

Cost-effectiveness of serplulimab plus chemotherapy for extensive-stage small-cell lung cancer in Peru

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Serplulimab plus chemotherapy, a dominant first-line strategy in extensive-stage small-cell lung cancer: better health outcomes at a lower overall cost than both atezolizumab plus chemotherapy and durvalumab plus chemotherapy

INTRODUCTION AND OBJECTIVE

Small-cell lung cancer accounts for approximately 3.5% of lung cancer cases in Peru, and 70% of patients present with extensive-stage disease (ES-SCLC), an aggressive malignancy with rapid growth, high metastatic potential and poor prognosis.^{1,4}

Immunotherapy is now the standard first-line approach. Serplulimab, a programmed cell death protein 1 (PD-1) inhibitor, combined with chemotherapy has improved clinical outcomes in ES-SCLC.^{5,6}

Objective: To assess the cost-effectiveness of serplulimab plus chemotherapy as first-line treatment for ES-SCLC, versus other immunotherapies, in Peru's private health system.

MODEL STRUCTURE

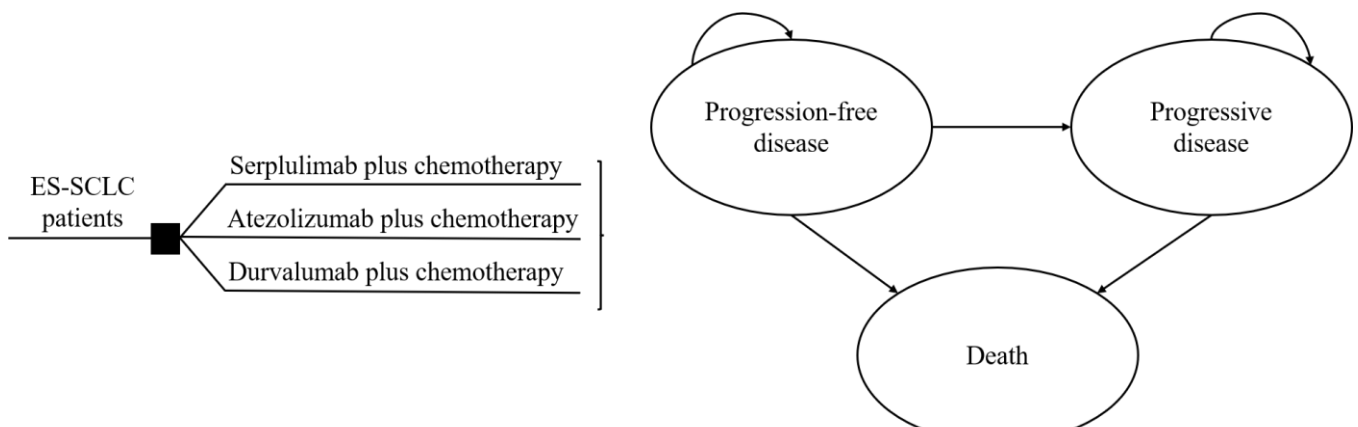


Figure 1. Decision tree and partitioned survival model.

METHODS

Model Partitioned survival model with three health states: progression-free disease, progressive disease and death (Figure 1).

Comparators Serplulimab plus chemotherapy versus atezolizumab plus chemotherapy and versus durvalumab plus chemotherapy.

Horizon Lifetime (10 years), weekly cycles. Costs and outcomes discounted at 3% annually.

Outcomes Quality-adjusted life years (QALY) and life years gained (LYG).

Costs Private health system perspective. Direct costs of treatment, medical procedures and management of grade ≥3 treatment-related adverse events. Utilities from published ES-SCLC studies.

Threshold Willingness to pay S/ 96,527 per QALY. Deterministic and probabilistic sensitivity analyses performed.

RESULTS

Dominant

in both comparisons: more effective and less costly

S/ 286,445

total cost per patient, the lowest of the three strategies

+0.25 QALY

versus atezolizumab; +0.24 versus durvalumab

Table 1. Cost-effectiveness results, base case

	Total cost	QALY	LYG	Incr. QALY	Incr. LYG	ICER/QALY	ICER/LYG
SERP plus CHE	S/ 286,445	1.32	1.85	—	—	—	—
ATE plus CHE	S/ 310,056	1.07	1.54	0.25	0.31	Dominant	Dominant
DURV plus CHE	S/ 637,778	1.08	1.56	0.24	0.29	Dominant	Dominant

Incremental values and ICERs are for serplulimab plus chemotherapy versus the comparator in that row. Dominant = better health outcomes at a lower overall cost

- One-way analyses: the hazard ratio for overall survival and atezolizumab acquisition cost were the most influential drivers of the ICER (Figures 2 and 3).
- Probabilistic sensitivity analysis (5,000 iterations): serplulimab plus chemotherapy was found to be dominant (better health outcomes at a lower overall cost) in the majority of simulations (Figures 4 and 5).

SENSITIVITY ANALYSES

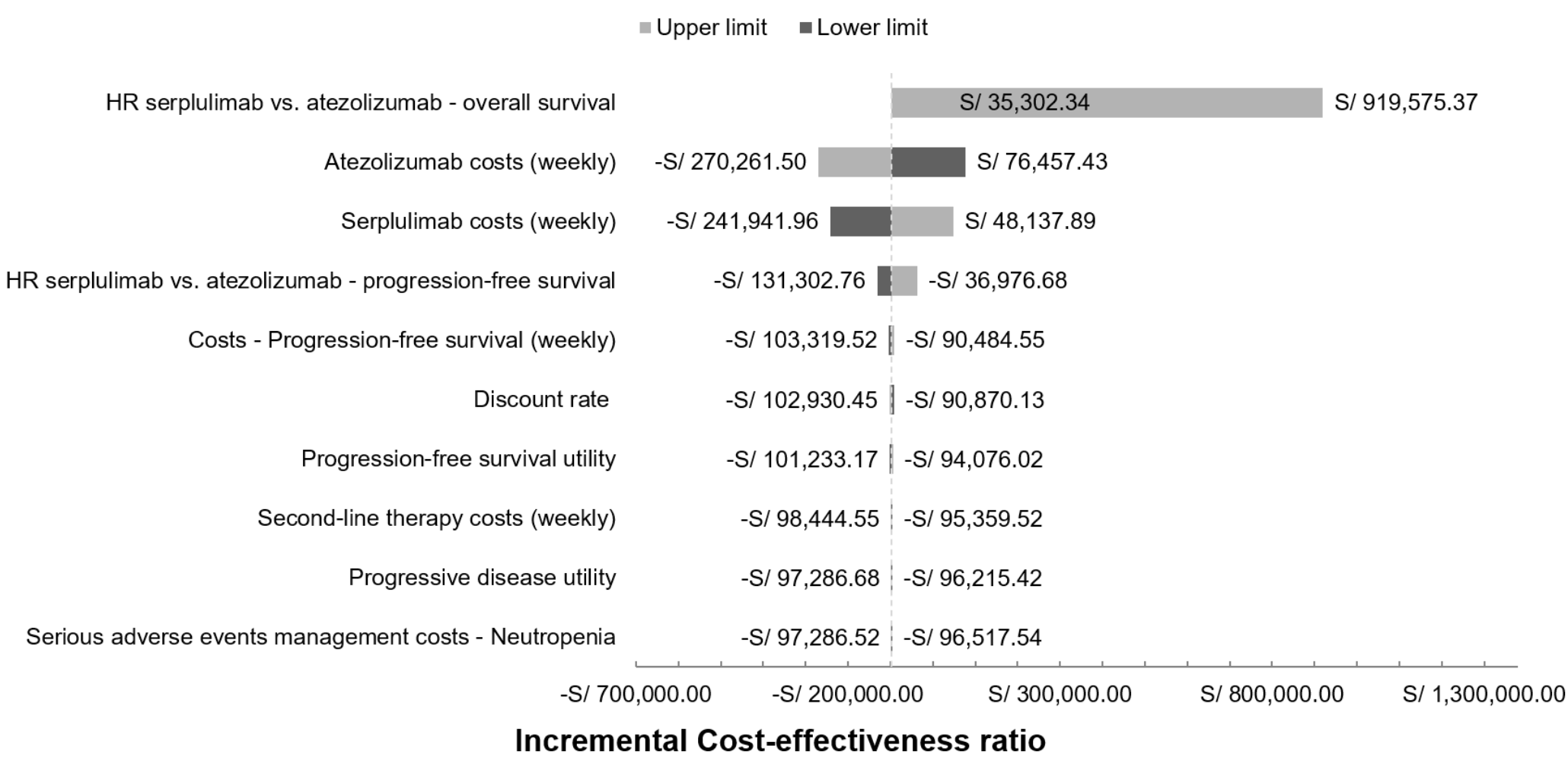


Figure 2. One-way sensitivity analysis (QALY): serplulimab versus atezolizumab plus chemotherapy

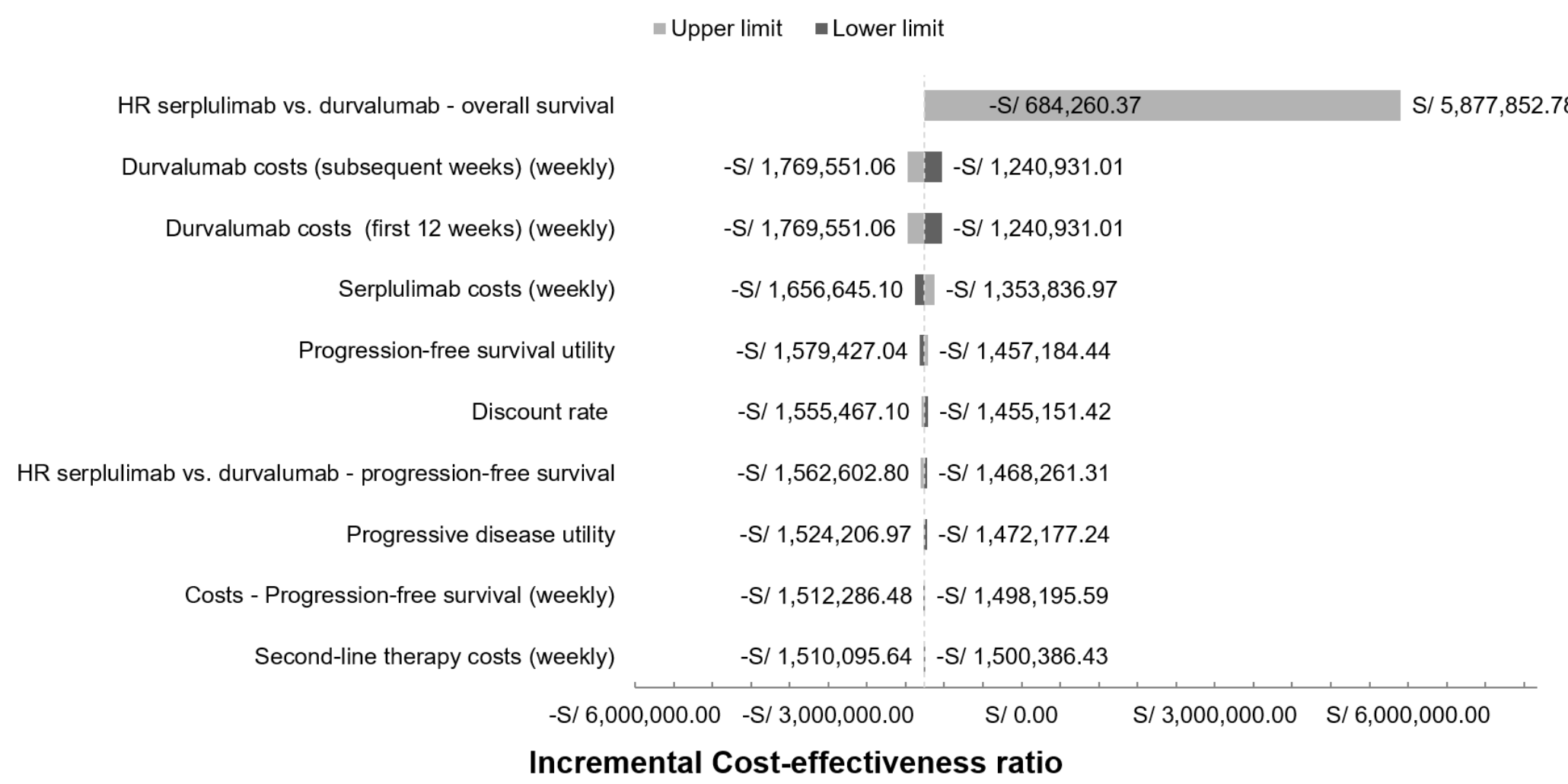


Figure 3. One-way sensitivity analysis (QALY): serplulimab versus durvalumab plus chemotherapy

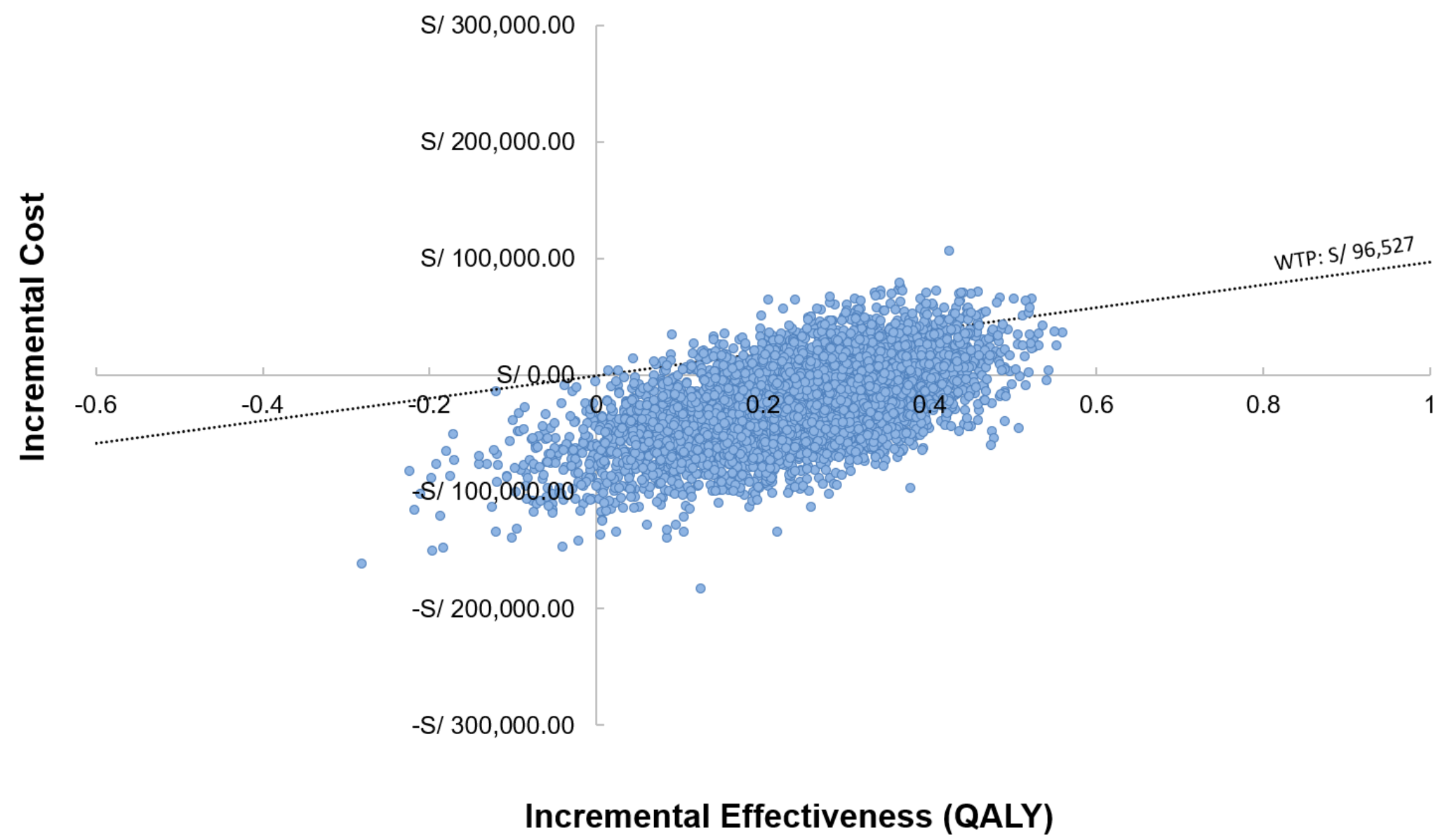


Figure 4. Probabilistic sensitivity analysis (QALY): serplulimab versus atezolizumab plus chemotherapy

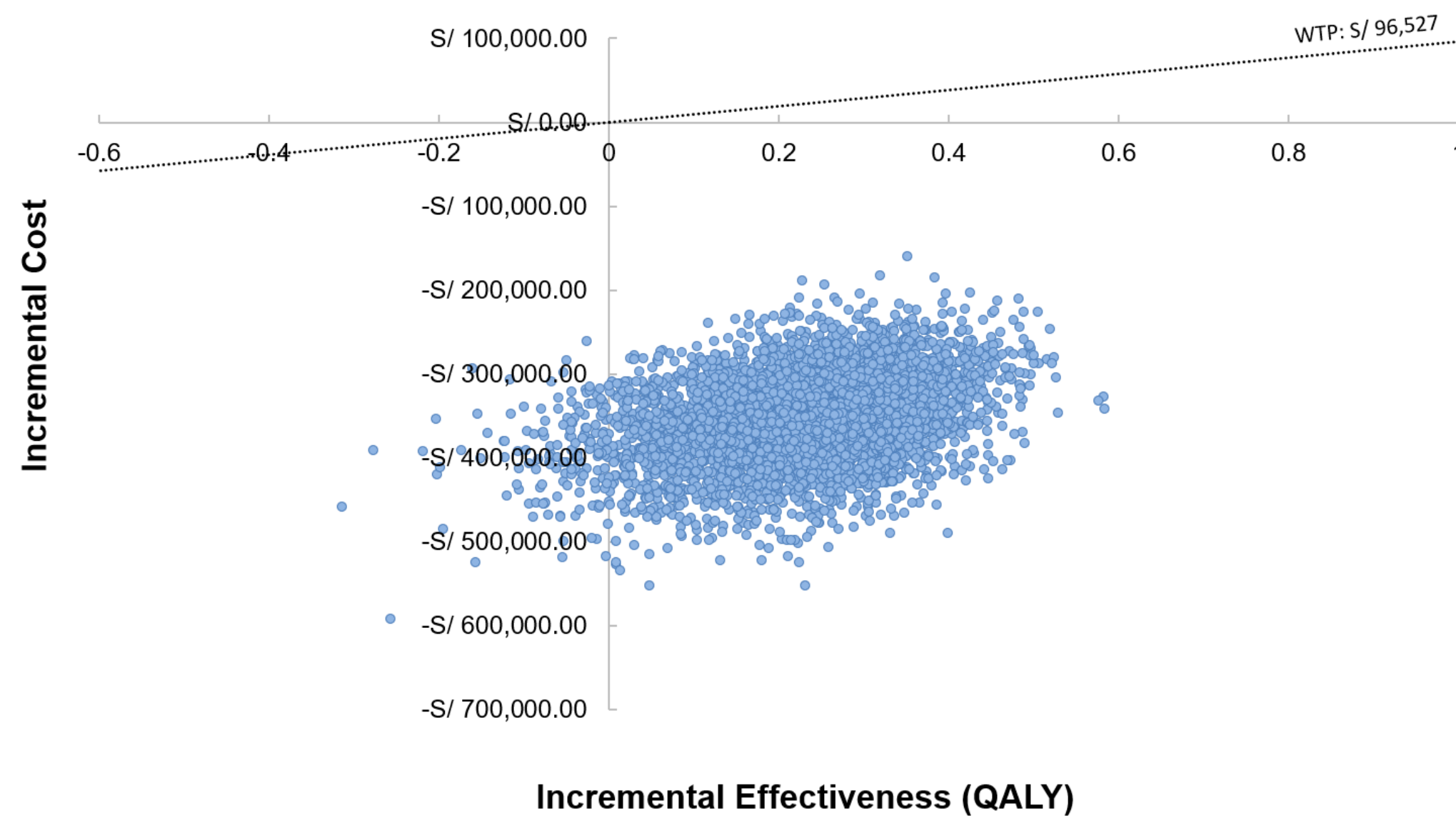


Figure 5. Probabilistic sensitivity analysis (QALY): serplulimab versus durvalumab plus chemotherapy

CONCLUSION

- Serplulimab plus chemotherapy was found to be a dominant strategy, proving better health outcomes at a lower overall cost than both atezolizumab plus chemotherapy and durvalumab plus chemotherapy in Peru's private health system.
- These findings provide evidence for healthcare policy makers and payers to adopt a cost-effective first-line treatment strategy for ES-SCLC, supporting informed, value-based decision-making.

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AI use AI was not used in the study development or execution, analysis of the results or writing of the poster.

ABBREVIATIONS

ATE, atezolizumab; CHE, chemotherapy; DURV, durvalumab; ES-SCLC, extensive-stage small-cell lung cancer; HR, hazard ratio; ICER, incremental cost-effectiveness ratio; LYG, life years gained; PD-1, programmed cell death protein 1; QALY, quality-adjusted life year; SERP, serplulimab; S/, Peruvian sol.