

## Costs versus prices for new re-purposed drugs to treat COVID-19 infection

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**Background:** “Repurposing” existing drugs to treat COVID-19 has been an important pillar in the fight against the ongoing pandemic, offering a potentially more time, and cost-effective path to a cure compared to new drug discovery. Since January, many candidate drugs have been identified and are in various stages of clinical trials globally. Although some, such as hydroxychloroquine have been since discounted following negative results, new candidates continue to be proposed. If any are found to be efficacious, mass availability at an affordable cost would be essential to ensure equity and access especially amongst low- and middle-income economies.

**Methods:** Minimum costs of production were estimated from the costs of active pharmaceutical ingredients (API) using established methodology which had good predictive accuracy for treatments of Hep-C and HIV amongst others. Data were extracted from Indian API export shipment records via the Panjiva database, or analysis of the route of chemical synthesis. The estimated costs were compared to list prices from a range of countries where pricing data were available, assuming a 10-day course of treatment.

Where possible, the number of courses of each drug which could be manufactured per year was estimated using available API export data.

**Results:** Minimum estimated costs of production ranged between \$84 per single dose of tocilizumab, and \$15 per 10-day course of favipiravir, to only \$0.15 per 10-day course of colchicine. Current list prices of these drugs were far higher than costs of production in most cases, particularly in the United States, although we note that some list prices for generic medicines in developing countries such as India are approaching our estimated production costs.

**Conclusions:** Should re-purposed drugs demonstrate efficacy against COVID-19, they could be manufactured profitably at very low cost, for much less than current list prices. Estimations for the minimum production costs can strengthen price negotiations and help ensure affordable access to vital treatment for COVID-19 at low prices globally.

Drugs (10-Day Treatment Course)	List Prices			Estimated Cost of Production	Estimated Current Production Capacity
	US	UK	India		
Remdesivir	\$5,720	\$5,720	\$438	\$9	N/A
Tocilizumab (per dose)	\$3,383	\$914	\$806	\$84	N/A
Nitazoxanide	\$2,817	N/A	\$2	\$0.70	7.92 million 10-day courses
Baricitinib	\$1,583	\$367	\$5*	N/A	N/A
ATV/RTV	\$137	\$136	\$14	\$4	1.61 million 10-day courses
Imatinib	\$34	\$407	\$43	\$4	3.43 million 10-day courses
Dexamethasone (Oral)	\$18	\$10	\$1	\$0.20	126 million 10-day courses
Colchicine	\$17	\$3	\$0.50	\$0.15	74.2 million 10-day courses
Dexamethasone (IV)	\$15	\$26	\$1	\$3	126 million 10-day courses
Losartan	\$2	\$1	\$0.60	\$0.70	1.18 billion 10-day courses
Favipiravir	N/A	N/A	\$31	\$15	N/A

**Table 1:** Comparison of list-prices vs estimated cost of production and estimated current production capacity for potential COVID-19 treatments in selected countries.

\*Price in Bangladesh