Preliminary Report on Aggregated Expert Predictions on COVID-19

Compiled by Thomas McAndrew (mcandrew@umass.edu) and Nicholas Reich (nick@umass.edu)

March 18, 2020

Executive Summary

We have conducted five 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 fourth survey, administered on March 16th and 17th, 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. In summary, experts expect (i) the number of COVID19 cases to continue to rise, (ii) that a second wave of infections will occur in the fall, and (iii) that COVID infections could cause 200K deaths in the US by the end of 2020.

Results from Survey 5 (administered March 16-17, 2020)

1. **Experts predict a three-fold rise in reported cases in the US over the next week. They predict 10,567 total cases (80% uncertainty interval: 7,061-24,180 cases) of COVID-19 will be reported by COVID Tracker on Monday March 23rd.**

Predicted number of cases (range)	Predicted probability
0 – 7,500	0.13
7,500 – 10,000	0.29
10,000 – 12,500	0.24
12,500 – 15,000	0.10
15,000 – 17,500	0.05
17,500 – 20,000	0.04
20,000 +	0.15

2. **The average probability that experts assigned to a "second wave" of COVID occurring in the fall months (Aug.-Dec.) of 2020 was 73%.**
3. **Experts anticipate 19 US states will report more than 100 cases of COVID-19 within one week (80% uncertainty interval: 10-36 states).**
4. **Experts believe that only 12% (80% uncertainty interval: 4-34%) of all SARS-CoV-2 infections (symptomatic and asymptomatic) in the US were reported by COVID Tracker as of Sunday, March 15th.** This implies that as of the beginning of this week there were between 10,329 and 87,800 undiagnosed infections of SARS-CoV-2 in the US.
5. **Experts believe COVID-19 will be responsible for around 195,000 deaths (approximate 80% uncertainty interval: 19,000-1,200,000) in the US by the end of 2020.** As a comparison, a typical influenza season is estimated by the CDC to cause between 11,000 and 95,000 deaths in a typical influenza season.

Predicted deaths in the US (range)	Predicted probability*
0 – 100,000	0.36
100,000 – 300,000	0.25
300,000 – 500,000	0.12
500,000 – 1,000,000	0.13
1,000,000 – 1,500,000	0.07
1,500,000 +	0.06

*Numbers do not sum to 1 due to rounding.

6. **The above results include answers from 18 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
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
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
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