COVID-19 Countermeasures Surveys Methodology
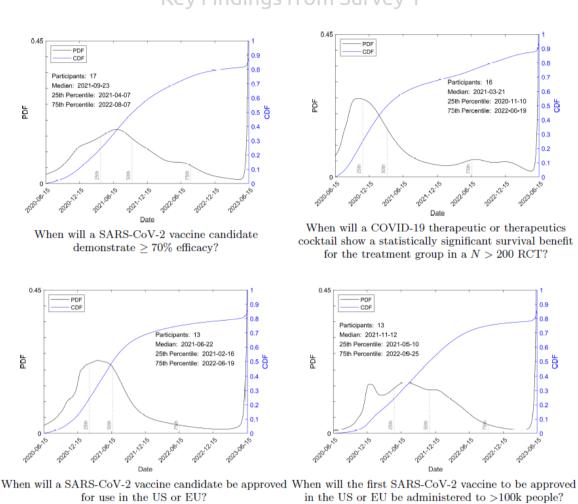
by **Dan Sluder,** Juan Cambeiro, Tamay Besiroglu, Thomas McAndrew

Jul 02, 2020

`prediction-aggregation`

model type: *crowdsource*

Key Findings from Survey 1

Overview

The Countermeasures Surveys is a six-month long research project intended to generate and aggregate predictions regarding the development of vaccines and therapeutic interventions for SARS-CoV-2 and COVID-19, respectively. We solicit predictions each month from a large team consisting of subject-matter experts (SMEs) as well as top generalist forecasters (TFs) with established track-records in human-judgment forecasting.

SMEs are defined as those in the fields of molecular and cellular biology, microbiology, virology, biochemistry, and infectious disease, who have several years of experience in vaccine, antiviral, or biological research related to infectious agents, and are up-to-date with vaccine/antiviral research specifically focused on the novel coronavirus.

TFs are defined as the top 1% out of a total pool of approximately 13,000 forecasters according to a Metaculus point system with track records spanning several years on the Metaculus forecasting platform.

SMEs and TFs are asked to submit predictions from the 15th to the 25th of each month using the Metaculus forecasting platform. During the survey period, participants can submit multiple predictions for the same question and collaborate via a comment section underneath each question. To minimize starting-point bias or groupthink, the consensus distribution for each question is hidden from experts from the 15th to the 20th. On the 21st the consensus distribution is revealed and participants can view the ongoing consensus distribution until the close of the survey on the 25th.

We hypothesize predictions will be revised by experts as they received new external information on vaccines and therapeutics or because of the differences between the participants's prediction and the ongoing consensus distribution prediction.

Prediction Aggregation Method

Though experts are allowed to update their predictions as many times as they wish, the consensus distributions reported will only include the most recent predictions from each participant. The consensus prediction assigned a probability to a value x of

$$f(x) = [f\_1(x) + f\_2(x) + ... + f\_E(x)]/E$$

where f is the consensus probability distribution, $f\_i(x)$ is the most recent probability expert i assigned to the value x, and E is the number of participants

References:

1) https://github.com/mcandrewlab/vaccinceAndTherapeuticsCrowd

2) https://pandemic.metaculus.com/dashboard