COVID-19 Vaccine Global Context

SAGE Extraordinary Meeting

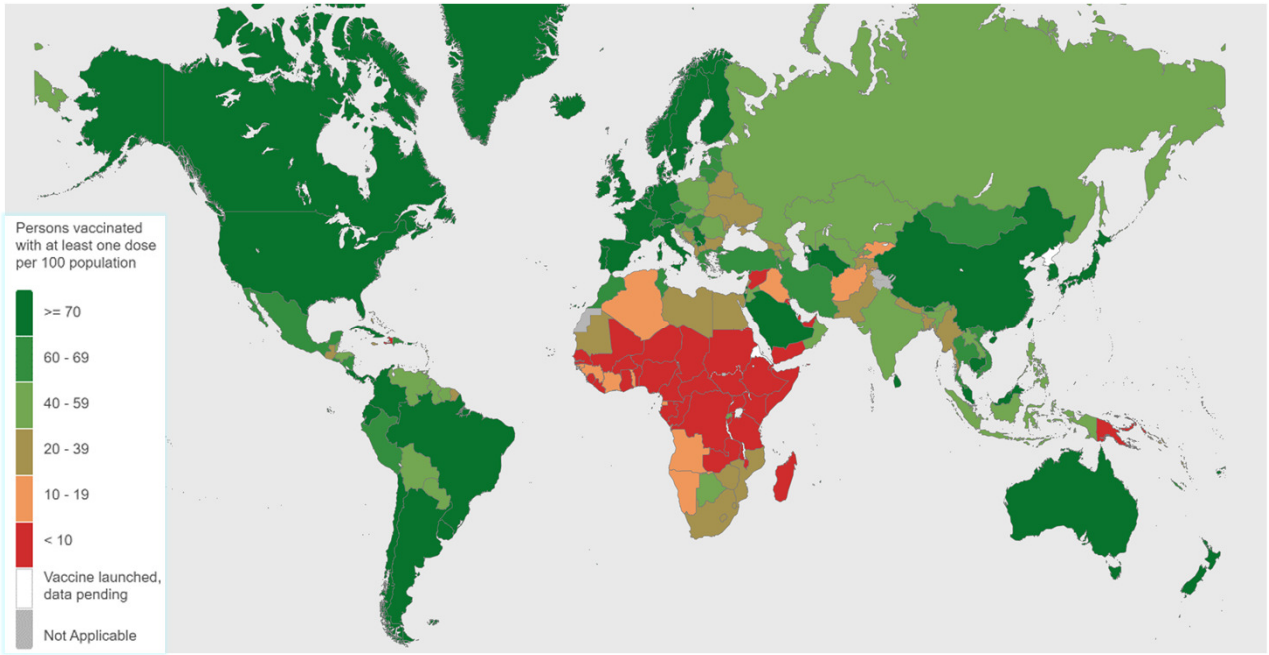
7 December 2021

Kate O'Brien, IVB Director

DATA AS OF DEC 6 06:00 AM CET

8,186M doses of COVID-19 vaccine have been administered globally

Persons vaccinated with at least one COVID-19 dose per 100 population



8,186M vaccine doses have been administered

COVAX has **shipped 610M** doses to **144** participants[1]

Immunization programmes **have not yet started in 2** countries, economies & territories

1. Including donations of doses through COVAX

Note: The designations employed and the presentation of these materials do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Source: WHO COVID-19 Dashboard (map), UNICEF Procurement Portal (COVAX shipments), Bloomberg (total # of doses administered),

DATA AS OF DEC 6 06:00 AM CET

54% of the total population across WHO Member States have had at least one COVID-19 dose

Share of population fully vaccinated
Share of population with at least one dose[1]

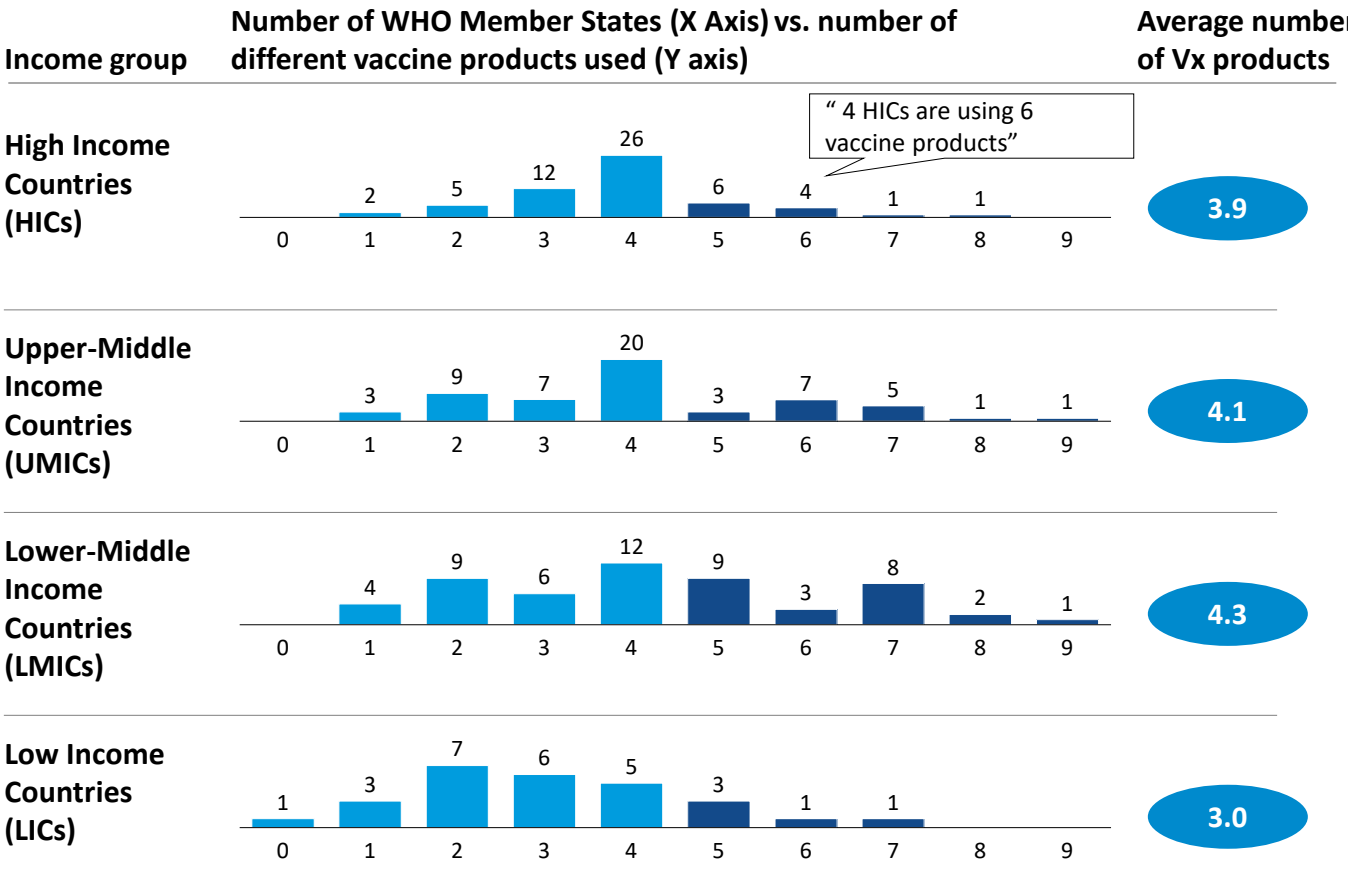
WHO region	COVID-19 vaccination status, % of population	Fully vaccinated, #M people	Partially vaccinated, #M people[2]	Not vaccinated, #M people
WHO MS *7,780M pop.*	42% / 54%	**3,278**	**892**	**3,610**
EUR *931M pop*	53% / 61%	496	71	364
WPR *1,964M pop*	66% / 76%	1,294	189	481
AMR *1,018M pop*	57% / 69%	585	116	317
EMR *726M pop*	25% / 34%	183	65	478
SEAR *2,021M pop*	33% / 54%	660	421	940
AFR *1,120M pop*	5% / 8%	58	31	1,031
AU *1,339M pop*	8% / 11%	104	47	1,188

1. Incl. fully vaccinated people II 2. Excl. fully vaccinated people

Source: WHO COVID-19 Dashboard

DATA AS OF NOV 01, 2021

LMICs are using more vaccine products than HICs on average



Key take-aways

- **LMICs is the income group using the highest number of vaccine products:**
  - 4.3 products on average
  - Up to 9 products for one MS
- **LICs rely on 3 types of vaccine products on average**

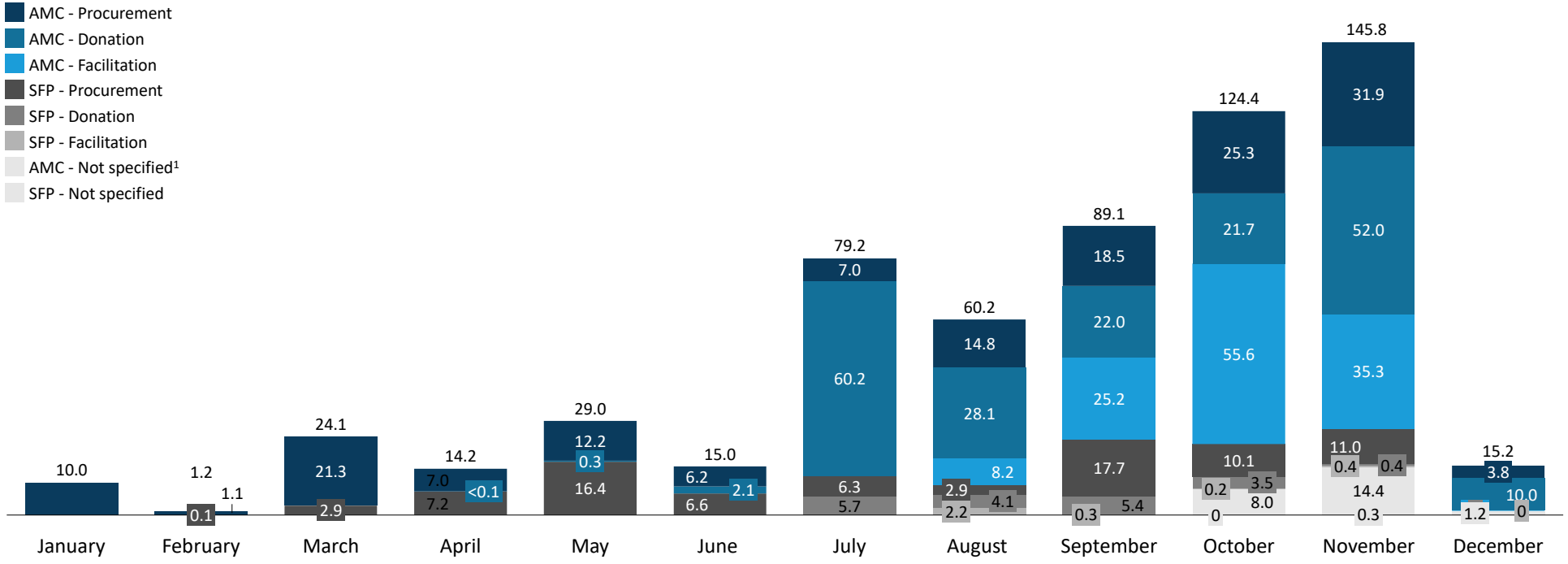
Source: WHO, Our World in data, UNICEF

DATA AS OF NOV 01, 2021

As of the end of November, COVAX has shipped 610M doses to 144 participants

Incl. 77 LICs/LMICs; 40 participants started their immunization programme thanks to COVAX doses

COVAX doses shipped per month (based on shipment arrivals), Million of doses



1. Allocation reference currently being investigated

Source: COVAX SCO tracker (UNICEF data)

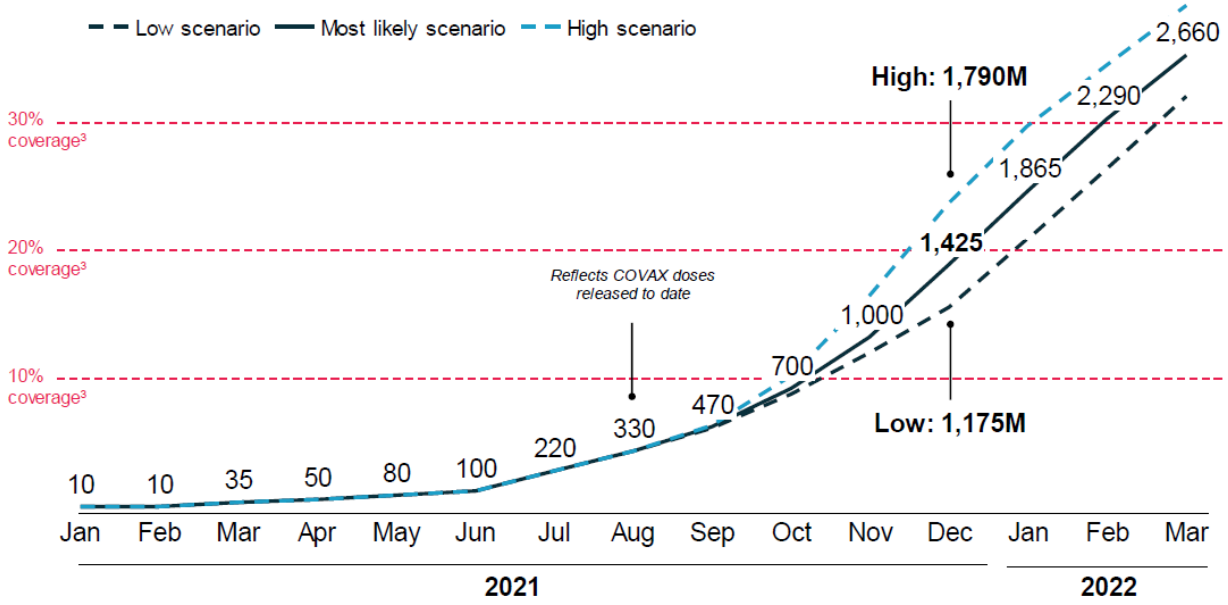
COVAX supply forecast until March 2022

COVAX Facility Supply Forecast

Ranged forecasts under low, most likely, and high scenarios

PRELIMINARY AND SUBJECT TO ASSUMPTIONS

COVAX Forecasted Supply, Cumulative, M doses, 2021 and 2022[1]



1 Timing of available supply is based on anticipated date of release by manufacturer, at which point doses become available for delivery. Timing of delivery to countries will be lagged due to need for local regulatory approvals, supply agreements, country readiness, export licenses, logistics, etc. Volumes for expected single-dose regimen candidates doubled to ensure comparability across vaccines. Volumes include dose donations that are committed to being delivered through COVAX. Volumes have been rounded to nearest 5M.
2 Final SFP volumes may be lower than forecasted based on opt-out and dose-sharing behavior. Volumes only account for current SFP demand based on Commitment Agreements.
3 Coverage refers to proportion of total population in AMC91 Participants that could be fully vaccinated with available volumes, assuming India receives 20% of AMC-funded volumes.
4 Scenarios are based on best available information from manufacturers and analysis from Gavi and UNICEF on the impact and likelihood of potential mitigation efforts.

UPDATED ON 8 SEPT 2021

THREE BIGGEST DRIVERS OF UNCERTAINTY FOR COVAX SUPPLY

- **Timing and extent to which export controls in India are eased.** Easing of restrictions in Q4 could enable the release of hundreds of millions of doses to COVAX across both SII-AstraZeneca and SII-Novavax (latter pending regulatory approval)
- **Manufacturers prioritizing supply from global manufacturing networks to COVAX,** allowing COVAX to access doses that it has already secured and paid for under its existing APAs.
- **Timely regulatory approval** of candidates that COVAX has signed deals with including those being developed by Novavax, SII-Novavax, and Clover.

COVAX 5

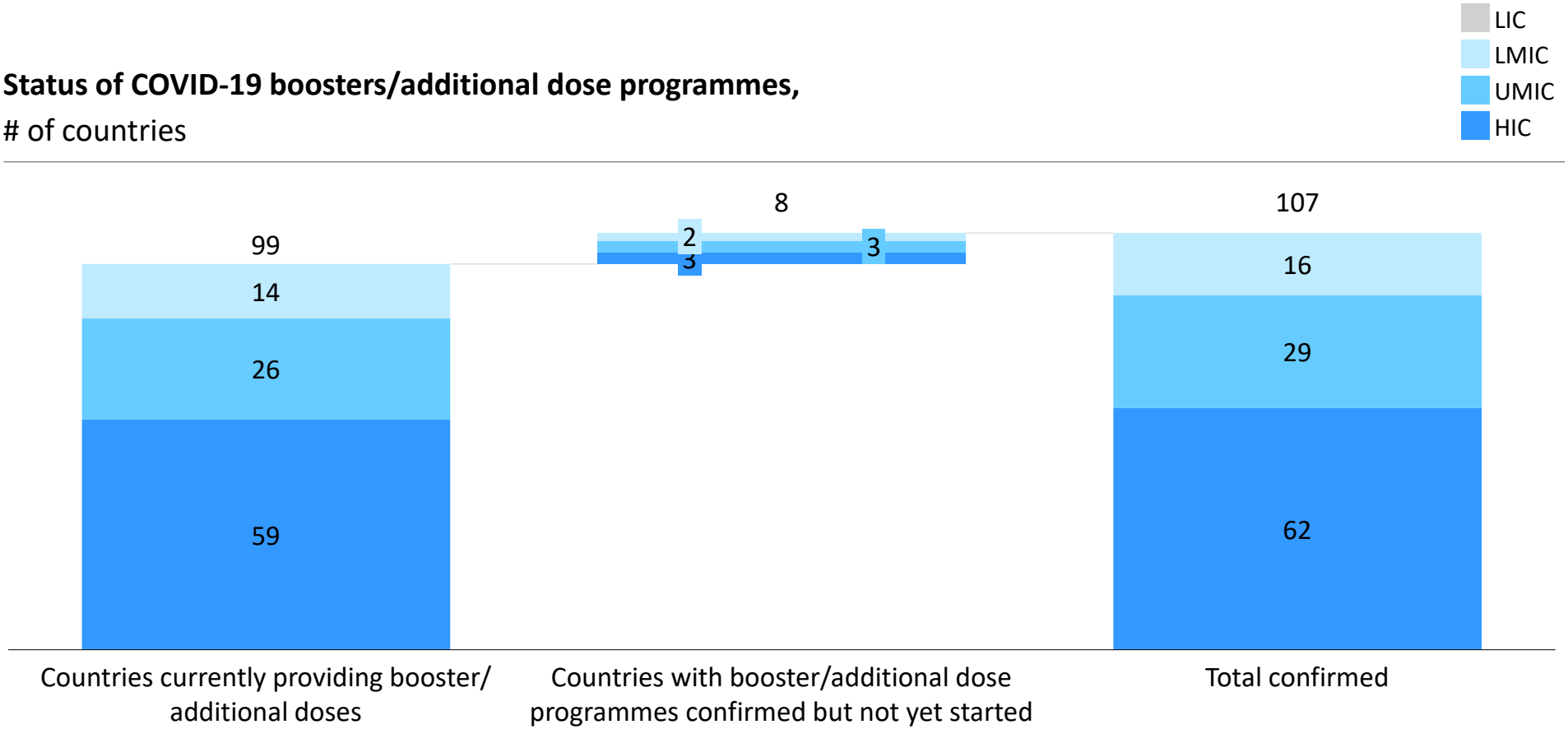
DATA AS OF NOV 23, 2021

(At least) 107 countries have already confirmed COVID-19 vaccine booster/additional dose programmes

INDICATIVE // NON-EXHAUSTIVE

Status of COVID-19 boosters/additional dose programmes,

# of countries

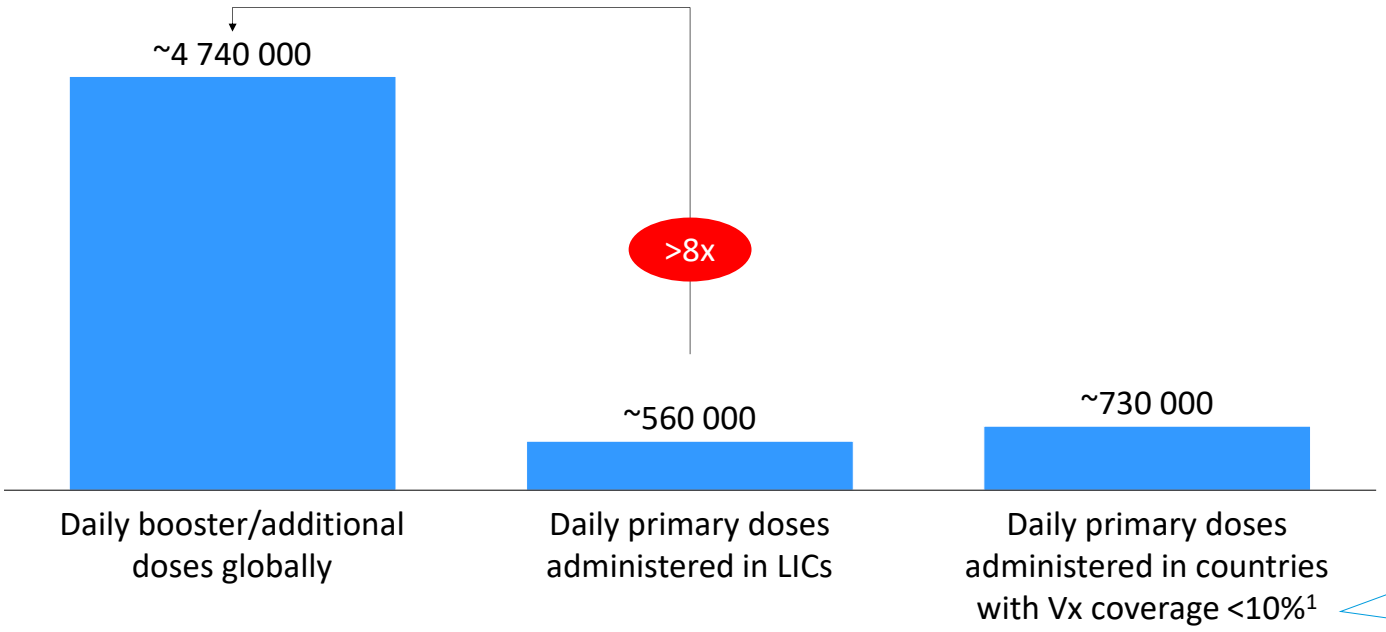


Source: WHO, OWID, Press research

DATA AS OF NOV 24, 2021

Every day, there are >8x more booster/additional doses administered globally than primary doses in LICs

Comparison of booster/additional doses administered on a daily basis vs. primary doses administered on a daily basis in LICs, # of vaccine doses



45 countries below the 10% threshold, out of which 26 are LICs, 16 LMICs and 3 UMICs

1. Based on most recent available data on total vaccinations and their respective submission dates

Source: WHO, OWID, Press research

Key takeaways

At least 4.7M booster/additional doses are administered on a daily basis (as of Nov. 24)

This number may be underestimated as multiple countries do not share the breakdown between primary doses and booster/additional doses (e.g., China)

LICs only administer ~0.6M primary doses a day i.e., 0.08 dose per 100 population

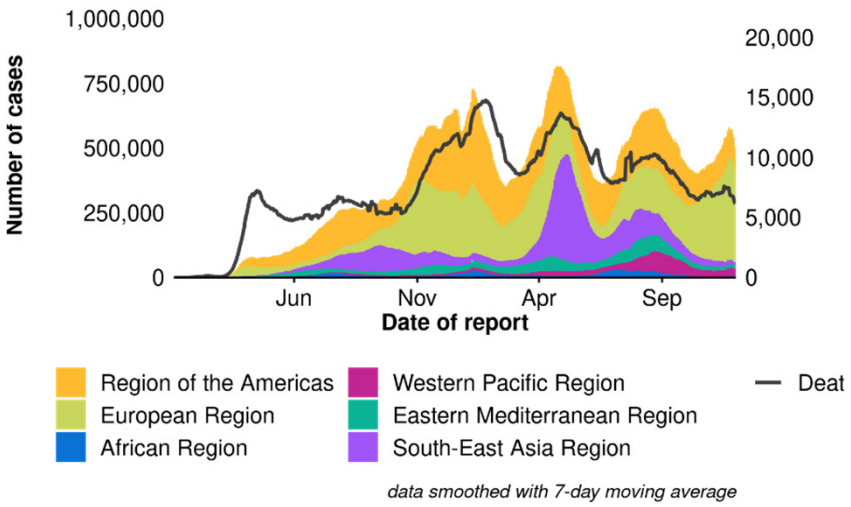
Global and regional epidemiological trends (as of 1 Dec)

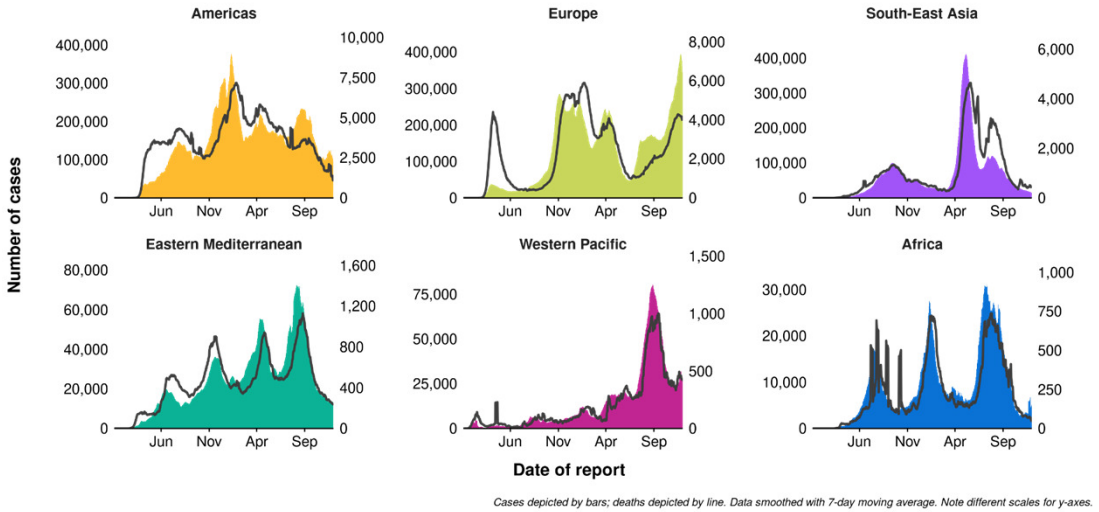
Previous week:

- 3,799,878 new confirmed cases
- 47,524 new deaths

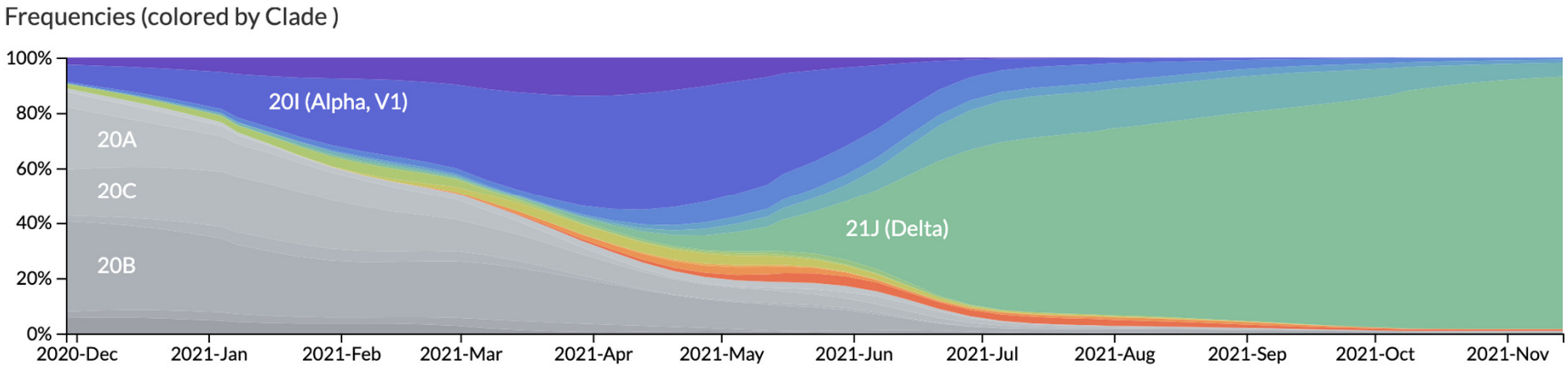
Cumulative:

- 262,178,403 confirmed cases
- 5,215,745 deaths





Virus evolution - Genomic spread of SARS-CoV-2 VOCs



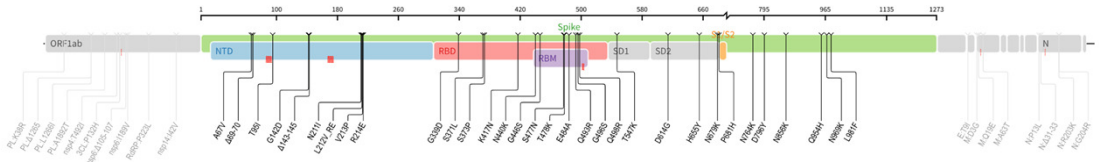
The pandemic is dominated by Delta variant around the world.

Source: Nextstrain based on GISAID data nextstrain.org/ncov/global

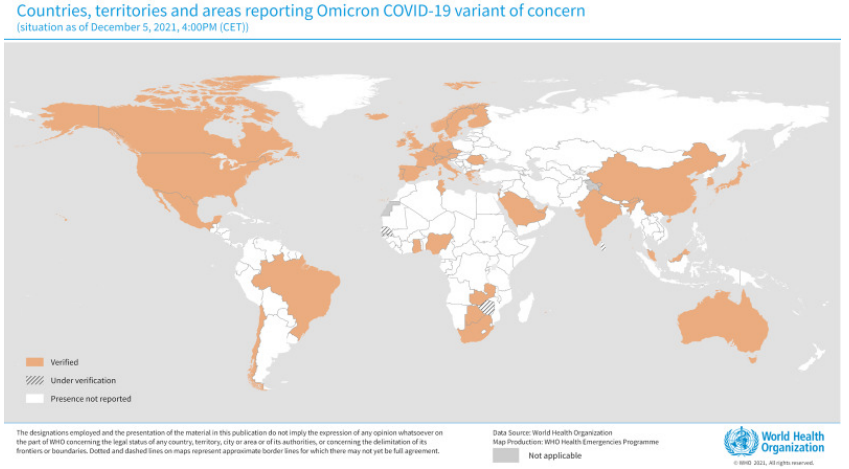
https://www.who.int/en/activities/tracking-SARS-CoV-2-variants/

B.1.1.529 Variant of Concern: Omicron

Mutational profile



Courtesy of Tulio de Oliveira, Stellenbosch University



- Large number of mutations
  - 45-52 amino acid changes (including deletions) across the whole genome; 26-32 changes in Spike

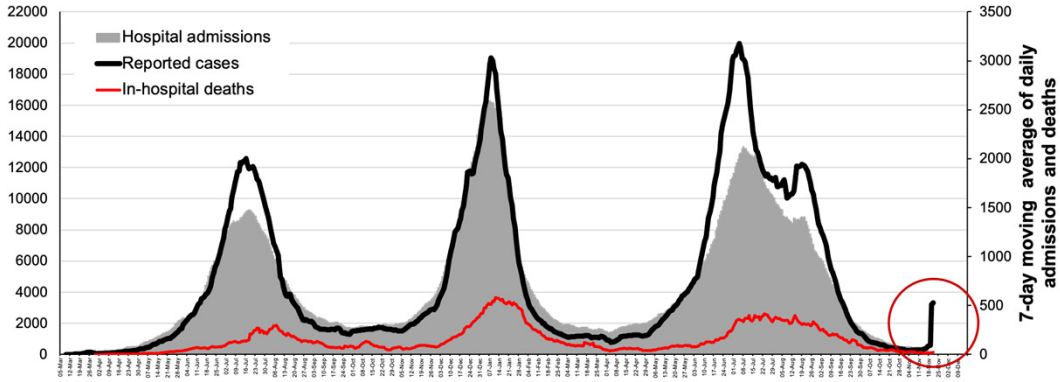
As of 5 December 2021:

- 45 countries from all 6 WHO Regions have reported the first detection of Omicron case(s)
  - 41 verified reports, 4 unverified
- While most countries report cases with recent travel-history, several countries are starting to see secondary transmission and clusters as investigations are ongoing.
- No deaths linked to this VOC have been reported officially to WHO

With thanks to researchers across South Africa

World Health Organization

B.1.1.529 Variant of Concern: Omicron



Courtesy of Lucille Blumberg, Richard Welch and Waasila Jassat – DATCOV, NICD, South Africa

Transmission

- Early data suggest increased growth rate
- Not yet know if more transmissible compared to other VOCs, including Delta.
- Sequencing efforts have been enhanced across the region.

Severity

- Cases range from mild to severe disease
- Too early to assess whether Omicron causes more or less severe disease compared to infections with other variants.
- Preliminary data suggests that there are increasing rates of hospitalization in South Africa, but this may reflect the force of infection, rather than increased virulence.

https://www.who.int/publications/m/item/enhancing-readiness-for-omicron-(b.1.1.529)-technical-brief-and-priority-actions-for-member-states

Omicron: impact on countermeasures

	Potential impact	Studies to be conducted (in progress)
Public Health and Social Measures	Current public health measures such as wearing well-fitting masks, hand hygiene, physical distancing, improving ventilation of indoor spaces, avoiding crowded spaces, and getting vaccinated remain effective against all VOCs.	Household transmission studies
Diagnostics	PCR diagnostics continue to detect SARS-CoV-2 infection, including Omicron infection. S-gene target failure on PCR assay can be used a a proxy marker for Omicron, pending sequencing.	Evaluations of rapid antigen detection tests for Omicron infection
Therapeutics	Clinical management for patients with severe COVID-19 remains unchanged.	In vivo antiviral resistance studies (mAb); In vitro antiviral resistance studies (polymerase, protease inhibitors); In vitro antiviral resistance studies (polymerase, protease inhibitors)
Vaccines	Impact on vaccines is not yet known. Omicron mutational profile suggests the virus may partially escape antibodies. While may see reduced vaccine performance against mild disease due to antibody escape, there may not be the same impact on severe disease – mediated by T-cells.	Convalescent and vaccinated sera neutralization studies; matched test-negative case control studies; T cell assays; animal models – passive transfer and vaccination + challenge studies

Surveillance and Monitoring → **Research** → **Evidence** → **Assessment** → **Informed Decisions & Policy**

Collaborate and Coordinate

https://www.who.int/publications/m/item/enhancing-readiness-for-omicron-(b.1.1.529)-technical-brief-and-priority-actions-for-member-states

World Health Organization

COVID-19 advisory groups to informed decisions on VOC

Strong, multidisciplinary mechanism of external experts for evidence-based decision making

Aim: Monitor & assess SARS-CoV-2 variants and evaluate their impact on countermeasures, including vaccines, therapeutics, diagnostics or effectiveness of public health and social measures.

TAG-Virus Evolution (VE)
- determines where variants are circulating
- advises on VOI or VOC determination based on alteration in
  - transmission or disease characteristics or
  - impact vaccines, therapeutics, diagnostics or
  - effectiveness of public health and social measures

Vax Research Expert Group
- methods standardiz'n for vax development & assessment

Vax Effectiveness WG
- assesses & supports VE and impact studies

Regulatory TAG
- advises on EUL of vaccines through evidence-based assessment

TAG-CO-VAC
- determines if changes to vax composition needed through evidence-based assessment

SAGE
- recommends policies & strategies on vaccine use and immunization programmes through evidence-based assessment

World Health Organization

Thank you