



Independent observer
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THE SMALL NUMBERS OF COVID-19 VACCINES ADMINISTERED IN LOW-INCOME COUNTRIES INDICATE INEQUITY IN ALLOCATION AND DISTRIBUTION

The COVID-19 pandemic is still a threat to the world with adverse economic and health implications. The pandemic has caused direct and indirect loss of livelihoods, disrupted the transportation and service industries, and significantly reduced incomes. [According to the World Health Organization \(WHO\)](#), by 18 April 2021, 140 million cases of COVID-19 had been confirmed, with three million people having succumbed to the disease.

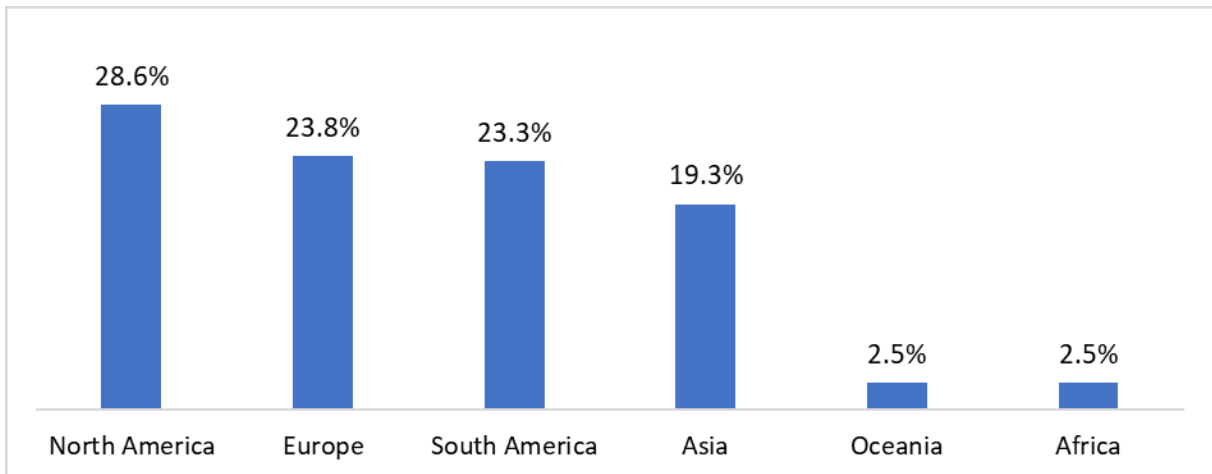
There have been concerted global efforts to fight the pandemic to save lives and livelihoods. Across the globe, governments have conducted intensive campaigns to force people to maintain physical and social distance, use face masks, and frequently wash their hands with soap or antibacterial cleanser and running water. Also, as well as varying degrees of lockdown, governments have instituted COVID-19 containment measures, including testing and contact tracing suspected individuals. However, all these efforts have not enabled the world to go back to normalcy, if this is even possible, until a larger proportion of the population is protected from a severe disease that in many cases requires hospitalization. The recent scientific breakthrough in COVID-19 vaccine development has boosted these efforts. Yet, the world is currently facing the challenge of ensuring the availability of enough COVID-19 vaccines for everyone, particularly priority groups such as healthcare workers, older populations, and other high-risk individuals.

In this article, we investigate the global allocation and distribution of COVID-19 vaccines. Information for this article comes from the [WHO's Coronavirus \(COVID-19\) Dashboard](#).

Africa and Oceania have administered the lowest number of COVID-19 vaccine doses

By 18 April 2021, a total of 207 countries had dispensed COVID-19 vaccines as of 18 April 2020. The number of vaccines administered differs by region, with some regions processing more vaccines than others. A total of 792.8 million vaccine doses have been administered globally. More than half (52.4%), amounting to 415.4 million vaccines, were provided in Europe and North America. This means that the rest of the regions have dispensed the remaining 47.6% (Figure 1). It appears, however, that some regions are lagging behind in COVID-19 vaccine administration. For instance, Africa and Oceania each have only 2.5% of globally administered COVID-19 vaccine doses.

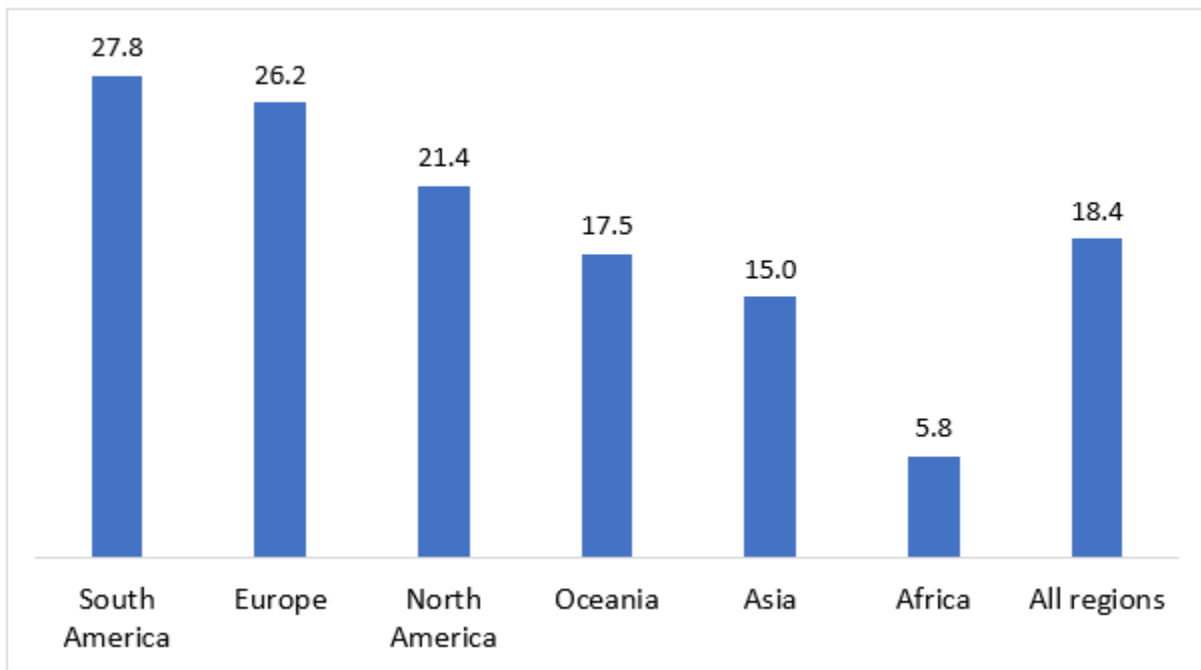
Figure 1: Proportion of COVID-19 vaccine doses administered in all regions is 792,796,083



Source: Aidspace, based on data obtained from [WHO's COVID-19 dashboard](#)

To better demonstrate the differences, we use the number of vaccines administered for every 100 individuals as a standardization rate. The global average of people that have received the COVID-19 vaccine is 18 per 100 population. Three of the regions have a higher vaccination rate than the global average (Figure 2). These regions are Europe, Northern America and South America, with 26, 21 and 28 per 100 people vaccinated. Asia and Oceania have administered COVID-19 vaccines to 15 and 18 per 100 people, respectively. However, Africa is far below the global average with only six people out of 100 who have received vaccines.

Figure 2: The mean number of COVID-19 vaccine doses administered per 100 people by regions



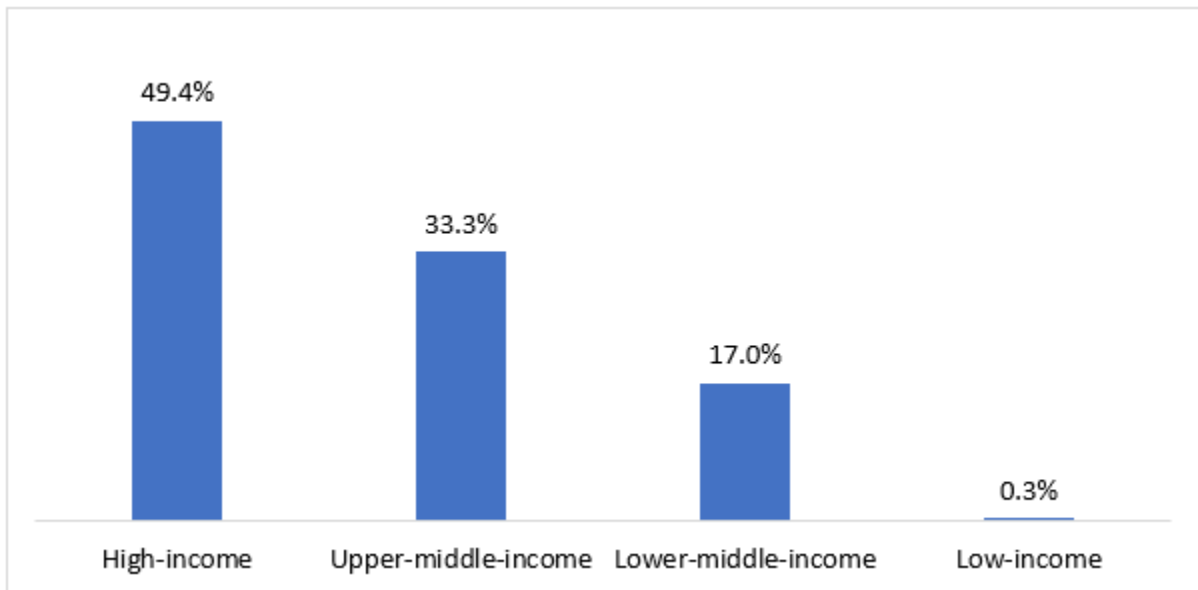
Source: Aidsplan, based on data obtained from [WHO's COVID-19 dashboard](#)

Low-income countries have dispensed an extremely low number of COVID-19 vaccine doses

Other than regions, the number of COVID-19 vaccines administered differs by the economic status of a country. Using the [World Bank's country classifications by income level](#), we classified countries into four groups, which are low, lower-middle, upper-middle, and high-income. The World Bank classification is based on a country's gross national income (GNI) per capita, derived from dividing the GNI by the mid-year population. Low-income countries have a GNI per capita of less than \$1,036; lower-middle income countries between \$1,036 and \$4,045; upper-middle-income countries between \$4,046 and \$12,535; while high-income countries have a GNI of more than \$12,535 per capita.

A comparison of administered vaccine doses based on countries' economic status indicated that high-income countries dispensed the lion's share of the vaccines. High-income countries administered 391.7 million COVID-19 vaccine doses, which is almost half (49.4%) of the vaccines administered globally (Figure 3). Upper-middle income countries have administered a third (33.3%), amounting to 263.8 million doses, while lower-middle income countries have dispensed 17% (135.6 million) of vaccines administered worldwide. However, low-income countries have administered an extremely low number of doses, at less than one percent (2.1 million).

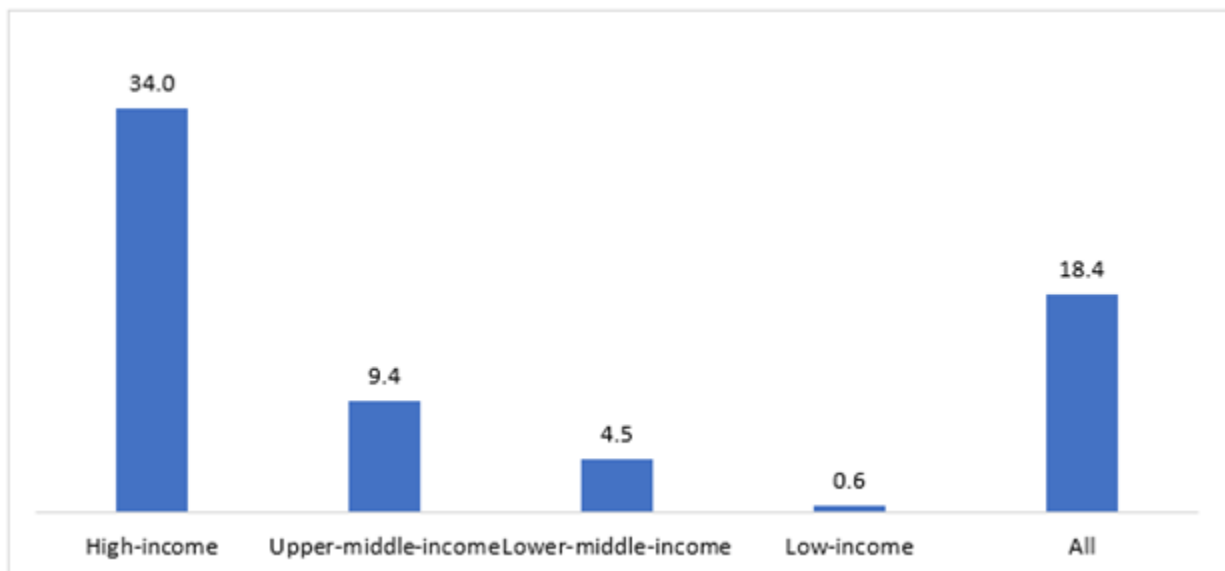
Figure 3: Proportion of COVID-19 vaccine doses administered by country income status



Source: Aidspan, based on data obtained from [WHO's COVID-19 dashboard](#)

We make a similar observation when we standardize the number of COVID-19 vaccines administered for every 100 people. High-income countries have by far administered more COVID-19 vaccines than the rest (Figure 4). These countries have vaccinated 34 out of 100 people, which is almost twice the global average of 18 for every 100 people and almost four-fold that of upper-middle-income countries at nine out of 100 people. Lower-middle income countries have a low rate of five for every 100 people, while low-income countries have an extremely low rate of one for every 100 people having received COVID-19 vaccines.

Figure 4: The mean number of COVID-19 vaccine doses administered per 100 people by country income status



Source: Aidspan, based on data obtained from [WHO's COVID-19 dashboard](#)

The establishment of the COVID-19 Vaccines Global Access (COVAX) facility to provide all countries with access to vaccines during the pandemic's acute phase

The leading global health actors led by WHO and other actors, including the Coalition for Epidemic Preparedness Innovations (CEPI) and Gavi, the Vaccine Alliance, created the COVAX facility in April 2020. These organizations established COVAX as a pooled mechanism to secure low-cost COVID-19

vaccines and provide all countries with access to these vaccines during the acute phase of the pandemic. The COVAX model is the first to ensure that countries receive sufficient COVID-19 vaccines to vaccinate 20% of their population. Thereafter, vaccine distribution should be based on the WHO framework of allocation on a needs basis.

Inadequate funding and advance vaccine purchase agreements outside the COVAX model are to blame for inequitable allocation

Although the COVAX facility has good intentions to ensure all countries access COVID-19 vaccines, it requires substantial funding to realize its pooled procurement function. The facility had received a funding commitment of \$4 billion from governments and other partners to purchase and deliver these vital vaccines. However, [Gavi and WHO estimates](#) indicated that the facility requires \$6.8 billion to realize its mandate. Thus, its vital role in securing COVID-19 vaccines on which the low-income countries depend is gauged by its ability to raise additional funding.

The fact that high-income countries administer a significantly higher number of COVID-19 vaccines than the rest can be attributed to their ability to make advance purchase agreements with vaccine manufacturers outside the COVAX model. According to a [2021 study](#) that relied on public records, high-income countries, representing 16% of the world population, made a deal with five leading vaccine manufacturers to secure 70% (4.2 billion) of COVID-19 vaccines available in 2021 (Table 1). This already explains the inequitable number of vaccines administered in high-income countries compared to the other regions. It raises the question of fairness and the ethical distribution of access to COVID-19 vaccines, particularly with regard to high-risk populations in low-income countries.

Table 1: Percentage of vaccines doses that high-income countries pre-purchased outside the COVAX model as of 3 February 2021

Five vaccine developers with supply agreements with COVAX	Estimated 2021 production capacity	Proportion of vaccine doses that high-income countries pre-ordered as of 3 February 2021
AstraZeneca with Oxford University	3 billion	27%
BioNTech with Pfizer	2 billion	77%
Johnson & Johnson	1 billion	38%
Novavax	2 billion	31%
Sanofi with GlaxoSmithKline	Unknown	73%

Source: Data obtained from Duke Global Health Innovation Center

Way forward

There is a need to ensure the COVAX facility is well funded to ensure it fulfills its mandate of ensuring all countries access COVID-19 vaccines, particularly for high-risk populations, by the end of 2021. To scale up vaccine production to tackle the challenge calls for global leadership and solidarity. Governments, particularly those from high-income countries, and vaccine manufacturers, should heed the WHO calls for sharing knowledge, intellectual property, and data for COVID-19 through the established [COVID-19 Technology Access Pool](#) (C-TAP). This would enable accelerated production of tools to fight COVID-19, including vaccine production. For its part, the World Trade Organization should facilitate accelerated

vaccine production by specifically suspending intellectual property rights, thereby increasing the number of actors involved in vaccine production.

Ultimately, countries have to be able to provide the necessary infrastructure, such as the requisite storage facilities/cold chain and supply management, in readiness for facilitating the delivery of vaccines to their constituents and avoiding wastage. Tackling the challenge of vaccine allocation and availability should be done concurrently with addressing vaccine acceptability and countering misinformation and misconceptions around COVID-19 vaccines. This is especially topical as news comes in from countries who have been unable to use all doses of the vaccine due to [misconceptions about side effects](#). Otherwise, providing vaccines with no one to use them will be an exercise in futility.

A third article in this series on COVID-19, COVAX and vaccines will address the issue of how vaccination targets are being derailed by misbeliefs and conspiracy theories – watch this space!

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