



# WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit  
Ministry of Health & Indigenous Medical Services

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## COVID 19 vaccines: where are we?

A vaccine against SARS-CoV-2 is crucial in preventing and mitigating the morbidity and mortality caused by the infection. The global pandemic has already caused around 53 million cases, more than one million deaths and massive disruption of the global economy. Many vaccine developers struggle to develop a safe and effective vaccine and as of 12 November 2020, there were at least 164 COVID -19 candidate vaccines in pre-clinical evaluation and 48 in clinical evaluation.

### Vaccine development and approval

A vaccine under development needs a series of screenings and evaluations to determine its effectiveness and safety on human use. The preclinical stage involves testing it in animals to evaluate safety and potential to prevent disease. If the vaccine triggers an immune response, it is then tested in human clinical trials in three phases. In a phase I clinical trial, the vaccine candidate is given to a small number of individuals to test safety, dosage and to confirm that it stimulates the immune system. In a phase II trial, the vaccine candidate is given to hundreds of people split into different age or risk groups to assess whether the vaccine acts differently in different populations and to evaluate the vaccine's safety and ability to stimulate the immune system. In phase III clinical trial, the vaccine is given to thousands of people and is tested for efficacy and safety.

Following successful clinical evaluation, a series of independent reviews of evidence on efficacy and safety is required, including regulatory review and approval in the country where the vaccine is manufactured for WHO prequalification. The WHO prequalification process includes reviewing the production process and quality control procedures, laboratory testing and WHO site audits to manufacturing facilities with the responsible National Regulatory Authorities.

The vaccines conforming to WHO standards are prequalified and listed on the WHO web site. Based on the recommendations of the Strategic Advisory Group of Experts (SAGE) on Immunization convened by WHO, individual countries may decide whether to approve the vaccines for national use and, develop policies for vaccine use in their countries.

### Types of potential COVID-19 vaccines in development

Different types of candidate vaccines are being developed for COVID 19. These include;

- Inactivated or weakened virus vaccine - a form of the virus that has been inactivated or weakened thus doesn't cause disease, but generates an immune response
- Protein-based vaccine - uses harmless fragments of proteins or protein shells that mimic the COVID-19 virus to generate an immune response
- Viral vector vaccine - uses a virus that has been genetically engineered thus cannot cause disease, but produces coronavirus proteins to safely generate an immune response
- RNA and DNA vaccine - uses genetically engineered RNA or DNA to generate a protein which safely prompts an immune response

There are 11 candidate vaccines in phase III clinical trials identified in the landscape of COVID 19 candidate vaccines prepared by the WHO. These vaccines are under investigation in multiple sites and the scientifically published data on findings are not yet available. The media reporting on interim results of the Phase 3 study of the vaccine candidate developed by Pfizer and BioNTech described a reduction of COVID-19 infection by 90% in vaccine recipients at 7 days after the second dose. However,

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much details are not available and the vaccine stability at -70°C likely to cause storage problems. The interim analysis of the data of Moderna COVID 19 vaccine has observed a vaccine efficacy rate of 94.5% in adults. It remains stable at 2° to 8°C for 30 days and remains stable at -20° C for up to six months.

**Candidate vaccines in phase III clinical stage**

COVID-19 Vaccine developer/ manufacturer	Vaccine platform	Type of candidate vaccine	Number of doses	Timing of doses	Route of Administration
Sinovac	Inactivated	Inactivated	2	0,14 days	IM
Wuhan Institute of Biological Products/ Sinopharm	Inactivated	Inactivated	2	0,21 days	IM
Beijing Institute of Biological Products/ Sinopharm	Inactivated	Inactivated	2	0,21 days	IM
Bharat Biotech	Inactivated	Whole-Virion Inactivated	2	0, 28 days	IM
University of Oxford/ AstraZeneca	Non-Replicating Viral Vector	ChAdOx1-S	2	0,28 days	IM
CanSino Biological Inc./Beijing Institute of Biotechnology	Non-Replicating Viral Vector	Adenovirus Type 5 Vector	1		IM
Gamaleya Research Institute	Non-Replicating Viral Vector	Adeno-based (rAd26-S+rAd5-S)	2	0,21 days	IM
Janssen Pharmaceutical Companies	Non-Replicating Viral Vector	Adenovirus Type 26 vector	1 2	0 0, 56 days	IM
Novavax	Protein Subunit	Full length recombinant SARS CoV-2 glycoprotein nanoparticle vaccine adjuvanted with Matrix M	2	0,21 days	IM
Moderna/NIAID	RNA	LNP-encapsulated mRNA	2	0,28 days	IM
BioNTech/Fosun Pharma/Pfizer	RNA	3 LNP-mRNAs	2	0,28 days	IM

**Source:** WHO DRAFT landscape of COVID-19 candidate vaccines – 12 November 2020

**The role of COVAX**

World Health Organization (WHO), the European Commission and France launched the Access to COVID-19 Tools (ACT) Accelerator in April 2020 in response to the current COVID 19 pandemic. It supports development, production, and equitable access to COVID-19 tests,

treatments, and vaccines. COVAX is one of the three pillars of the Access to COVID-19 Tools (ACT) Accelerator which supports the research, development and manufacturing of a wide range of COVID-19 vaccine candidates, and price negotiation. Coordinated by Gavi- the Vaccine Alliance, the Coalition for Epidemic Preparedness Innovations (CEPI) and the WHO, COVAX will ensure equal access to vaccines by all participating countries

irrespective of their income levels as quickly, fairly and safely as possible.

COVAX has created the world’s largest and most diverse portfolio of COVID vaccines, with nine candidate vaccines currently being supported by CEPI. Out of them seven are in clinical trials. These include Inovio - United States of America (Phase I/II), Moderna - United States of America (Phase III), CureVac - Germany (Phase II, AstraZeneca/University of Oxford - United Kingdom of Great Britain and Northern Ireland (Phase III), Novavax - United States of America (Phase III), Clover Biopharmaceuticals - China (Phase I), and the vaccine under development by the University of Queensland/CSL, Australia (Phase I). Nine other vaccines are currently being evaluated for inclusion in COVAX Facility. In addition, COVAX will consider procuring vaccines from any other producer if their vaccines are found successful. Gavi launched the COVAX Advance Market Commitment (AMC), a financing instrument aimed at supporting the participation of 92 lower and middle income economies including Sri Lanka in the COVAX Facility.

The CEPI aims to develop three safe and effective vaccines which can be made available to countries participating in the COVAX Facility. Guided by the fair allocation framework developed by WHO, all countries will get vaccine doses once developed to cover 20% of their population at the beginning and later scale up to cover other populations. The initial aim is to have 2 billion doses available by the end of 2021, to protect high risk and vulnerable people, including frontline healthcare workers.

**Compiled by -**

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**References**

BMJ 2020;371:m4347 <http://dx.doi.org/10.1136/bmj.m4347>.  
 Published: 09 November 2020  
<https://investors.modernatx.com/news-releases/news-release-details/moderna-announces-longer-shelf-life-its-covid-19-vaccine>  
<https://www.who.int/initiatives/act-accelerator/covax>  
<https://www.who.int/medicines/regulation/prequalification/prequal-vaccines/en/>  
<https://www.nih.gov/news-events/news-releases/promising-interim-results-clinical-trial-nih-moderna-covid-19-vaccine>  
<https://www.who.int/news/item/24-08-2020-172-countries-and-multiple-candidate-vaccines-engaged-in-covid-19-vaccine-global-access-facility>  
[https://www.who.int/news-room/q-a-detail/coronavirus-disease-\(covid-19\)-vaccines](https://www.who.int/news-room/q-a-detail/coronavirus-disease-(covid-19)-vaccines)  
<https://www.who.int/publications/m/item/draft-landscape-of-covid-19-candidate-vaccines>

Table 1: Selected notifiable diseases reported by Medical Officers of Health 19<sup>th</sup>- 25<sup>th</sup> Sep 2020 (39<sup>th</sup> Week)

RDHS Division	Dengue Fever		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human Rabies		Chickenpox		Meningitis		Leishmaniasis		WRCD		
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	T*	C**	
Colombo	38	3955	1	30	0	9	0	7	0	16	28	336	0	3	0	3	0	0	0	5	205	2	42	0	2	56	100
Gampaha	37	2475	0	12	0	8	0	7	0	19	14	271	0	8	0	6	0	1	3	251	0	33	0	60	43	97	
Kalutara	17	1677	0	16	0	6	0	6	0	6	58	771	0	14	0	6	0	2	4	279	1	38	0	0	51	96	
Kandy	52	3069	0	25	0	1	0	9	0	15	7	205	3	106	2	7	0	0	1	153	2	28	0	63	63	100	
Matale	3	557	0	9	0	4	0	5	0	6	3	95	0	8	1	10	0	1	5	60	0	5	12	279	63	100	
NuwaraEliya	1	166	1	35	0	1	1	6	0	9	2	113	3	88	1	4	0	0	3	77	0	15	0	0	22	100	
Galle	23	1603	2	38	0	18	0	4	0	48	80	705	2	56	1	6	0	0	2	299	1	61	1	5	33	99	
Hambantota	2	343	0	12	0	4	0	2	0	48	3	208	0	60	0	4	0	1	0	173	1	47	1	578	70	100	
Matara	4	493	0	25	0	17	0	1	1	4	15	474	0	15	1	14	0	0	2	126	0	22	1	323	21	100	
Jaffna	15	2045	7	90	0	0	0	20	7	72	1	25	9	540	1	1	0	2	0	102	0	12	0	2	27	93	
Kilinochchi	0	126	0	40	0	2	0	11	0	21	1	20	2	38	0	1	0	0	0	16	0	11	0	13	64	100	
Mannar	1	134	0	0	0	0	0	1	0	2	0	6	0	2	0	0	0	1	0	2	0	0	9	0	0	40	100
Vavuniya	1	249	0	13	0	0	0	6	0	3	0	43	0	3	0	0	0	0	0	32	0	4	0	1	64	100	
Mullaitivu	0	85	0	14	0	0	0	6	0	5	0	26	2	15	0	3	0	2	0	12	0	7	1	7	39	100	
Batticaloa	16	2365	1	87	0	7	0	1	0	49	1	32	0	0	0	5	0	1	3	91	0	32	0	1	49	100	
Ampara	1	310	1	21	0	4	0	0	0	0	0	88	0	0	0	4	0	0	0	116	0	15	0	5	69	100	
Trincomalee	0	2278	0	15	0	0	0	0	0	2	0	31	0	9	0	8	0	0	2	100	0	9	0	1	42	98	
Kurunegala	8	891	0	23	0	12	0	4	0	36	7	224	0	30	0	7	0	3	3	304	4	40	8	407	49	99	
Puttalam	4	462	0	10	0	4	0	3	0	1	0	60	0	17	0	2	0	1	2	77	1	51	0	10	56	100	
Anuradhapur	2	405	2	19	0	3	0	4	0	30	6	248	0	25	0	13	0	2	1	177	2	60	10	224	41	98	
Polonnaruwa	2	229	0	7	0	0	0	0	0	5	1	126	0	1	3	21	0	1	1	132	0	16	6	241	55	91	
Badulla	0	442	1	22	0	5	0	3	0	4	17	328	2	93	0	13	0	0	0	133	1	33	1	19	55	92	
Monaragala	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Ratnapura	30	1883	1	86	1	29	1	6	2	37	42	1366	3	52	0	16	0	1	2	172	0	98	4	117	51	100	
Kegalle	11	767	0	18	0	10	1	4	0	18	12	468	1	41	0	20	0	0	6	168	0	59	2	38	54	100	
Kalmune	14	929	1	54	0	3	0	1	0	6	2	22	0	2	0	3	0	0	2	274	2	41	0	0	60	100	
<b>SRILANKA</b>	<b>282</b>	<b>27938</b>	<b>18</b>	<b>721</b>	<b>1</b>	<b>147</b>	<b>3</b>	<b>117</b>	<b>10</b>	<b>462</b>	<b>30</b>	<b>6291</b>	<b>27</b>	<b>1226</b>	<b>10</b>	<b>177</b>	<b>0</b>	<b>19</b>	<b>47</b>	<b>3531</b>	<b>17</b>	<b>788</b>	<b>47</b>	<b>2396</b>	<b>49</b>	<b>95</b>	

Source: Weekly Returns of Communicable Diseases (WRCD).  
 \*T=Timeliness refers to returns received on or before 25<sup>th</sup> Sep, 2020 Total number of reporting units 356 Number of reporting units data provided for the current week: 320 C\*\*=Completeness

**Table 2: Vaccine-Preventable Diseases & AFP**

**18th– 25th Sep 2020 (39th Week)**

Disease	No. of Cases by Province									Number of cases during current week in 2020	Number of cases during same week in 2019	Total number of cases to date in 2020	Total number of cases to date in 2019	Difference between the number of cases to date in 2020 & 2019
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	01	00	00	00	00	00	00	01	00	02	02	35	62	- 43.5 %
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Mumps	00	02	00	01	01	00	00	00	00	04	04	145	260	- 44.2 %
Measles	02	01	00	00	01	00	00	00	00	04	02	45	247	- 81.7 %
Rubella	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
CRS**	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Tetanus	00	00	00	00	00	00	00	00	00	00	00	03	17	- 82.3 %
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Japanese Encephalitis	00	00	00	00	00	00	00	00	00	00	00	31	11	181.8 %
Whooping Cough	00	00	00	00	00	00	00	00	00	00	00	07	36	- 80.5 %
Tuberculosis	72	12	10	14	06	04	13	02	17	150	108	4867	6389	- 23.8 %

**Key to Table 1 & 2**

**Provinces:** W: Western, C: Central, S: Southern, N: North, E: East, NC: North Central, NW: North Western, U: Uva, Sab: Sabaragamuwa.  
**RDHS Divisions:** CB: Colombo, GM: Gampaha, KL: Kalutara, KD: Kandy, ML: Matale, NE: Nuwara Eliya, GL: Galle, HB: Hambantota, MT: Matara, JF: Jaffna, KN: Killinochchi, MN: Mannar, VA: Vavuniya, MU: Mullaitivu, BT: Batticaloa, AM: Ampara, TR: Trincomalee, KM: Kalmunai, KR: Kurunegala, PU: Puttalam, AP: Anuradhapura, PO: Polonnaruwa, BD: Badulla, MO: Moneragala, RP: Ratnapura, KG: Kegalle.  
**Data Sources:**  
**Weekly Return of Communicable Diseases:** Diphtheria, Measles, Tetanus, Neonatal Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps., Rubella, CRS,  
**Special Surveillance:** AFP\* (Acute Flaccid Paralysis), Japanese Encephalitis  
**CRS\*\*** =Congenital Rubella Syndrome  
**NA** = Not Available

**Number of Malaria Cases Up to End of September 2020,**  
01  
**All are Imported!!!**

Comments and contributions for publication in the WER Sri Lanka are welcome. However, the editor reserves the right to accept or reject items for publication. All correspondence should be mailed to The Editor, WER Sri Lanka, Epidemiological Unit, P.O. Box 1567, Colombo or sent by E-mail to [chepid@sltnet.lk](mailto:chepid@sltnet.lk). **Prior approval should be obtained from the Epidemiology Unit before publishing data in this publication**

**ON STATE SERVICE**

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