

# THE LANCET

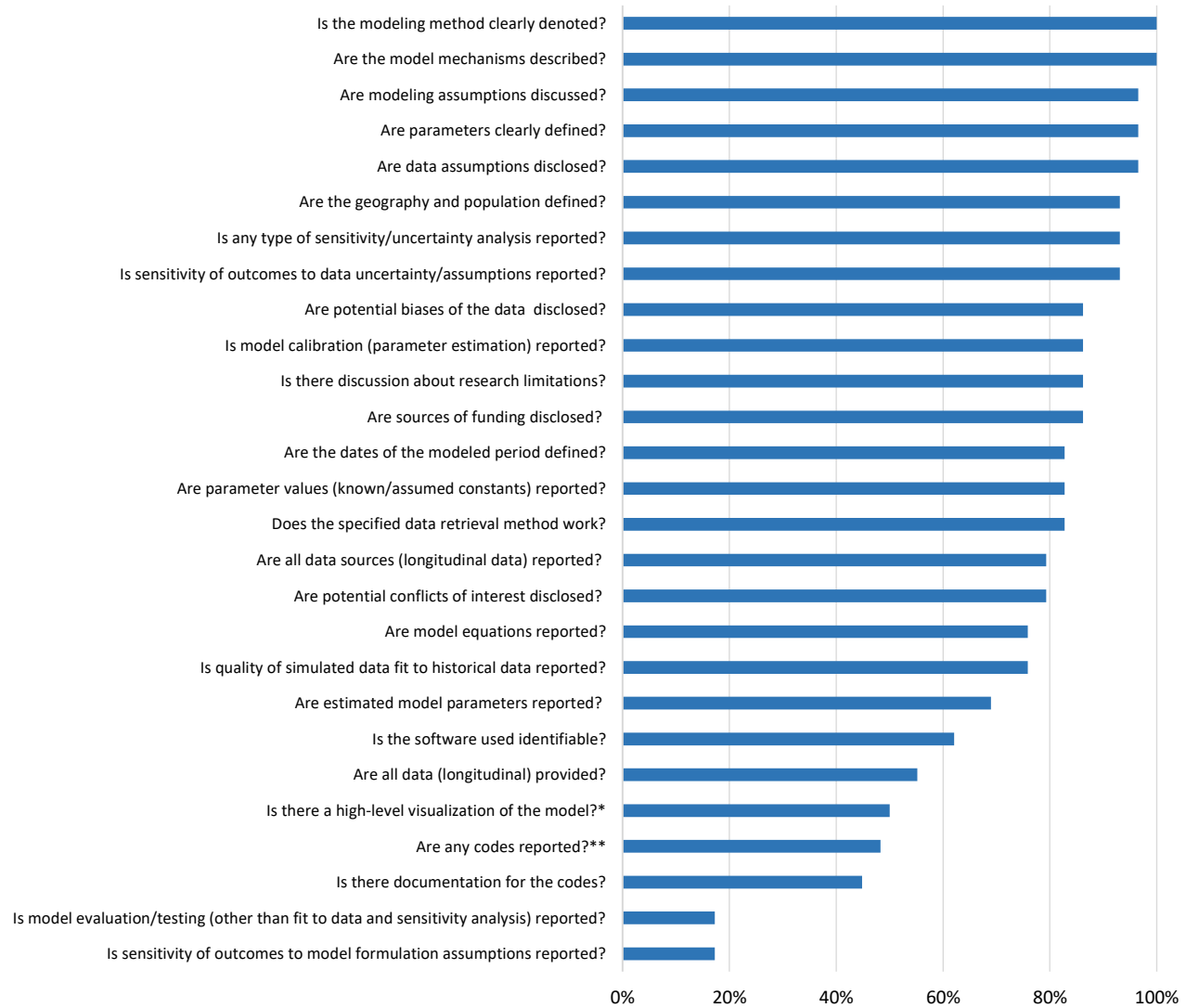
## Global Health

### Supplementary appendix

This appendix formed part of the original submission. We post it as supplied by the authors.

Supplement to: Jalali MS, DiGennaro C, Sridhar D. Transparency assessment of COVID-19 models. *Lancet Glob Health* 2020; published online Oct 27. [http://dx.doi.org/10.1016/S2214-109X\(20\)30447-2](http://dx.doi.org/10.1016/S2214-109X(20)30447-2).

### Percent of COVID-19 models (n=29) which satisfy transparency assessment criteria



**Fig. S1.** Percent of COVID-19 models (n=29) which satisfy transparency assessment criteria

\*Five regression models are exempt from this criterion, as there is no visualization that communicates model structure. \*\*codes used for a generalized model are not sufficient; we were able to successfully retrieve the codes of each model that provided a retrieval method.

**Supplementary Table S1: Transparency Assessment of 29 COVID-19 models**

Transparency Assessment Criteria	COVID-19 Model																													
	1	2*	3	4	5*	6*	7	8*	9*	10*	11	12*	13*	14*	15	16	17	18	19	20*	21	22	23	24	25*	26*	27	28*	29*	
Are the geography and population defined?	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Are the dates of the modeled period defined?	Green	Green	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Is the modeling method clearly denoted?	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Are the model mechanisms described?	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Is there a high-level visualization of the model?***	Red	Red	Green	Green	Red	Gray	Green	Gray	Green	Green	Red	Gray	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Are model equations reported?	Green	Green	Green	Green	Red	Green	Red	Red	Green	Green	Green	Green	Red	Red	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Are modeling assumptions discussed?	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Are parameter values (known/assumed constants) reported?	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Yellow	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Are all data sources (longitudinal data) reported?	Yellow	Green	Green	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Yellow	Green	Green	Green	Green
Are all data (longitudinal) provided?	Yellow	Green	Green	Green	Red	Yellow	Green	Red	Green	Red	Green	Red	Green	Green	Green	Red	Green	Green	Green	Red	Red	Yellow	Green	Green	Yellow	Red	Green	Green	Green	Red
Does the specified data retrieval method work?	Green	Green	Green	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Green	Green	Green	Green
Are parameters clearly defined?	Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Are data assumptions disclosed?	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Are potential biases of the data disclosed?	Green	Green	Green	Green	Red	Green	Green	Green	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red
Are any codes reported?***	Red	Red	Green	Green	Red	Red	Red	Red	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red
Is there documentation for the codes?	Red	Red	Green	Green	Red	Red	Red	Red	Green	Red	Green	Green	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Red	Red	Red	Red
Is the software used identifiable?	Red	Red	Green	Green	Red	Red	Red	Red	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red
Is model calibration (parameter estimation) reported?	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Are estimated model parameters reported?	Red	Green	Green	Green	Red	Red	Green	Red	Green	Green	Green	Red	Red	Green	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red
Is quality of simulated data fit to historical data reported?	Red	Green	Green	Green	Red	Green	Green	Green	Green	Red	Green	Green	Green	Green	Green	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Is model evaluation/testing (other than fit to data and sensitivity analysis) reported?	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Is any type of sensitivity/uncertainty analysis reported?	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Is sensitivity of outcomes to data uncertainty/assumptions reported?	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Is sensitivity of outcomes to model formulation assumptions reported?	Red	Red	Green	Red	Red	Green	Red	Red	Red	Red	Green	Red	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Is there discussion about research limitations?	Green	Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Red	Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Green	Green	Green	Green	Red	Green	Green	Green
Are sources of funding disclosed?	Green	Green	Green	Green	Green	Green	Green	Red	Red	Green	Green	Green	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Green	Green	Green
Are potential conflicts of interest disclosed?	Green	Green	Red	Red	Red	Green	Green	Red	Red	Green	Green	Green	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green

\*preprint; \*\*n=24, there was no expectation of this for purely statistical models; \*\*\*we were also able to retrieve all codes using the specified method. green=yes; red=no; yellow=partially; gray=exempt (only applicable for the assessment of high-level model visualization)

### Reviewed models:

1. Wu JT, Leung K, Leung GM. Nowcasting and forecasting the potential domestic and international spread of the 2019-nCoV outbreak originating in Wuhan, China: a modelling study. *Lancet* 2020; **395**(10225): 689-97.
2. Branas CC, Rundle A, Pei S, et al. Flattening the curve before it flattens us: hospital critical care capacity limits and mortality from novel coronavirus (SARS-CoV2) cases in US counties. *medRxiv* 2020.
3. Flaxman S, Mishra S, Gandy A, et al. Estimating the effects of non-pharmaceutical interventions on COVID-19 in Europe. *Nature* 2020.
4. Walker PGT, Whittaker C, Watson OJ, et al. The impact of COVID-19 and strategies for mitigation and suppression in low- and middle-income countries. *Science* 2020; **369**(6502): 413-22.
5. Ferguson N, Laydon D, Nedjati Gilani G, et al. Report 9: Impact of non-pharmaceutical interventions (NPIs) to reduce COVID19 mortality and healthcare demand. 2020.
6. Murray C. Forecasting the impact of the first wave of the COVID-19 pandemic on hospital demand and deaths for the USA and European Economic Area countries. 2020.
7. Chinazzi M, Davis JT, Ajelli M, et al. The effect of travel restrictions on the spread of the 2019 novel coronavirus (COVID-19) outbreak. *Science* 2020; **368**(6489): 395-400.
8. Osthus DDV, S. COVID-19 Confirmed and Forecasted Case Data. 2020. <https://covid-19.bsvgateway.org/>.
9. Bertsimas D. DELPHI Epidemiological Model Documentation. 2020.
10. Moss R, Wood J, Brown D, et al. Modelling the impact of COVID-19 in Australia to inform transmission reducing measures and health system preparedness. *medRxiv* 2020.
11. Li R, Pei S, Chen B, et al. Substantial undocumented infection facilitates the rapid dissemination of novel coronavirus (SARS-CoV-2). *Science* 2020; **368**(6490): 489-93.
12. Spencer Woody MT, Dahan M, Gaither K, Fox SJ, Meyers LA, Scott J. Projections for first-wave COVID-19 deaths across the US using social-distancing measures derived from mobile phones. 2020.
13. Gu Y. COVID-19 Projections Using Machine Learning. 2020. <https://covid19-projections.com/>.
14. España G. Forecasting COVID-19 mortality in the US midwest. 2020.
15. Kucharski AJ, Russell TW, Diamond C, et al. Early dynamics of transmission and control of COVID-19: a mathematical modelling study. *The lancet infectious diseases* 2020.
16. Hellewell J, Abbott S, Gimma A, et al. Feasibility of controlling COVID-19 outbreaks by isolation of cases and contacts. *The Lancet Global Health* 2020.
17. Prem K, Liu Y, Russell TW, et al. The effect of control strategies to reduce social mixing on outcomes of the COVID-19 epidemic in Wuhan, China: a modelling study. *The Lancet Public Health* 2020.
18. Kissler SM, Tedijanto C, Goldstein E, Grad YH, Lipsitch M. Projecting the transmission dynamics of SARS-CoV-2 through the postpandemic period. *Science* 2020; **368**(6493): 860-8.
19. Roosa K, Lee Y, Luo R, et al. Real-time forecasts of the COVID-19 epidemic in China from February 5th to February 24th, 2020. *Infectious Disease Modelling* 2020; **5**: 256-63.
20. Peng L, Yang W, Zhang D, Zhuge C, Hong L. Epidemic analysis of COVID-19 in China by dynamical modeling. *arXiv preprint arXiv:200206563* 2020.
21. Yang Z, Zeng Z, Wang K, et al. Modified SEIR and AI prediction of the epidemics trend of COVID-19 in China under public health interventions. *Journal of Thoracic Disease* 2020; **12**(3): 165.
22. Lin Q, Zhao S, Gao D, et al. A conceptual model for the outbreak of Coronavirus disease 2019 (COVID-19) in Wuhan, China with individual reaction and governmental action. *International journal of infectious diseases* 2020.
23. Fanelli D, Piazza F. Analysis and forecast of COVID-19 spreading in China, Italy and France. *Chaos, Solitons & Fractals* 2020; **134**: 109761.
24. Boldog P, Tekeli T, Vizi Z, Dénes A, Bartha FA, Röst G. Risk assessment of novel coronavirus COVID-19 outbreaks outside China. *Journal of clinical medicine* 2020; **9**(2): 571.
25. Chang SL, Harding N, Zachreson C, Cliff OM, Prokopenko M. Modelling transmission and control of the COVID-19 pandemic in Australia. *arXiv preprint arXiv:200310218* 2020.
26. Shen M, Peng Z, Xiao Y, Zhang L. Modelling the epidemic trend of the 2019 novel coronavirus outbreak in China. *BioRxiv* 2020.
27. Zhao S, Chen H. Modeling the epidemic dynamics and control of COVID-19 outbreak in China. *Quantitative Biology* 2020; **8**(1): 11-9.
28. Davies NG, Kucharski AJ, Eggo RM, Gimma A, Edmunds WJ. The effect of non-pharmaceutical interventions on COVID-19 cases, deaths and demand for hospital services in the UK: a modelling study. *medRxiv* 2020: 2020.04.01.20049908.
29. Peak CM, Kahn R, Grad YH, et al. Comparative Impact of Individual Quarantine vs. Active Monitoring of Contacts for the Mitigation of COVID-19: a modelling study. *medRxiv* 2020: 2020.03.05.20031088.