

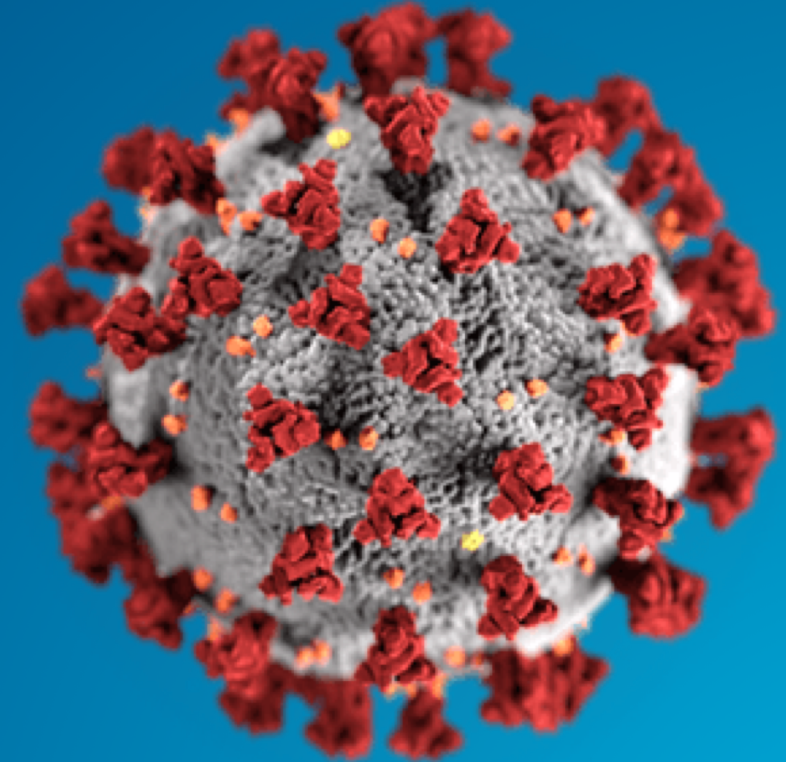


Translating **science** into
global health impact

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

February 8th 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. **Biotechnology and COVID-19 vaccines:** *what is available? Can we trust it? Should I take a COVID-19 vaccination? When will I have access? When will we get herd immunity? What about the variants?*
3. **Discussion and Q&A**

My “hidden agenda”: awaken and/or strengthen your interest to work internationally.

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



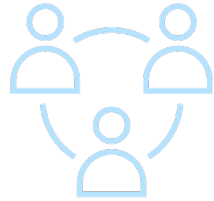
Tuberculosis



**Emerging
Infectious
Diseases**



**Neglected
Diseases**



~280 employees

Headquartered in
New York

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



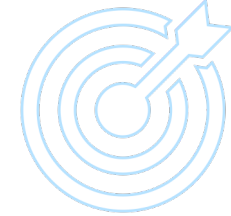
4 discovery laboratories in
partnership with leading
research institutions:

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



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GATES foundation



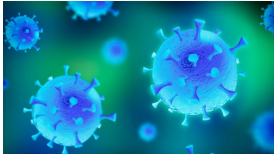
Foundation for the National Institutes of Health | National Institute of Allergy and Infectious Diseases | amfAR, The Foundation for AIDS Research |
The Buimer Group | Broadway Cares/Equity Fights AIDS | Cancer Research UK | The City of New York, Economic Development Corporation |
Congressionally Directed 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*

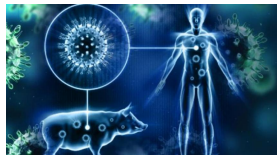


2002-03

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

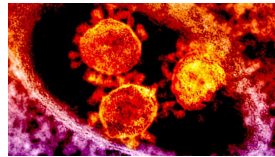


2009-10

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

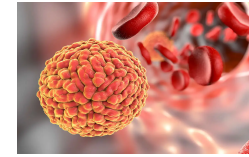


2013-16

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

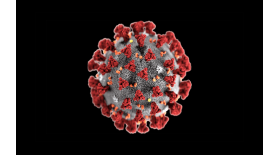


2015-16

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](#)

106.6 million cases
2.3 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

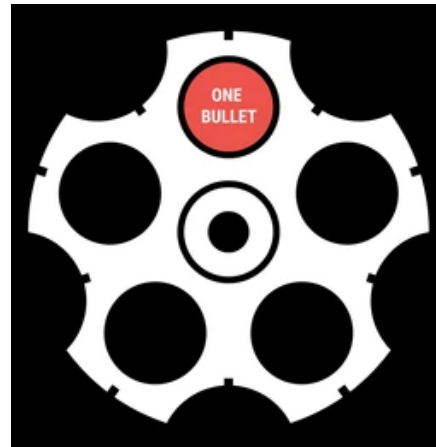
~ (10%) **SEVERE patients**, requiring hospitalization

~ (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 07 FEB 2021):

Country	Deaths /1 M	Total Deaths	Total Infection
Belgium	1,842 (*)	21,352	723,870
UK	1,65	112,305	3.94 M
Italy	1,505	91,003	2.63 M
US	1,396	462,169 (*)	26.92 M (*)
Spain	1,312	61,386	2.94 M
Brazil	1,082	230,034	9.45 M
South Africa	778	46,180	1.47 M
Germany	734	61,551	2.29 M
Israel	585	5,071	685,583
Russia	514	75,010	3.91 M
India	112	154,996	10.83 M
Japan	50	6,373	404,128
China	34	4,822	100,348

(*) World Highest

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

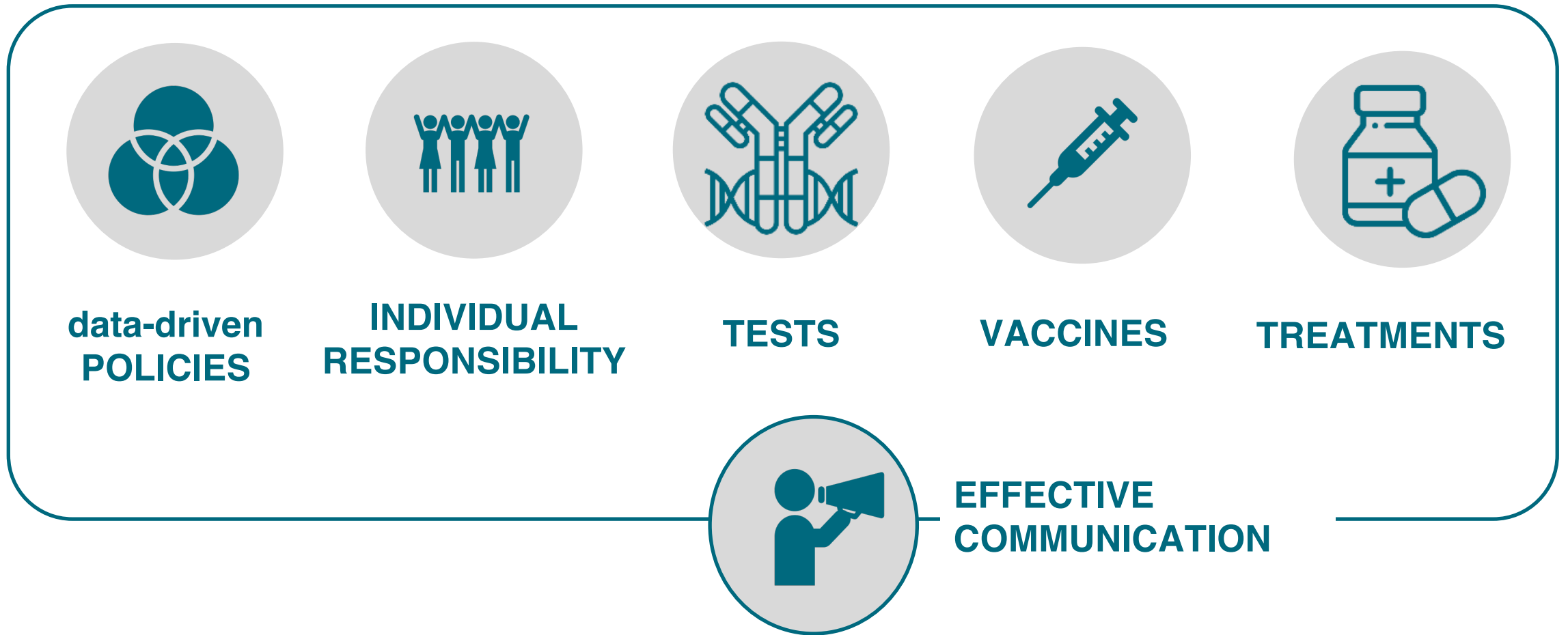
Historic trends and “excess deaths” (Updated 02 FEB 2021):

COUNTRY / CITY	TIME PERIOD	COVID-19 DEATHS	EXCESS DEATHS	EXCESS DEATHS PER 100K PEOPLE
Bulgaria	Apr 19th-Jan 16th	8,440	18,740	270
Peru	Mar 31st-Dec 30th	37,650	85,530	261
Lithuania	May 3rd-Jan 9th	2,150	6,360	228
Mexico	Mar 28th-Dec 11th	113,690	270,980	227
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
Russia	Mar 31st-Nov 29th	39,470	271,020	185
Poland	Mar 30th-Jan 20th	31,170	70,700	184
Belgium	Mar 30th-Jan 20th	11,270	18,170	159
Britain	Mar 15th-Jan 21st	112,700	188,170	158
Spain	Mar 3rd-Jan 20th	56,680	74,300	159
Czech Republic	Mar 29th-Dec 19th	10,320	15,570	146
Slovenia	Apr 5th-Dec 19th	2,320	2,940	140
United States	Mar 7th-Jan 8th	360,370	448,550	138

**1,590 deaths / Million people
(21% more than reported)**

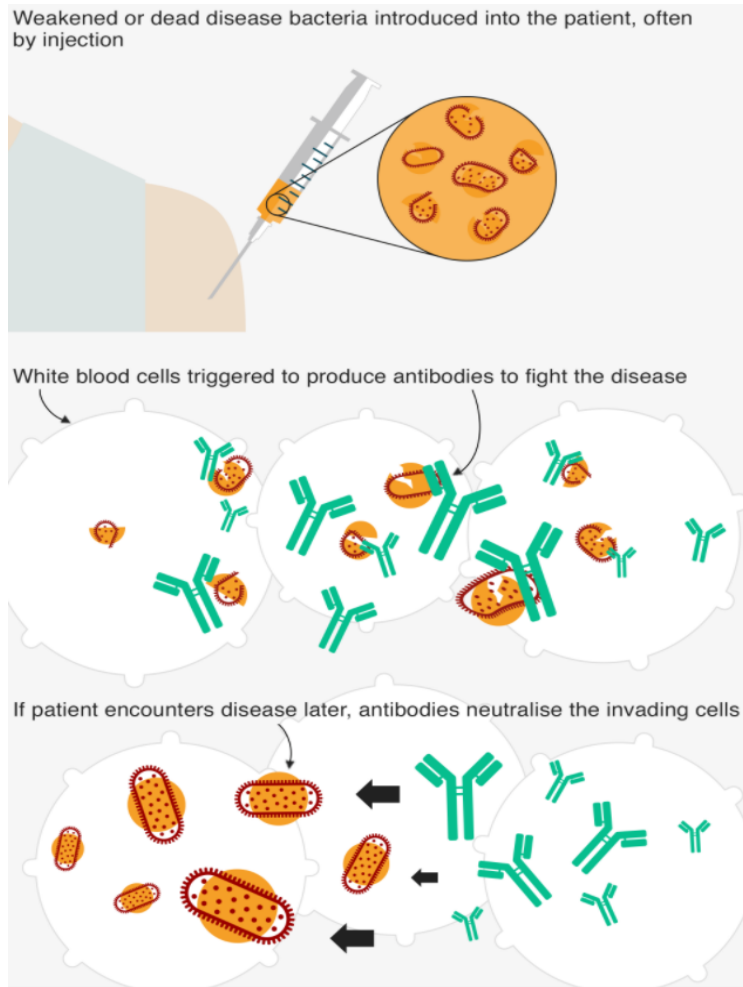
Own elaboration. Data from The Economist. <https://www.economist.com/graphic-detail/coronavirus-excess-deaths-tracker>

Six 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?









Source: <https://www.bbc.com/news/world-48186856>

- A **vaccine** is a biological preparation that stimulates active acquired immunity to a particular infectious disease.
- **Vaccines** give you immunity to a disease without you getting sick first.
- They are made using killed or **weakened versions** of the disease-causing agent **or parts** of the agent (called antigens).
- The COVID-19 candidates, like all vaccines, essentially aim to instruct the immune system to mount a defense, which is sometimes **stronger than what would be provided through natural** infection and comes with fewer health consequences.

What are the different types of vaccines?



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**

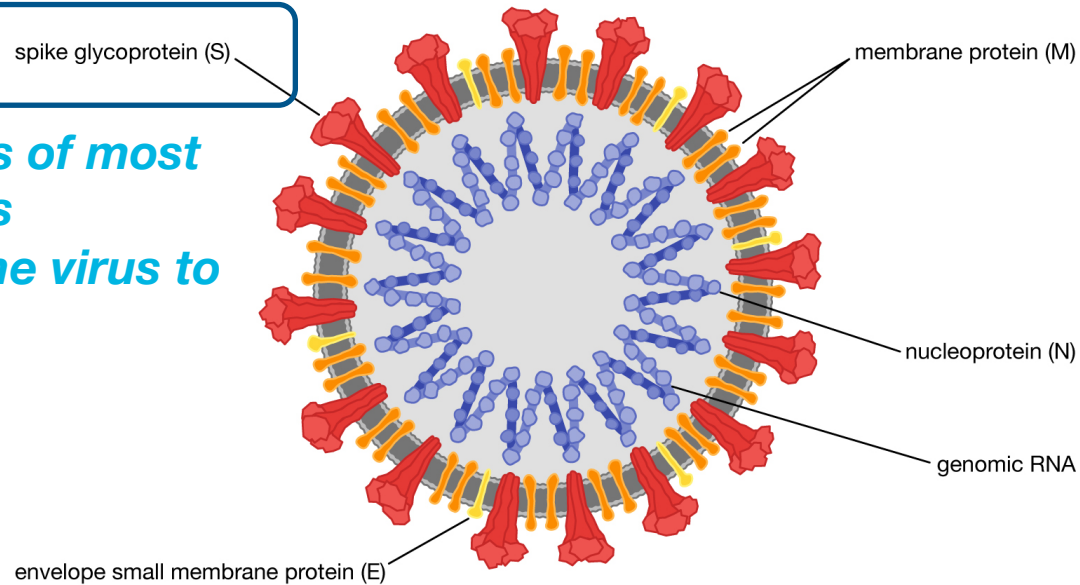
**Pfizer/BioNTech;
Moderna**

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

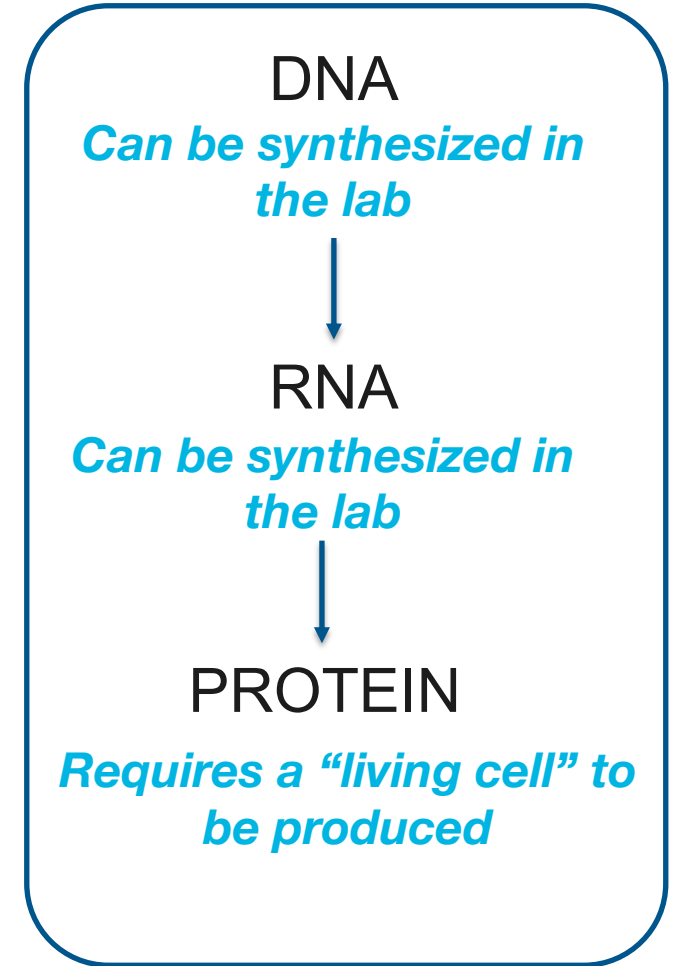
Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)
Source: <https://www.britannica.com/science/2019-nCov>

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

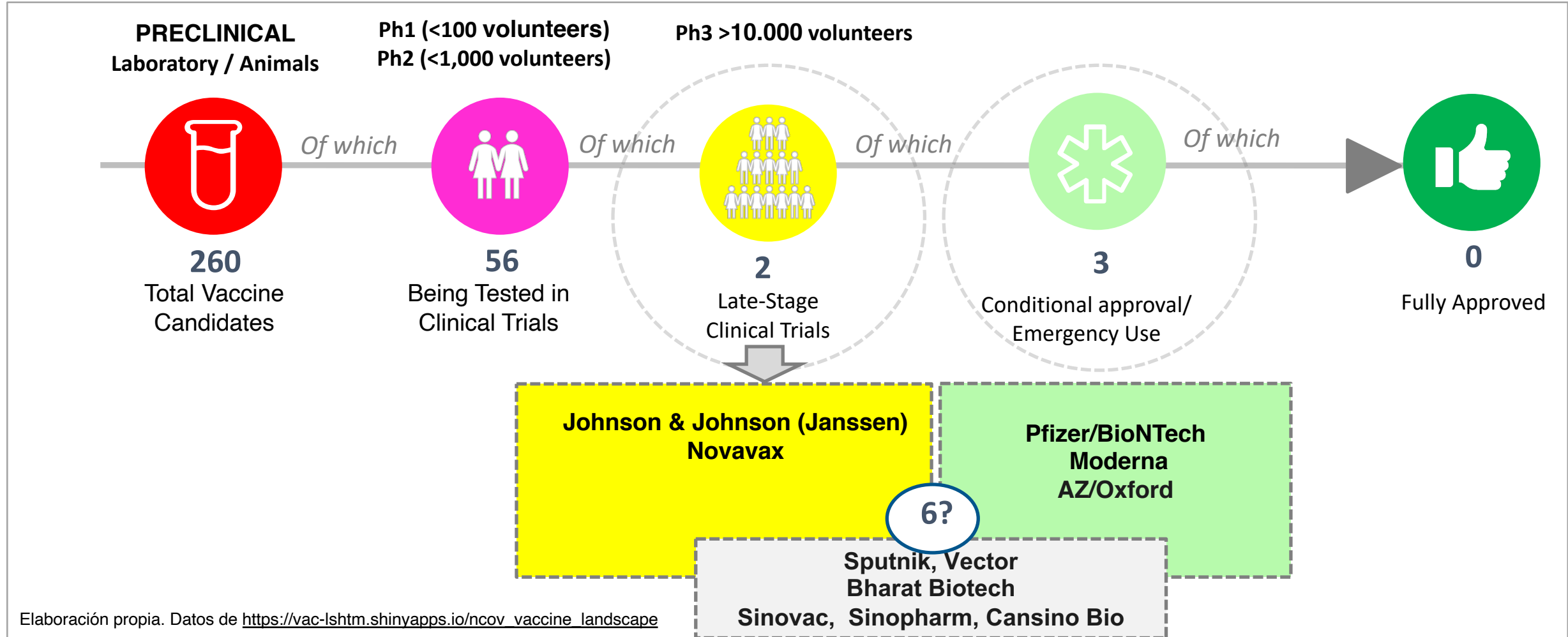


mRNA is not the same as DNA, and it cannot combine with our DNA to change our genetic code. It is also relatively fragile and will only stay inside a cell for about 72 hours, before being degraded.

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






An unprecedented investment has led to 260 programs, 56 in the clinic and 5 (+6) conditionally approved and/or in late stage





Three vaccines have already received EUA/Conditional Approval in western countries



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. \$32-37/dose (\$64-\$74 total cost of immunization)
 AZD1222 Chimpanzee Adeno vector	2 6-8 weeks apart (?)	90% in 2,800 volunteers 62% in 8,563 volunteers 70.4% (?) in 11.363 patent <u>Pre-print study</u> 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%)

Two other programs (J&J/Janssen and Novavax) have already announced positive Phase 3 results



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"> EUA application to FDA <u>submitted Feb 4</u> and FDA <u>Committee meeting will take place Feb 26</u>. Approval expected soon after. 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). 12 million doses by February and 100 million by June, while it might be <u>at least two months behind schedule</u>.
 NVX-COV2373 glycoprotein nanoparticle	2 <u>3 weeks</u> <u>apart</u>	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. Expectations have lately increased.



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) 91.6% 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. Expectations have lately increased (2 of 2)



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

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. Autopsies of 13 of these individuals suggest that common side effects led to a severe reaction.

2. Unknown very rare adverse events

Cases anaphylactic shock:

- 6.2 cases per million doses of Pfizer
- 2.1 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***

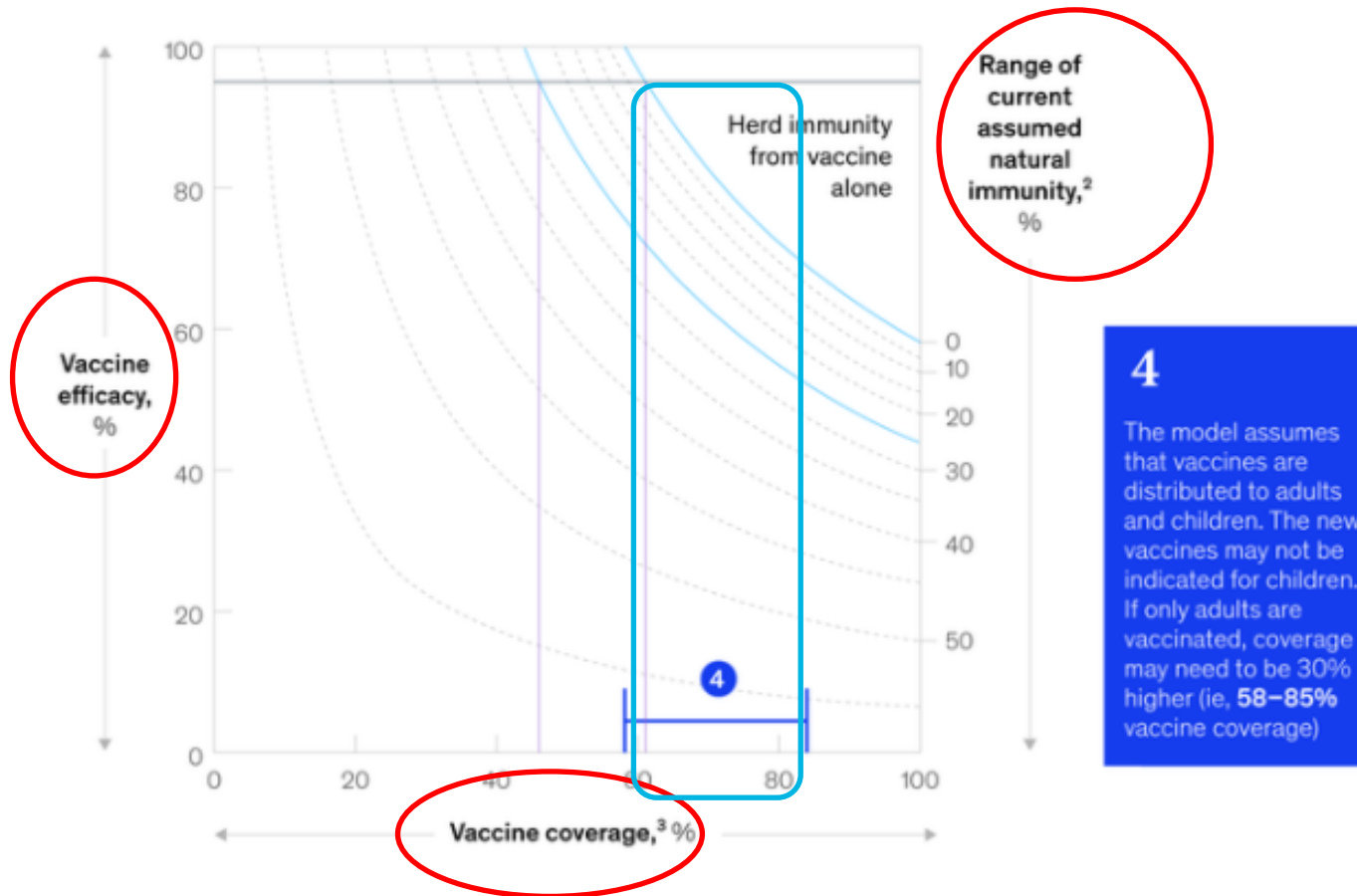
*Lymphadenopathy was captured as axillary lymphadenopathy on the same side as the injection site.

**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

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)

Pharma Firm	Contract UE	Nº Doses	Nº Doses for Spain	Schedule for Approval
Oxford/Astra-Zeneca	Signed August 2020	300 M (Option +100 M)	31.555.469	Rolling review started October 2020
Sanofi/GSK	Signed September 2020	300 M	Decision at the end Phase I/II	2021
BioN-Tech/Pfizer	Signed November 2020	200 M (Option +100 M)	20.873.941	Rolling review started October 2020
J&J/Janssen	Signed October 2020	200 M (Option +200 M)	Pending*	2021
Curevac	Contract finalized. Signing pending	225 M (option +180 M)	Pending*	2021
Moderna	Negotiation almost finalized	80 m (Option +80M)	Pending*	Rolling review started November 2020
Novavax	On-going negotiations	-----	-----	2021
The population of Spain is 10.57 % of UE excluding European Economic Area (EEA) (Norway, Iceland, Liechtenstein), and 10.44 % if it is included				

Conditional approval January 29

30 M Spain → **~15 million persons could be vaccinated in Spain– Efficacy ~ 62%** Final availability?

Conditional approval December 21st

20 M Spain → **~10 Million persons could be vaccinated in Spain**

Conditional approval January 12th

8 M Spain → **~4 Million persons could be vaccinated in Spain**

131 Million doses of vaccines have already been administered globally. While speed is increasing, there is still a long way to go in LMIC

Global Vaccination Campaign ([Bloomberg](#), updated 07 FEB 2021)

Country	Doses Administered ▼	Doses per 100 people	% of population given		Daily rate of doses administered
			1+ dose	2 doses	
Global total	131,662,719	-	-	-	4,686,070
U.S.	42,023,521	12.79	9.8	2.9	1,455,815
China	31,200,000	2.23	-	-	1,025,000
EU	16,731,158	3.77	2.6	1.0	637,090
U.K. <small>+</small>	12,525,735	18.75	18.0	0.8	436,765
India	5,775,322	0.42	-	-	290,141
Israel	5,545,163	61.27	38.3	22.9	99,424
UAE	4,313,868	40.13	-	-	139,958
Brazil	3,229,019	1.54	-	-	235,424
Germany	3,116,122	3.75	2.7	1.1	114,138
Turkey	2,612,742	3.14	-	-	89,500
Italy	2,546,913	4.22	2.4	1.9	84,032
France	2,109,641	3.25	2.9	0.4	88,285
Spain	1,988,160	4.28	2.8	1.5	73,424
Poland	1,641,158	4.32	3.2	1.2	69,175
Canada <small>+</small>	1,061,720	2.83	1.7	0.4	15,848
Indonesia	923,449	0.35	0.3	0.1	58,253
Romania	856,322	4.41	3.4	1.0	23,558
Russia*	800,000	0.55	0.5	-	40,000
Mexico	710,198	0.56	0.5	0.1	5,998

Global vaccination campaigns are headed towards increasing global disparities – rich vs poor countries-

Biden Says All Americans Could Have Access to Vaccine by Spring

By Josh Wingrove and Jennifer Epstein
January 25, 2021, 4:29 PM EST Updated on January 25, 2021, 5:17 PM EST

Vaccine nationalism means that poor countries will be left behind

In some, coverage won't be widespread until 2023, if ever

Spain is accelerating vaccine roll-out from 35,700 doses/day (first 5w) to 73,000 doses/day. However, it will take 30 months to vaccinate 33 million people (66 M doses) at this speed.

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.**



We are not safe
until we are all safe.

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