

Cost-Effectiveness of Lazertinib-Amivantamab Compared to Osimertinib for NSCLC with EGFR Mutations: A Partitioned Survival Model

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Background

- In Aug. 2024, the FDA approved lazertinib (Lacluze) in combination with amivantamab (Rybrevent) for the treatment of first-line locally advanced or metastatic non-small cell lung cancer (NSCLC) with epidermal growth factor receptor (EGFR) exon 19 deletion or exon 21 L858R mutation.¹
- Since then, the NCCN guidelines² have adopted lazertinib-amivantamab (LA) as an alternative to osimertinib.
- The economic value of this new therapy is not well understood.

Objective

To assess the cost-effectiveness of LA and osimertinib for the treatment of NSCLC with EGFR mutations.

Methods

Partitioned Survival Model

- Data from the MARIPOSA trial.³
- Parametric curves were selected based on clinical plausibility and the most central curves.
- Costs (in USD): 30-day supply using the wholesale acquisition cost minus 15%.⁴
- Time horizon: Lifetime.
- Uncertainty assessed using one-way sensitivity, probabilistic, and curve scenario analyses.



References and Contact Info!

Model Inputs

- Table 1** indicates the inputs used for the model.
- The Akaike Information Criterion⁵ (AIC) values for each parametric model are presented in **Table 2** to assess model fit.
- While several models demonstrated comparable fit ($\Delta AIC < 2$), the base case used exponential extrapolations for all endpoints, as these provided a balanced representation of the observed data and avoided clinically implausible long-term behavior based on visual inspection (**Figures 1–4**).

Table 1. Model Inputs

Description	Input
Transition Probabilities (Curve):	
LA PFS Rate (Exponential)	0.0291
LA OS Rate (Exponential)	0.0114
Osimertinib PFS Rate (Exponential)	0.0396
Osimertinib OS Rate (Exponential)	0.014
Adverse Events: ³	
Pulmonary Embolism – LA	6%
Pulmonary Embolism – Osimertinib	2%
Utilities:	
Progression-Free ⁶	0.676
Progression ⁶	0.473
Pulmonary Embolism Disutility ⁷	0.743
Costs:	
LA – 1 st month	\$60,440
LA – Subsequent Months	\$37,382
Osimertinib 1 st and subsequent Months	\$17,460
PE ⁸	\$11,958
Progression-Free (Non-Pharmacy) ⁹	\$12,254
Progression (Total Cost) ⁹	\$36,000
Death ¹⁰	\$15,000
Other:	
Discount – Costs / Outcomes	3%

SE = standard error; SD = standard deviation; LA = lazertinib-amivantamab; PFS = progression-free survival; OS = overall survival; PE = pulmonary embolism

Table 2. Relative AIC

Curve	LA PFS	LA OS	Osimertinib PFS	Osimertinib OS
Exponential	1753.656	1042.213	2116.849	1224.891
Gamma	1744.891	1043.933	2093.303	1216.056
Log-logistic	1745.511	1045.213	2091.824	1217.104
Log-normal	1751.462	1048.434	2107.892	1233.23
Weibull	1745.32	1043.843	2094.692	1214.335

Bolded values represent the lowest AIC for each endpoint.

Figure 1. LA PFS Curve Extrapolation

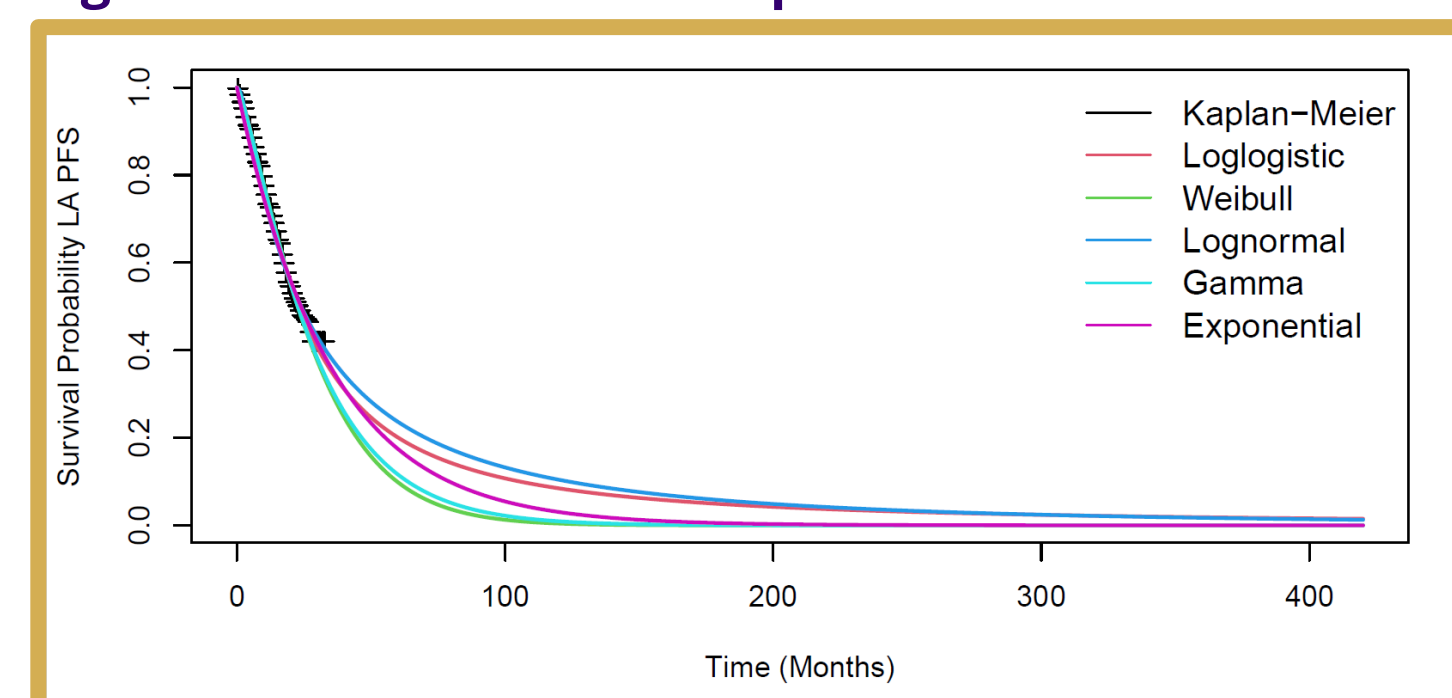


Figure 2. Osimertinib PFS Curve Extrapolation

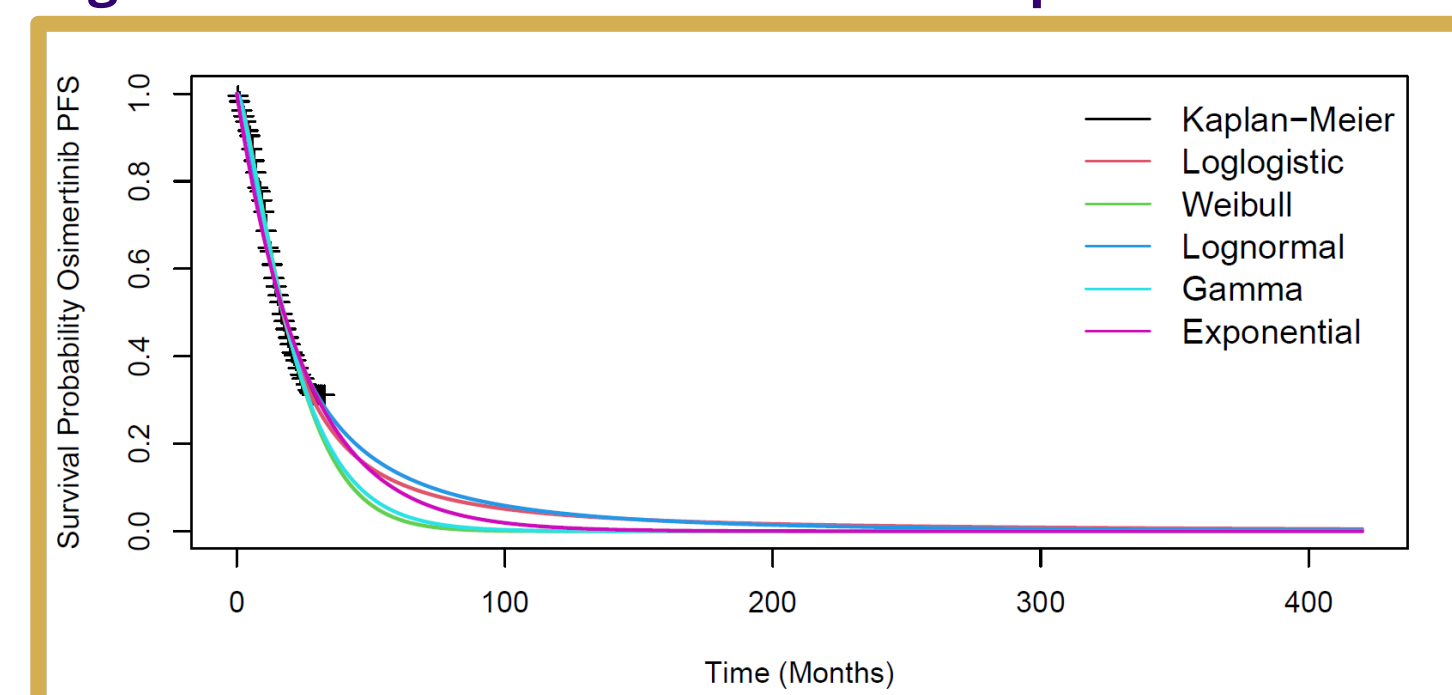


Figure 3. LA OS Curve Extrapolation

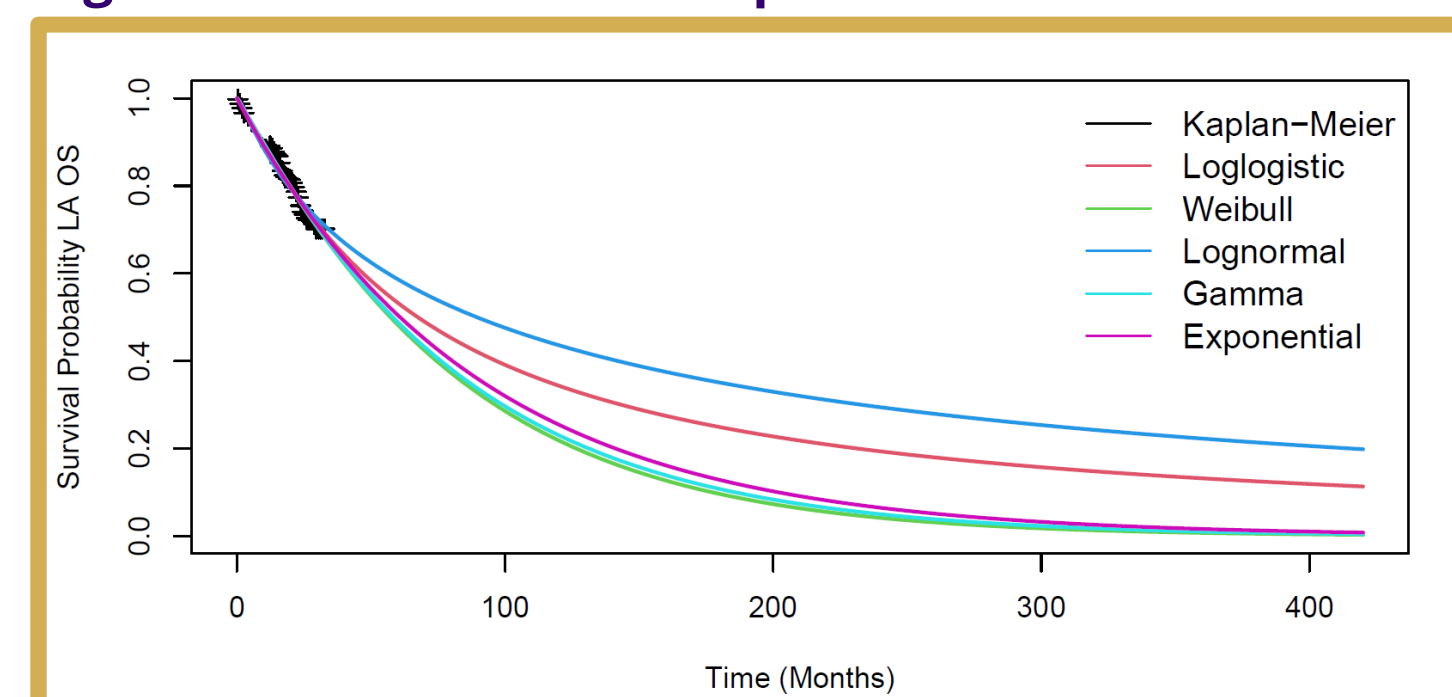
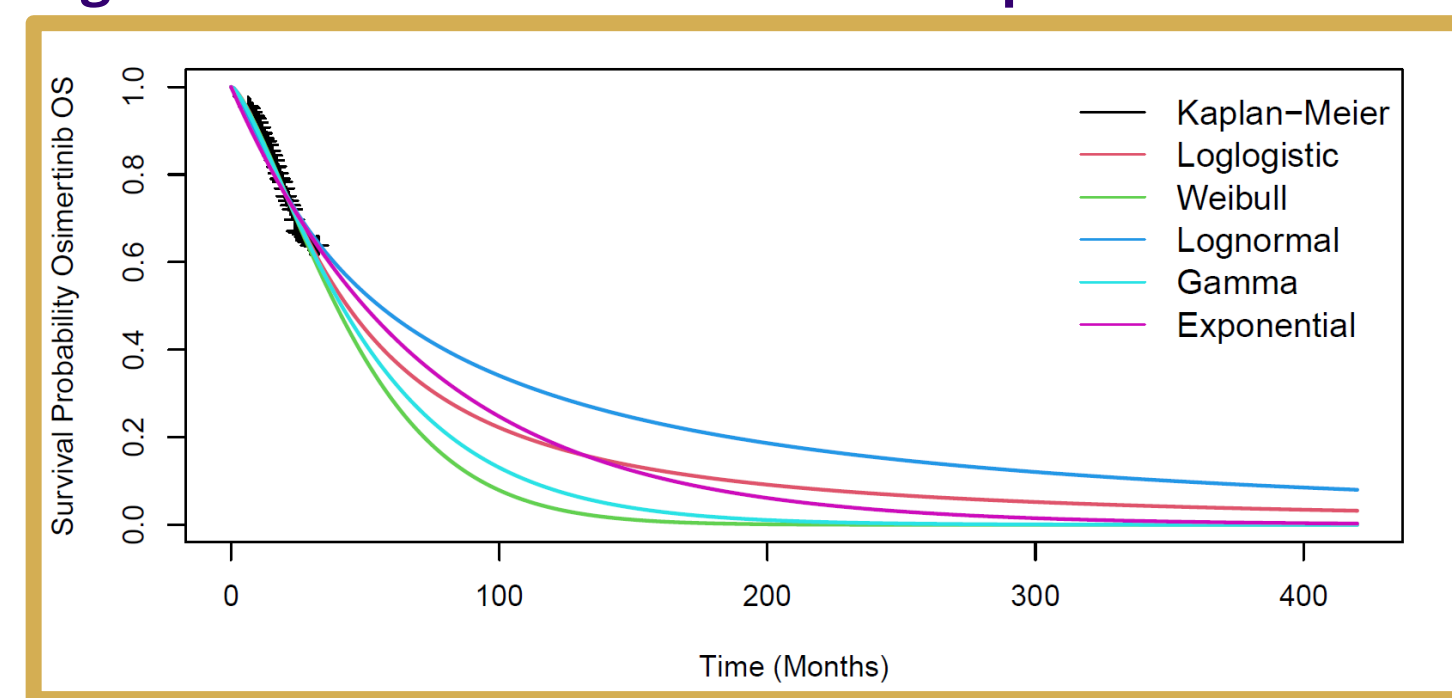


Figure 4. Osimertinib OS Curve Extrapolation



Results

- Results for the base case are shown in **Table 3**.
- The one-way sensitivity analysis (OWSA) (**Figure 5**) demonstrates the top drivers of impact.
- Table 4** shows the incremental cost-effectiveness ratio (ICER) using the best AIC, and the combinations of curves most favorable to LA and osimertinib.

Table 3. Incremental Cost-Effectiveness Ratio (ICER)

	LA	Osimertinib	Incremental
Costs	\$2,744,000	\$1,986,000	\$758,000
Quality Adjusted Life Years (QALY)	3.31	2.78	0.53
Life-Years	5.99	5.06	0.93
ICER			\$1,419,000

Figure 5. One-Way Sensitivity Analysis

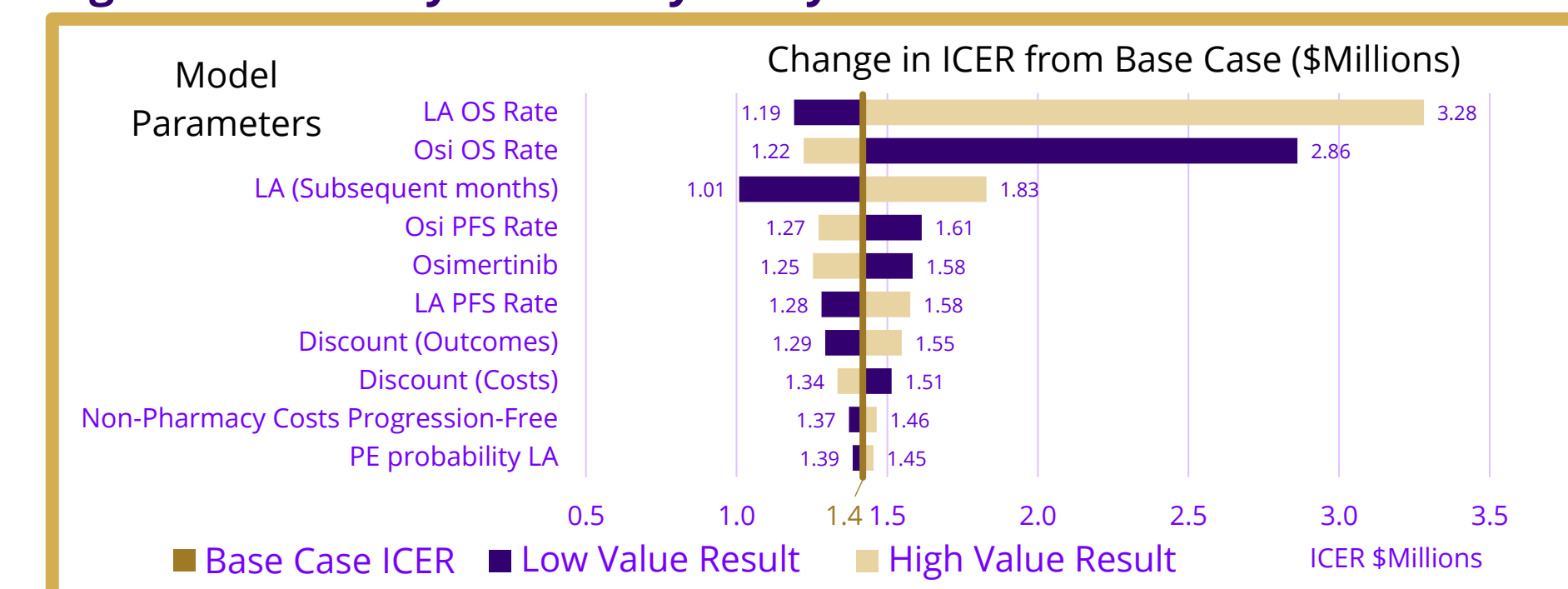


Table 4. Scenario Analysis

Scenario	LA PFS	LA OS	Osi PFS	Osi OS	ICER
Best AIC	Gamma	Exponential	Log-logistic	Weibull	\$1,235,000
Best-case for LA	Log-normal	Log-normal	Weibull	Weibull	\$948,000
Best case for Osimertinib	Weibull	Weibull	Log-normal	Log-logistic	\$3,900,000

Conclusions

- Results of this preliminary analysis suggested LA had an ICER above commonly accepted thresholds compared to osimertinib for EGFR-mutated or exon19 deletion NSCLC in the first-line setting.
- Results were highly sensitive to survival extrapolation assumptions, particularly overall survival.

Limitations and Future Work

- Future analysis should include inputs from more mature OS data to further gauge which curves are most clinically plausible.
- Models have inherent limitations due to the extrapolation beyond clinically observed data.

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