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COVID19-Expert Forecast-Survey5-20200316.pdf

Thomas McAndrew, *University of Massachusetts Amherst*



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Preliminary Report on Aggregated Expert Predictions on COVID-19

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

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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 fifth 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 Sunday March 22nd.**

| 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 |