

# Game theory approach to the donation of surplus vaccines

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In a paper just published in *Communications Medicine*, Population Europe expert Pieter Vanhuyse (University of Southern Denmark), Adam Lampert (The Hebrew University of Jerusalem), Raanan Sulitzeanu-Kenan (The Hebrew University) and Markus Tepe (University of Oldenburg) have developed a rich-to-poor vaccine donation game to answer the strategic question of vaccine distribution that is key to global health.

Since pandemics such as COVID-19 do not stop at national borders, richer countries might benefit from helping [poorer countries](#) in fighting them. For instance, when new variants of a virus emerge in vaccine-poor countries, it may sometimes be in the interest of vaccine-rich countries to donate their surplus vaccines, rather than stocking them domestically.

The researchers show that if vaccine-rich countries can jointly vaccinate a sufficiently large share of the vaccine-poor world, it is actually the best course of action from their own viewpoint to donate all of their surplus vaccines, regardless of how likely it is that new variants of the virus will occur later. Even if vaccine-rich countries cannot reach

this high level of poor-world coverage, donating some of their surplus vaccines is still the best course of action in a specific set of circumstances regarding the likelihood of new variants and the cost of future outbreaks.

These results offer hard foundations for modest hope about win-win global [pandemic](#) cooperation. They show that a narrow corridor of conditions exists under which strict self-interest alone, without recourse to other [motivations](#) such as "international solidarity" or "vaccine diplomacy," will make vaccine-rich countries help the [vaccine-poor](#) world in fighting global pandemics.

**More information:** Adam Lampert et al, A game theoretic approach identifies conditions that foster vaccine-rich to vaccine-poor country donation of surplus vaccines, *Communications Medicine* (2022). [DOI: 10.1038/s43856-022-00173-w](https://doi.org/10.1038/s43856-022-00173-w)

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