

Cost-Utility Analysis of Non-Prescription Oseltamivir for Influenza Treatment: U.S. Healthcare Sector and Limited Societal Perspective

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Background

- Seasonal influenza infections cause 9.3-41 million and 100,000-710,000 hospitalizations annually in the U.S.
- Oseltamivir can effectively reduce the duration of illness and risk of complications if given ≤ 48 hours of the symptom onset.
- The prescription requirement for oseltamivir may delay treatment, leading to underutilization.
- With the rising availability of diagnostic tests, reclassifying oseltamivir as non-prescription drugs can enhance access to rapid influenza treatment.

Objective

- Assess the cost-effectiveness of reclassifying oseltamivir for influenza treatment from the U.S. healthcare sector perspective

Methods

- WTP:** \$100,000 per QALY gained
- Perspectives:** U.S. Healthcare Sector and Limited Societal
- Populations:** Otherwise healthy (OwH) and high-risk
- Using a **decision tree model**, we simulated one-year health and cost outcomes under two scenarios for oseltamivir access:
 - Behind-the-Counter (BTC):** following a positive rapid influenza test
 - Prescription-Only (RX):** requires prescriptions
- Assumptions** – reclassification of oseltamivir would lead to key outcomes:
 - Increased uptake**
 - Increased timely treatment that results in 1) shorter illness duration and 2) reduced risk of complications**

Figure 1 Simplified Model Structure

[+] indicates clinical pathway same as above

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Table 1 Key Input Parameters

Category	Value
Probabilities	
Increase in antiviral use after reclassification	0.5
Antiviral prescription rate by primary care providers (PCPs)	0.2
Flu test sensitivity	0.916
Complication	0.313 (0.311 – 0.315)
Utilities	
Flu	0.81
Recovery from flu	0.96
Costs (US\$)	
oseltamivir	76.08
Selfcare and symptom management	20
prescriber visit	414
flu test	25
pharmacist consultation	20
Duration of Illness (Days)	
If treated within 24 hours of symptom onset	4.2
If treated 24-48 hours after symptom onset	6.4
If treated after 48 hours for high-risk	10.67
If treated after 48 hours for otherwise healthy	8.23
If untreated or symptom management for high-risk	13.83
If untreated or symptom management for otherwise healthy	8.96

Results

Figure 2 One Way Sensitivity Analysis (U.S. Healthcare Sector Perspective) – High Risk Population

Table 2 Base-Case Analysis

Strategy	Cost* (US\$)	Cost [§] (US\$)	Total Sick Days	QALY	ICER* [§] (US\$/QALY)	iNMB* (US\$)
Otherwise Healthy						
BTC oseltamivir	\$7,815	\$10,269	7.79	0.946	Dominant	\$474
RX-based oseltamivir	\$8,212	\$10,873	8.86	0.945		
High-Risk						
BTC oseltamivir	\$8,561	\$12,416	10.89	0.936	Dominant	\$820
RX-based oseltamivir	\$9,170	\$13,535	13.51	0.934		

*U.S. Healthcare Sector Perspective; [§] Limited Societal Perspective
US\$, United States Dollar; QALY, quality-adjusted life year; ICER, incremental cost-effectiveness ratio; iNMB, incremental net monetary benefit

Figure 3 Scenario Analysis (U.S. Healthcare Sector Perspective)

PSA results show that 90.42% of ICER values fall in the SE quadrant, with 93.02% in the combined NE quadrant below the WTP threshold and SE quadrant for the high-risk population under the U.S. Healthcare Sector perspective.

Discussion/ Conclusion

- Reclassifying oseltamivir is a dominant strategy for both the U.S. Healthcare Sector Perspective and the Limited Societal Perspective for both the OwH and High-Risk populations, assuming a WTP of US\$100,000
- Future research should explore the cost and effectiveness of different dispensing mechanisms