

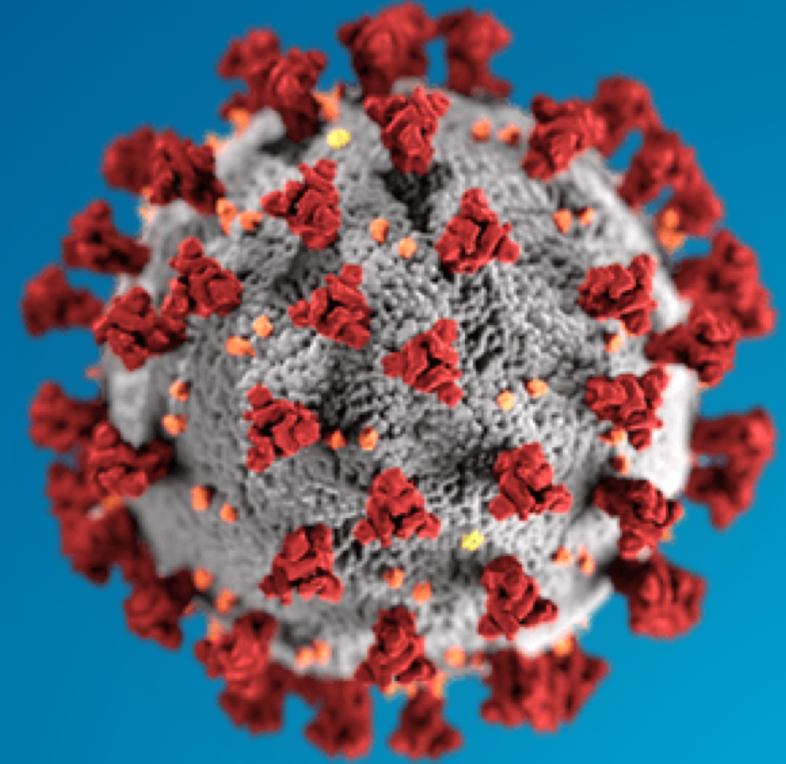


Translating **science** into
global health impact

COVID19: What should we know and what to expect in 2021?

March 4th 2021

Ana Céspedes, Chief Operating Officer, IAVI



1. **Provide perspective:** *where are we in this global COVID-19 pandemic, and what is necessary to get out of it?*
2. **COVID-19 vaccines:** *what is available? Can we trust it? Should we take a COVID-19 shot? When will we have access? When will we get herd immunity? What about the variants?*
3. **Back to normal (?), discussion and Q&A**

IAVI is a global organization focused on the discovery and development of globally accessible vaccines and antibodies for infectious diseases



Four disease areas:



HIV/AIDS



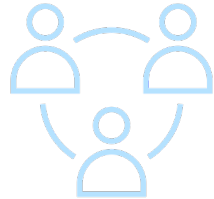
Tuberculosis



**Emerging
Infectious
Diseases**



**Neglected
Diseases**



~280 employees

Headquartered in
New York

6 Global Offices: NY
London, Amsterdam,
New Delhi, Nairobi,
and South Africa



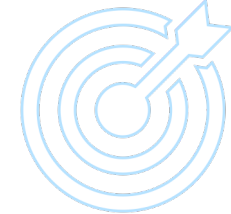
4 discovery laboratories in
partnership with leading
research institutions:

Neutralizing Antibody Center
(IAVI/Scripps Research, La Jolla)

**Design and Development
Laboratory** (IAVI, Brooklyn)

Human Immunology Laboratory
(IAVI/Imperial College, London)

**Translational Health Science and
Technology Institute**
(IAVI/Government of India, Delhi)



\$100M revenue

57 ongoing research
and development
programs

> 150 partnerships with
public and private
organizations across
the world, including
major Pharma and
Biotech

www.iavi.org

IAVI gratefully acknowledges the generous support provided by the following major donors



BILL & MELINDA
GATES foundation



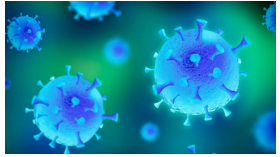
Foundation for the National Institutes of Health | National Institute of Allergy and Infectious Diseases | amfAR, The Foundation for AIDS Research |
The Buimer Group | Broadway Cares/Equity Fights AIDS | Cancer Research UK | The City of New York, Economic Development Corporation |
Congressionally Directed Medical Research Program (DoD) | GSK | The Hearst Foundations | Keith Haring Foundation |
Merck & Co., Inc., Kenilworth, NJ, USA (known as MSD outside the USA and Canada)

And many other generous individuals and partners around the world

As of September 2020

Where are we in the Global COVID-19 pandemic, and how can we get out of it?

COVID-19 has been the sixth major outbreak from a newly emerging infectious disease since 2000. So far, there has been *1 outbreak every 3 years*

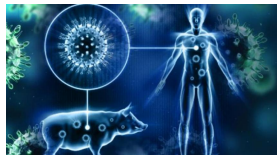


2002-03

SARS

Severe acute respiratory syndrome (SARS) is a viral respiratory illness recognized as a global threat in March 2003, after first appearing in Southern China in November 2002 and spreading in a limited fashion to [Taiwan, Canada, Singapore, and many other countries](#).

8,098 cases
774 deaths

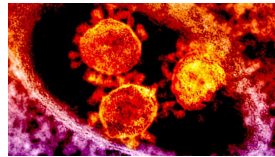


2009-10

Avian Flu

2009 Swine Flu was a new strain of H1N1, resulting from a previous combination of bird, swine, and human flu viruses that then combined with a pig flu virus. It was detected first in the U.S. and spread quickly [across the world](#).

700 million-1.4 billion cases
284,000 deaths



2012-15

MERS

Middle East respiratory syndrome (MERS) is a respiratory illness caused by a novel coronavirus first identified in Saudi Arabia in 2012. MERS has been reported in [24 countries](#).

1,000+ cases
400 deaths

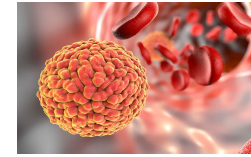


2013-16

Ebola

This [Western African Ebola](#) virus epidemic was the most widespread outbreak of Ebola virus disease in history—causing major loss of life and socioeconomic disruption in the region, mainly in [Guinea, Liberia and Sierra Leone](#).

28,646 cases
11,323 deaths

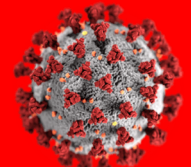


2015-16

Zika

In early 2015, an epidemic of Zika virus disease in [Brazil spread widely in the Americas as well as islands in the Pacific, and Southeast Asia](#). For pregnant women, there is risk of pregnancy loss and congenital complications for the offspring.

700,000+ cases
20 deaths
≈4,000 cases
congenital Zika syndrome



2019+

COVID-19

Coronavirus disease 2019 (COVID-19) is a contagious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The first case was identified in Wuhan, China in December 2019. Spread across the world

115.1 million cases
2.5 million deaths

What is different this time and why global experts agree that SARS-CoV-2 will remain endemic for a long time?

It's NOT a “flu-like” infection: it's more contagious, more severe in a higher percentage of patients and with a mortality rate 10-30-fold higher

- **Twice as contagious as flu** - New variants even more
- **Incubation time is 3 times as long as flu** – higher chance of spreading without being detected
- **10-30 times higher fatality rate** than flu
- **Not seasonal**
- **Wide spectrum of clinical manifestations**, including post-viral syndrome

Fortunately, it's NOT a HIV/AIDS-like infection: it's more

- **In most cases, the body knows how to respond:** difference versus HIV/AIDS
- There are no vaccines vs HIV/AIDS and still 1.7M people are infected every year (700,000 people die of AIDS annually)
- AIDS has killed 32M people so far and infected 75M

“COVID-19 represents a perpetual challenge for which we have to be perpetually prepared.”

Tony Fauci, NIAID



COVID19 is a unique infection with unique characteristics ...

... and there are still many unknowns.

COVID19 has [at least] **five very different “faces”** and we still don't know the determinants of each one of them...

With the information we have so far:

~ (70%) **ASIMTOMATIC** patients

~ (20%) **LOW-to-MODERATE** patients

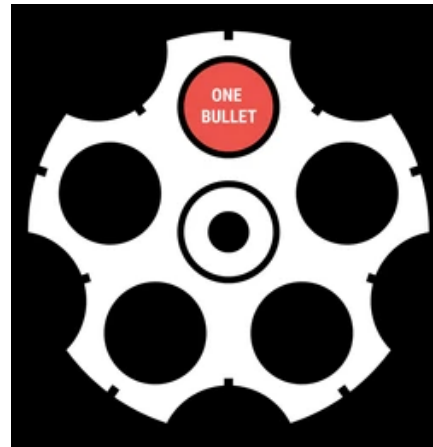
~ (10%) **SEVERE patients**, requiring hospitalization

~ (3-5%) enter the **EMERGENCY ROOM**

~ (1%) **DIE**

... **some (%?)** of which face
“Chronic COVID”

*We still don't know the
determining factors for a
person to be in one or
another group*



*We still don't know the
determining factors for a
person to develop
“Chronic COVID”*

Spain has reported 1,312 deaths/Million people. Numbers might be underestimated by ~20% and are among highest worldwide



Country self-reported data (updated 2 MAR 2021):

Country	Deaths /1 M	Total Deaths	Total Infection
Belgium	1,907 (*)	22,106	772,294
UK	1,814	123,187	4.19 M
Italy	1,617	97,945	2.94 M
US	1,555	514,657 (*)	28.66 M (*)
Spain	1,489	65,979	3.3 M
Brazil	1,203	255,720	10.59 M
South Africa	844	50,077	1.51 M
Germany	842	70,514	2.46 M
Israel	665	5,760	779,958
Russia	583	85,025	4.21 M
India	114	157,248	11.12 M
Japan	63	7,940	432,778
China	3.4	4,836	100,990

(*) World Highest

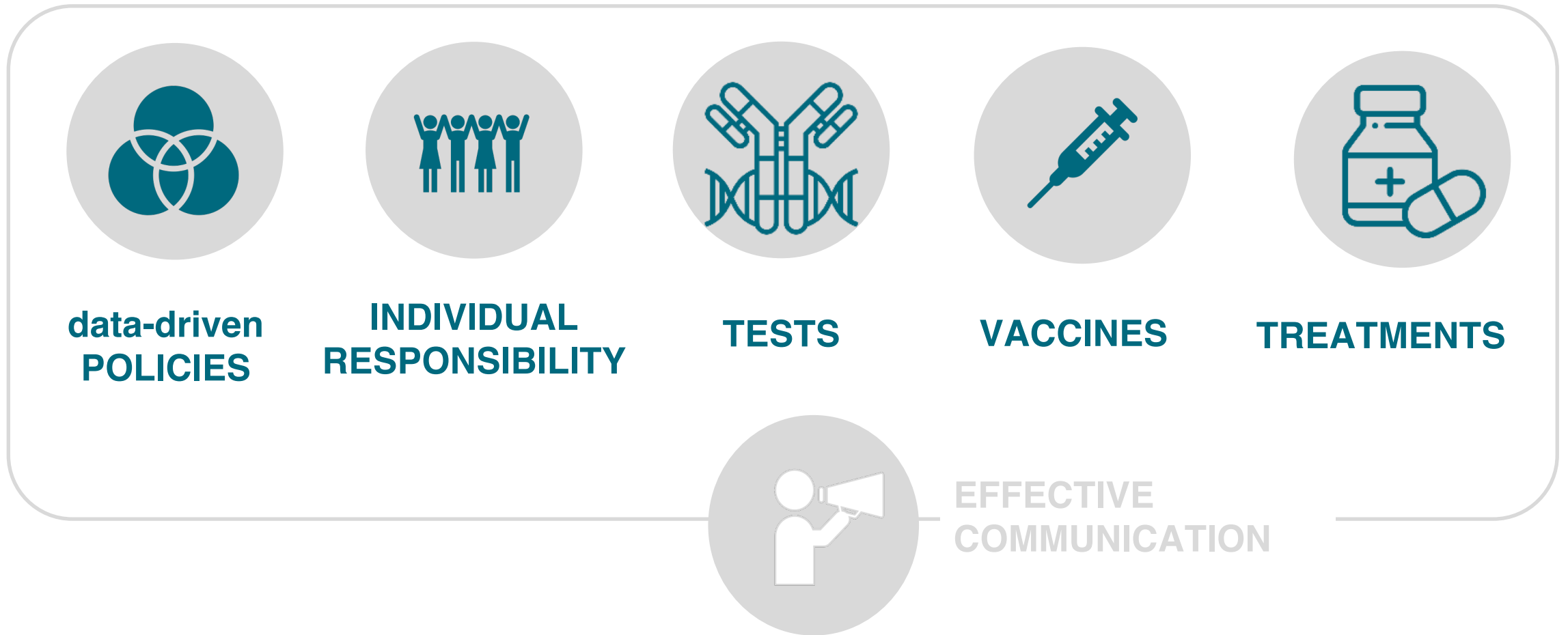
Own elaboration. Data from Our World in Data. <https://ourworldindata.org/coronavirus>

Historic trends and “excess deaths” (Updated 18 FEB 2021):

COUNTRY / CITY	TIME PERIOD	COVID-19 DEATHS	EXCESS DEATHS	EXCESS DEATHS PER 100K PEOPLE
Bulgaria	Apr 19th-Jan 30th	9,000	18,910	272
Peru	Mar 31st-Dec 30th	37,650	85,530	261
Lithuania	May 24th-Jan 30th	2,760	7,190	258
Russia	Mar 31st-Dec 30th	56,250	367,880	252
Serbia	Mar 31st-Dec 30th	3,200	16,140	233
Mexico	Mar 28th-Dec 11th	113,690	270,980	227
Romania	Mar 29th-Dec 26th	15,190	39,830	206
Bolivia	Apr 30th-Aug 30th	4,960	23,620	203
Ecuador	Feb 29th-Sep 29th	11,360	34,340	199
South Africa	Apr 11th-Jan 22nd	40,550	110,840	189
Poland	Mar 29th-Jan 9th	31,170	70,700	184
Slovenia	Apr 5th-Jan 16th	3,150	3,820	182
Belgium	Mar 15th-Jan 23rd	20,780	20,290	177
Portugal	Mar 22nd-Jan 23rd	10,460	17,530	170
Czech Republic	Mar 29th-Jan 2nd	11,940	17,900	167
Spain	Mar 3rd-Jan 20th	57,590	74,920	160
Britain	Mar 13th-Jan 21st	112,760	106,110	160

Own elaboration. Data from The Economics. <https://www.economist.com/graphic-detail/coronavirus-excess-deaths-tracker>

Five different types of interventions are [and will continue to be] necessary in the global COVID-19 toolkit









Current status of COVID-19 vaccines

What is a vaccine and what are the different types of vaccines?



A vaccine is a biological preparation that stimulates active acquired immunity to a particular infectious disease.

Platform		About	Licensed products
Inactivated		Inactivated vaccines consist of the whole virus, which has been killed with heat or chemicals so that it can't cause illness. In general, inactivated virus vaccines do not provide as strong of an immune response as live attenuated vaccines, so additional doses may be needed.	Polio
Live attenuated		Live attenuated vaccines are made up of whole viruses that have been weakened in a lab (usually through culturing). They tend to elicit a stronger immune response than inactivated vaccines.	MMR Varicella TB
Subunit		Subunit vaccines introduce a fragment or portion of the virus into the body. This fragment is enough to be recognized by the immune response and stimulate immunity.	Pertussis HPV Hep. B
Viral vector		Viral vector vaccines insert a gene for a viral protein into another, harmless virus (replicating or non-replicating). This harmless virus then delivers the viral protein to the vaccine recipient, which triggers an immune response.	Ebola Veterinary vaccines
mRNA		RNA vaccines work by introducing an mRNA sequence (the molecule that tells cells what to build) coded for a disease-specific antigen. Once this antigen is reproduced within the body, it is recognized and triggers an immune response.	None
DNA		DNA-based vaccines work by inserting synthetic DNA of viral gene(s) into small DNA molecules called plasmids. Cells take in the DNA plasmids and follow their instructions to build viral proteins, which are recognized by the immune system, and prepare it to respond to disease exposure.	None

COVID19 Vax

Novavax

**AZ/Oxford
J&J / Janssen**

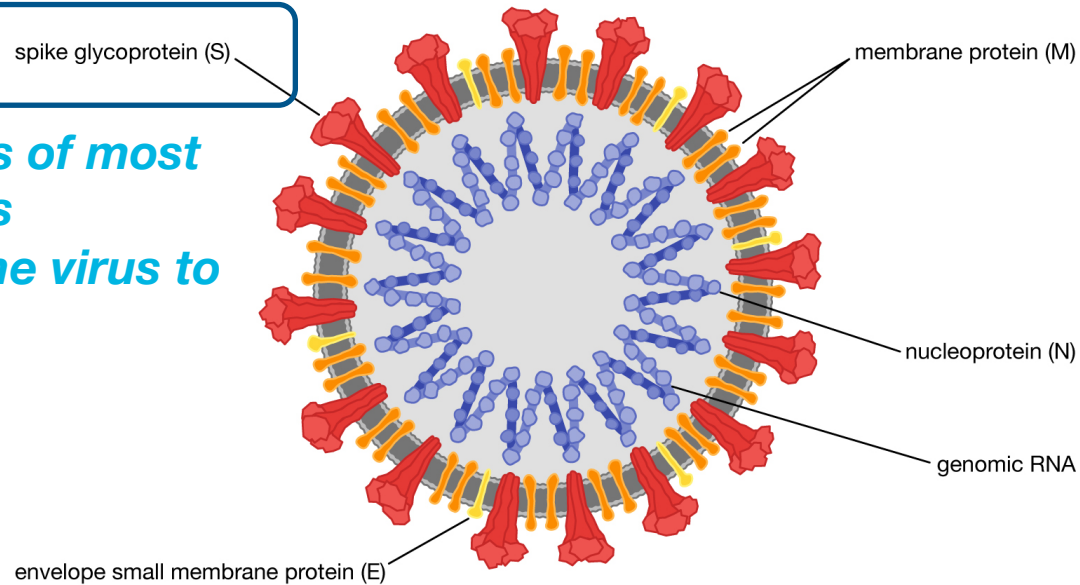
**Pfizer/BioNTech;
Moderna**

Source: <https://www.avac.org/resource/cheat-sheet-covid-19-vaccine-pipeline>

(!) The mRNA of the mRNA-based vaccines doesn't integrate with human DNA and it can't alter our genetic code

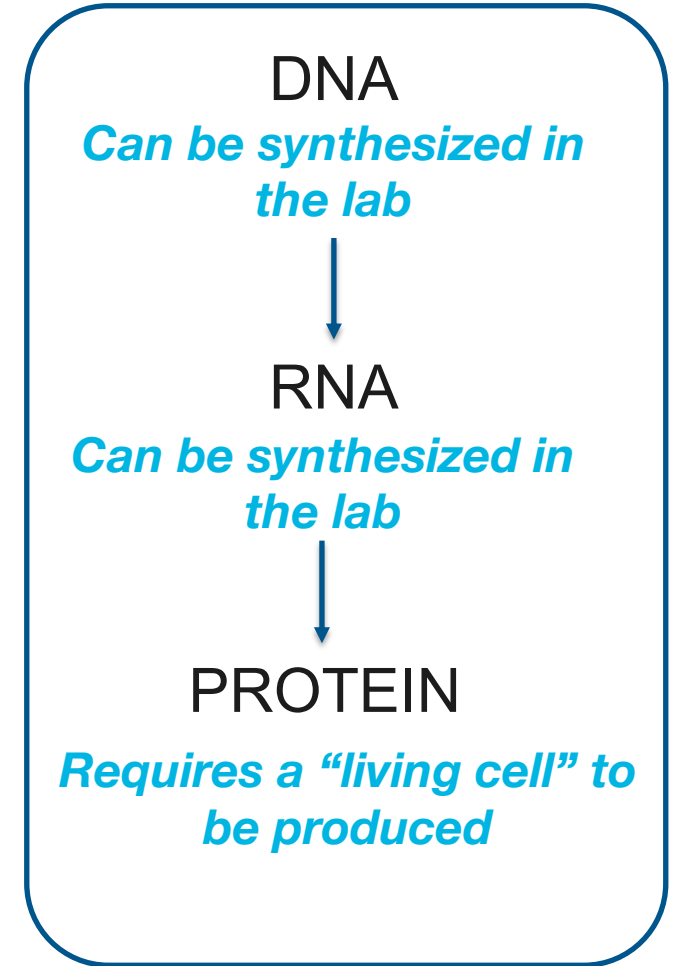
Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)
Source: <https://www.britannica.com/science/2019-nCov>

This is the focus of most vaccines, as it is necessary for the virus to enter our cells.

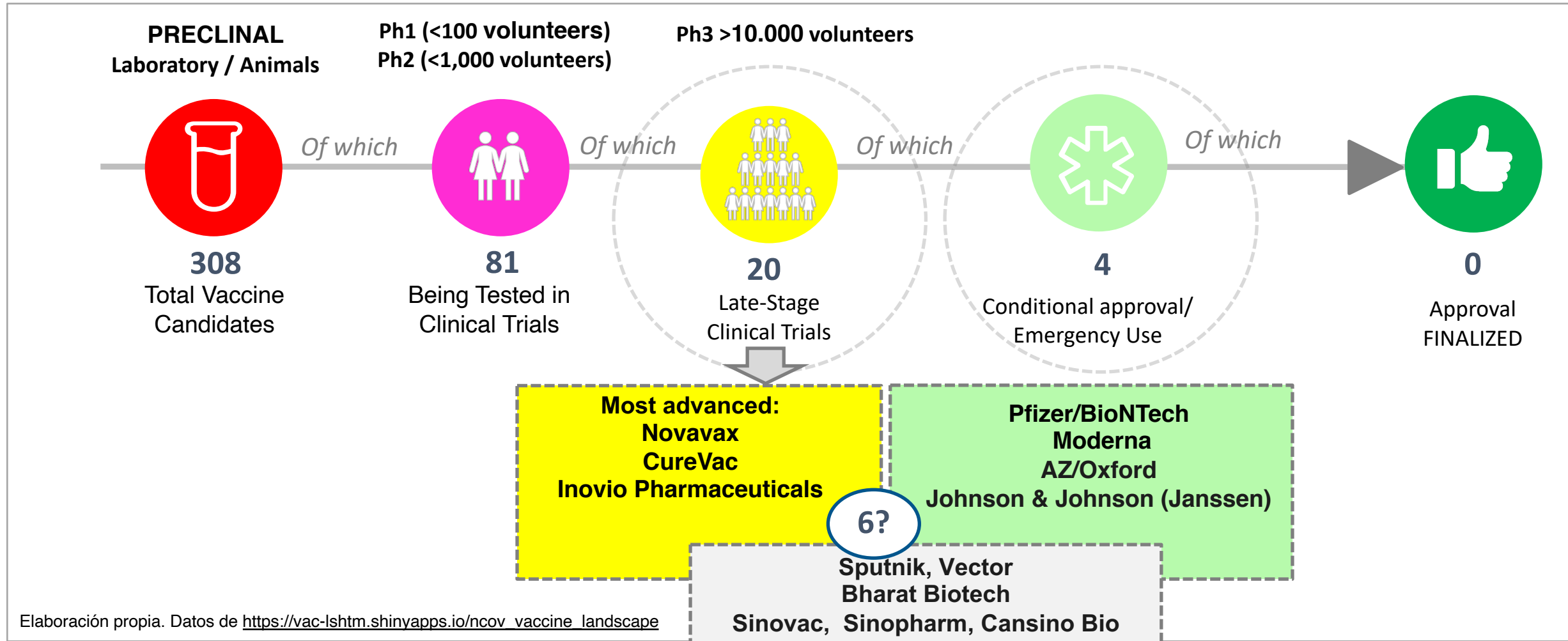


mRNA is not the same as DNA, and it cannot combine with our DNA to change our genetic code. It is also relatively fragile and will only stay inside a cell for about 72 hours, before being degraded.

<https://www.gavi.org/vaccineswork/will-mrna-vaccine-alter-my-dna>






An unprecedented investment has led to 308 programs, 81 in the clinic and 4 (+6) conditionally approved (and/or used outside of clinical trials)






Four vaccines have already received EUA/Conditional Approval in western countries, and we will (most likely) have five very soon



Candidate	Doses	Efficacy	Age groups	Viral Mutations	Approval timelines, doses and pricing
 BNT162b2 synthetic mRNA	2 3 weeks apart	95% (Ph3 with 44,000 volunteers)	>16 years 40% of volunteers in study > 56y	Produce antibodies neutralizing UK and SA variants	<ul style="list-style-type: none"> EUA granted in UK Dec 2, Canada Dec 9, US Dec 10 and Dec 21 in EU 1.3 billion doses available in 2021 (1/13 production extended to 2 billion) -94 degrees Fahrenheit \$20/dose (\$40 total cost of immunization)
 mRNA-1273 synthetic mRNA	2 4 weeks apart	94,4% (Ph3 with 30,000 volunteers)	>18 years 25% of volunteers in study >65y	Antibodies against SA variant reduced to 1/6. however, it remains efficacious. Working on booster shot	<ul style="list-style-type: none"> EUA in US Dec 18, Canada Dec 23, EU Jan 6, UK Jan 8 0.5-1 billion doses available in 2021 (1/13 production extended to 0.6 billion) up to six months at negative 4 degrees Fahrenheit. \$32-37dose (\$64-\$74 total cost of immunization)
 AZD1222 Chimpanzee Adeno vector	2 4-8 weeks apart (EMA)	90% in 2,800 volunteers 62,6% in 8,563 volunteers 70.4% (?) in 11.363 patent Pre-print study shows 82% if 2nd dose taken >12w apart 76% after only 1 dose (preprint study)	18-55y 13.0% of volunteers in study > 65	<u>Small study: AZ roll-out in SA put on-hold on Feb 7:</u> New <u>analysis</u> suggests it provides minimal protection <u>against mild disease caused by SA variant.</u>	<ul style="list-style-type: none"> EUA in UK Dec 30, India Jan 6 3 billion doses available in 2021 (?) regular fridge temperature \$3-4/dose (\$6-\$8 total cost of immunization) <u>Potential to slow asymptomatic transmission</u> (positive swap dropped by 67%)

Four vaccines have already received EUA/Conditional Approval in western countries, and we will (most likely) have five very soon (Cont.)



Candidate	Doses	Efficacy	Age groups	Viral Mutations	Approval timelines, doses and pricing
  JNJ-78436735 Ad26 vector viral vector technology (Same as J&J approved Ebola vaccine in EU)	1 (another trial assessing if a second dose will increase duration of protection)	Ph3 preliminary results <u>announced</u> on 29 JAN'21 (43,783 volunteers) 72% in the US and 66% overall at Preventing Moderate to Severe COVID-19, 28D after Vaccination 85% Effective Overall in Preventing Severe Disease and Demonstrated Complete Protection Against COVID-19 related Hospitalization and Death as of Day 28	34% (N= 14,672) of participants over age 60.	72% in the United States 66% in Latin America 57% in South Africa (nearly 95% of cases of COVID-19 due to SA variant)	<ul style="list-style-type: none"> FDA approved EUA in the US on Feb 28. EU approval expected March. Stable for two years at -20°C (-4°F), at least three months of which can be at temperatures of 2-8°C (36°F–46°F). 20 million doses by the end of March and 100 million by June. Merck & Co to help with manufacturing to ramp up pace of vaccination \$10 a dose
 NOVAVAX NVX-COV2373 glycoprotein nanoparticle	2 3 weeks apart	Ph3 (in UK) preliminary results <u>announced on 28 JAN'21</u> (15,000 participants) 89.3% Efficacy , 7D after second dose Ph2b in South Africa (4,400 participants): 49.4% (nearly 90% of cases due to new variant)	15,000 participants between 18- 84 years of age, including 27% over the age of 65	UK: 95.6% against original and 85.6% against UK variant strain SA: The company said it is working to develop a booster vaccine to better protect against all the emerging virus variants.	<ul style="list-style-type: none"> <u>Started</u> a rolling review of its vaccine with regulators in the U.S., U.K., European Union, and Canada. Approval in the U.S. could arrive in April.

The data on the Chinese, Russian and Indian programs aren't yet fully transparent



Candidate	Doses	Efficacy	Age groups	Viral Mutations	Approval timelines, doses and pricing
CansinoBIO Ad5-nCoV Viral vector	2	?	?	?	June 25 – first company announcing use of the vaccine outside of clinical trials (military)
Gamaleya Nat. Cent. Epidem. & Microbio. Sputnik Viral vector (2 different strains of adenovirus)	2 <u>3 weeks apart</u>	Ph3 results published in Lancet (22,000 participants) 92% efficacy	?	?	August 11 - Russia Hungary has issued emergency approval to Sputnik V, Oxford-AstraZeneca, and Sinopharm vaccines and ordered 2 million doses of Russia's Sputnik V vaccine and 5 million doses of China's Sinopharm. Hungary is the first EU country to order either Sputnik V or Sinopharm (Source: Duke Global Health Innovation Center (updated 01 FEB 2021))
Vector Institute EpiVac Corona Protein subunit	2	?	?	?	Emergency use granted by Russia October 14
Bharat Biotech COVAXIN inactivated vaccine	2 <u>4 weeks apart</u>	? Ph1 results published 21 JAN'21	?	?	Emergency Use in India 31 DEC'20

The data on the Chinese, Russian and Indian programs aren't yet fully transparent (Cont.)



Candidate	Doses	Efficacy	Age groups	Viral Mutations	Approval timelines, doses and pricing
Sinovac Corona Vac Inactivated vaccine	2	? Different data announced (65.3% / 78% / 50,3%) w/o publication	?	?	Limited use in China and Indonesia
Sinopharm inactivated vaccine (2 vaccines)	2	? Company announced 79% efficacy / UAE 86% (no publicacions)	?	?	July onwards – China

¿De qué protege una vacuna?

Los ensayos clínicos se diseñan con un objetivo específico (“endpoint”) y permiten medir “solo eso”. Con el tiempo, la información se amplía para medir elementos adicionales (añadiendo, tiempo, subpoblaciones, resultados de análisis...)



Preguntas adicionales:

- ¿durante cuanto tiempo?
- ¿a todos los grupos de edad?
- ¿incluso con las variaciones del virus?

No “scientific shortcuts” have been taken in COVID19 vaccine approval: 4 key elements have enabled having >1 approved vaccine in <1 year

Unprecedented Investment (more than 10,000-fold)

- **Alternative** pathways assessed **in parallel** (instead of sequential)
- **At risk** manufacturing investments

Unique support from regulators

- **Iterative reviews**, with full ongoing support, data exchange, co-generation, continuous ongoing support
- **Prioritization** of resources
- **24/7 schedules**
- **No local data required** (so far)

Massive level of infections ongoing

- **Patient recruitment shortened**
- **Acceleration of endpoints**

These "unprecedented" efforts explain how accelerated programs in COVID have developed in one year (while the average development process is 10 years for drugs and 12 years for vaccines)

... and we also had “Biological Luck”

More time is needed to answer some critical questions which still remain unknown

Open questions on EFFICACY

1. Will vaccines also protect from infection or “only” from disease?

The endpoint studied was “prevention of disease”. This is one of the reasons why vaccinated people still need to use masks.

2. Will vaccines protect against current and future variants (UK, SA, Brazil....)?

We still don’t know it: it’s unlikely that protection disappears completely. However, it’s becoming more and more apparent that future updates might be necessary.

3. How long will the protection last?

More information available on SAFETY

1. Long-term safety profile

Most adverse events in vaccines appear 30-60 days window

January 15 Norwegian officials urged caution in vaccination of people more than 80 years old or with serious underlying diseases. Out of 33,000 doses given so far in Norway, the country recorded 23 deaths with suspected ties to the COVID-19 vaccine. Investigation of 13 of these deaths suggest that common side effects contributed to a more severe course of underlying disease.

2. Unknown very rare adverse events

Cases anaphylactic shock:

- 3.8 cases per million doses of Pfizer
- 2.5 cases per million doses of Moderna

The approved vaccines are quite reactogenic (=numerous very common adverse reactions). This also indicates that “they are working”

Pfizer/BioNTech: “Comirnaty”

Table 1: Adverse reactions from Comirnaty clinical trials

System Organ Class	Very common (≥ 1/10)	Common (≥ 1/100 to < 1/10)	Uncommon (≥ 1/1,000 to < 1/100)	Rare (≥ 1/10,000 to < 1/1,000)	Not known (cannot be estimated from the available data)
Blood and lymphatic system disorders			Lymphadenopathy		
Immune system disorders					Anaphylaxis; hypersensitivity
Psychiatric disorders			Insomnia		
Nervous system disorders	Headache			Acute peripheral facial paralysis†	
Gastrointestinal disorders		Nausea			
Musculoskeletal and connective tissue disorders	Arthralgia; myalgia		Pain in extremity		
General disorders and administration site conditions	Injection site pain; fatigue; chills; pyrexia*; injection site swelling	Injection site redness	Malaise; injection site pruritus		

*A higher frequency of pyrexia was observed after the 2nd dose.

†Throughout the safety follow-up period to date, acute peripheral facial paralysis (or palsy) was reported by four participants in the COVID-19 mRNA Vaccine group. Onset was Day 37 after Dose 1 (participant did not receive Dose 2) and Days 3, 9, and 48 after Dose 2. No cases of acute peripheral facial paralysis (or palsy) were reported in the placebo group.

Moderna: “COVID-19 Vacuna Moderna”

Within each frequency grouping, adverse reactions are presented in order of decreasing seriousness.

MedDRA System Organ Class	Frequency	Adverse reactions
Blood and lymphatic system disorders	Very common	Lymphadenopathy*
Immune system disorders	Not known	Anaphylaxis Hypersensitivity
Nervous system disorders	Very common	Headache
	Rare	Acute peripheral facial paralysis**
Gastrointestinal disorders	Very common	Nausea/vomiting
Skin and subcutaneous tissue disorders	Common	Rash
Musculoskeletal and connective tissue disorders	Very common	Myalgia Arthralgia
General disorders and administration site conditions	Very common	Injection site pain Fatigue Chills Pyrexia Injection site swelling
	Common	Injection site erythema, Injection site urticaria, Injection site rash
	Uncommon	Injection site pruritus
	Rare	Facial swelling***

*Lymphadenopathy was captured as axillary lymphadenopathy on the same side as the injection site.

**Throughout the safety follow-up period, acute peripheral facial paralysis (or palsy) was reported by three participants in the COVID-19 Vaccine Moderna group and one participant in the placebo group. Onset in the vaccine group participants was 22 days, 28 days, and 32 days after Dose 2.

***There were two serious adverse events of facial swelling in vaccine recipients with a history of injection of dermatological fillers. The onset of swelling was reported 1 and 2 days, respectively, after vaccination

The approved vaccines are quite reactogenic (=numerous very common adverse reactions). This also indicates that “they are working” (Cont.)

AstraZeneca

Table 1 Adverse drug reactions

MedDRA SOC	Frequency	Adverse Reactions
Blood and lymphatic system disorders	Uncommon	Lymphadenopathy
Metabolism and nutrition disorders	Uncommon	Decreased appetite
Nervous system disorders	Very common	Headache
	Uncommon	Dizziness Somnolence
Gastrointestinal disorders	Very common	Nausea
	Common	Vomiting Diarrhoea
Skin and subcutaneous tissue disorders	Uncommon	Hyperhidrosis Pruritus Rash
Musculoskeletal and connective tissue disorders	Very common	Myalgia Arthralgia
General disorders and administration site conditions	Very common	Injection site tenderness Injection site pain Injection site warmth Injection site pruritus Injection site bruising ^a Fatigue Malaise Feverishness Chills
	Common	Injection site swelling Injection site erythema Fever ^b

^a Injection site bruising includes injection site haematoma (uncommon)

^b Measured fever $\geq 38^{\circ}\text{C}$

Some countries are promoting to “mix and match” vaccines or to delay the second dose in order to reach a larger population with first dose

What about reducing the dosage (ie Moderna vaccine)?

What about mix and match vaccines?

What about extending weeks between doses?

Britain Opens Door to Mix-and-Match Vaccinations, Worrying Experts

If a second dose of one vaccine isn't available, another may be substituted, according to the guidelines.

[NYT](#) (Enero 1st, 2021)

New UK trial will 'mix and match' different Covid vaccines

A new trial testing whether giving people two different Covid vaccines for their first and second doses is as effective as the current approach of using the same vaccine for both has been launched.

[City AM](#) (Febrero 4th, 2021)

UK Covid-19 vaccine rollout: the dosing schedule debate

Allie Nawrat | 11 January 2021 (Last Updated January 11th, 2021 10:13)

Simultaneous to the emergency approval of a second Covid-19 vaccine, UK healthcare regulator the MHRA recommended the second dose for both approved vaccines should be administered up to 12 weeks after the first. This decision has split the scientific community in the UK and the world; let's delve into the views of both sides of the argument.

[Pharmaceutical Technology](#) (Enero 11, 2021)

Britain trial to test combining Pfizer and AstraZeneca vaccines in two-shot regimen

By Reuters Staff

3 MIN READ

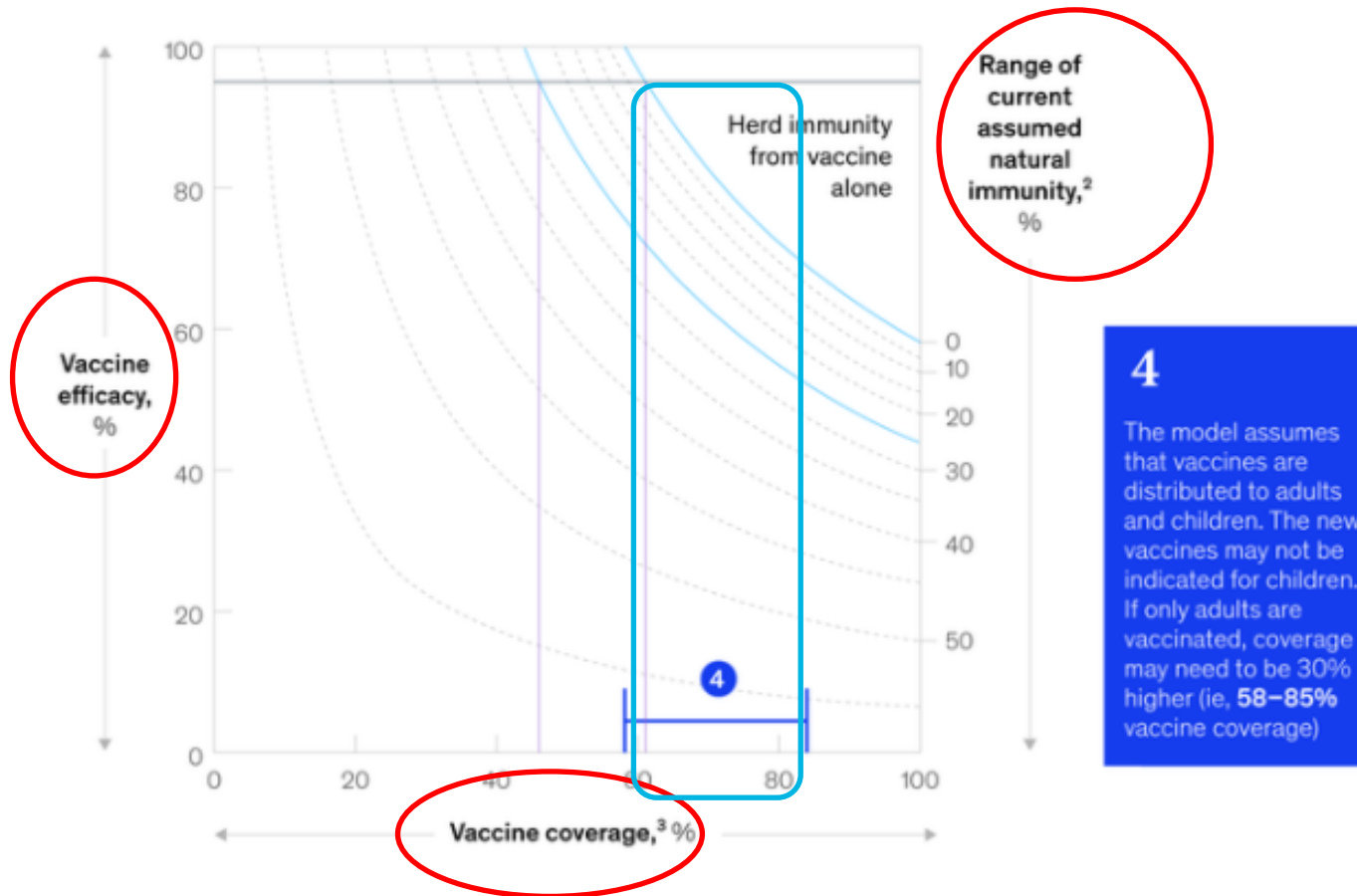


LONDON (Reuters) - Britain on Thursday launched a trial to assess the immune responses generated if doses of the COVID-19 vaccines from Pfizer Inc and AstraZeneca Plc are combined in a two-shot schedule.

[Reuters](#) (Febrero 3rd, 2021)

Assuming 95% efficacy and 10% of existing immunity, we need ~ 70% of the vaccinated population:

COVID-19 immunity scenarios (Source: McKinsey)



Higher efficacy provides greater benefit to any vaccinated individual and may help encourage uptake among some segments of the population.

Higher efficacy also reduces the fraction of the population required to reach herd immunity.

Assuming 95% efficacy for the adult population (not indicated in children), vaccine coverage of around 58-85% would be required if existing natural immunity is 25% - 0%, respectively

There are not (yet) enough doses globally: **66 million doses** would be needed in Spain for 33 million people (70% of population)

Farmacéutica	Contrato UE	Total dosis	Dosis para España	Calendario de aprobación previsto
Oxford/Astra-Zeneca	Contrato firmado en agosto 2020	300 M (+100 M opcionales)	31.555.469 dosis	Rolling review iniciado en octubre 2020
Sanofi/GSK	Contrato firmado en septiembre de 2020 (derecho de adquisición)	300 M	Se decide cuando finalice la fase I/II	2021
BioN-Tech/Pfizer	Contrato firmado en noviembre 2020	200 M (+100 M opcionales)	20.873.941 dosis	Rolling review iniciado en octubre 2020
J&J/Janssen	Contrato firmado en octubre 2020	200 M (+200 M opcionales)	Pendiente*	2021
Curevac	Acuerdo cerrado, pendiente de firma	225 M (+180 M dosis opcionales)	Pendiente*	2021
Moderna	Negociación muy avanzada	80 M (+80 M opcionales)	Pendiente*	Rolling review iniciado en noviembre 2020
Novavax	Negociación en curso	-	-	2021

* España representa el 10,57% de la población de la UE sin los países del Espacio Económico Europeo (EEE) y el 10,44% incluyendo los países del EEE (Noruega, Islandia y Liechtenstein).

Aprobación condicional otorgada el **29 de enero**

30 M España → **~15 millones de personas podrían ser vacunadas en España – Eficacia ~ 62%** Disponibilidad final?

Aprobación condicional otorgada el **21 de diciembre**

20 M España → **~10 Millones de personas pueden ser vacunadas en España** Disponibilidad final?

Aprobación condicional otorgada el **12 de enero**

8 M España → **~4 Millones de personas pueden se vacunadas en España** Disponibilidad final?

Spain is accelerating vaccine roll-out from **35,700 doses/day (first 5w)** to **105,588 doses/day**. However, it will take **20 months** to vaccinate 33 million people (66 M doses) at this speed.

An unprecedented SUCCESS (4 vaccines in <1y) and an unprecedented CHALLENGE: all-ages, all-countries vaccination campaign (7,500 million people)

Global Vaccination Campaign ([Bloomberg](#), updated 1 MAR 2021)

Country	Doses Administered ▼	Doses per 100 people	1+ dose	2 doses	Daily rate of doses administered
Global Total	245,920,701	-	-	-	6,791,190
U.S.	76,899,987	23.16	15.3	7.7	1,817,502
China	40,500,000	2.89	-	-	1,550,000
EU	33,485,289	7.54	4.9	2.5	898,040
U.K. +	21,091,267	31.58	30.4	1.2	391,872
India	14,728,569	1.08	0.9	0.2	472,068
Turkey	8,899,317	10.70	8.5	2.2	260,451
Brazil	8,640,106	4.11	3.2	0.9	222,771
Israel	8,145,032	89.99	52.4	37.6	99,919
Germany	6,174,362	7.43	4.9	2.5	157,933
UAE	6,028,417	56.08	-	-	67,232
France	4,560,861	7.04	4.6	2.4	119,193
Italy	4,354,008	7.21	4.9	2.3	116,576
Spain	3,829,465	8.24	5.5	2.7	105,588
Morocco	3,801,650	10.68	10.0	0.7	175,138
Chile	3,404,494	17.82	17.5	0.3	68,602
Poland	3,336,354	8.79	5.7	3.1	88,742
Bangladesh	2,984,773	1.79	1.8	-	103,032
Indonesia	2,690,163	1.01	0.6	0.4	97,292
Mexico	2,455,095	1.92	1.5	0.4	108,606

**4.2 years to
vaccinate 70% of
the world?**

Global vaccination requires generosity... but it's also the smart thing to do as it can generate returns as high as 166x the investment

High and upper-middle income countries have purchased 75% of the 7,200 million doses available so far

Total worldwide confirmed purchases of Covid-19 vaccines: 7.2 billion doses

- High-income countries: 4.2 billion doses
- Upper-middle-income countries: 1.2 billion doses
- Lower-middle-income countries: 524 million
- Low-income countries: 670 million
- COVAX total: 1.11 billion

Source: [Duke Global Health Innovation Center](#) (01 FEB 2021)

**IF RICH COUNTRIES
MONOPOLIZE COVID-19
VACCINES, IT COULD
CAUSE TWICE AS MANY
DEATHS AS
DISTRIBUTING THEM
EQUALLY**

Source: [Northeastern](#) (14 SEP 2020)

61% of deaths could be averted if the vaccine was distributed to all countries proportional to population, while only **33% of deaths** would be averted if high-income countries got the vaccines first.



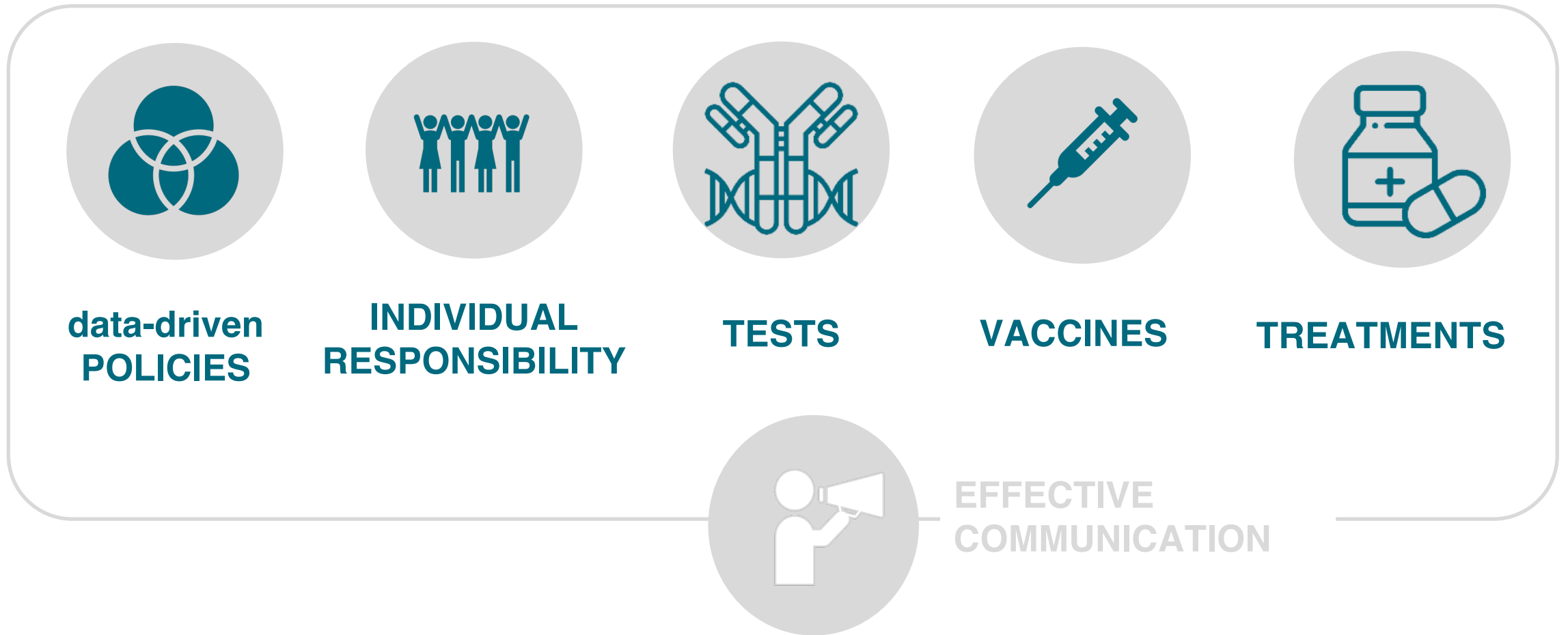
Source: [International Chamber of Commerce](#) (25 JAN 2021)



US\$ 27.2 billion investment on the part of advanced economies – the current funding shortfall to fully capitalize the ACT Accelerator and its vaccine pillar COVAX – is capable of generating returns as high as **166x the investment**.

The economic costs borne by wealthy countries in the absence of multilateral coordination guaranteeing vaccine access and distribution range between **US\$ 203 billion** and **US\$ 5 trillion**, depending on the strength of trade and international production network relations. **The ACT Accelerator is fully costed at US\$ 38 billion.**

Five different types of interventions are [and will continue to be] necessary in the global COVID-19 toolkit



Do we really want to go “back to normal”?



We are not safe
until we are all safe.

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