

Estimating the Financial Impact of Dupilumab for COPD Using Real-World Claims Data in the Brazilian Private Health System

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Key Message

In a 350,000-member private health plan, adding dupilumab for eligible COPD patients produced a positive 5-year incremental budget impact despite modeled reductions in hospitalization events.

Objective

To estimate the financial impact of incorporating dupilumab for treatment of chronic obstructive pulmonary disease (COPD) from the perspective of a private health insurance plan in Ceara, Brazil.

Methods

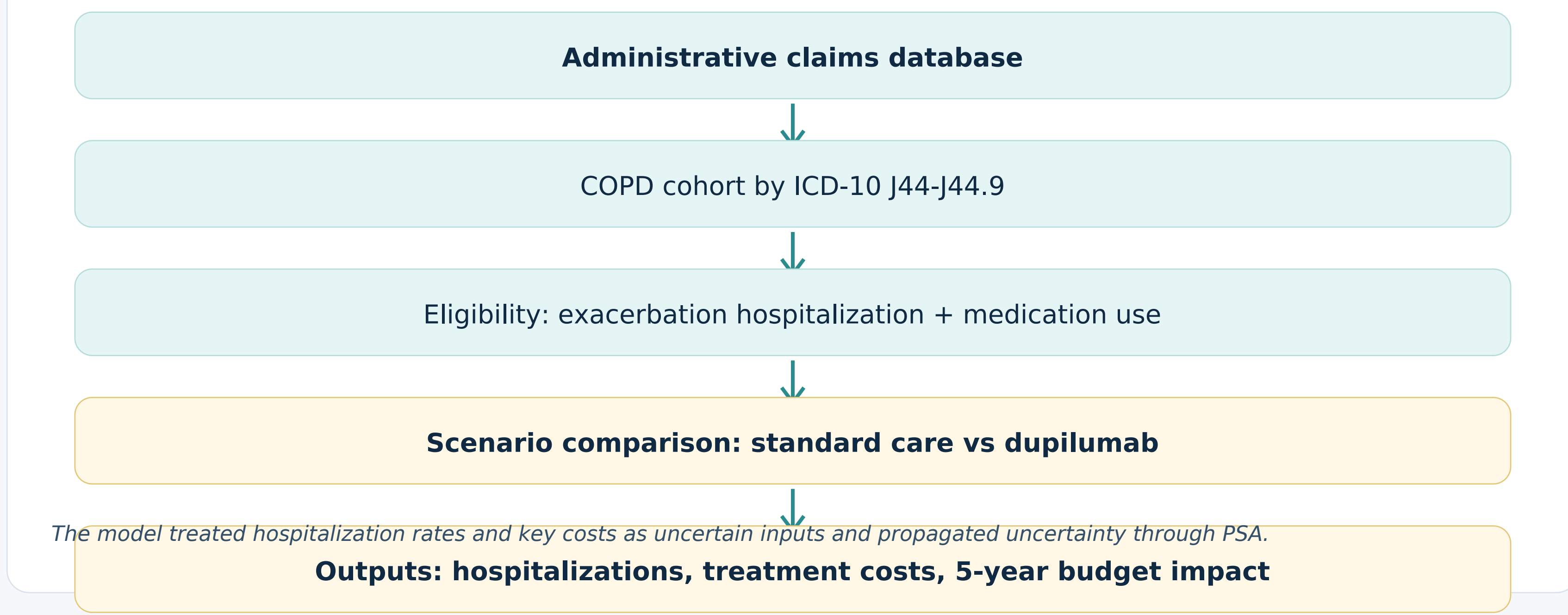
- Budget impact analysis using real-world, unidentified medical claims.
- Eligible population: insured individuals with COPD based on ICD-10 J44-J44.9, regulatory guidance, at least one exacerbation hospitalization, and specific medication use.
- Compared standard care with a dupilumab incorporation scenario over a 5-year horizon.
- Costs were estimated in USD using hospitalization unit costs and the annual acquisition cost of 26 doses of dupilumab.
- Probabilistic sensitivity analysis (PSA): 5,000 Monte Carlo iterations to address uncertainty.

Key Model Inputs

Parameter	Value
Covered population	350,000 insured lives
Baseline eligible patients	34
Population growth	0.69% per year
Uptake / adherence curve	50%, 60%, 70%, 80%, 90%
Hospitalization rate - standard care	1.05-1.60 events/year
Hospitalization rate - dupilumab	0.70-1.06 events/year
Unit hospitalization cost	USD 4,750.55
Annual treatment cost	USD 20,906.56

All monetary values are presented in USD. Hospitalization-rate parameters were modeled as stochastic ranges in the PSA.

Analytical Framework



Core Results

MEAN 5-YEAR IMPACT
USD 2.27M
incremental budget impact

95% CONFIDENCE INTERVAL
2.02M-2.52M
USD, 5-year cumulative

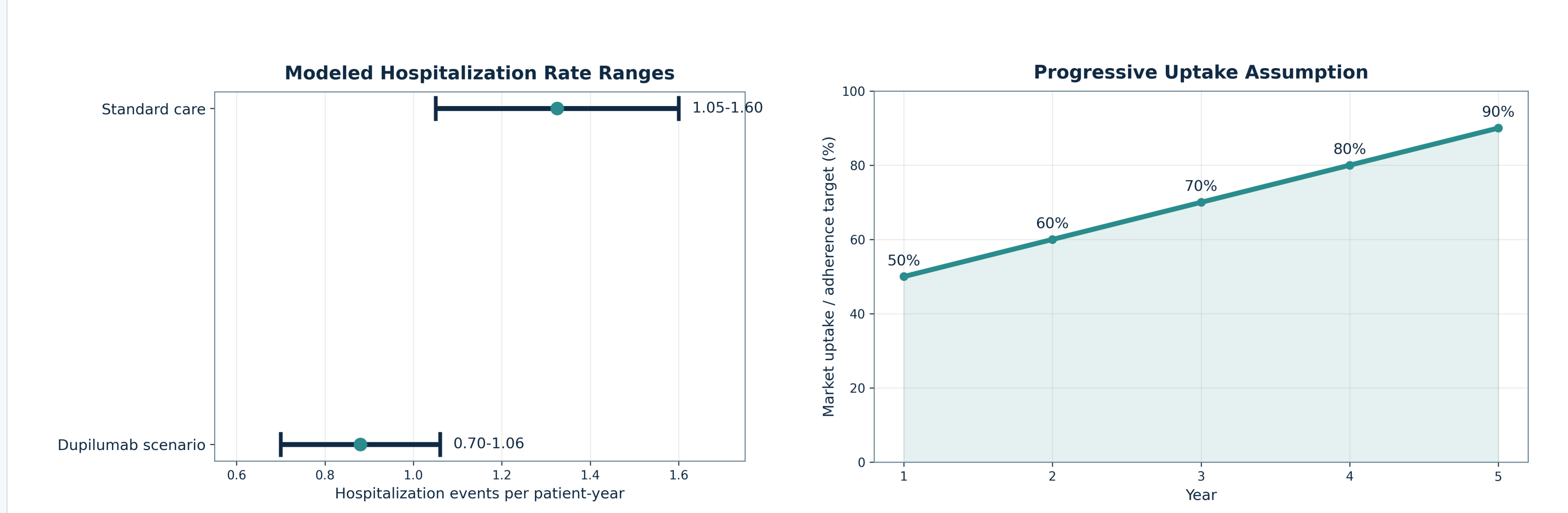
ELIGIBLE PATIENTS
34
identified at baseline

PSA ITERATIONS
5,000
Monte Carlo simulations

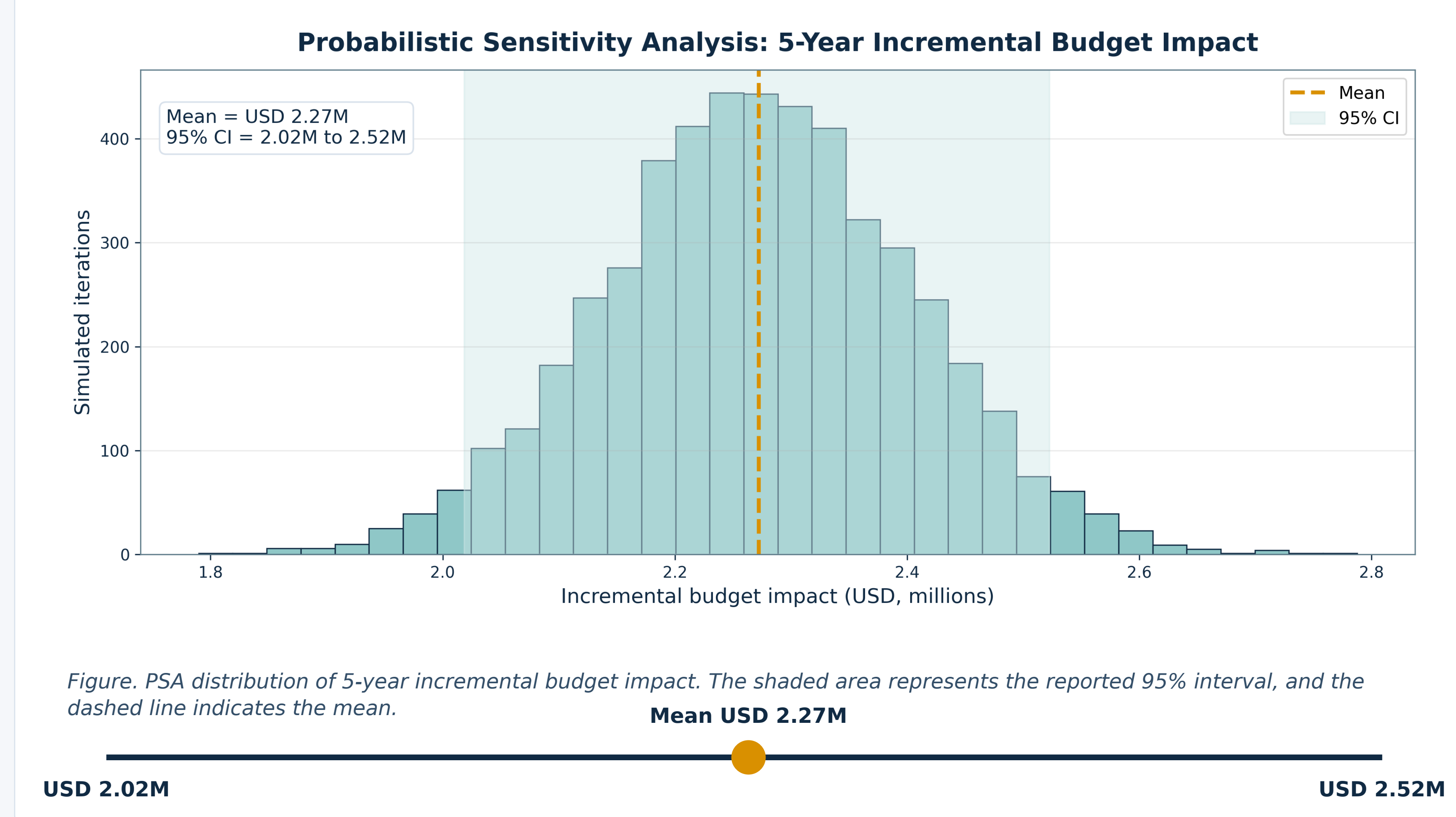
- Hospitalization costs remained the primary driver in the standard-care scenario.
- Acquisition cost of dupilumab dominated the budget impact increase; the entire 95% interval remained above zero.

Bottom line
Avoided hospitalization costs did not offset the additional drug acquisition costs within the modeled private-payer setting.

Utilization and Scenario Assumptions



Probabilistic Sensitivity Analysis



Conclusions

- The probabilistic analysis suggests that dupilumab incorporation would increase private-payer expenditures over 5 years in this real-world claims-based COPD cohort.
 - The budget effect was driven primarily by therapy acquisition cost rather than hospitalization costs.
- Findings support the need for local affordability assessments, structured reimbursement decisions, and implementation strategies that explicitly account for uncertainty.

Implications for Decision Makers

For health plans, the main operational question is not whether hospitalization rates may decrease, but whether the expected reductions are sufficient to justify the added acquisition cost under local eligibility, adherence, and pricing conditions.

Limitations: claims-based identification, modeled hospitalization-rate ranges, and short-term assumptions on uptake and treatment persistence.

Contact and Disclosures

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