

Cost-Effectiveness of a Hypothetical Outpatient Respiratory Syncytial Virus (RSV) Treatment for Elderly Patients in the United States (US)

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BACKGROUND

- RSV causes ~60,000 – 160,000 hospitalizations and 6,000 – 10,000 deaths annually among US adults aged ≥65 years^{1, 2}
- There is **no treatment beyond supportive care**, and also persistent vaccine hesitancy. Novel outpatient therapies are needed to prevent severe disease and hospitalization
- This study assessed the cost-effectiveness of a hypothetical outpatient RSV treatment vs. supportive care in older adults

METHODS

- A decision tree was used to model healthcare utilization over a 1-year time horizon from a societal perspective
- Vaccinated and unvaccinated older adults were modeled seeking outpatient, emergency department (ED), or inpatient care, using inputs from published literature
- The analysis varied the price, uptake, and effectiveness of a **hypothetical RSV treatment in reducing hospitalization after an outpatient or ED visit**
- Incremental cost-effectiveness ratio (ICER) was the primary outcome with a \$150,000 willingness-to-pay (WTP) threshold. We performed one-way and probabilistic sensitivity analyses

KEY FINDINGS

- A hypothetical RSV treatment administered in outpatient or ED settings achieved an **ICER of \$9,835 per quality-adjusted life year (QALY) gained** based on base-case parameters
- Maximum allowable treatment cost to remain cost-effective was approximately \$12,500 per treated patient, supporting a favorable per-patient value
- Number needed to treat (NNT) estimates suggest it is only necessary to **treat 38 patients to prevent a hospitalization**
- Cost-effectiveness results were robust, with results consistently below the \$150,000/QALY threshold across varied assumptions and parameter uncertainties

RESULTS

Table 1: Base-Case Results

	No Treatment	Treatment	Difference
Hospitalizations, Non-ICU	73,364	54,104 (43,872 – 59,837)	-19,260
Hospitalizations, ICU	16,006	11,804 (9,574 – 13,050)	-4,202
Hospitalizations, overall	89,370	65,908 (53,446 – 72,879)	-23,462
Deaths	4,524	3,325 (2,695 – 3,681)	-1,199
Costs (Millions)	\$7,971	\$8,037	\$66
QALYs Lost	52,307	45,612	-6,694
ICER	--	--	\$9,835
NNT, Non-ICU Hospitalization	38 patients treated to prevent 1 non-ICU hospitalization		
NNT, ICU Hospitalization	170 patients treated to prevent 1 ICU hospitalization		
NNT, Death	596 patients treated to prevent 1 death		

Note: Base-case treatment was assumed to have 70% efficacy, 50% coverage, and priced at \$1,000.

Outpatient RSV treatment could deliver significant health gains for low incremental cost

Figure 1: One-Way Sensitivity Analyses

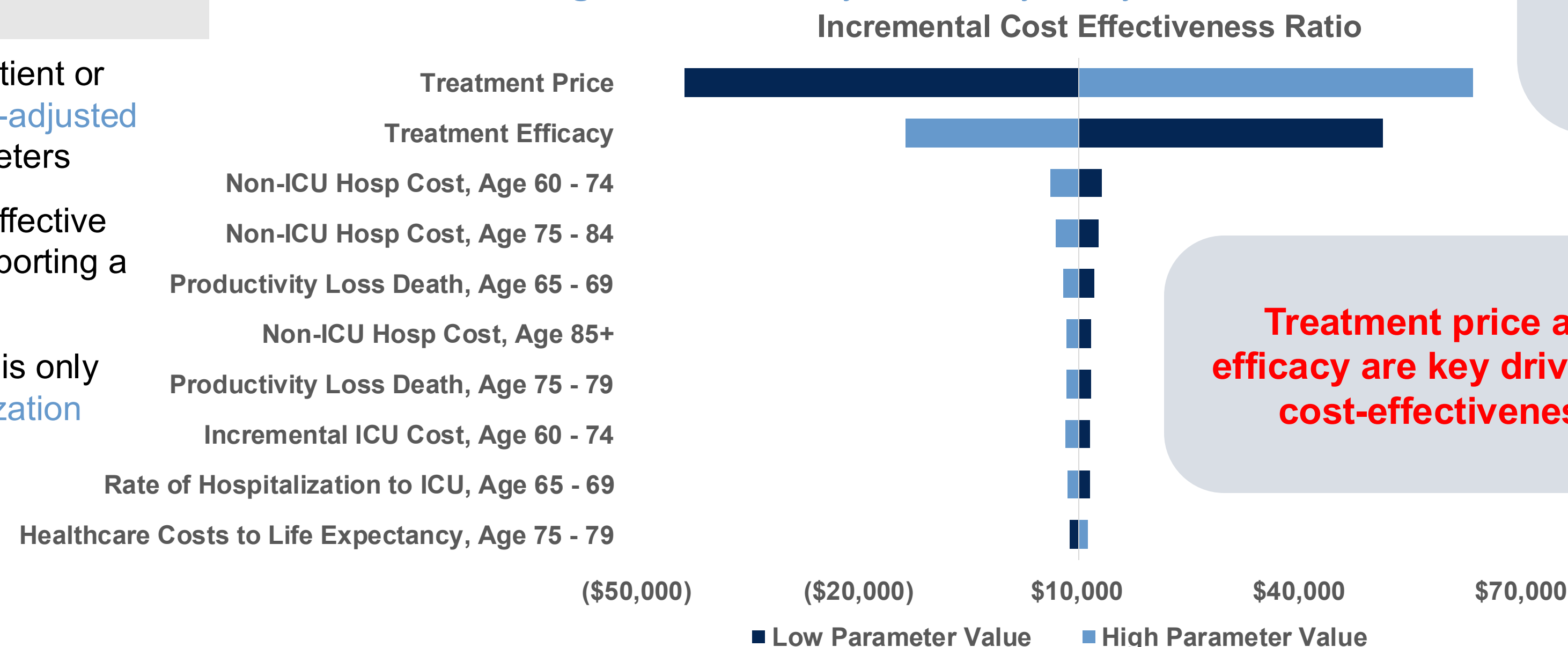


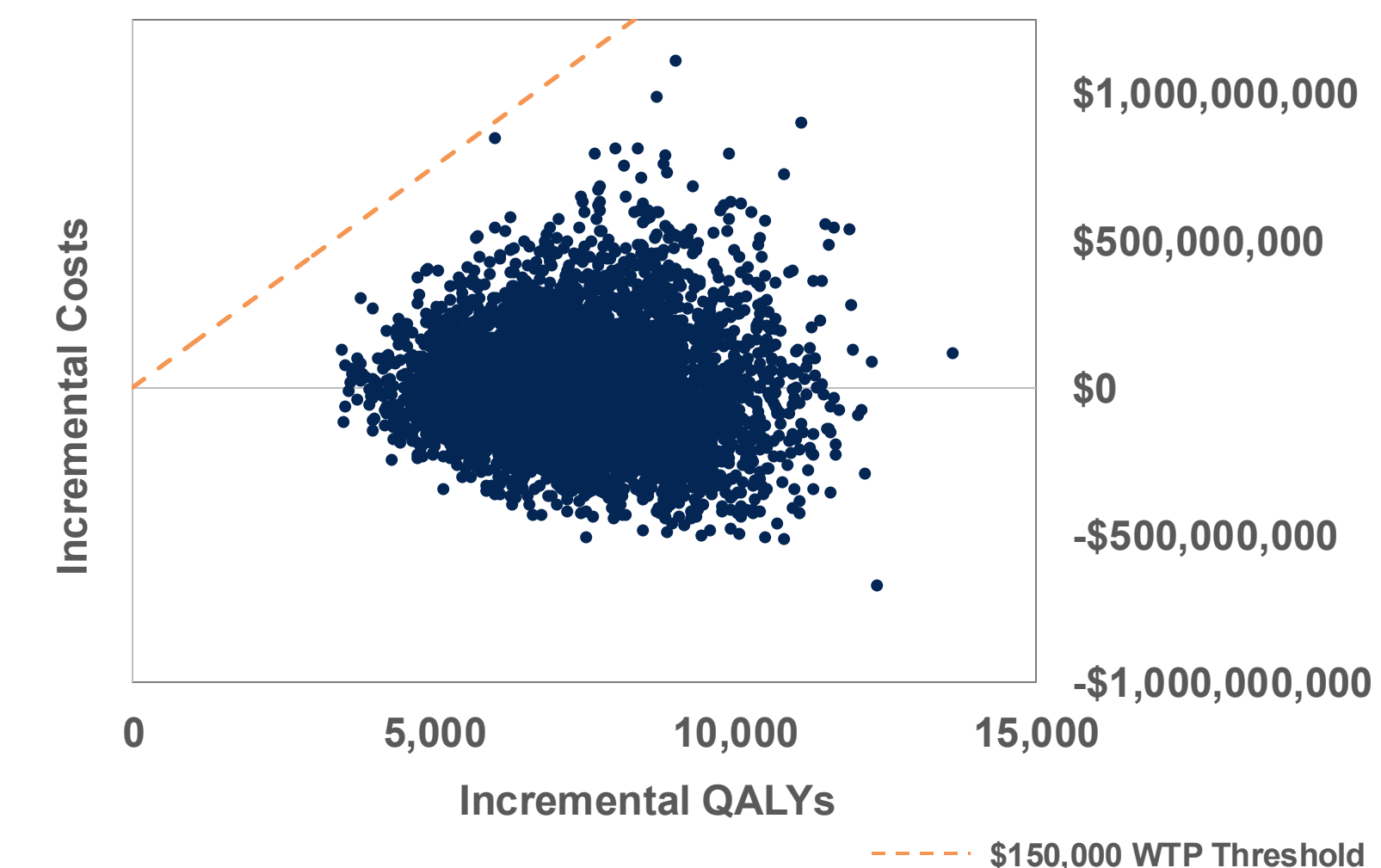
Table 2: ICERs for Various Hypothetical Treatment Scenarios

Efficacy \ Price	\$500.00	\$750.00	\$1,000.00	\$1,250.00	\$1,500.00
0.5	-\$22,548.28	\$14,161.58	\$50,871.43	\$87,581.28	\$124,291.13
0.6	-\$34,679.46	-\$3,789.51	\$27,100.43	\$57,990.38	\$88,880.33
0.7	-\$43,490.43	-\$16,827.52	\$9,835.39	\$36,498.30	\$63,161.20
0.8	-\$50,180.18	-\$26,726.67	-\$3,273.15	\$20,180.37	\$43,633.89

Note: ICERs were calculated at a treatment coverage rate of 50%. Base-case treatment was assumed to have 70% efficacy, 50% coverage, and priced at \$1,000. Negative ICERs (green background cells) denote **cost savings**.

Even highly conservative assumptions on efficacy and pricing can deliver substantial net savings, underscoring the strong value created by an outpatient RSV treatment approach for older adults

Figure 2: Probabilistic Sensitivity Analyses



Across all probabilistic simulations, the treatment remained well below \$150,000/QALY WTP threshold

Treatment price and efficacy are key drivers of cost-effectiveness

CONCLUSIONS

- RSV treatment is likely **highly cost-effective** when given at the outpatient/ED setting to prevent disease progression
- These findings **support further development of RSV treatments** for the elderly population in the US

REFERENCES

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