both strategies were then applied to the adapted ICER framework to estimate patient-centered cost-effectiveness. An opportunity-cost ratio was subsequently calculated to estimate how many patients could be treated under fixed budget constraints.



$$OCR = \frac{\text{Cost of Anti-IL per patient}}{\text{Cost of Anti-TNF}\alpha \text{ per patient}}$$

RESULTS

Both treatment strategies achieved low residual disease burden (DLQI <5), but at substantially different economic costs. Converted to USD at 5.5 BRL = 1 USD (December 18, 2025).

Annual Treatment Cost per Patient



Group	Mean DLQI	Median DLQI	SD ¹
Anti-IL	2,9	3	2,38
Anti-TNF	4,2	4,5	1,5

1-SD: Standard deviation

Incremental DLQI gain favoring Anti-IL:
4.2 - 2.9 = **1.3 points**

Incremental cost:
USD 28,266 - USD 6,250 = USD 22,016
USD 22,016 → **USD 17,675 per additional DLQI point gained**



$$\frac{USD\ 28,266}{USD\ 6,250} \rightarrow \mathbf{2.8\ Anti\ TNF\alpha \times 1\ Anti\ IL}$$

CONCLUSIONS

Both strategies achieved **DLQI scores below 5**, indicating low residual quality-of-life burden. Although Anti-IL therapies demonstrate superior PASI responses in clinical trials, this translated into only **modest incremental patient-reported benefit (1.3 DLQI points)** at a **>450% increase in annual costs** and an opportunity cost of **2.8 Anti-TNF biosimilar-treated patients for every 1 Anti-IL patient under fixed budgets**.

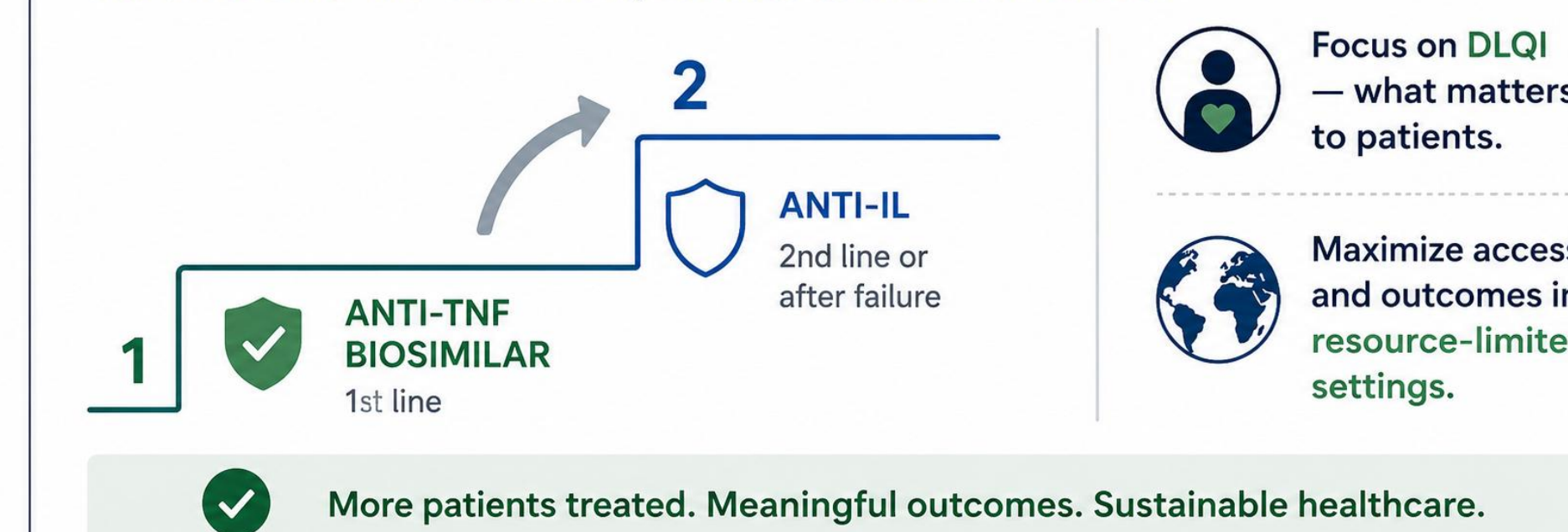
These findings support **step-up strategies prioritizing Anti-TNF biosimilars as first-line biologics** to expand access and improve budget efficiency in resource-constrained systems such as Brazil.

Prescribers should place greater attention on **DLQI-driven therapeutic targets—not only PASI responses—as these outcomes may better reflect patient-perceived value within Value-Based Healthcare frameworks**.



RECOMMENDATION

Adopt a **step-up strategy** to maximize value. Start with Anti-TNF biosimilars; escalate to Anti-IL if needed.



Limitations include small sample size, particularly in the Anti-TNF cohort, retrospective observational design, absence of direct utility measurements, and lack of individual longitudinal modeling of dose escalation patterns. These findings should be interpreted as a pragmatic real-world framework to support payer decision-making rather than a replacement for traditional QALY-based evaluations.