Preliminary Report on Aggregated Expert Predictions on COVID-19

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Executive Summary

We have conducted six weekly surveys that asked a group of infectious disease modeling researchers to assess their collective expert opinion on the trajectory of the COVID-19 outbreak in the US. The following page provides a brief summary of the results from the sixth survey, administered on March 23rd and 24th, 2020. Participants are modeling experts and researchers who have spent a substantial amount of time in their professional career designing, building, and/or interpreting models to explain and understand infectious disease dynamics and/or the associated policy implications in human populations. Experts believe that hospitalizations over the next 6 months are most likely to peak sometime from April to June and that there will be more than 200K deaths due to COVID-19 by the end of 2020. Consensus distributions were formed by averaging responses from all experts. We are currently using COVID Tracker as the source for case numbers.

Results from Survey 6 (administered March 23-24, 2020)

1. **Experts predict another almost three-fold rise in reported cases in the US over the next week. They predict 116,900 total cases (80% uncertainty interval (UI): 66,200-199,500 cases) of COVID-19 will be reported by COVID Tracker on Monday March 29th.**

Predicted number of cases (range)	Predicted probability
0 – 50,000	0.03
50,000 – 100,000	0.34
100,000 – 150,000	0.35
150,000 – 200,000	0.17
200,000 +	0.10

*Numbers do not sum to 1 due to rounding.

2. **The consensus among experts was that COVID-19 hospitalizations over the next six months were most likely to peak in April or May.**

Month of peak hospitalization	Predicted probability
March	0.05
April	0.26
May	0.28
June	0.17
July	0.14
August	0.10

3. **Experts predict that 45 states and territories (80% UI: 38-49 states/territories) will report more than 100 cases by March 29th.**

4. **Experts believe that there are a total of 361,900 (80% UI: 128,200-925,600 cases) SARS-CoV-2 infections (symptomatic, subclinical or asymptomatic) in the US as of March 23rd.**

5. **Experts believe COVID-19 will be responsible for 245,500 deaths (approximate 80% UI: 61,900-784,100) in the US by the end of 2020.** A typical influenza season is estimated by the CDC to cause between 11,000 and 95,000 deaths.

Predicted deaths in the US (range)	Predicted probability*
0 – 100,000	0.19
100,000 – 300,000	0.40
300,000 – 500,000	0.20
500,000 – 1,000,000	0.16
1,000,000 – 1,500,000	0.04
1,500,000 +	0.02

*Numbers do not sum to 1 due to rounding.

6. **The above results include answers from 20 experts.** Experts who have participated in the survey twice are listed in the table below. The names of those who participated this week are in bold.

Expert name	Affiliation
Benjamin M. Althouse	Institute for Disease Modeling, University of Washington, New Mexico State University
Andrew Azman	Johns Hopkins University
Dr. Caroline Buckee	Harvard TH Chan School of Public Health
Donald S. Burke, MD	Graduate School of Public Health University of Pittsburgh
Mary Bushman	Harvard T.H. Chan School of Public Health
Lauren A Castro	Los Alamos National Laboratory
Sara Del Valle	Los Alamos National Laboratory
John M. Drake	University of Georgia
Stephen Eubank	University of Virginia
Sebastian Funk	London School of Hygiene & Tropical Medicine
Lauren Gardner	Johns Hopkins University
Dylan George	In-Q-Tel
William P. Hanage	Harvard T. H. Chan School of Public Health
Andreas Handel	University of Georgia
Michael L. Jackson	Kaiser Permanente Washington
Stephen Kissler	Harvard School of Public Health
Justin Lessler	Johns Hopkins Bloomberg School of Public Health
Bryan Lewis	University of Virginia
Marc Lipsitch	Harvard T.H. Chan School of Public Health
Andrew A. Lover	University of Massachusetts- Amherst
Steven Riley	Imperial College
Caitlin Rivers	Johns Hopkins Center for Health Security
Roni Rosenfeld	Carnegie Mellon University
Aaron Rumack	Carnegie Mellon University
Samuel V. Scarpino	Northeastern University
Shaun Truelove	Johns Hopkins Bloomberg School of Public health
Srini Venkatramanan	University of Virginia
Cecile Viboud	Fogarty International Center, NIH