The COVID-19 vaccine development landscape

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Supplementary Box 1 | **COVID-19 vaccine pipeline data sources and analysis**

From February 2020 onwards, CEPI has studied the COVID-19 vaccine candidate landscape by using internal and external data sources, including:

- CEPI internal sources, through the COVID-19 Call for Proposal process (CFP2R), and direct communication between product developers, partners and CEPI;
- Clinical trial databases (ICTRP, ClinicalTrials.gov) and funder databases (BARDA, EC, CIHR);
- Publicly available literature (PubMed, Scopus, BioRxiv);
- Media and press releases.

Inclusion:
Our search has identified and operationalized three data sources: a) vaccine candidates with detailed development plans recorded through the CEPI Call for Proposal process; b) vaccine candidates that have been announced publicly by the product developer with the description of the platform technology and/or current development status; and c) vaccine candidates with a clear funding source, which indicates that there is materialized commitment in place to start the project. There are several reasons for the selection of these three data sources. First, the CEPI team has been uniquely positioned to outline these data, since CEPI has undertaken the lead role of processing these applications. Second, the criteria of public announcement and clear funding sources relate to the retrievability, transparency and reliability of our sources. The search efforts yield a large amount of results, some of which are unconfirmed or erroneous.

Exclusion:
- Computational vaccine candidates, with no further detail on the planned preclinical/clinical studies. Computational vaccine studies, which normally propose peptide-based vaccine candidates or the design of antigens, are the first steps of the vaccine development process and need significant additional dedicated resources for further development.

Upon meeting the inclusion criteria, the second step of our search assessed and ascribed a development status to projects, namely, either as:

- Active (confirmed): using internal and publicly available information, a project is confirmed either to be at exploratory, preclinical or later development stage;
- Unconfirmed: the development status cannot be confirmed using available internal and publicly available information.

Moreover, from the available data sources, our search collected, documented and updated information regarding platform technology, development status, funding data, finished /ongoing activities, adjuvants and consortium partners including CMC on a weekly basis.

All active projects are evaluated and analysed by the CEPI technical expert team.

Limitations:
- Vaccine development programmes described in languages other than English have not been systematically screened;
- The maturity assessment of the vaccine candidates is based on internal and publicly available information, and therefore may not capture the most up-to-date activities for all projects;
- A large amount of publicly available information comes from media sources, which might not be completely reliable.