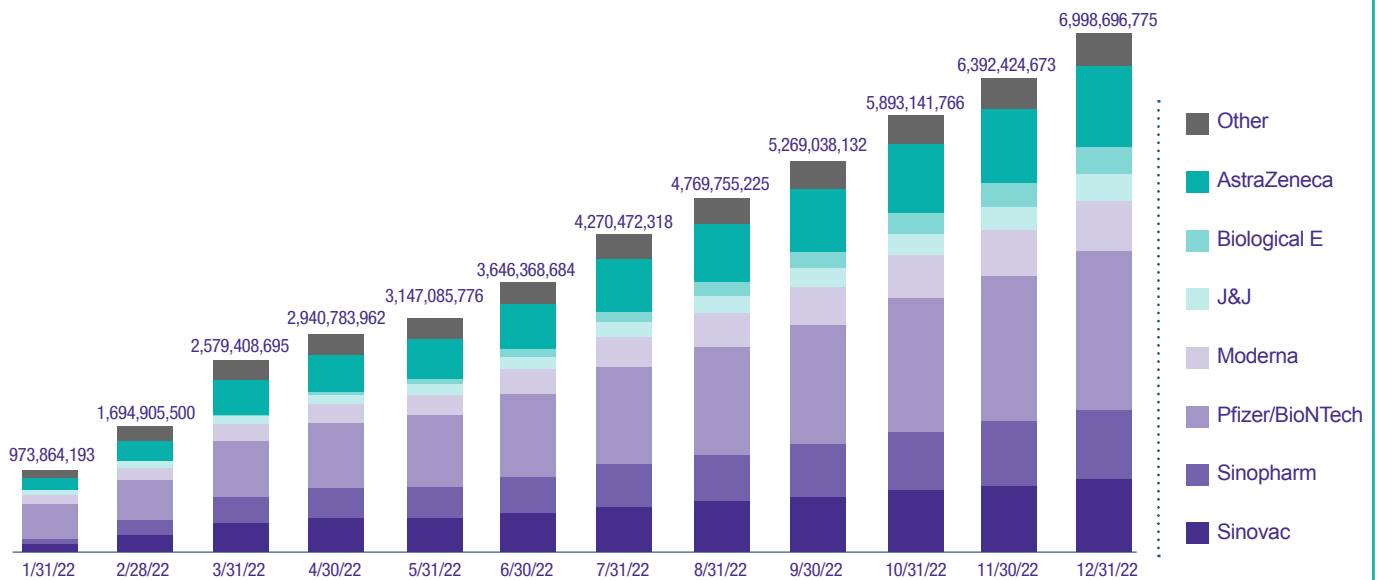


COVID-19 VACCINE SUPPLY CHAIN: HOW WE ARE VACCINATING THE GLOBE

The COVID-19 pandemic has challenged the global vaccine supply chain in an unprecedented way. Biotechnology companies are leveraging global partnerships and innovative collaborations to produce more vaccine doses and reach patients all around the world. Vaccine makers produced over 11 billion doses in 2021 and are set to produce nearly 7 billion more in 2022. With a projected 18 billion doses between 2021 and 2022, public, private and non-profit actors must overcome challenges, such as vulnerable healthcare systems, to ensure these doses reach patients.

Billions of Vaccine Doses Expected

Vaccine manufacturers delivered over 11 billion doses in 2021. And according to June 2022 forecasts, vaccine production could generate nearly 7 billion vaccine doses in 2022.



Source: Airfinity, June 6, 2022

Doses Committed to COVAX and Other Regional Organizations

Many vaccine makers have committed hundreds of millions of vaccines to COVAX, a global program focused on delivering COVID treatments to patients in poor and under-developed countries. As of June 2022, COVAX has shipped over 1.5 billion doses to 146 countries. In addition to bilateral deals, vaccine manufacturers have committed doses to low- and middle-income countries through regional deals.



500 million doses to COVAX;
400 million doses to the African Union



1.1 billion doses committed to COVAX by signed Memorandum of Understanding



534 million doses to COVAX; 110 million doses to the African Union; 34 million doses to UNICEF and the Pan American Health Organization



171 million doses to COVAX



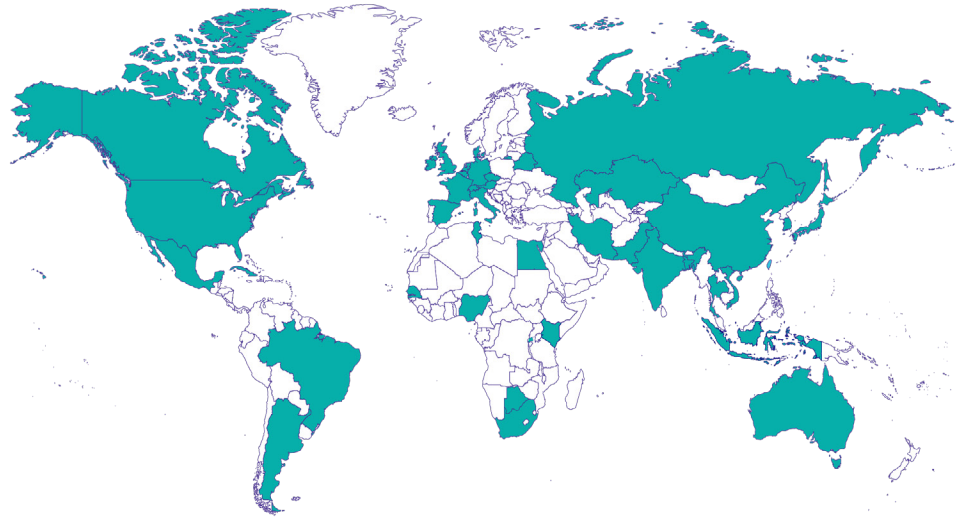
2 billion doses committed to low and middle income countries, including 1 billion doses to the US government for donation to COVAX & the African Union and 40 million directly to COVAX.



200 million doses to COVAX

Vaccine Production Across the Globe

Many countries around the world are helping produce COVID-19 vaccines. As of March 2022, every country highlighted is set to help produce vaccines in some part of the manufacturing process.



Manufacturing Partnerships and Doses Committed

Across five of the leading COVID-19 vaccine makers, over 300 total partnerships have boosted manufacturing of vaccines as of October 2021. These innovative collaborations will drive the production of billions of vaccine doses in many countries around the world.

Vaccine Maker	Partnerships	Estimated Doses 2021-2022	Geographic Partnerships/ Manufacturing Sites
 AstraZeneca	6+	4 billion	
 Johnson & Johnson	10+	1.5 billion	
 Moderna	15+	4 billion	
 NOVAVAX	20+	2.2 billion	
 Pfizer BIONTECH	5+	7 billion	

Source: Press Release Data, October 2021