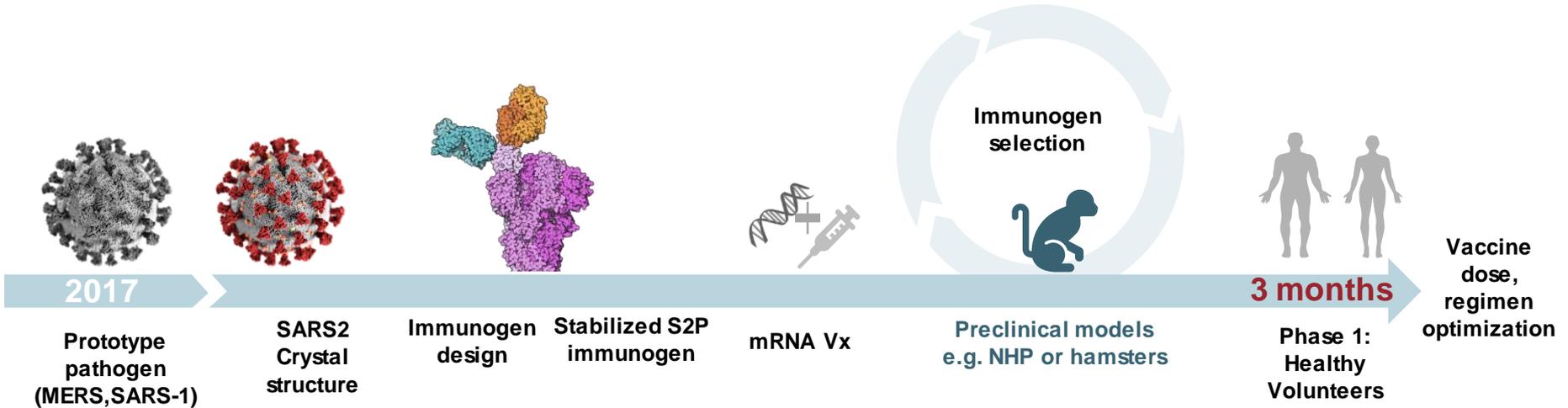


BILL & MELINDA GATES FOUNDATION (BMGF) RESPONSE TO COVID-19 FOCUSES ON FOUR GOALS

Starting in January 2020, our foundation laid out a multi-pronged strategy for response.

 Protect the most vulnerable	 Accelerate detection and containment of the virus
Rapidly strengthen capacity and coordination to detect and respond to COVID-19 in key countries.	Accelerate, fill gaps in, and inform global response through partners with existing capacity for rapid action.
 Develop treatments and a vaccine	 Minimize societal and economic impact
Leverage capacity to coordinate and fill gaps in COVID-19 product development while securing equitable global access.	Promote responses that balance health outcomes and economic recovery minimizing the negative impact on societies and individuals.

COVID19 VACCINES HAD AN ACCELERATED DISCOVERY PHASE



INEQUITY IN VACCINES ACCESS IS A GLOBAL THREAT

In High Income Countries:

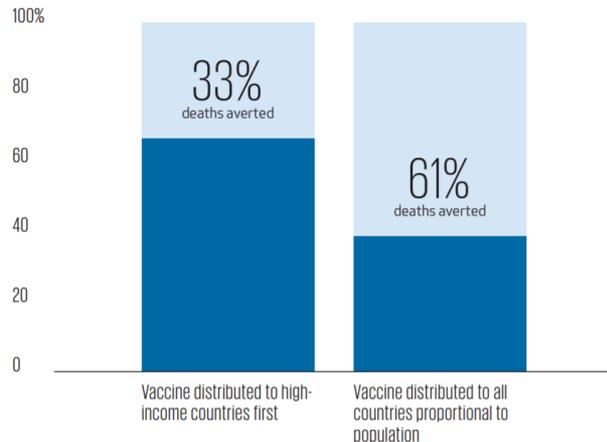
- Vaccines will be available in early 2021
- Healthcare works will be protected
- The vulnerable will be covered and deaths will fall
- Sufficient doses will be available to cover 3-4x population
- Boosting will be feasible if needed
- Transmission will be controlled



In Low and Middle Income Countries:

- Vaccine will not become available until late 2021 or 2022
- Only 20% of the population will be covered
- Poor coverage of healthcare workers will result in health system collapse
- Ongoing community transmission will be an issue
- Sustainable response will be problematic
- Community transmission will continue to seed local and global outbreak

MODELED PERCENTAGE OF DEATHS (COMPARED TO NO VACCINE)



Source: Bill & Melinda Gates Foundation, 2020 Goalkeepers Report. Data from MOBS LAB, Northeastern University.
www.gatesfoundation.org/goalkeepers/report/2020-report/#Northeastern_Modeling

SIGNIFICANT RISKS REMAIN TO DELIVERING VACCINES TO LMICS

Key risks:

- 1. Gap to Target LMIC Volume:** Large volumes beyond the 2021 target 2 billion doses will be required to immunize high risk populations in LMIC.
- 2. Tech transfer:** Large volume of successful tech transfers is required to meet promised volumes of wave 1 vaccines on projected timelines
- 3. Regulatory:** Potential regulatory hurdles remain prior to licensure. Long-term safety of wave 1 vaccines using unprecedented approaches is unknown. The path for follow-on vaccines is not straightforward.
- 4. Pricing:** Relative volume of vaccine available at LMIC affordable prices still unknown
- 5. Sustainability:** Control of transmission may require much higher coverage. Durability is unknown and boosting may be required

WAVE 2 VACCINE PORTFOLIO IS DIFFERENTIATED FROM WAVE 1 AND FOCUSES ON VACCINES THAT ARE MORE SUITABLE FOR LMICS

Wave 2 Vaccines	Location	Manufacturing platform	Antigen	Current phase	Different antigen ¹ vs wave 1	Likely lower COGs 	Possible single dose 	Refrigerator stable 	Precedent in pregnant women ² 	No Tech Transfer 	High volume ³ 
SK	South Korea 	Protein (CHO + E.coli)	RBD-NP	Late preclinical	X	X		X	X	X	+++
SI	UK/India 	Protein (Pichia)	RBD-VLP	Phase 1	X	X		X	X	X	+++
Walvax	China 	Protein (CHO)	Spike -deltaTM	Late preclinical		X		X	X		+++
BioE	India 	Protein (Pichia)	RBD	Phase 1	X	X		X	X	X	+++
Zhifei/IMCAS	China 	Protein (CHO)	RBD-dimer	Phase 2	X	X		X	X	X	++
Icosavax	USA 	Protein (CHO + E.coli)	RBD-NP	Late preclinical	X	X		X	X		++
Gritstone	USA 	Viral vector	Spike variants +T cell epitopes	Early preclinical	+ T cells		X				++
AAVCOVID	USA 	DNA	S-protein	Late preclinical		?	X	?			+ to +++ (? dose)
PATH-ISMSS	Global	Inactivate viral (eggs)	Hexaprotein spike	Late preclinical	X	X		X	X	X	++
Imperial	UK 	saRNA	Stabilized spike protein	Phase 1							++

1 Different antigen: all wave 1 vaccines are full length spike; 2 Adjuvant dependent; 3 Volume: Annual DS by end 2021 (Company estimate/ BMGF estimate)