

COST-EFFECTIVENESS OF FLUTICASONE FUROATE/UMECLIDINIUM/VILANTEROL IN ELDERLY PATIENTS WITH SEVERE TO VERY SEVERE CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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INTRODUCTION

- Triple therapy with inhaled corticosteroids (ICS), long-acting muscarinic antagonists (LAMA), and long-acting beta2 agonists (LABA), is recommended for advanced chronic obstructive pulmonary disease (COPD).
- In Thailand, the triple therapy combines fluticasone furoate/ umeclidinium/vilanterol (FF/UMEC/VI) shown in studies to be more effective than budesonide/formoterol (BUD/FOR), is available but not included in the National List of Essential Medicines (NLEM).

OBJECTIVE

To evaluate the cost-effectiveness of once-daily FF/UMEC/VI compared to twice-daily BUD/FOR in elderly Thai patients with severe to very severe COPD and high symptom and exacerbation burden (GOLD 3-4, Group D) from a societal perspective.

METHODS

Model structure

- A Markov model was used to simulate lifetime cost (in 2024 US\$) and quality-adjusted life years (QALYs) for COPD patients aged 65 years, GOLD stages 3–4 (Group D).
- Disease progression was based on forced expiratory volume in one second (FEV₁) and the annual rate of FEV₁ decline in Thai patients.

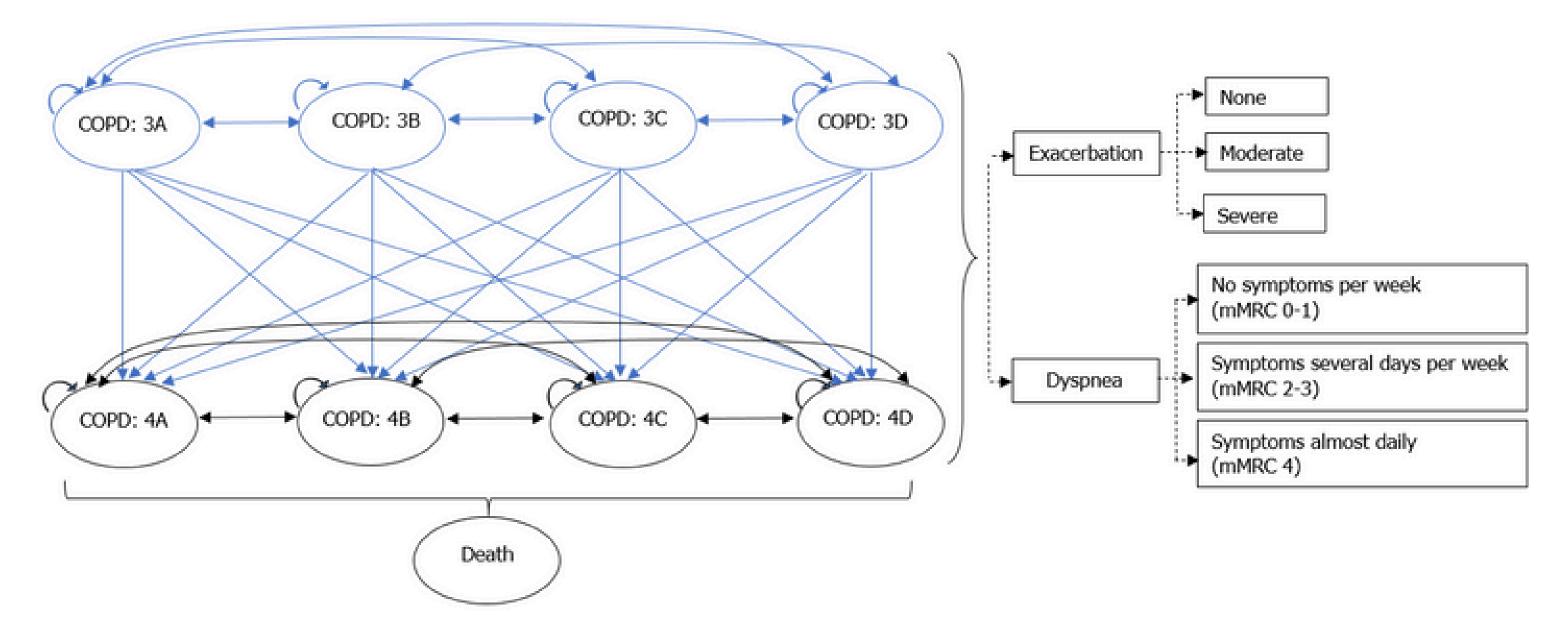


Figure 1 Markov model illustrating the conceptual COPD disease progression

Data sources

- **Treatment effects**: Improvements in trough FEV₁, reduced risk of exacerbation, and enhanced quality of life were obtained from the FULFIL trial.
- Bronchodilator use: Reduction estimates were obtained from a previous network meta-analysis.
- **Utility scores**: Derived from Thai COPD patients' St George's Respiratory Questionnaire (SGRQ) scores, with decrements for exacerbations.
- **Drug costs**: FF/UMEC/VI at US\$45.5 per month, and BUD/FOR at US\$17.4 per month, were obtained from the Drug and Medical Supply Information Center, Ministry of Public Health.
- Other medical costs: Based on hospital and claim data.

Analyses

- Cost-effectiveness was evaluated from a societal perspective using Thailand's willingness-to-pay (WTP) threshold of US\$4,533 per QALY.
- Costs and QALYs were discounted at 3% per year.
- Probabilistic sensitivity analysis was performed using 1,000 Monte Carlo simulations with parameter ranges.

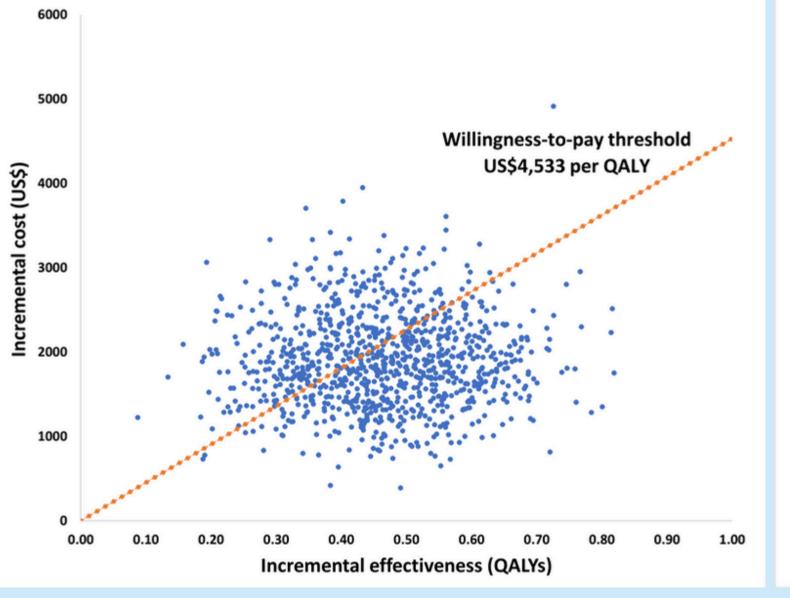
RESULTS

Table 1 Effectiveness, cost, and incremental cost-effectiveness ratios (ICERs)

Options	Cost (US\$)	LYs	QALYs	ICER (US\$/QALY)
BUD/FOR (Base case)	2,289.95	4.27	2.68	
FF/UMEC/VI	$4,150.26$ ($\Delta = 1,860.30$)	4.76 ($\Delta = 0.48$)	3.15 ($\Delta = 0.47$)	3,983.11

BUD/FOR, budesonide/formoterol; FF/UMEC/VI, fluticasone furoate/umeclidinium/vilanterol; ICER, incremental cost-effectiveness ratio; LYs, life years; QALYs, quality-adjusted life years; Δ , difference

- Compared with BUD/FOR, FF/UMEC/VI provided an additional 0.48 life-years and 0.47 QALYs at an incremental cost of US\$1,860, yielding an ICER of US\$3,983 per QALY, below Thailand's WTP threshold.
- Probabilistic sensitivity analysis showed that FF/UMEC/VI was cost-effective in 60.7% of simulations.



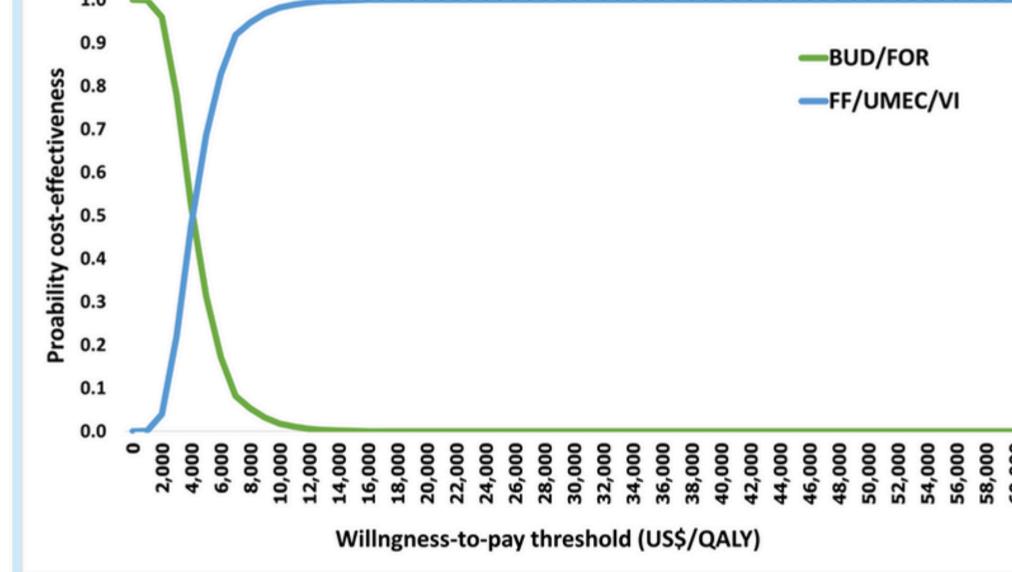


Figure 2 Cost-effectiveness plane

Figure 3 Cost-effectiveness acceptability curve

DISCUSSION & CONCLUSION

- Once-daily FF/UMEC/VI is a cost-effective treatment option for elderly Thai patients with severe to very severe COPD and high symptom and exacerbation burden (GOLD 3-4, Group D), compared with twice-daily BUD/FOR.
- Further studies in patients with moderate COPD and broader adult population are needed to confirm its cost-effectiveness.

Acknowledgement

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