

Additional File 1

This file contains supplementary information for “The Future of Pandemic Modeling in Support of Decision Making: Lessons Learned from COVID-19”. The aggregate details on the number of respondents mentioning each challenge and lesson learned theme for the ten highest referenced response groupings are in Tables S1 and S2. The full list of names and affiliations of those who chose to be identified is in Table S3.

Number of respondents	Broad theme under challenges
45	Data limitations (incompleteness, delays, stratification, volume, etc)
28	Lack of data collection infrastructure
24	Non-infrastructure based surveillance limitations
20	Models lacked needed complexity
19	Politics, policies, bureaucracy
18	Communication within and outside of the scientific space
17	Partner inclusion
16	Resource limitations
14	Human behavior
14	Modeler misunderstanding/silo-ing

Table S1 The ten most common grouped themes of respondents’ reflections on challenges. These categorizations represent our best efforts to group similar response themes. E.g., the “partner inclusion” category includes respondents who mentioned challenges associated with asking the right questions, aligning objectives, and providing feedback, among others. The “human behavior” category includes responses on vaccine hesitancy and COVID-19 skepticism, among others.

Number of respondents	Broad theme under lessons learned
22	Importance of public trust
20	We did and/or are doing things well
19	Modeling considerations
19	Needs for culture shift and funding
13	Needs for preparation
12	Centralized vs. local vs. non-government bodies
12	Needs for involvement of LMICs and/or international scope
11	Concrete needs
10	The human side of pandemic response
9	Relationship between modeling and decision making

Table S2 The ten most common grouped themes of respondents’ reflections on lessons learned, representing our best efforts to group similar response themes. E.g., the “modeling considerations” category includes respondents who mentioned that both projection and forecasting model useful for different contexts, that impact-related modeling studies are as or more important as forecasting models, that uncertainty needs to be accounted for when modeling, etc.

Name	Institution
Asher, Jason	Leidos Supporting the Department of Health and Human Services
Ben Miled, Slimane	Institut Pasteur of Tunis, University of Tunis el Manar
Biddinger, Paul, MD	Mass General Brigham / Harvard University
Bohrerova, Zuzana	Ohio State University
Bracher, Johannes	Karlsruhe Institute of Technology (Germany)
Butler, Brent	Occupational Health, Los Alamos National Laboratory
Codeço, Claudia C.	Scientific Computing Program, Oswaldo Cruz Foundation (PROCC/Fiocruz)
Comas-Garcia, Andreu	Universidad Autónoma de San Luis Potosí
Cowling, Ben	The University of Hong Kong
Deol, Dr. Arminster K	Coalition for Epidemic Preparedness and Innovations
Deshpande, Alina, PhD	Bioscience Division, Los Alamos National Laboratory
Fair, Jeanne	Los Alamos National Laboratory
Fenimore, Paul	Los Alamos National Laboratory
Fischer, Will	Group T-6, Los Alamos National Laboratory, Los Alamos, NM USA
Fort, Daniel, PhD MPH	Ochsner Center for Outcomes Research, Ochsner Health
Funk, Sebastian	London School of Hygiene & Tropical Medicine
Gardner, Lauren	Johns Hopkins University
Generous, Nick	Los Alamos National Laboratory
Gibson, Graham	Los Alamos National Laboratory
Guinn, Nancy, MD	Presbyterian Healthcare Services
Hatchett, Dr. Richard	The Coalition for Epidemic Preparedness Innovations (CEPI)
Hladish, Thomas J.	University of Florida
Hupert, Nathaniel, MD MPH	Weill Cornell Medicine / University of Oxford
Hurtado, Paul J.	University of Nevada, Reno
Hyman, Mac	Tulane University
Jahne, Michael	U.S. EPA Office of Research and Development
Johnson, Michael, PhD	St. Charles Health System
Kerr, Cliff	Institute for Disease Modeling
Klein, Dan	Bill & Melinda Gates Foundation
Korber, Bette	Los Alamos National Laboratory and the New Mexico Consortium
Lavista Ferres, Juan M.	Microsoft AI For Good Lab
Lewis, Bryan, PhD MPH	Biocomplexity Institute, University of Virginia
Lipsitch, Marc	Harvard University
Mecher, Carter	Former Director of Medical Preparedness Policy, White House
Medley, Graham	London School of Hygiene and Tropical Medicine
Meyers, Lauren Ancel	University of Texas at Austin
Miller, Joel C.	La Trobe University

Mitchel, Jason, MD	SVP & Chief Medical Officer, Presbyterian Healthcare Services
Moonasar, Devanand	National Department of Health South Africa
Moore, Penny	University of the Witwatersrand and NICD, Johannesburg, South Africa
Mukherjee, Bhramar	University of Michigan
Nepal, Smiti	Environmental Protection Agency
Nji, Akindeh Mbuh	Department of Biochemistry, University of Yaoundé / Modelling And Simulation Hub in Africa (MASHA)-UCT
Osthus, Dave	Los Alamos National Laboratory
Pan-ngum, Wirichada	Mahidol University
Pasqualoni, Sara, MD MPH	Los Alamos National Laboratory Medical Director
Pillai, Rekha S., PhD	Los Alamos National Laboratory
Prokopenko, Mikhail	The University of Sidney
Santillana, Mauricio	Northeastern University
Scarpino, Samuel V.	The Rockefeller Foundation
Schroeder, Andrew	Direct Relief
Scrace, David R., MD MHSA	Secretary of Human Services Department, State of New Mexico
Shea, Katriona	Department of Biology and Center for Infectious Disease Dynamics, The Pennsylvania State University
Silal, Sheetal	Modelling and Simulation Hub, Africa (MASHA), University of Cape Town
Swann, Julie L.	North Carolina State University
Velasco-Hernández, Jorge X.	Instituto de Matematicas UNAM-Juriquilla
Vespignani, Alessandro	Northeastern University
White, Lisa J.	Department of Biology, University of Oxford
Wu, Joseph T.	The University of Hong Kong

Table S3: Names and affiliations of the 59 interviewees in the study who chose to be identified; 26 respondents consented to their insights being included in the paper but not to identification.