Vaccine equity systems
–
Vaccine access and demand

Dr Sylvie Briand
Director, Epidemic & Pandemic
Preparedness & Prevention Department
WHO Health Emergencies Programme

World Health Organization

EPIDEMIC &PANDEMIC PREPAREDNESS &PREVENTION

Timeline

Major infectious threats in the 21st century & associated collaboration mechanisms

MAJOR EPIDEMIC AND PANDEMIC THREATS

Yellow fever (Central Africa, Brazil)
Zika
COVID-19
MERS
SARS
H7N9
H1N1
H5N1
Cholera (Haiti)
(Yemen)
(Multi-country)
Ebola (West Africa)
(Democratic Republic of the Congo)
Plague (Madagascar)
Mpox (Multi-country)

Epidemic
Pandemic

2000 > 2001 > 2002 > 2003 > 2004 > 2005 > 2006 > 2007 > 2008 > 2009 > 2010 > 2011 > 2012 > 2013 > 2014 > 2015 > 2016 > 2017 > 2018 > 2019 > 2020 > 2021 > 2022 >

INTERNATIONAL COLLABORATION EFFORTS TO FIGHT EPIDEMIC AND PANDEMIC THREATS

GAVI
Gavi, the Vaccine Alliance, is an international organisation that was created in 2000 to improve access to new and underused vaccines for children living in the world's poorest countries.

GOARN
The Global Outbreak Alert and Response Network is a technical collaboration of existing institutions and networks who pool human and technical resources for the rapid identification, confirmation and response to outbreaks of international importance.

IHR (2005)
The International Health Regulations (2005) are an international law which helps countries work together to save lives and livelihoods caused by the international spread of diseases and other health risks. The IHR (2005) aim to prevent, protect against, control and respond to the international spread of disease while avoiding unnecessary interference with international traffic and trade.

IHR Review

PIP Framework
The Pandemic Influenza Preparedness (PIP) Framework brings together Member States, industry, other stakeholders and WHO to implement a global approach to pandemic influenza preparedness and response.

Its key goals include:
- to improve and strengthen the sharing of influenza viruses with human pandemic potential; and
- to increase the access of developing countries to vaccines and other pandemic related supplies.

R&D Blueprint
R&D Blueprint is a global strategy and preparedness plan that allows the rapid activation of research and development activities during epidemics. Its aim is to fast-track the availability of effective tests, vaccines and medicines that can be used to save lives and avert large scale crises.

PIP Review

IHR Review

ACT Accelerator
Access to COVID-19 Tools (ACT) Accelerator, is a groundbreaking global collaboration to accelerate development, production, and equitable access to COVID-19 tests, treatments and vaccines.

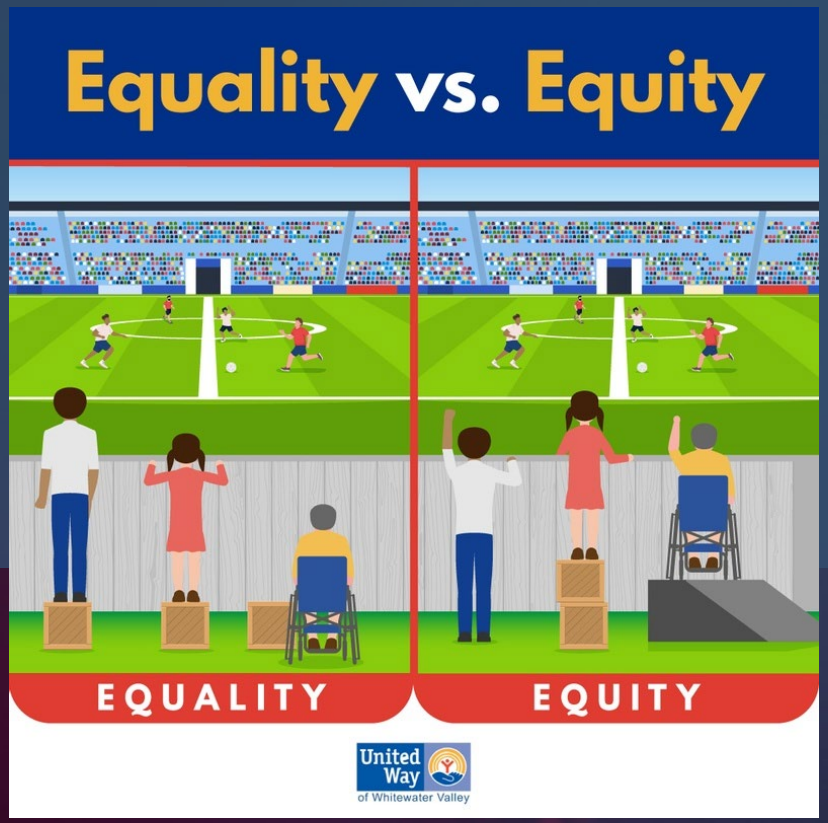
IHR Review

INB
In December 2021, Member States established an intergovernmental negotiating body (INB), representing all regions of the world, to draft and negotiate a WHO convention, agreement, or other international instrument on pandemic prevention, preparedness and response.

Last updated: January 2023

World Health Organization

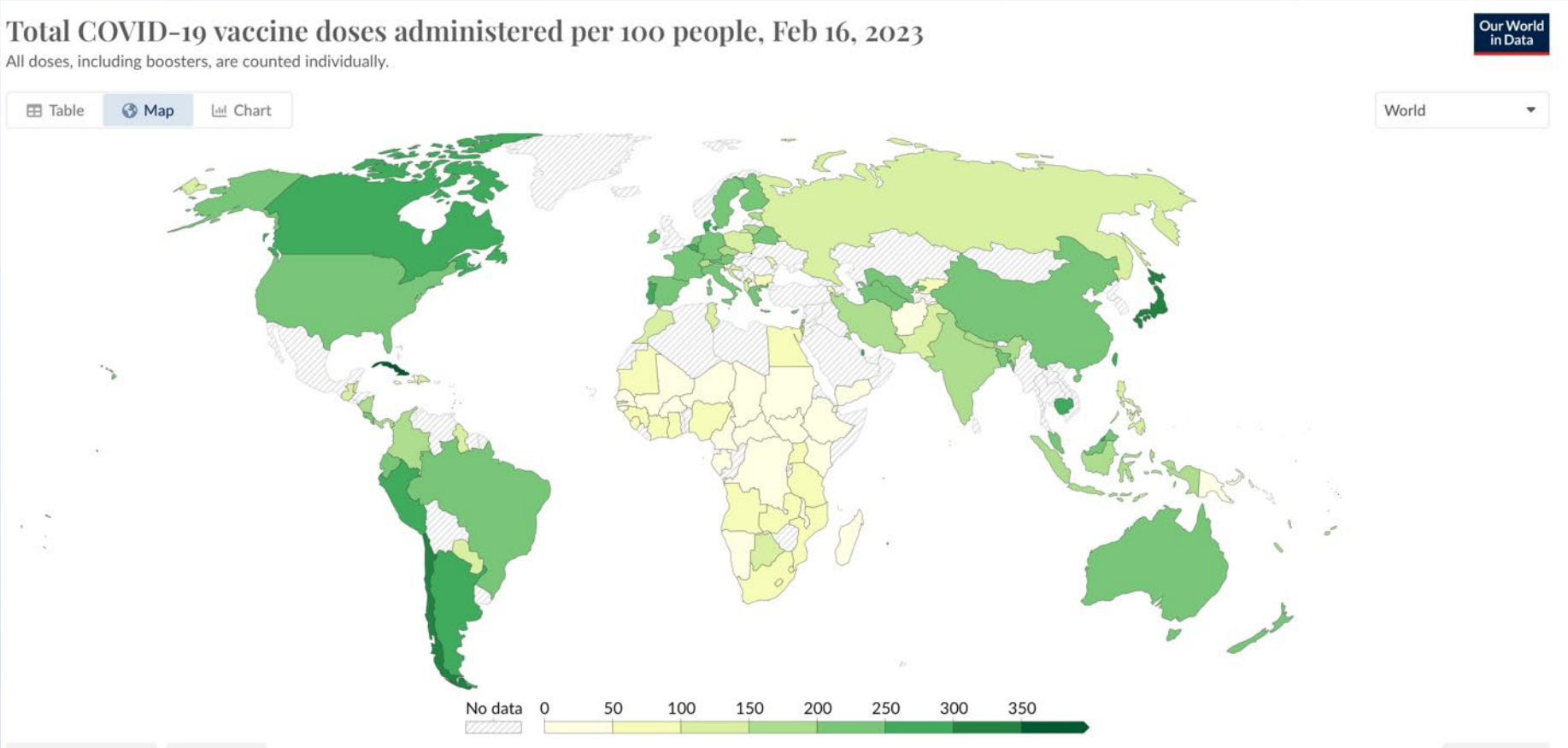
“ Vaccine equity systems



World Health Organization

EPIDEMIC & PANDEMIC PREPAREDNESS & PREVENTION

Inequal access to COVID-19 vaccines



- As of 18 October 2023, **70.5% of the world population** has received at leas tone dose of a COVID-19 vaccine. This number drops to **35.6% in low-income countries**.

Source: https://ourworldindata.org/covid-vaccinations

World Health Organization | EPIDEMIC & PANDEMIC PREPAREDNESS & PREVENTION

Vaccine equity challenges: international factors

In an ideal world people benefit from timely access to pandemic medical countermeasures based on public health needs. In reality:

- **"First come, first served"** (hoarding of Vx doses)
- **Access based on financial resources** (rich vs. poor)
- **Access based on quantity** (large vs. small countries/orders)

Vaccine equity challenges at national level

Some factors:

- **Waste of scarce resources** (under prepared countries; ill-adapted pharmaceutical formulations; preferences)
- **Mistrust of the public in the security and efficacy of medical countermeasures** (vaccine hesitancy)
- **Hazardous misuse of medical countermeasures** (substandard and falsified vaccines/therapeutics; unsafe multiple dosing)
- **Supply & demand uncertainty, impact on production**
- **National security/preference vs public health needs**
- **Weak vaccination systems, distribution to remote places, insufficient cold chain…**

Access to Countermeasures strengthened

with fast-tracked R&D, scalable manufacturing and end-to-end health emergency supply chains

4.1 Fast-tracked Research & Development

R&D to develop medical countermeasures against priority pathogens

4.2 Scalable Manufacturing Platforms

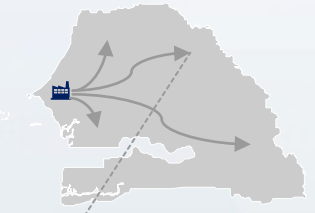
Emergency manufacturing capacity in region scaled up to produce countermeasures

Dual purpose production of:

- Inter-pandemic products
- Countermeasures for pandemics / health emergencies

4.3 End-to-end Health Emergency Supply Chains

The right countermeasures procured from scalable manufacturing platforms in the right volumes, equitably and timely distributed



Enabled by end-to-end regulatory oversight

World Health Organization

EPIDEMIC & PANDEMIC PREPAREDNESS & PREVENTION

Elements to consider during crises

Production	Global allocation
• Limited • Time-varying • Localized	• Commercial principles • National sovereignty • Public health needs

How to increase supply during crises

1. **Divided doses or adjuvant**
   - E.g., Yellow fever in DRC (2016), temporary decision to suspend the two-dose strategy for the cholera oral Vx
2. **Increase of production**
3. **Increase of number of manufacturers**
   - Technology transfer
   - Use of other production lines (veterinary; other Vx)

3 situations

- **1. Known disease: increase of production during a pandemic**
  - Known vaccine manufacturers – possibility to prepare
  - Challenges linked to the increase of the usual production, depends on the type of vaccine
  - Challenges linked to the composition (new vaccine antigen)
  - For influenza, issues related to the switch from seasonal to pandemic production

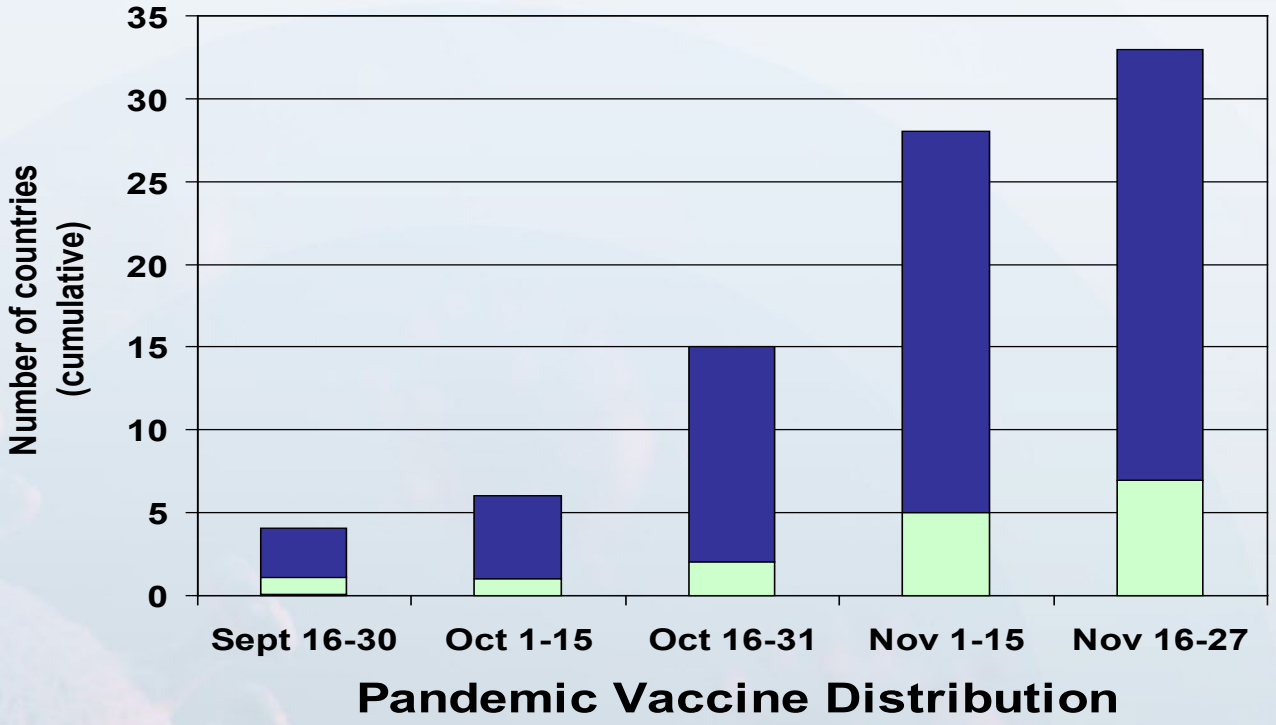
- **2. Unknown disease: development of Vx during the epidemic**
  - Delays due to R&D, clinical trials, marketing authorizations
  - Unknown producers before the crisis
  - Progressive scale-up of production capacities

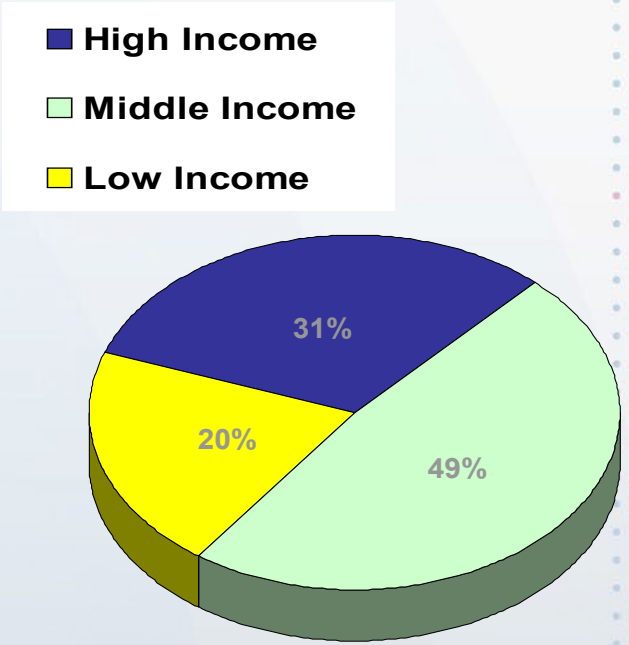
- **3. Early Epidemic response** with stockpiles (e.g. Meningitis, Yellow Fever, Cholera, Ebola)

Known disease

Global availability of vaccines during the H1N1 Influenza pandemic 2009

- Only high-income countries had access to the vaccine in fall 2009



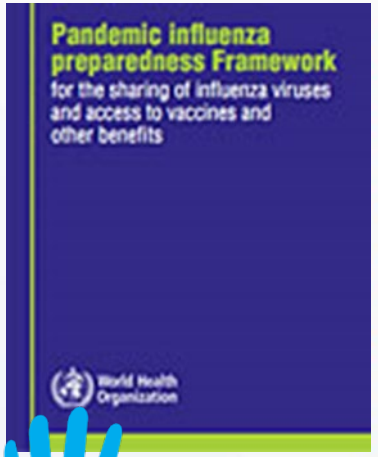


World economies[1]

[1] World Bank classification 2009

World Health Organization | EPIDEMIC &PANDEMIC PREPAREDNESS &PREVENTION

The Pandemic Influenza Preparedness (PIP) Framework

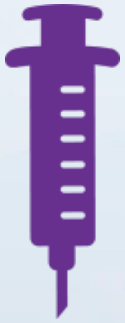


- Adopted by WHA65 (2011) after the 2009 H1N1 Influenza pandemic
- Ambitious & innovative public health arrangement **to increase global preparedness to respond to pandemic influenza**
- **Establish more predictable, efficient, and equitable access** to vaccines and other life saving products at the time of a pandemic
- Partnership: Brings together Member States, industry, civil society organizations, other key stakeholders, and WHO

World Health Organization | EPIDEMIC & PANDEMIC PREPAREDNESS & PREVENTION

Influenza pandemic: challenge of access and deployment

Pre-agreement with manufacturers (SMTA2)



405M doses
of vaccines
+
25M syringes

10 million
treatment courses
of antivirals

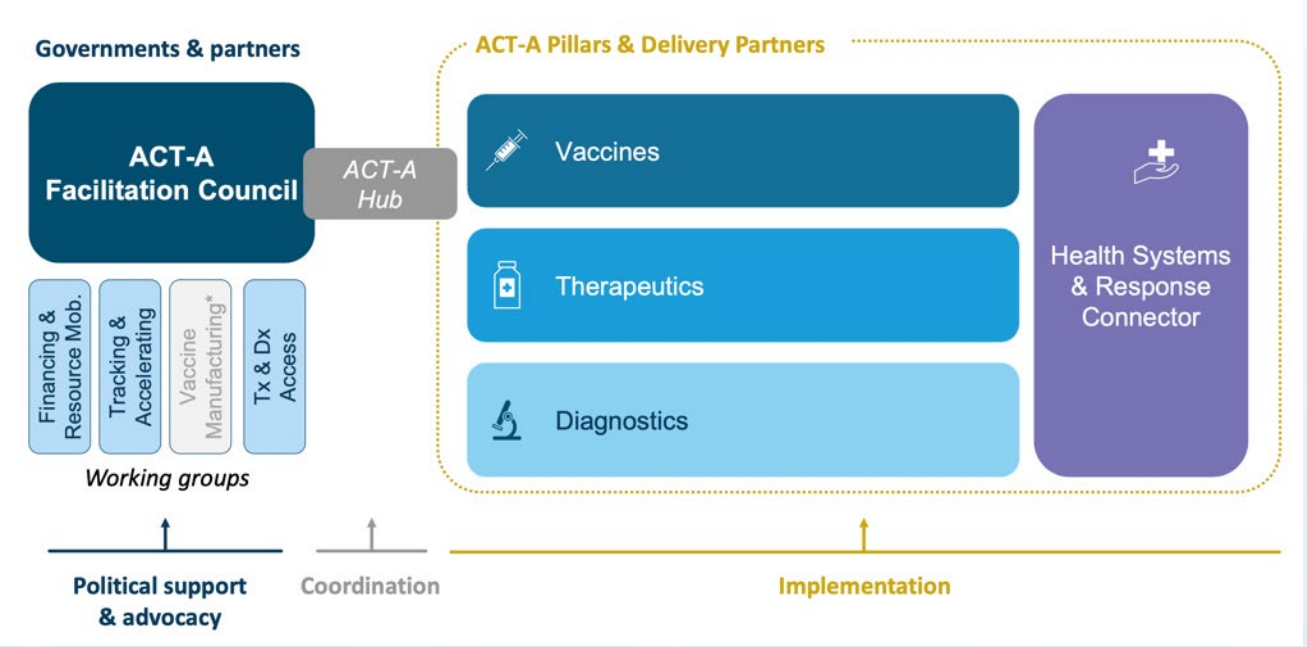
250,000
diagnostic kits

16 agreements signed, including with all multinational vaccine manufacturers

World Health Organization | EPIDEMIC & PANDEMIC PREPAREDNESS & PREVENTION

Unknown disease (disease X)

COVID-19 pandemic : ACT-A



WHO has developed a *framework for equitable and fair allocation of ACT accelerator products*

Information on COVID-19 vaccines
More information on the ACT Accelerator

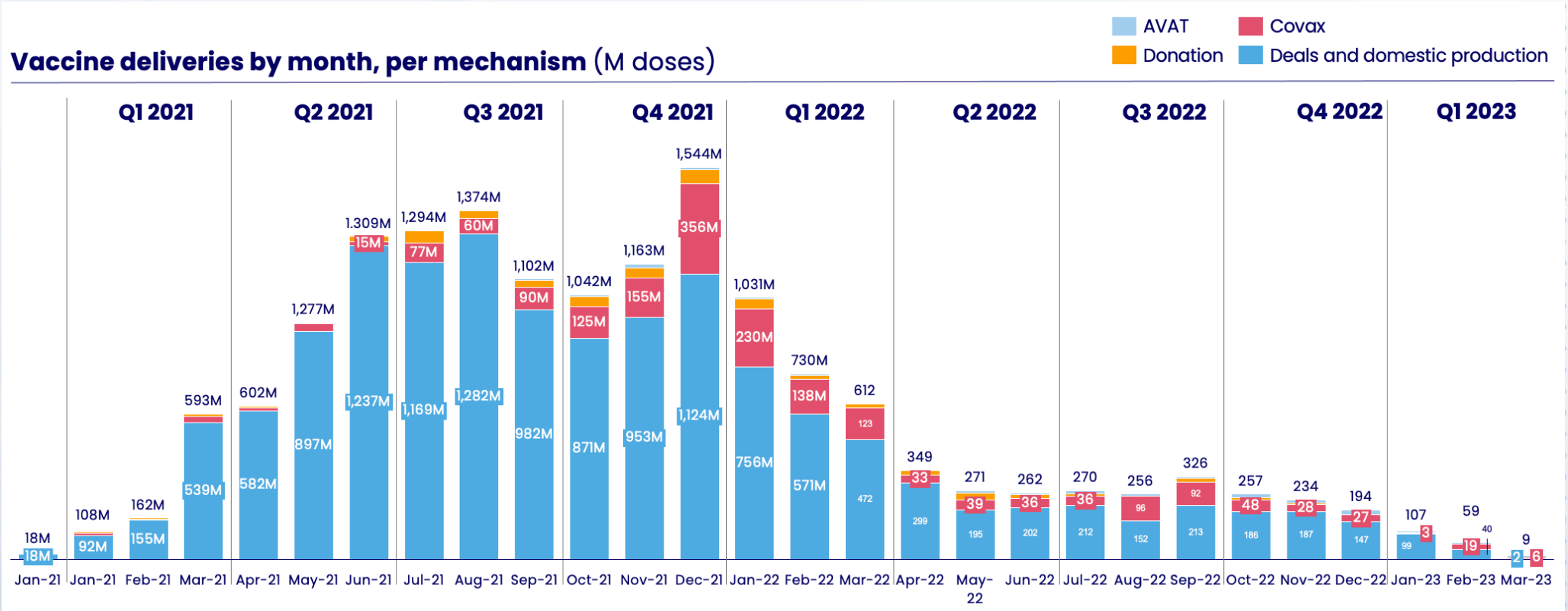
- Access to COVID-19 Tools (ACT) Accelerator is a global collaboration end-to-end process, to accelerate development, production, and **access to COVID-19 medical countermeasures**

- ACT-A has **four pillars**
  - Vaccines (COVAX Facility)
  - Therapeutics
  - Diagnostics
  - Health Systems & Response Connector

World Health Organization | EPIDEMIC & PANDEMIC PREPAREDNESS & PREVENTION

By March 2023, 16.2 Billion vaccines had been delivered from all sources

Of these, COVAX has so far delivered 1.96 Billion to 146 countries



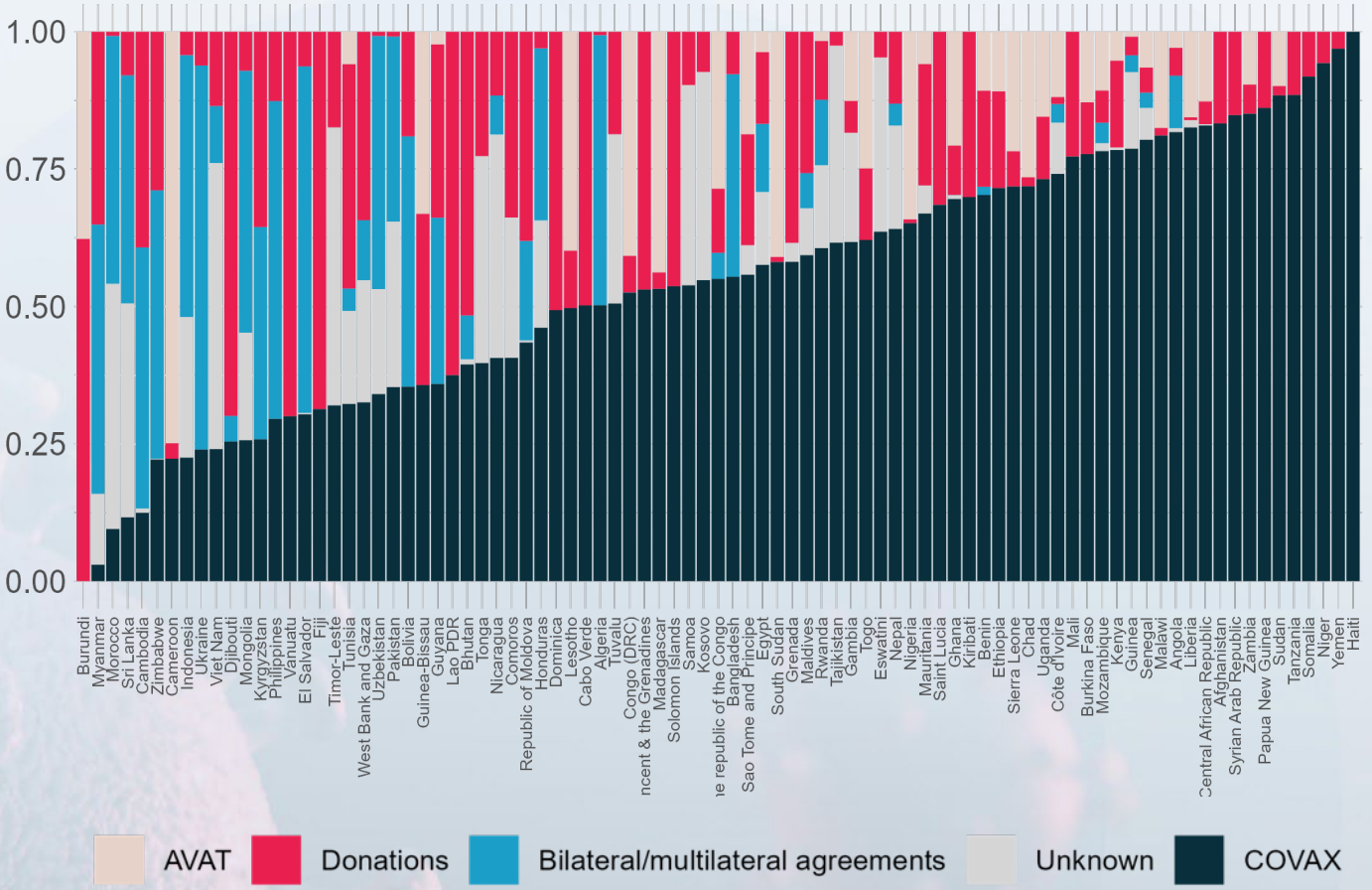
Source: UNICEF COVID-19 Market Dashboard

World Health Organization

EPIDEMIC & PANDEMIC PREPAREDNESS & PREVENTION

COVAX supply was crucial for most AMC participants

Proportion of total COVID-19 vaccine supply across sources, among AMC participants



Of **1.96bn** COVAX doses delivered, **1.75m (89%)** have gone to AMCs*

53 AMCs have **>50%** of their total COVID-19 vaccines supplied via COVAX

26 AMCs have **>70%** of their total COVID-19 vaccines supplied via COVAX

74% of all COVID-19 vaccines in LICs have been supplied via COVAX

*Advance Market Commitment supported countries (92 in total)

World Health Organization

EPIDEMIC & PANDEMIC PREPAREDNESS & PREVENTION

COVAX was not perfect - lessons must be learned for the future

Challenges faced by COVAX

Access to funding came too late, placing COVAX countries behind others in the queue

Vaccine nationalism restricted exports at crucial moments, reducing fair access based on health risk

Donations helped fill supply gaps but **earmarking and shelf-life** issues reduced equity and made the job of AMC countries harder

Collaboration with CSOs and support to **humanitarian** populations took too long to stand-up

ACT-A and COVAX were **'built on the go'** and therefore had imperfect governance and coordination structures

Lessons for future outbreaks

Make **surge financing** for L/MICs available to use from the outset

Establish pre-agreed product access arrangements and **diversify manufacturing** to reduce vaccine nationalism

Rightsize the role of donations and establish minimum standards around shelf life and removal of earmarks

Build on the outcomes of the 'Joint convening on COVID-19 vaccinations in humanitarian settings' to **work better with CSOs** and others

Leverage ongoing interest to **establish 'peacetime' structures**, processes and commitments that allow fastest mobilization for future crises

Early epidemic response

Emergency stockpiles

- Global Emergency stockpiles **for yellow fever, meningitis, Ebola and cholera** outbreaks
  - Also a stock of smallpox vaccines

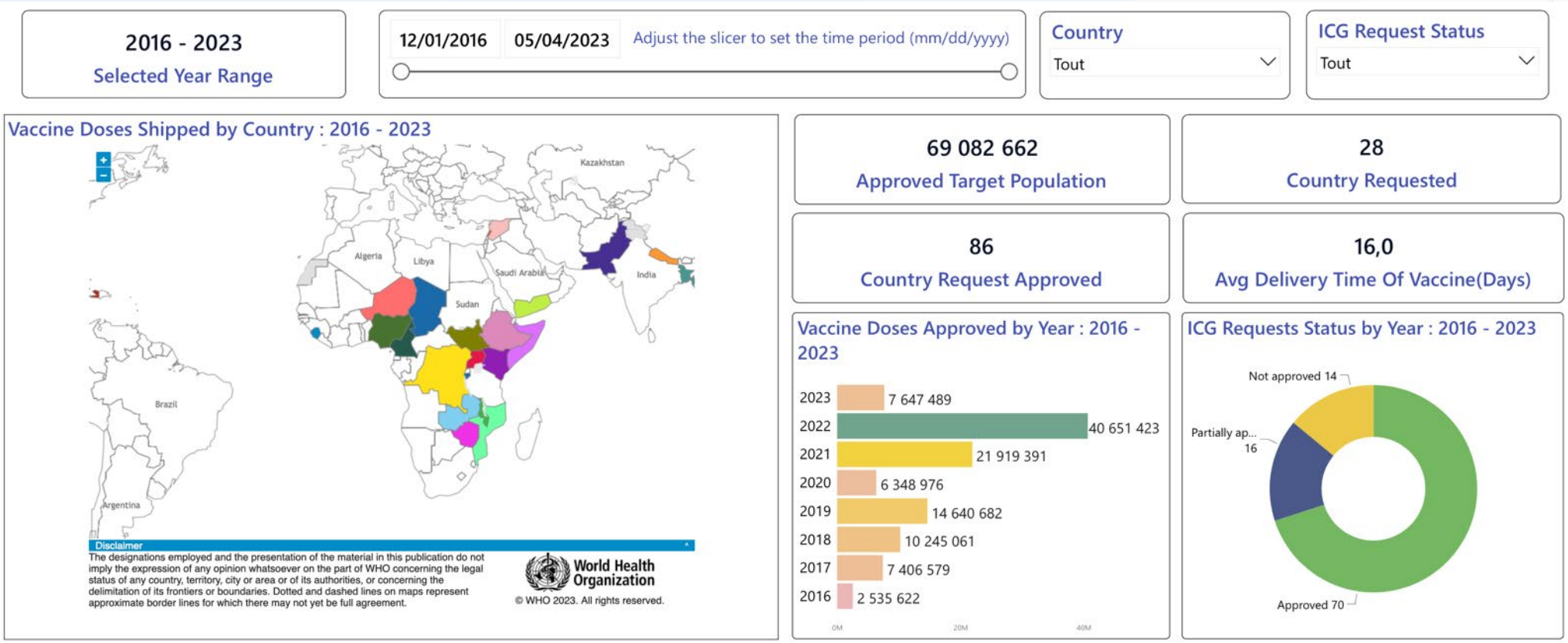
- The allocation is managed by the International Coordinating Group (ICG) for vaccine allocation during Emergencies
  - **MSF, IFRC, UNICEF, WHO**

- The emergency stockpile is **funded by international partners** (e.g. GAVI) **or donations** (countries, manufacturers).

- Countries can access it depending on their epidemiologic situation (**allocation based on needs**). Partners can also access the stockpile to serve vulnerable populations (e.g. migrants, refugees,…). Reimbursement depends on resources.

https://www.who.int/groups/icg

ICG allocation: the example of cholera

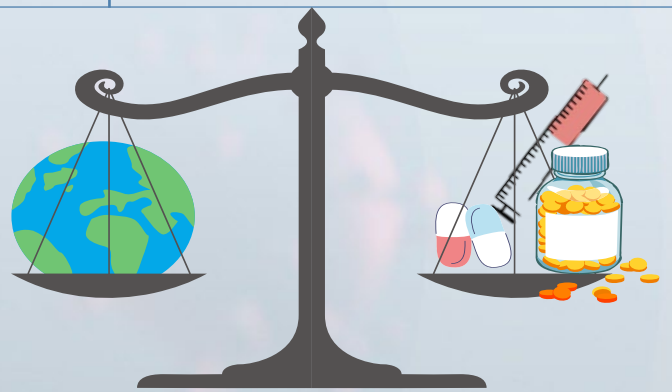


Source: WHO (Link)

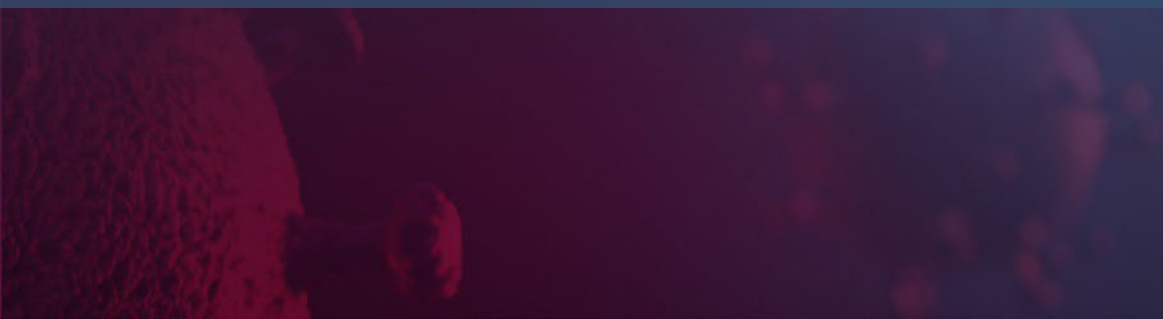
World Health Organization | EPIDEMIC & PANDEMIC PREPAREDNESS & PREVENTION

Comparison of the mechanisms (PIP Framework, COVAX, ICG)

	PIP Framework	ACT-A/COVAX	ICG
Diseases	Pandemic Influenza	COVID-19	Cholera, Ebola, Meningitis, Yellow fever
Beneficiaries	LMICs	AMCs and self-financing countries	Affected countries based on needs
Governance	Member States WHO (SMTA2, Real time access)	International partners WHO, CEPI, Gavi, UNICEF, Unitaid, Wellcome Trust, World Bank, Global Fund, FIND. Industry	WHO, UNICEF, IFRC, MSF (Stockpiles)



“ Vaccine access and demand

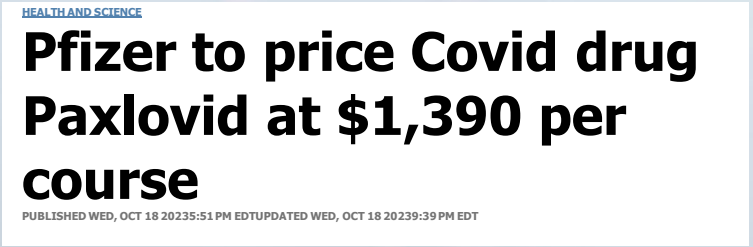


World Health Organization

EPIDEMIC &PANDEMIC PREPAREDNESS &PREVENTION

Factors affecting demand

- **Timeliness is critical**: in 2010 when Influenza vaccines finally arrived in LIC's, the first wave has passed, the demand for vaccine was reduced.
- Effectiveness of the vaccine as a **response tool** (e.g. to stop transmission or to reduce mortality)
- **Opportunity cost** -> other pressing health challenges
  - Average price of a COVID-19 Vx: $15 USD
  - Cost of a Paxlovid treatment course: $530-700/person(US)
  - Price of a Yellow fever Vx: $1.3

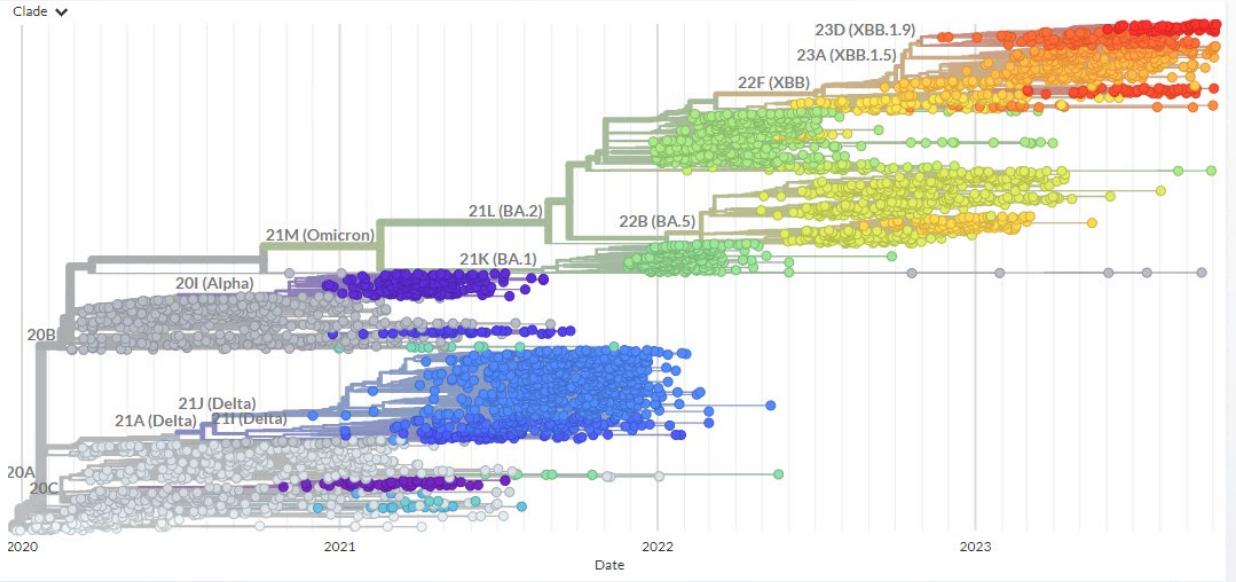

HEALTH AND SCIENCE

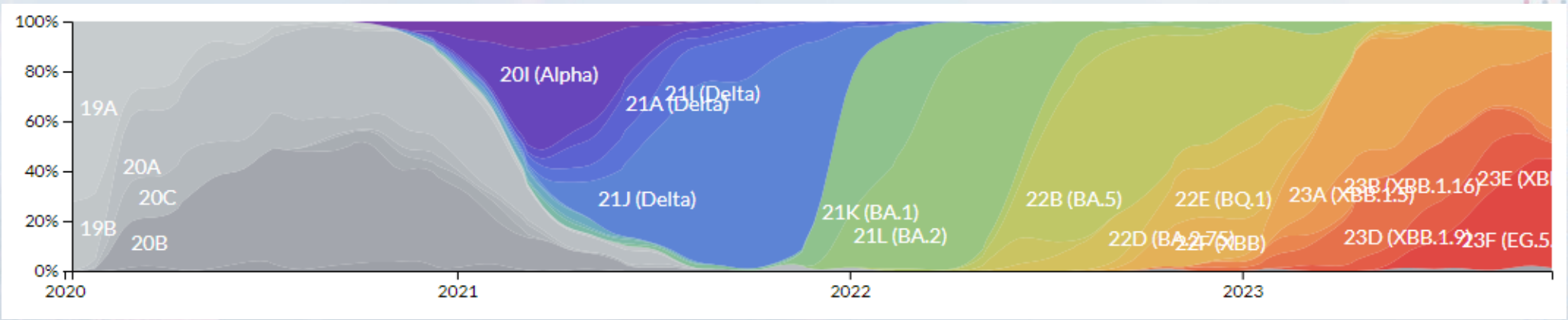
Pfizer to price Covid drug Paxlovid at $1,390 per course

PUBLISHED WED, OCT 18 20235:51 PM EDTUPDATED WED, OCT 18 20239:39 PM EDT

Evolution of the COVID-19 pandemic

- Multiple SARS-CoV-2 variants leading to different waves of transmission
- Variable immunity in different settings/communities
- Variable effectiveness of the COVID-19 vaccines
- WHO has set up a vaccine composition expert group in Sep. 2021 (TAG-CO-VAC)



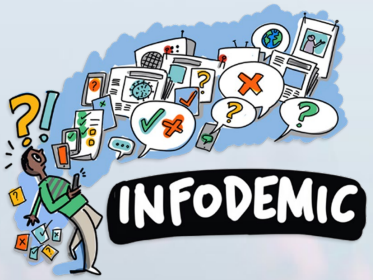


Data source: WHO COVID-19 Dashboard; Nexstrain (https://nextstrain.org)

World Health Organization | EPIDEMIC & PANDEMIC PREPAREDNESS & PREVENTION

Perception by the public affects demand

- **PRODUCT**
- **Efficacy of the product**
  - Changing messaging around COVID-19 vaccines.
    - Initially target of herd immunity (70 % coverage)
    - then use of the vaccine to prevent severe disease, hospitalizations, and death (only high-risk groups)
  - Multiple vaccine platforms / composition
- **Safety of the product**
  - Concerns of the population about the vaccine safety (e.g. issue of myocarditis, especially for athletes, impact on fertility (?)
- **VACCINATION**
- **Various perceptions**
  - Big pharma conspiracy
  - “New age” paradigm
  - “Plan demic“
  - Etc.



Novak Djokovic

This article is more than **1 year old**

Novak Djokovic confirms he will miss US Open due to Covid vaccine status

- **Serb's participation had been in doubt over vaccine status**
- **'Sadly, I will not be able to travel to NY this time for US Open'**

Novak Djokovic had been hoping for an exemption to the US's Covid vaccination rules. Photograph: Manu Fernández/AP

Tumaini Carayol

Link to The Guardian article: https://www.theguardian.com/sport/2022/aug/25/novak-djokovic-misses-us-open-after-deciding-against-travelling-to-new-york-covid-vaccine

COVID 19

- Polarization of societies around vaccination and other countermeasures
- Growing mistrust towards experts, scientists , health authorities
- Building trust or targeting “vaccine hesitancy”

World Health Organization | EPIDEMIC &PANDEMIC PREPAREDNESS &PREVENTION

“ Looking forward: building a global mechanisms for equitable access to medical countermeasures

Tackling inequitable access to medical countermeasures

- Medical and technological progress has helped our societies globally. However, some people are still left behind.
- Science breakthrough can lead to the development of live-saving interventions, but access is often inequal
  - Medical countermeasures (MCMs) are manufactured in a **limited amount in a limited number of countries** (e.g. Influenza in 2009 95 % of the production in 5 countries)
  - **High price** of MCMs with minimum threshold number for purchase (financial constraint)
  - Difficulties for some countries to import these medical products (**regulatory pathways & logistic hindrance**)
- Need for
  - Timely and regular sharing of biological material and information to accelerate production
  - Equitable global allocation of medical countermeasures based on public health needs

WORLD ECONOMIC FORUM

Join us | Sign in

UNICEF calls on supply chain and transport industry to take COVID-19 vaccines to the world

Feb 25, 2021

Some Hospitals Are Close to Running Out of Crucial Masks for Coronavirus

N95 masks are essential for protecting health care workers and controlling the epidemic, but some hospitals have been unable to get new shipments as supplies dwindle.

Links to articles:
https://www.bbc.com/news/world-asia-india-56912977
https://www.weforum.org/agenda/2021/02/supply-chains-and-transport-industry-are-critical-in-getting-covid-19-vaccines-out-to-the-world
https://www.nytimes.com/2020/03/09/health/coronavirus-n95-face-masks.html/

World Health Organization | EPIDEMIC & PANDEMIC PREPAREDNESS & PREVENTION

Towards a solution within the future Pandemic Accord

- Aim: strengthen the **political dimension of pandemic prevention preparedness and response** and **tackle the shortcomings highlighted by the COVID-19 pandemic and previous epidemics**

- In November 2021, Member States agreed to set up an **Intergovernmental Negotiating Body** (INB) to draft and negotiate a new international instrument to strengthen pandemic prevention, preparedness and response (pandemic accord)

- **Ongoing high-level and technical discussions** to establish an equitable global allocation mechanism for medical countermeasures during pandemics

- **Member State-led, consensus-based process**, including meaningful engagement with relevant stakeholders

Link to latest draft

© WHO

"A pandemic treaty is the best thing that we can do that can bring the political commitment of Member States.", Dr Tedros, Director-General of WHO

World Health Organization | EPIDEMIC & PANDEMIC PREPAREDNESS & PREVENTION


THANK YOU