



## Where Does COVID-19 Vaccine Development Stand?



Researchers around the world are testing a wide range of COVID-19 vaccine candidates, with over a hundred vaccines in development, and almost 600 clinical trials either ongoing or completed.

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The Coalition for Epidemic Preparedness Innovations (CEPI), an international body that is maintaining an overview of the global landscape of COVID-19 vaccine development activity, has [published](#) a research in [Nature Reviews Drug Discovery](#). According to the publication, 115 vaccine candidates were in varying stages of development around the world as of 8 April.

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Of those, 78 were confirmed as active with 73 being at exploratory or preclinical stages and the remaining five having recently moved into clinical development. It is reported that most vaccine candidates for which information is available aim to induce neutralising antibodies against the viral surface protein referred to as the 'spike protein.'

Private or industry developers have the largest share in the active research projects with 56 vaccine candidates (72%). Notably, many of the lead developers were identified as small and/or inexperienced in large-scale vaccine manufacture. The rest (22 projects, 28%) falls on academic, public sector and other not-for-profit organisations.

Almost half (36, 46%) of the 78 projects are being developed in North America. Europe, China and Asia and Australia (excluding China) has 14 projects (18%) each. There is no public information with regard to similar initiatives in either Africa or Latin America.

Earlier this year, CEPI published an estimate that [\\$2 billion](#) would be required to develop a vaccine

against COVID-19. So far €633 million (\$690 million) has been [pledged](#) to CEPI by countries such as Belgium, Canada, Denmark, Finland, Germany, Norway and the UK.

The first stages of the current COVID-19 trials are [expected](#) to be completed this autumn, next spring or even later in order to allow time for [safety checks](#).

As Peter Hotez, dean at Baylor University's National School of Tropical Medicine, said in a [comment](#) to National Geographic, "A year to 18 months would be absolutely unprecedented." He admitted that deploying technology and additional funding could shorten the time for vaccine delivery, but stressed that "we have to be really careful about those time estimates."

The World Health Organization's International Clinical Trials Registry Platform (WHO ICTRP) currently [lists](#) 590 ongoing and completed COVID-19 studies. In the Draft Landscape of COVID-19 Candidate Vaccines [published](#) on 4 April, the organisation lists two candidate vaccines in clinical evaluation and 60 candidate vaccines in preclinical evaluation.

In the meantime, researchers from Hong Kong have published a [paper](#) in The Lancet, modelling impact assessment of control measures in China and suggesting second-wave scenario planning. The results of their study show that after lifting the current restrictions, countries will have to closely monitor new infections and adjust the controls they have in place until there is a vaccine against COVID-19. And there are examples backing these recommendations. Despite their [initial success](#) in containing the spread of the coronavirus, Singapore, Taiwan and Hong Kong are now confronting a [new wave](#) of COVID-19 cases.

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Published on : Sat, 11 Apr 2020