

Global Health Cast Special 4

CEPI



Dr. Melvin Sanicas



Prof. Dr. Joe Schmitt

All you need to know about
CEPI

**Coalition for
Epidemic
Preparedness
Innovations**

CEPI

CEPI: New vaccines for a safer world

September 2022

Stig Tollefsen
Technology Office Lead

The COVID-19 pandemic



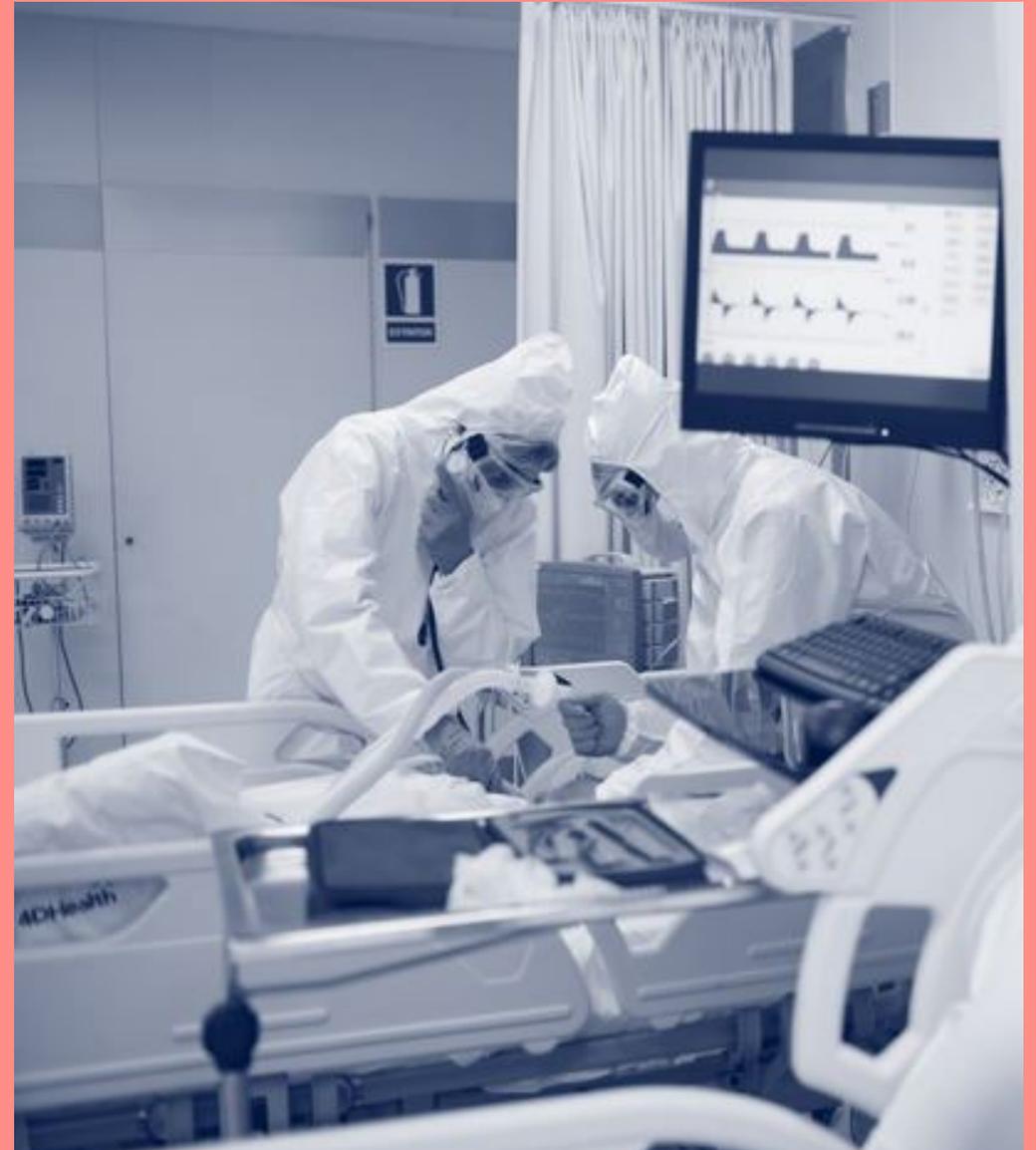
Over 6.5 million lives now lost.



Expected to cost the global economy **USD 28 trillion by 2025.**



Destroyed the livelihoods of hundreds of millions, fractured societies, and broken the very essence of 'normal life'.



The West Africa Ebola Outbreak (2014-2016)

11,000+

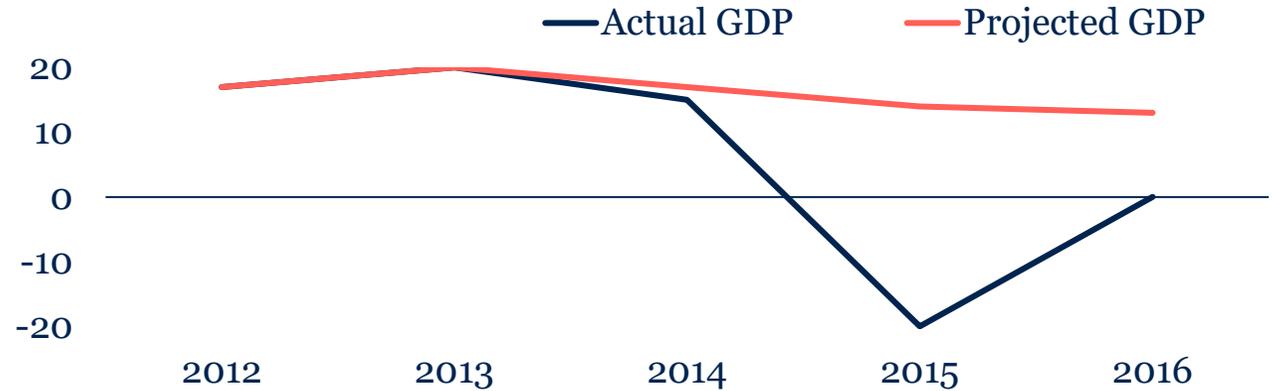
Deaths

\$53 bn

Estimated negative economic impact of 2014 outbreak in west Africa (Huber C et al, 2018)

CEPI

Impact on the GDP (%) of Sierra Leone



Devastating impact on health systems



Most maternal and child health indicators significantly declined during Ebola outbreak



Malaria morbidity and mortality in Ebola-affected countries caused by decreased health-care capacity

The Creation of CEPI



A global partnership

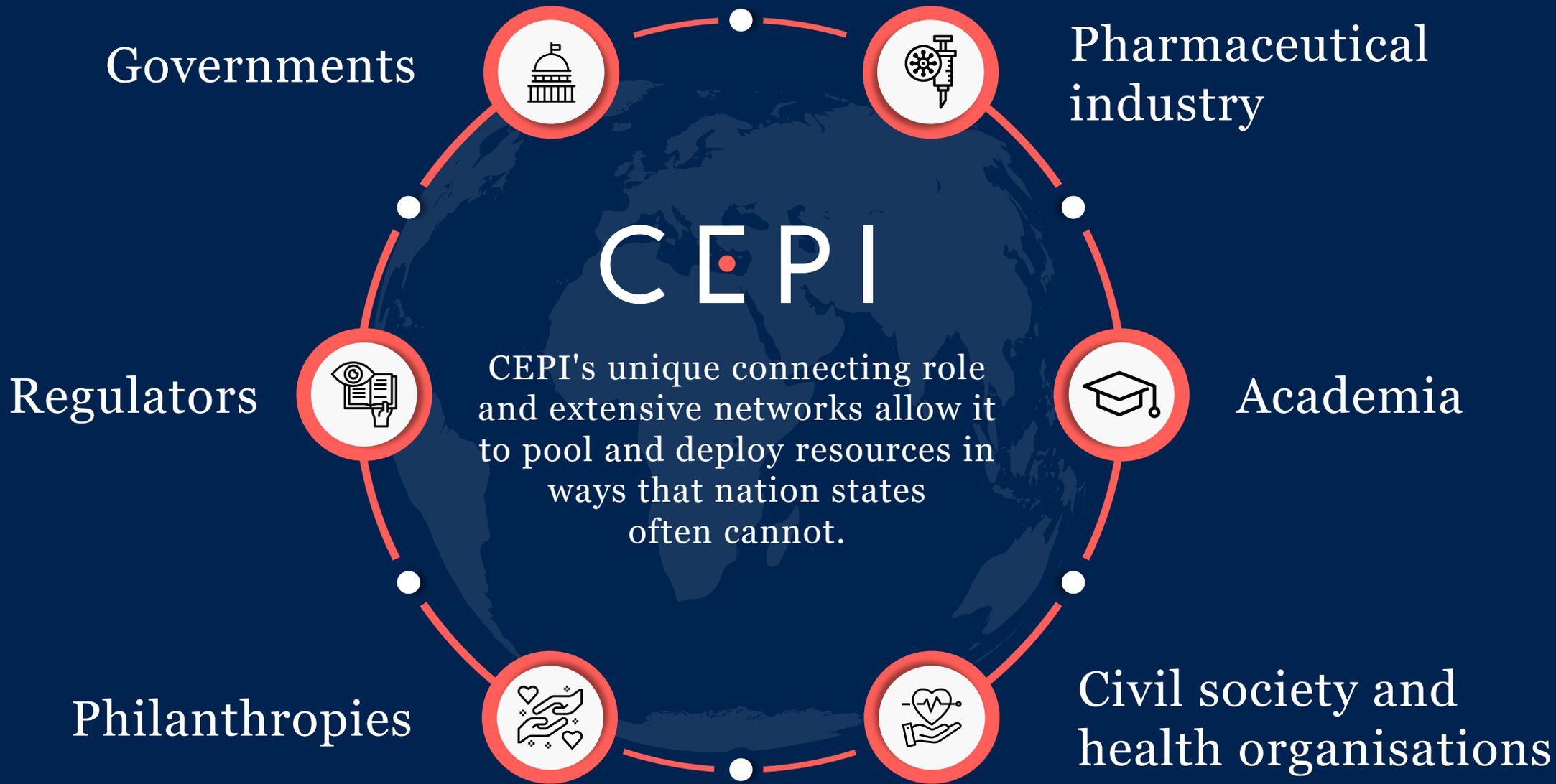


Vision

A world in which epidemics and pandemics are no longer a threat to humanity.

Mission

To stimulate and accelerate the development of vaccines against emerging infectious diseases and enable access to these vaccines for people during outbreaks



“We are not only experiencing a period of catastrophe but this era in history will also be remembered for the incredible advances in vaccine technology and medicine more generally.”



CEPI CEO, Richard Hatchett

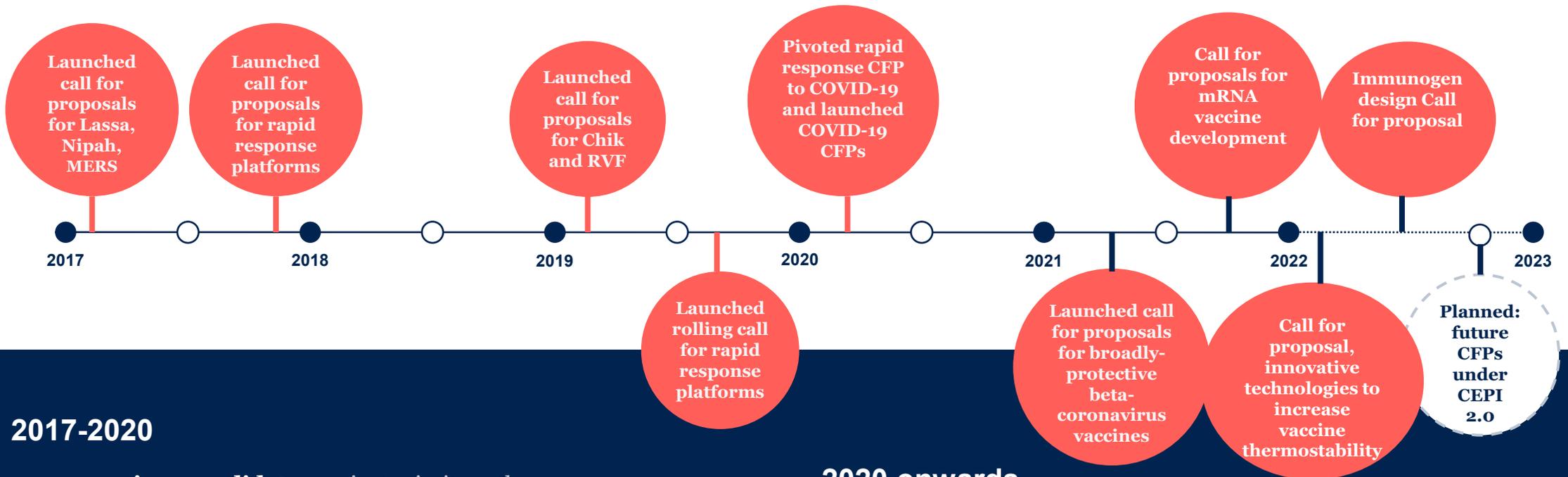
Rapid progress in vaccine innovation

● Year in which pathogen was linked to disease ● Year in which US vaccine was licensed



Data source: Our World in Data

CEPI has made significant investments in a growing R&D portfolio



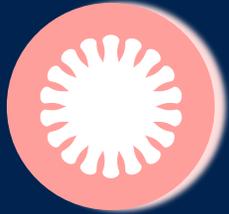
2017-2020

- **21 vaccine candidates** against priority pathogens
- **3 rapid response platforms** with potential to significantly improve speed of vaccine development against multiple pathogens
- **Multiple Enabling Science projects** to develop standards & assays, preclinical models and largest ever, multi-country Lassa epi study

2020 onwards

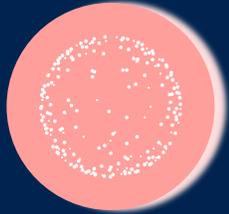
- **14 COVID-19 vaccine candidates** with hundreds of millions of doses for global use
- **Centralised lab network** to support COVID-19 vaccine studies, preclinical studies and multiple other Enabling Science activities

CEPI's vaccine portfolio



MERS

4 vaccine candidates



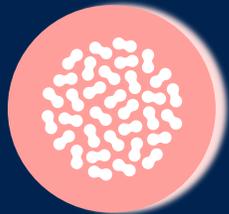
Lassa

5 vaccine candidates



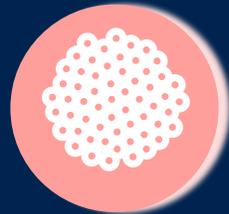
Nipah

4 vaccine candidates



Chikungunya

3 vaccine candidates



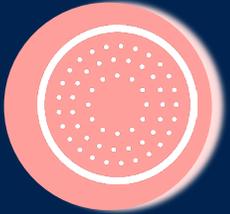
Rift Valley
fever

2 vaccine candidates



COVID-19

14 vaccine candidates



Disease X

3 platform technologies

Early MERS and Disease X investments



The beta coronavirus causing **Middle Eastern Respiratory Syndrome (MERS)** was on CEPI's list of priority pathogens

Preparing for **Disease X** by developing rapid-response platforms was one of CEPI's top priorities

Disease X: The potential to jump species



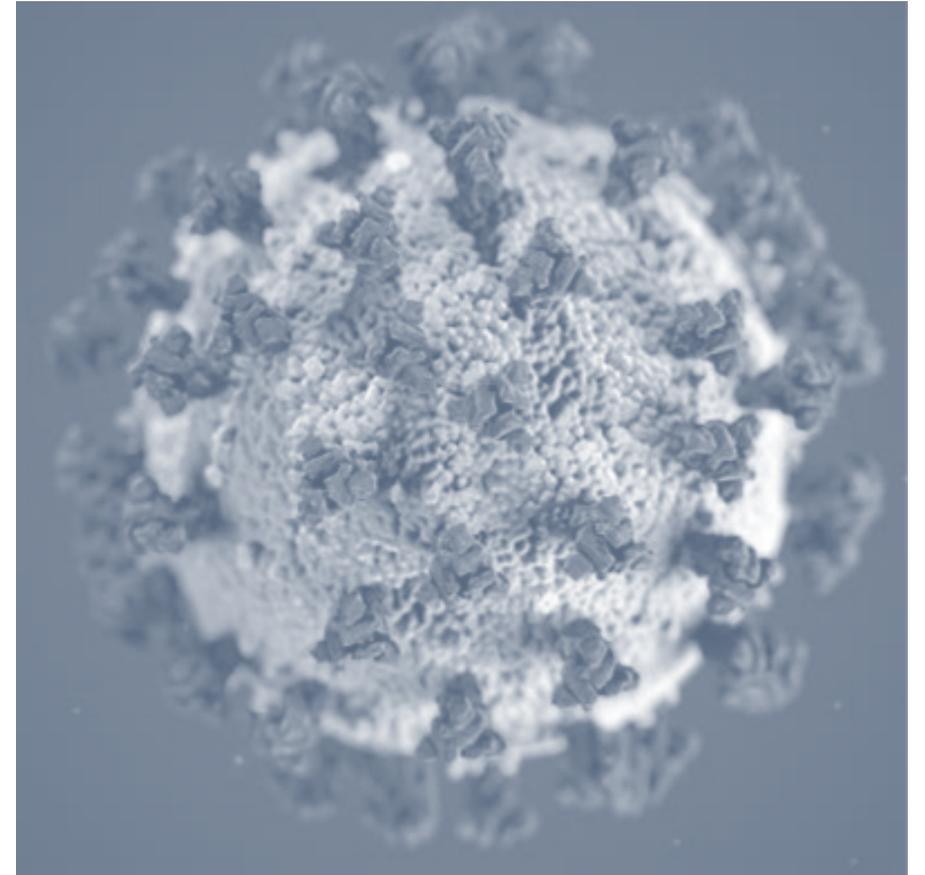
This is not the first pandemic of the 21st century and it will not be the last.



We don't know where or when Disease X will emerge, but we know that it will.



Zoonotic spillover events have caused some of the world's most deadly outbreaks – HIV, Ebola, SARS, and likely COVID-19.



Portfolio overview – CEPI-funded COVID-19 and BP-SARS-CoV-2/BPBC vaccine portfolio

	Attenuated / Inactivated	Viral vector	Protein-based			DNA	RNA	Target
 Covid-19 Wave 1		AZ / U. Oxford ChAdOx1	Clover – S Protein	Biological E–RBD	Novavax Pref. protein	Inovio DNA ¹	Moderna RNA	• Target: Delivery to COVAX in 21/22
 Covid-19 Wave 2		U. HongKong –LAIV ²	Walvax/ Zerun	SK bioscience	VBI - eVLP		Gritstone Self-amp RNA	• Target: SK Bio delivery of doses Q2/3 2022, others longer term
 BP-SARS-CoV-2*		AffiniVax*** Polysaccharide	VIDO Protein Bharat Protein	MigVax Protein			BioNet Asia mRNA	• Target: clinical PoC within 24 months
 BPBC*			SK Bio Protein Intravacc OMV based	Panacea Bio Protein Codiak OMV based	CalTech Protein		DIOsynVax mRNA Duke University mRNA NEC Onco mRNA	• Target: clinical PoC within 36 to 48 months
 Disease X**			U. Queensland Molecular Clamp				CureVac RNA Imperial College Self-amp RNA	• Target: potential to significantly improve speed of vaccine development

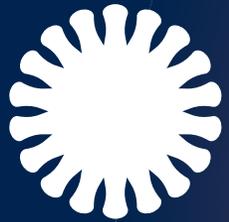
* Additional proposals under evaluation but not yet approved

*** Polysaccharide based vaccine

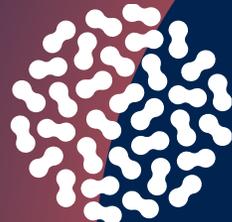
** Projects under review based on COVID-19 learnings
^{1,2} CEPI discontinued further investment in vaccine program

 EUL/registration achieved

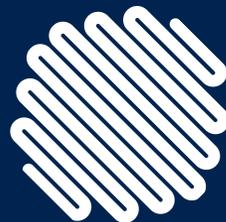
CEPI response to COVID-19



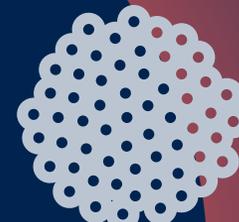
Early MERS and
Disease X
investments



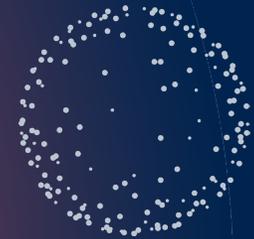
Establishing one of
the largest vaccine
portfolios



Harmonising
assessment of
COVID-19
vaccine data



Tracking SARS-
CoV-2 variants



Advancing broadly
protective
coronavirus vaccines



Enabling equitable access through COVAX

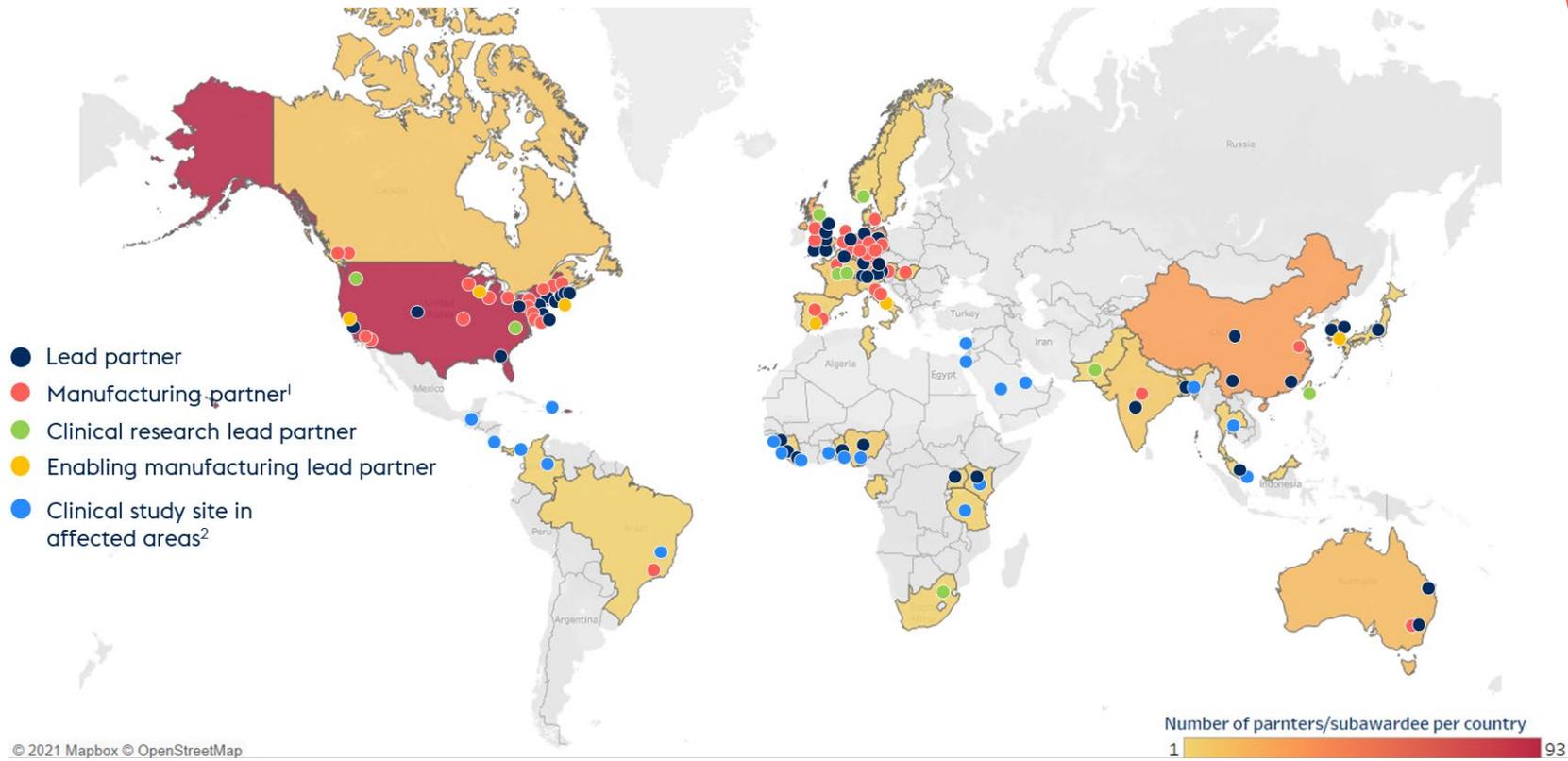
Harmonising assessment of COVID-19 vaccine data

Global network of ten labs using same tests (“assays”) and protocols to reliably assess and compare immunological responses of COVID-19 vaccines

Minimise variation from individual lab testing

Support in identifying reliable correlates of protection





**Portfolio reflects a
 global base of
 >70 partnerships
 with life sciences
 organisations...**

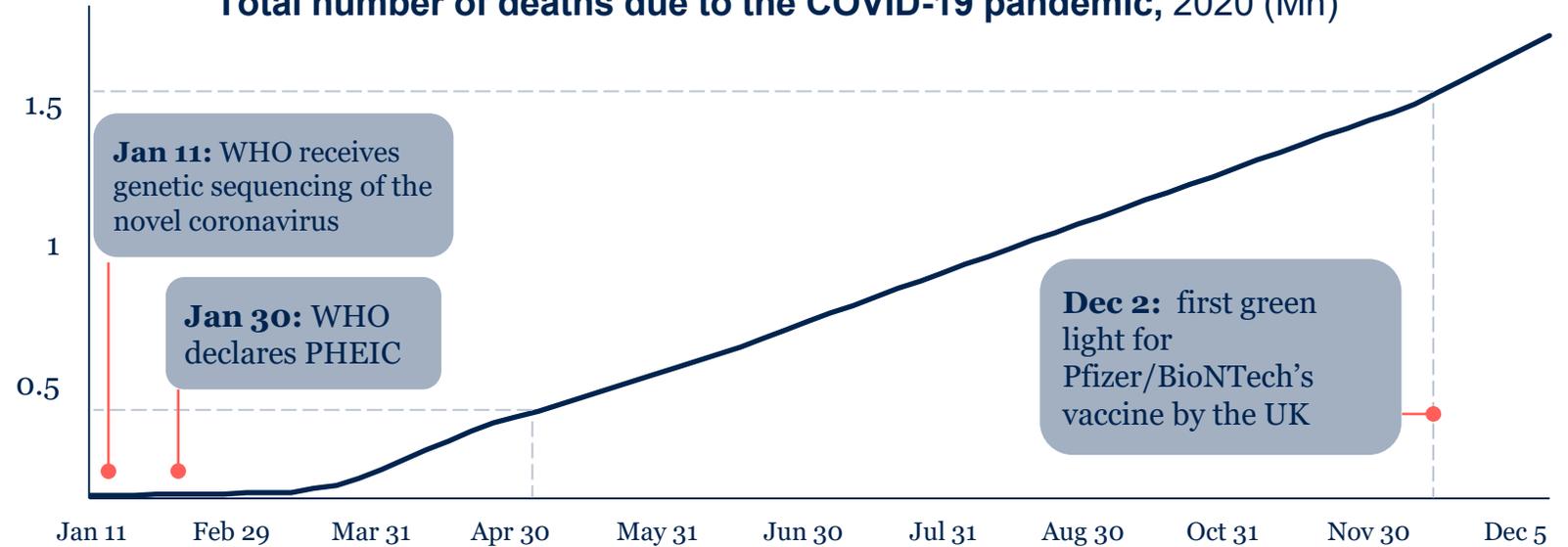


>1,7 bn doses shipped to 146 countries

During COVID-19, it took **326 days** for development to EUA by stringent regulatory authority

Further reducing development time to 100 days could significantly reduce the humanitarian and economic burden of future epidemics and improve the world's ability to prevent an epidemic becoming a pandemic altogether.

Total number of deaths due to the COVID-19 pandemic, 2020 (Mn)



Days after sequence published

100

Ambition

326

Fastest COVID-19 developer

Total deaths (Mn)

0.2

1.6

The Urgency of Now

What we talked about today: CEPI

- ▶ Pandemic Preparedness
- ▶ Finances: PPP (governments, philanthropic, ...)
- ▶ Focus:
 - ▶ Neglected infectious diseases with pandemic potential
 - ▶ Vaccine development for next pandemics
 - ▶ Technology platforms, equitable access, logistics