



# Cost-Effectiveness of NRICM101 in Treating Mild COVID-19 : A Comparative Analysis

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## Background

- The COVID-19 pandemic has prompted urgent exploration of effective treatments.
- NRICM101, a traditional Chinese medicine developed by the National Research Institute of Chinese Medicine (NRICM), has shown promise in targeting viral respiratory infections and modulating the immune response. Drawing on insights from clinical symptomatology and past experiences, NRICM101 emerged as a potential therapeutic option.

## Objective

- This study aims to evaluate the cost-effectiveness of NRICM101 compared to standard treatments, specifically Nirmatrelvir/Ritonavir (NMV/r) and Best Supportive Care (BSC), in managing mild cases of COVID-19.

## Methods

- Patients with mild COVID-19, excluding those requiring emergency hospitalization, pregnant individuals, and those already receiving oral COVID-19 medications, were included.
- The analysis adopts a healthcare payer perspective with a willingness-to-pay threshold of NT\$ 8,000 per Quality-Adjusted Life Day (QALD) gained.
- Propensity score matching ensured comparability of disease severity across NRICM101, NMV/r, and BSC groups.
- A decision tree model was constructed to evaluate cost-effectiveness, utilizing real-world data from a medical center for cost and disease progression probabilities, while utility values were sourced from literature.

Table 1. Demographic characteristics

Characteristics	Intervention group		Comparison group					
	NRICM101		Nirmatrelvir/Ritonavir		P-value	BSC		P-value
	N	%	N	%		N	%	
<b>N</b>	113		322			452		
<b>Age group</b>					0.071			1
18-63	88	77.88%	222	68.94%		352	77.88%	
≥63	25	22.12%	100	31.06%		100	22.12%	
<b>Gender</b>					0.3267			1
Male	48	42.48%	154	47.83%		192	42.48%	
Female	65	57.52%	168	52.17%		260	57.52%	
<b>Charlson Comorbidity Index</b>					0.0701			1
0	74	65.49%	166	51.55%		296	65.49%	
1	20	17.70%	70	21.74%		80	17.70%	
2	14	12.39%	66	20.50%		56	12.39%	
≥3	5	4.42%	20	6.21%		20	4.42%	
<b>Hospitalization death</b>	1	0.88%	50	15.53%	<.0001	34	7.52%	0.0088
<b>N, by highest hospital setting</b>	0	0%	2	0.62%	0.5475	2	0.44%	0.6397
General ward	0	0%	45	13.98%	<.0001	25	5.53%	0.0106
Intensive care unit	1	0.88%	2	0.62%	0.4286	1	0.22%	0.3206
Mechanical ventilation	0	0%	3	0.93%	0.4046	8	1.77%	0.1657

Table 2. Direct medical cost of managing COVID-19

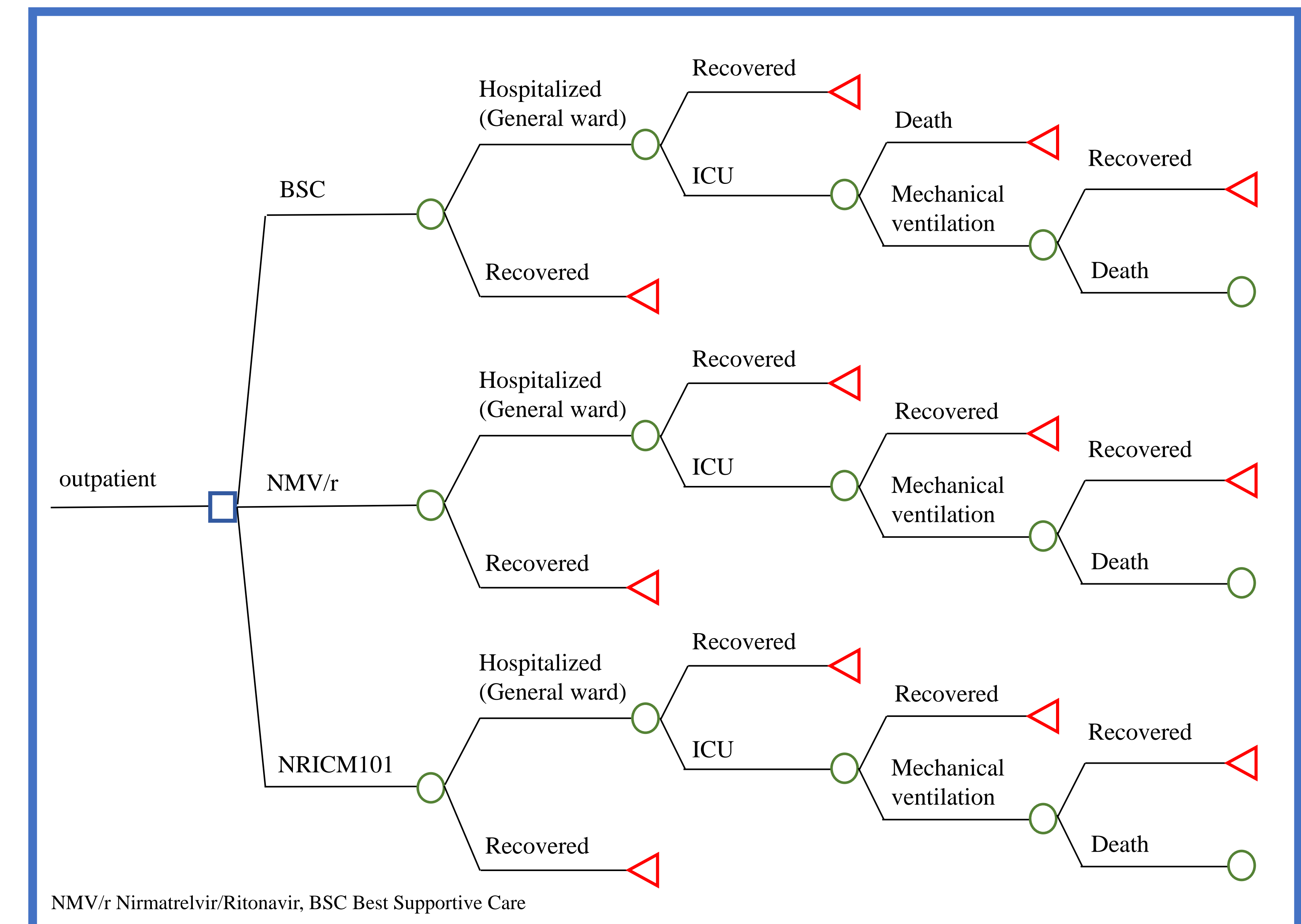
Cost (NT\$) <sup>a</sup>	NRICM101	Nirmatrelvir/Ritonavir	BSC
<b>Antiviral medications</b>	-	21,790	-
<b>Cost of Outpatients (SE)</b>	2,041 (135) <sup>b</sup>	2,682 (488)	3,724 (965)
<b>Cost of COVID-19 hospitalization, by highest hospital setting (SE)</b>			
General ward	0	60,155 (8,284)	90,689 (10,334)
Intensive care unit	365,295 (N/A)	329,394 (34,345)	129,108 (N/A)
Mechanical ventilation	0	787,442 (579,062)	777,119 (261,369)

<sup>a</sup> USD:NTD=1:32 , <sup>b</sup> Outpatient fees includes the cost of NRICM101

Table 3. Overall QALD, cost, and ICER estimates for NRICM101 versus NMV/r and BSC

Treatment	Total discounted QALDs	Total discounted Costs	Incremental QALDs	Incremental Costs	ICER	Notes
NRICM101	9.1338	5,396				
BSC	8.7913	23,745	-0.3426	18,348	-53,562	Dominated
Nirmatrelvir/Ritonavir	8.2282	43,319	-0.9056	37,921	-41,875	Dominated

BSC best supportive care, QALDs quality-adjusted life-days, ICER incremental cost-effectiveness ratio



## Results

- NRICM101 demonstrated a reduction in hospitalization rates compared to NMV/r and BSC.
- The incremental cost-effectiveness ratio (ICER) for NMV/r versus NRICM101 was NT\$ -41,875 per QALD gained, and for BSC versus NRICM101, it was NT\$ -53,562 per QALD gained.

## Conclusion

- NRICM101 exhibits superior outcomes in reducing hospitalizations compared to NMV/r and BSC in the treatment of mild COVID-19 cases.
- The cost-effectiveness analysis suggests that NRICM101 is economically favorable relative to both NMV/r and BSC.