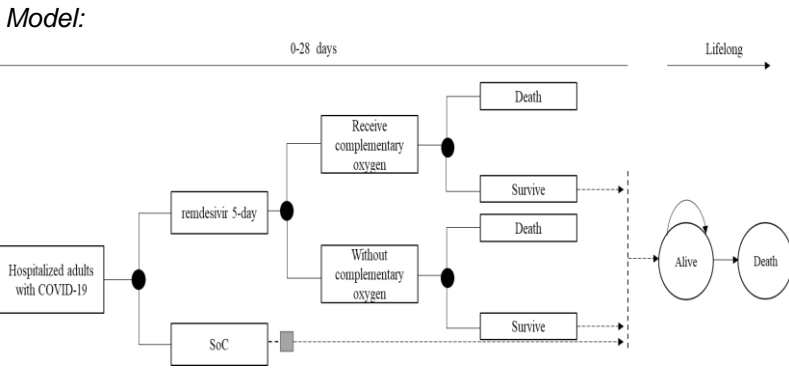


Cost-effectiveness Analysis of Remdesivir for the treatment of COVID-19 hospitalized adults in Mexico.

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Background and Objective: Remdesivir (RDV) is the only antiviral treatment conditionally approved to treat COVID-19 hospitalized patients (1). In Mexico, RDV received an Emergency Use Authorization on March 2021 for hospitalized adults with a confirmed diagnosis of COVID-19 (2). This study assessed to conduct a CEA of the use of RDV in hospitalized patients compared to the standard of care (SoC) in the Mexican context.

Methods: A combined decision tree with a Markov model was used to perform a CEA of treated hospitalized adults for COVID-19 with RDV. In the first stage, patients were followed for 28 days during the hospital stay with a decision tree that consisted of three nodes: 1) the decision between SoC or RDV; 2) whether patients received supplementary oxygen or not during the hospital stay, and 3) whether they remain alive or died. After the 28-days follow-up, in a second stage, patients who remain alive entered on a Markov model with two mutually exclusive health states (alive or dead) with one-year cycles.



Probabilities, resource utilization, and costs (e.g., cost of hospitalization, monitoring tests) were extracted from public governmental sources (3–6). Health outcomes (measured as Life-Years Gained -LYG) and costs were discounted following national guidelines (7). Deterministic and probabilistic sensitivity analyses were conducted.

Resources	Frequency	Unitary Cost (2021 USD)
Remdesivir, 100 mg	Daily	\$ 390.0
On-treatment monitoring	Every five days	\$ 352.8
Non-invasive ventilation	Daily	\$ 23.1
Mechanical invasive ventilation	Daily	\$ 71.1
General room	Daily	\$ 433.7
Intensive Care Units	Daily	\$ 1,984.8

Average exchange rate Jan 2nd-Sep 15th 20.134 MXN per USD. All costs (but remdesivir) were taken from (8). Costs included 8.7 USD for intravenous infusion

Efficacy:

Parameter	Remdesivir	SoC
Length of hospital stay (days)	10	15
Oxygen requirements		
Non-hospitalized patients	50.6%	41.7%
Hospitalized without oxygen	9.6%	7.8%
Hospitalized with low or high flow oxygen	15.9%	16.1%
Hospitalized with invasive mechanical ventilation	17.6%	23.2%
28-days mortality rate	11.4%	15.2%

SoC: Standard of care. Source: (3)

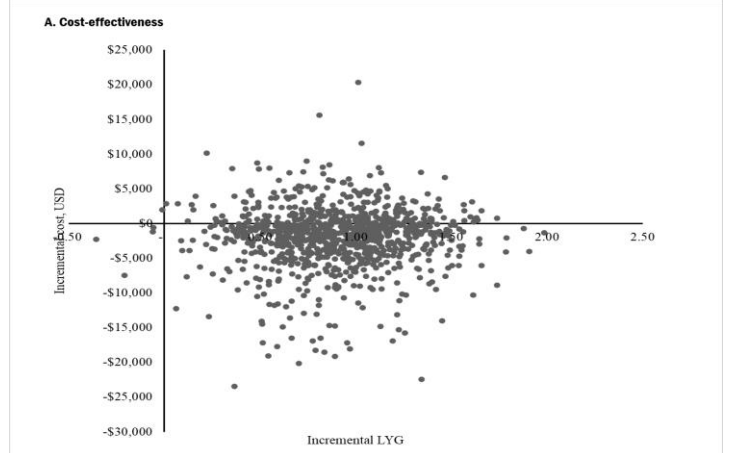
Results: In the base case scenario, RDV provided 0.7 more LYG and generated savings for 1,856 USD compared to SoC (0.91 LYG and -1,981 USD in probabilistic analysis).

Thus, RDV is a dominant intervention to treat COVID-19. Results were consistent for all sensitivity scenarios but only for all patients with severe COVID-19 (ICER 2,386 USD), thus remaining as a cost-effective option.

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	Remdesivir	SC	Incremental
Base-case scenario			
Length hospitals stay (days)	10	15	-5
Patients with supplementary oxygen (%)	34%	39%	-5 pp
Undiscounted LYG	53.24	50.96	2.28
Discounted LYG	16.36	15.66	0.7
Use of remdesivir	\$2,383	\$0	\$2,383
Hospital stays	\$4,599	\$8,462	-\$3,862
On-treatment monitoring	\$662	\$897	-\$235
Supplementary oxygen	\$161	\$303	-\$141
Total cost	\$7,087	\$9,663	-\$1,856

LYG: Life-Years Gained. SC: standard care. pp: percentage points. 5% discounted rate on costs



Conclusions: Given the potential clinical benefits of RDV, the model estimated that RDV represents a cost-saving option to the Mexican health system for hospitalized patients with COVID-19.