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The inequitable delivery of vaccines in the COVID-19 pandemic

doi:10.35493/medu.41.12

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INTRODUCTION

Vaccines have been shown to be effective at curbing infection rates and significantly lowering the risk of hospitalization and ICU admission.[1-3] During the most recent outbreak of the Omicron variant, COVID-19 vaccines, especially after three doses, have continued to offer strong protection in minimizing hospitalization and ICU admission.[1-3]

The most effective protection is achieved through widespread population vaccine uptake. While there has been strong uptake in many high-income countries —including Canada, where 78.7% of the total population is fully vaccinated with at least two doses— limited supply and access in many low- and middle-income countries (LMICs) has hindered similar population-level protection.[4] For example, only 10% of people in African countries are fully vaccinated against COVID-19 (received at least two doses) and approximately 1.2 billion people in African countries have not received a single dose.[5] Given the importance of an effective global response to the COVID-19 pandemic, this article explores the implications of the key legal, economic, and sociocultural factors, as well as features of the vaccine roll-out that are driving vaccine inequity. Potential options for policymakers to make vaccine access more equitable domestically and internationally are also suggested in this review.

FACTORS CONTRIBUTING TO VACCINE INEQUITY

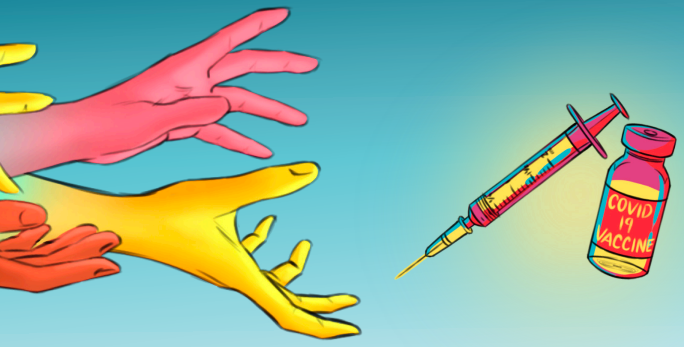
There are many factors that contribute to the inequitable access of vaccines at the local, provincial/state, national, and global level, with some being legal and economic in nature. An analysis of vaccine production techniques estimates that mRNA vaccines could be mass produced for as little as $1.18-2.85 USD per dose, yet pharmaceutical companies with exclusive manufacturing rights have been charging at least five times this price.[6] In October 2020, India and South Africa proposed the TRIPS Waiver, which aimed to suspend all intellectual property rights obligations related to patents.[7] The goal of the TRIPS Waiver was to ensure that countries could start producing their own supplies of COVID-19 vaccines with formulas from existing pharmaceutical companies, without paying a large premium.[7] While more than 100 countries are in support of the waiver, the United Kingdom, Norway, Switzerland, and the European Union (EU), which each have high vaccination rates, have persistently opposed.[8] Canada remains ambiguous on its position regarding TRIPS.[9] By not signing the TRIPS Waiver, countries contribute to vaccine inequity by impeding the necessary access of vaccine technology and knowledge to LMICs, some of which have the infrastructure to start producing vaccines for their own populations at a lower cost.

Vaccine inequity is also driven by sociocultural factors such as racial discrimination. When the Omicron variant was first detected in South Africa, countries including Canada and the United States were quick to implement travel bans against multiple low-income southern African countries without disclosing evidence-based reasons for their decision.[10] Only two of the eight African countries banned in the United States had reported an Omicron case before the United States identified its first case on December 1 2021, whereas many other non-African countries had reported Omicron cases but were not included in the travel ban.[10] This travel ban has been argued to perpetuate Afrophobia and anti-Black racism; when variants are identified by their country of origin, racist ideologies deeming racialized people as the originators of disease tend to permeate.[10,11] These perceptions conceal the true reason behind new variants emerging, which is in part driven by the persistent and rapid spread of the virus. This could be slowed by the global community committing to provide enough vaccines to countries that cannot afford them.

Booster programs can also contribute to the disparity in vaccination rates between high- and low-income countries. While evidence shows that a third dose provides additional protection from the Delta and Omicron variants, supplying third doses to countries that already have a high quantity of vaccines diverts necessary vaccines from poorer countries that cannot afford first doses for their citizens.[12] World Health Organization (WHO) Director-General Tedros Ghebreyesus supported this argument when he declared, “blanket booster programs are likely to prolong the pandemic by giving the virus more opportunity to spread and mutate.”[13] Ultimately, vaccinating the unvaccinated could incrementally save more lives than boosting those who have already received two doses.[12]

OUTCOMES OF INEQUITABLE DISTRIBUTION

The outcomes of vaccine inequity are long-lasting and profound, with the potential to impact countries post-pandemic. The high price per vaccine, coupled with higher delivery and storage costs, has put a large financial strain on fragile health



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systems.[14] This burden could cause a decrease in access to routine immunizations, resulting in the resurgence of diseases such as measles and polio, as well as spikes in pneumonia infection and diarrhea.[14] In addition, reducing transmission of COVID-19 through vaccination reduces viral replication, thereby decreasing the frequency of mutation and emergence of new variants of concern.[15] Given this, not supporting global vaccination efforts may result in unchecked viral reproduction in some regions, possibly leading to new variants of concern.

The WHO also predicts that vaccine inequity will have a dire effect on the socioeconomic recovery of LMICs.[14] While richer countries are projected to vaccinate and economically recover at a fast rate, poorer countries may not achieve pre-COVID-19 levels of GDP growth until at least 2024, while being unable to vaccinate frontline workers and vulnerable populations.[14] Ultimately, vaccine inequity threatens to reverse significant progress made on the United Nations' Sustainable Development Goals, a set of global goals which act as a guiding framework to achieve a better and more sustainable future worldwide. This would disproportionately harm our most vulnerable and marginalized populations.

POSSIBLE OPTIONS FOR STRENGTHENING THE GLOBAL RESPONSE

COVID-19 Vaccines Global Access (COVAX) was an initiative launched by the WHO to advance equitable access to vaccines globally.[16] Its goal was to make higher-income countries donate money and 2 billion surplus doses to vulnerable people and frontline workers in 92 LMICs by the end of 2021.[16] This funding and vaccine supply would support the production and delivery of vaccines to countries that cannot afford them or to those that have not struck bilateral vaccine agreements with pharmaceutical companies. Of the vaccine doses donated by the world's most advanced economies per million dollars of GDP, Germany and France are the top performers among the G7.[17] As of January 17 2022, 20.58 doses per million dollars of GDP from Germany were shipped by COVAX to recipient countries, 4.37 doses per million of GDP were donated to COVAX but have not been shipped yet, and 21.7 additional doses per million of GDP have been announced but not yet donated.[17] Canada and Japan are the bottom G7 performers (Figure 1).[17] Additionally, as of December 2021, only 40% of the EU's total doses donated have actually been shipped.[18] The delays in shipping ready doses from COVAX stem from recipient countries rejecting doses with implications of short shelf life, the time-consuming bureaucracy involved in accepting deliveries, and a lack of capacity to absorb the doses in overburdened health systems.[18] There are a number of options to strengthen the G7 COVID-19 response, for instance, prioritizing robust timelines for vaccine distribution to COVAX and increasing accountability in efficient vaccine distribution.[19-20] According to a strategy brief by the WHO, additional national and international financing must be mobilized from global and regional multilateral development banks to fund distribution, logistics, and staffing costs; ultimately, this will shorten delays in vaccine shipments for strained health systems.[21]

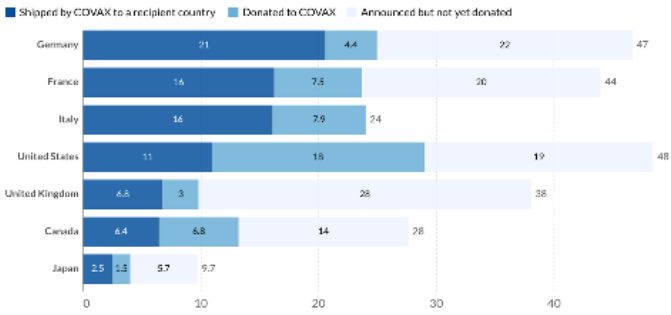

FIGURE 1. COVID-19 vaccine doses donated to COVAX, per million dollars of GDP.[17]

Another important consideration involves determining how to best prioritize the delivery of vaccines to the most vulnerable and high-risk populations. Several guidelines have been published that include a focus on allocating vaccines and ancillary supplies equitably, as well as administering vaccines in ways that optimize timely uptake.[22] For example, a document published on December 23 2021 outlines new actionable recommendations for equitable vaccine allocation and uptake.[23] These ranged from having donors and multilateral development banks simplify access to funding for LMICs, thereby speeding up the process to linking the quick deployment of vaccines to robust monitoring and feedback.[23] A rapid review published on May 22 2021 examines the risk factors for COVID-19 to inform vaccination prioritization.[24] Furthermore, an important option to increase vaccine equity is for policymakers to understand vaccine accessibility and prioritization for high-risk vulnerable groups.

To achieve WHO targets in global vaccination, it is imperative that all nations work collectively, with shared interests that transcend geographic borders. Countries must work together as a global community to support vulnerable and high-risk populations, protect healthcare systems, and reduce the risk of new variants emerging.

References can be found on our website: meducator.org