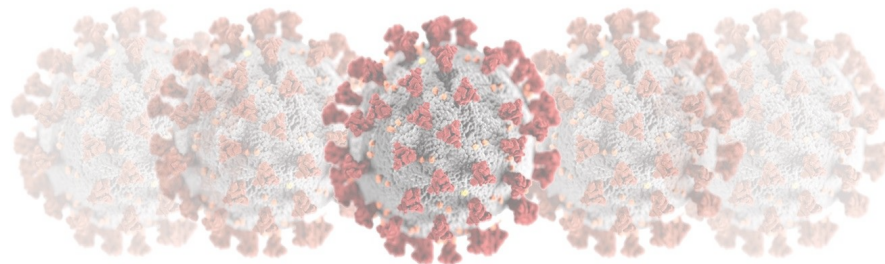


COVID-19 / SARS-CoV-2

Katarzyna Kędzierska,
Journal Club, 03/04/20

Staying informed?



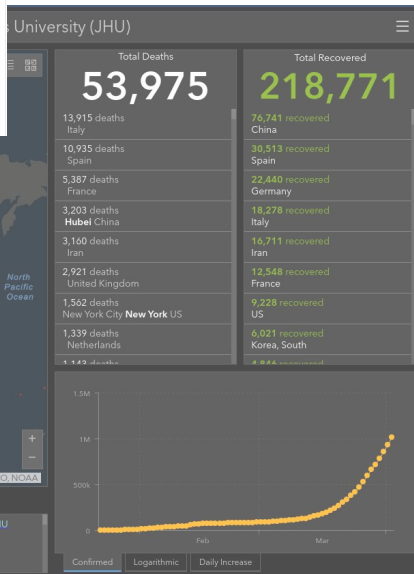
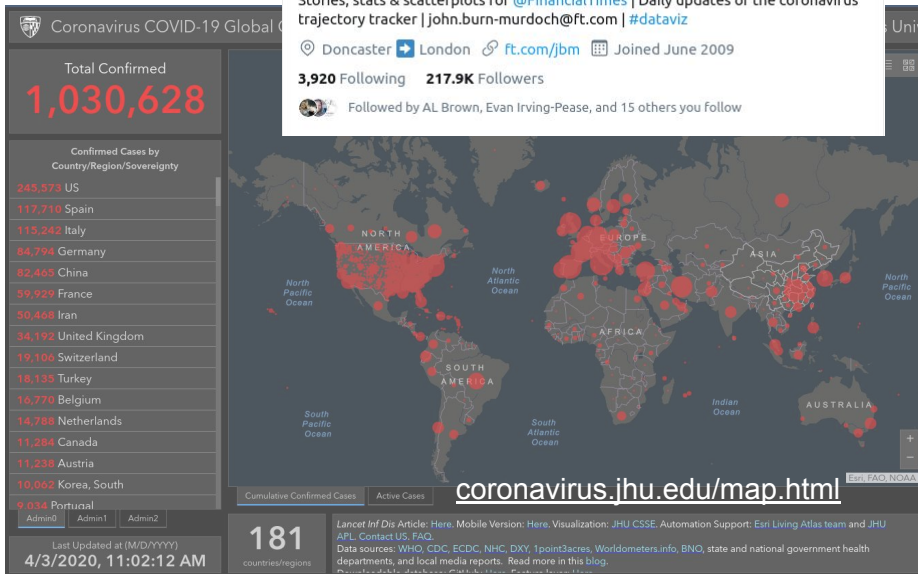
John Burn-Murdoch ✓
@jburnmurdoch

Stories, stats & scatterplots for @FinancialTimes | Daily updates of the coronavirus trajectory tracker | john.burn-murdoch@ft.com | #dataviz

Doncaster London ft.com/jbm Joined June 2009

3,920 Following 217.9K Followers

Followed by AL Brown, Evan Irving-Pease, and 15 others you follow



is happening today.
Financial Times
#TheRulesOfContagion

Adam Kucharski ✓
@AdamJKucharski

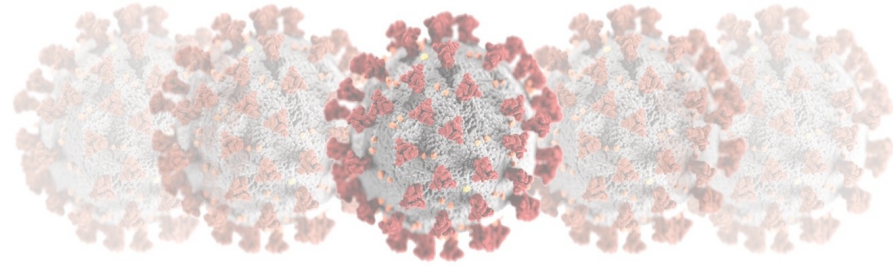
Mathematician/epidemiologist at @LSHTM. @WellcomeTrust fellow and @TEDFellow. Author of The Rules of Contagion: kucharski.io/books/

kucharski.io Joined January 2012

777 Following 65.7K Followers

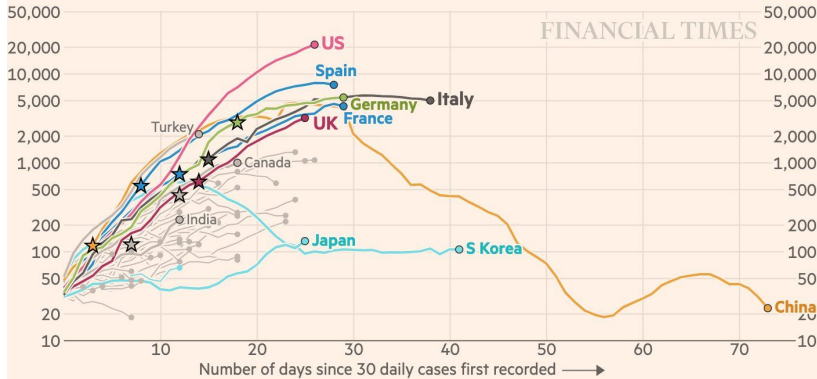
Followed by Yee Whye Teh, Evan Irving-Pease, and 11 others you follow

Increase in new cases



Italy has turned the corner, with numbers of new cases now in decline, following in China's footsteps

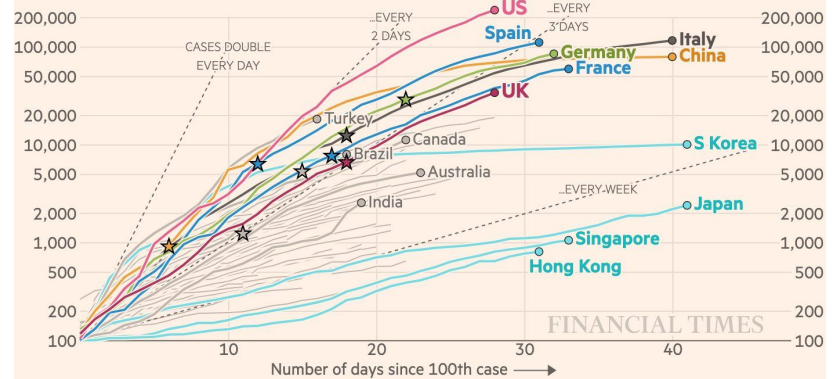
Daily confirmed cases (7-day rolling avg.), by number of days since 30 daily cases first recorded
Stars represent national lockdowns ★



FT graphic: John Burn-Murdoch / @burnmurdoch
Source: FT analysis of European Centre for Disease Prevention and Control; Worldometers; FT research. Data updated April 02, 19:00 GMT
© FT

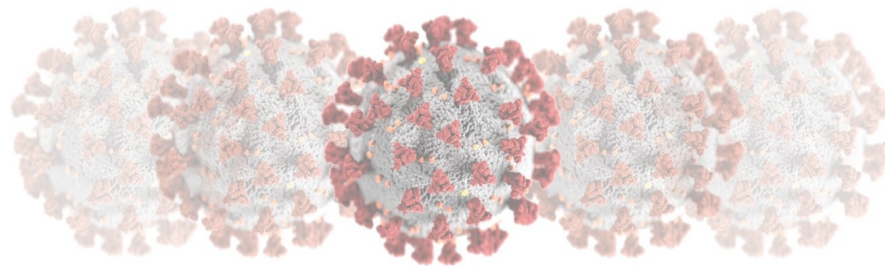
Most western countries are on the same coronavirus trajectory. Hong Kong and Singapore have limited the spread; Japan and S Korea have slowed it

Cumulative number of cases, by number of days since 100th case
Stars represent national lockdowns ★



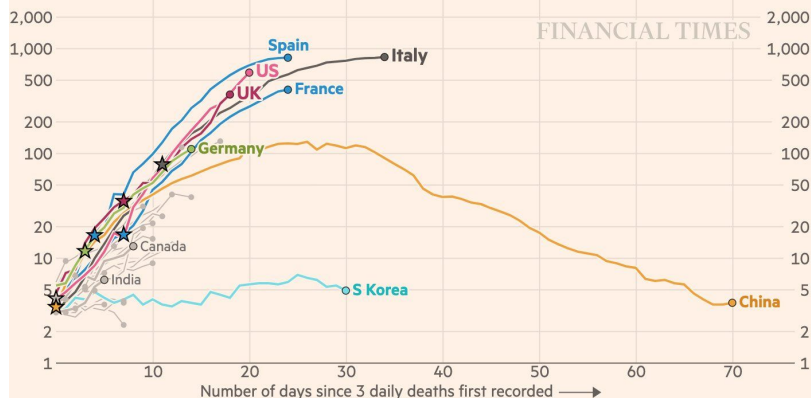
FT graphic: John Burn-Murdoch / @burnmurdoch
Source: FT analysis of European Centre for Disease Prevention and Control; Worldometers; FT research. Data updated April 02, 19:00 GMT
© FT

Death tolls



Italy and Spain's daily death tolls are plateauing, but in the UK and US every day brings more new deaths than the last

Daily coronavirus deaths (7-day rolling avg.), by number of days since 3 daily deaths first recorded



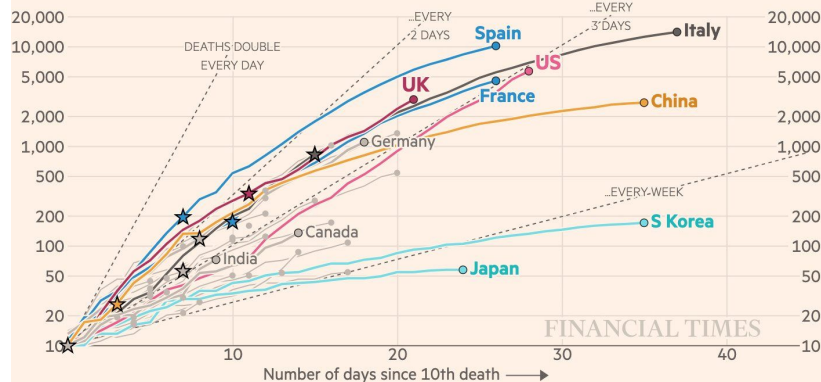
FT graphic: John Burn-Murdoch / @burnmurdoch

Source: FT analysis of European Centre for Disease Prevention and Control; Worldometers; FT research. Data updated April 02, 19:00 GMT © FT

Coronavirus deaths in Italy, Spain, the UK and US are increasing more rapidly than they did in China

Cumulative number of deaths, by number of days since 10th deaths

Stars represent national lockdowns ★

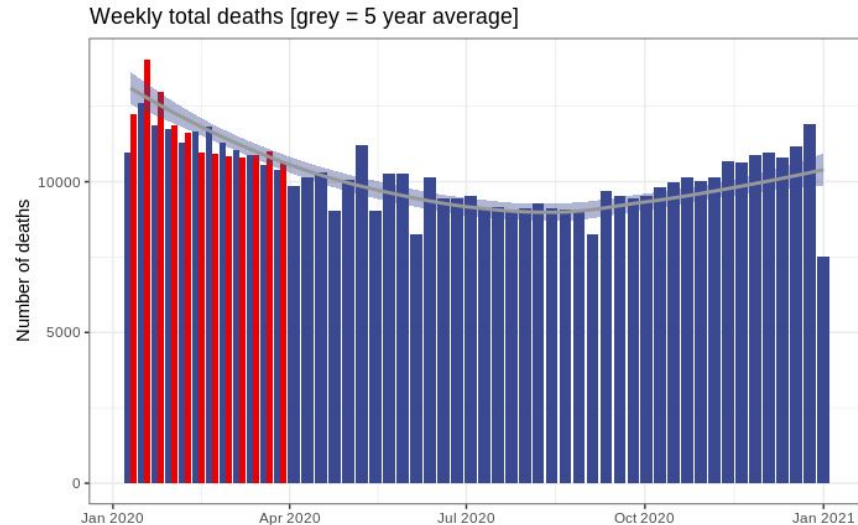
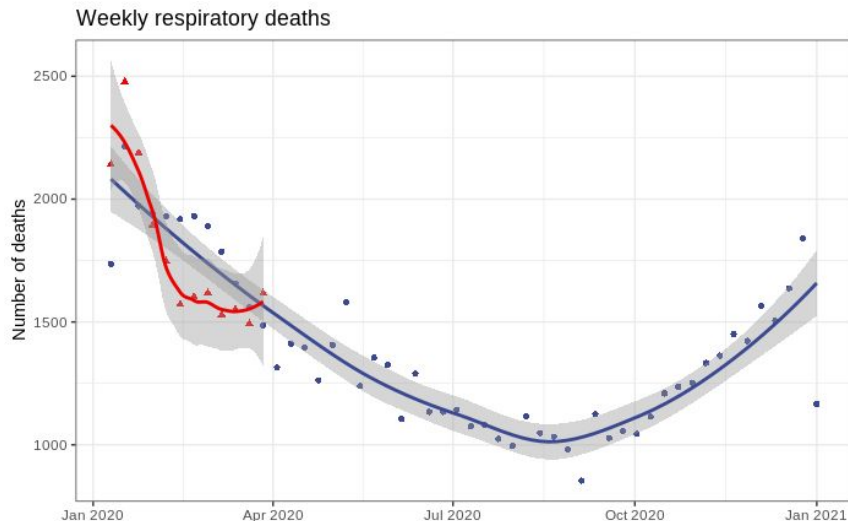
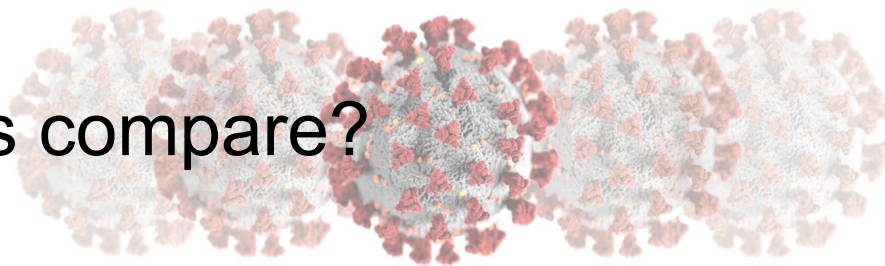


FT graphic: John Burn-Murdoch / @burnmurdoch

Source: FT analysis of European Centre for Disease Prevention and Control; Worldometers; FT research. Data updated April 02, 19:00 GMT © FT

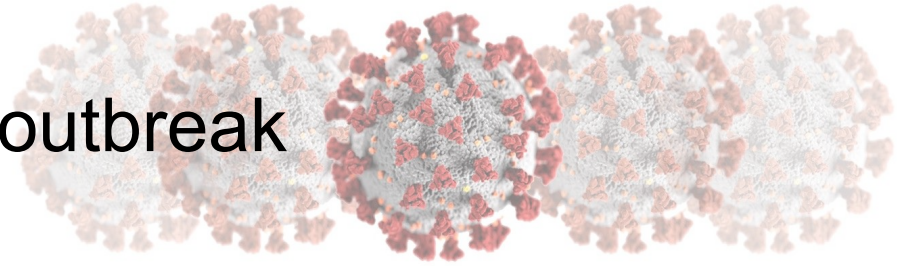
[ft.com/coronavirus-latest](https://www.ft.com/coronavirus-latest)

How does number of deaths compare?



Based on ons.gov.uk deaths' data

Modelling controlling of the outbreak



LONDON
SCHOOL of
HYGIENE
& TROPICAL
MEDICINE



LSHTM Research Online

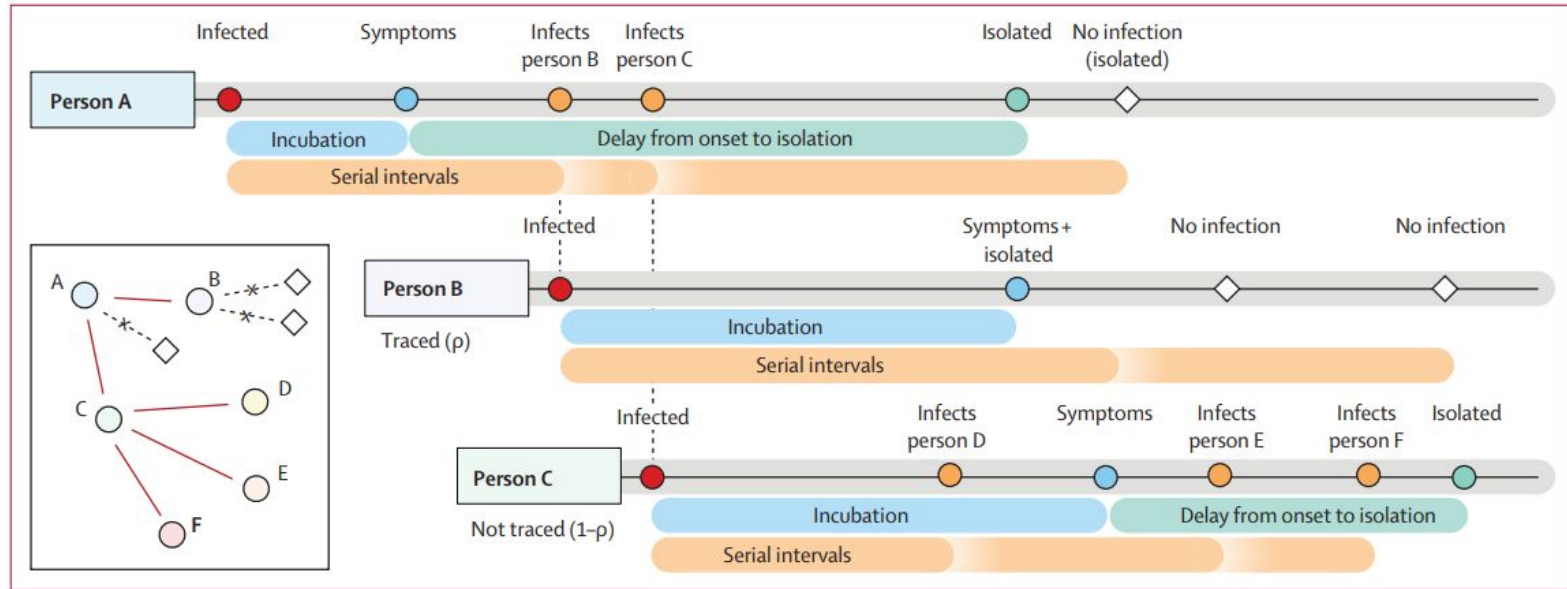
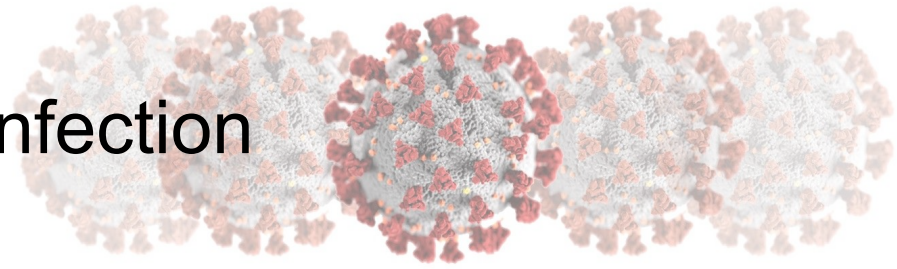
Feasibility of controlling COVID-19 outbreaks by isolation of cases and contacts



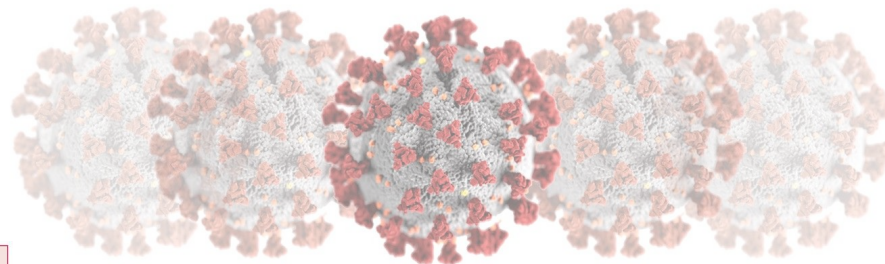
Joel Hellewell, Sam Abbott*, Amy Gimma*, Nikos I Bosse, Christopher I Jarvis, Timothy W Russell, James D Munday, Adam J Kucharski, W John Edmunds, Centre for the Mathematical Modelling of Infectious Diseases COVID-19 Working Group, Sebastian Funk†, Rosalind M Eggo†



Model of the spread of the infection

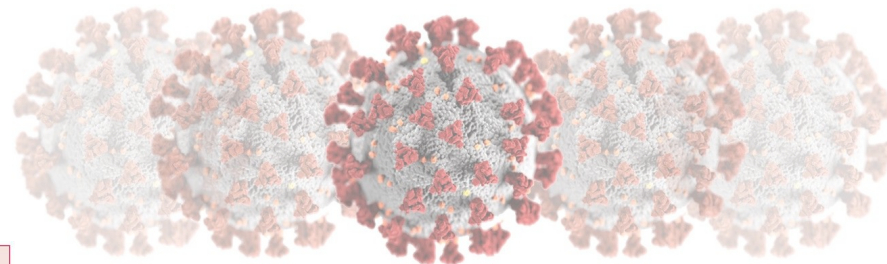


Model assumptions



	Value	Reference
Sampled		
Delay from onset to isolation (short)	3.43 days (2.02–5.23)	Donnelly et al ²⁰
Delay from onset to isolation (long)	8.09 days (5.52–10.93)	Li et al ²¹
Incubation period	5.8 days (2.6)	Backer et al ²²
Serial interval	Incubation period (2)	Assumed
Fixed		
Initial cases	5, 20, and 40	Public Health England ¹¹ and Klinkenberg and colleagues ¹⁴
Percentage of contacts traced	0%, 20%, 40%, 60%, 80%, 100%	Tested
Reproduction number (R_0 ; low, central, high estimate)	1.5, 2.5, 3.5	Kucharski et al ¹⁷ and Imai et al ¹⁸
Overdispersion in R_0 (SARS-like)	0.16	Lloyd-Smith et al ¹⁹
R_0 after isolation	0	Assumed
Cases isolated once identified	100%	Assumed
Isolation effectiveness	100%	Assumed
Subclinical infection percentage	0%, 10%	Tested
Data are median (IQR) or mean (SD), n, or %. Sampled values are probabilistically sampled during the simulation, and fixed values remain constant during the simulation. The mean of the short and long delays are 3.83 and 9.1, respectively. SARS=severe acute respiratory syndrome.		
Table: Parameter values for the model		

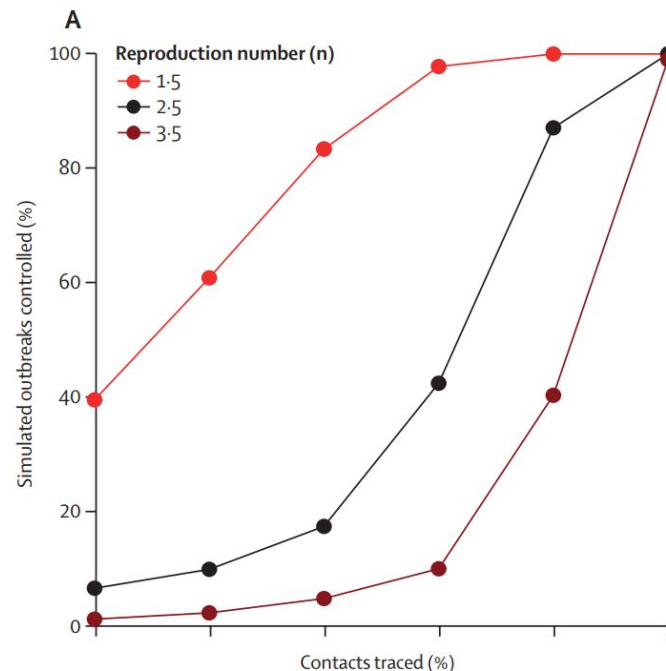
Model assumptions



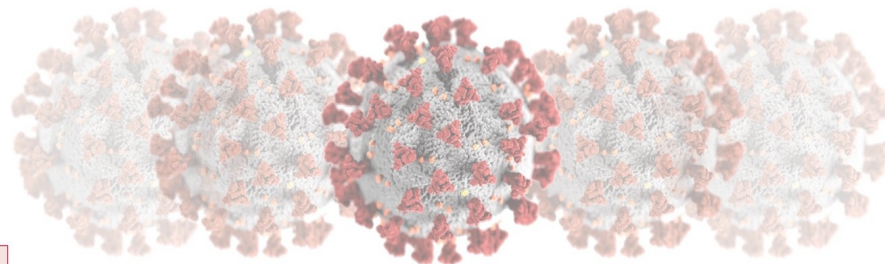
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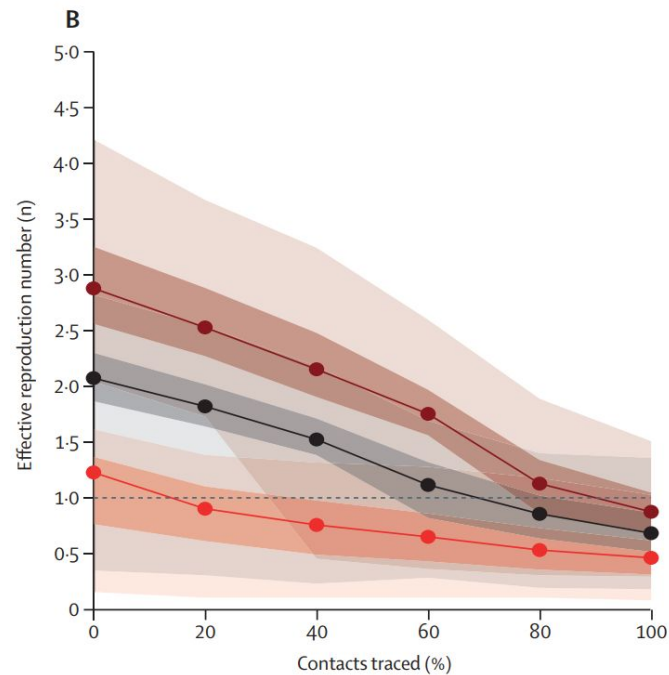
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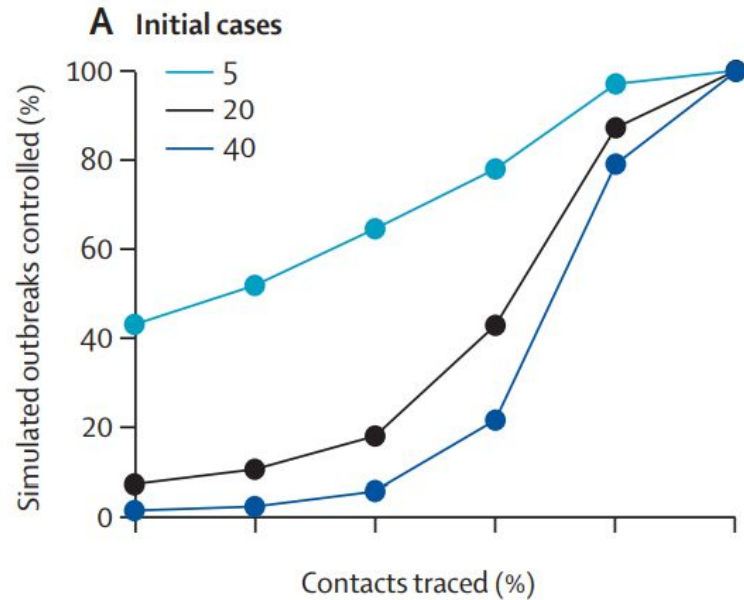
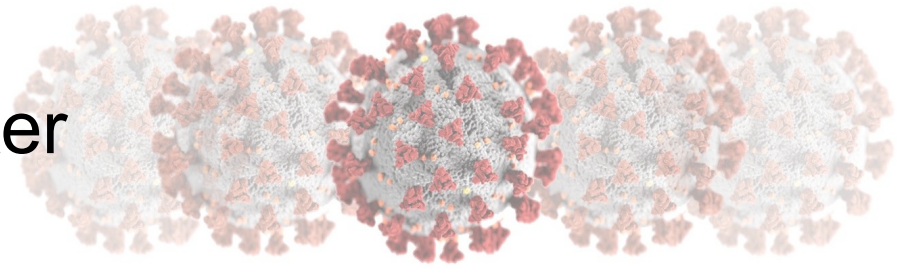
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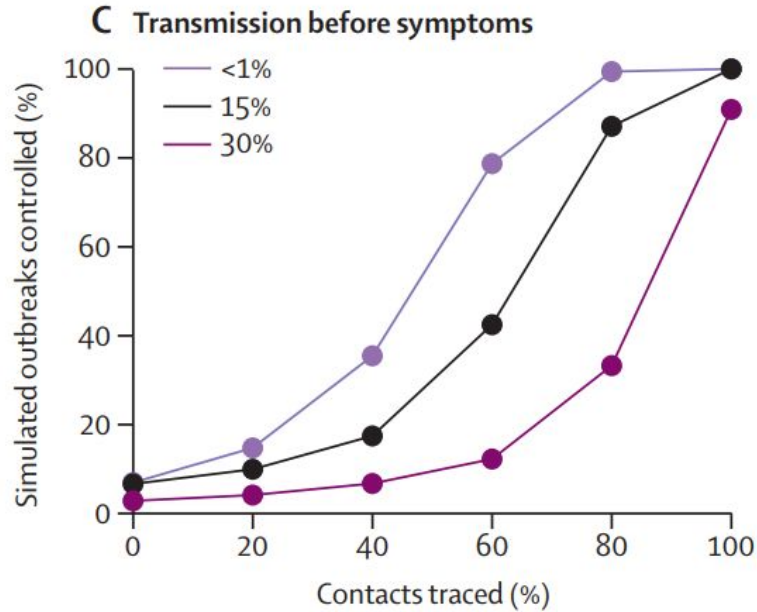
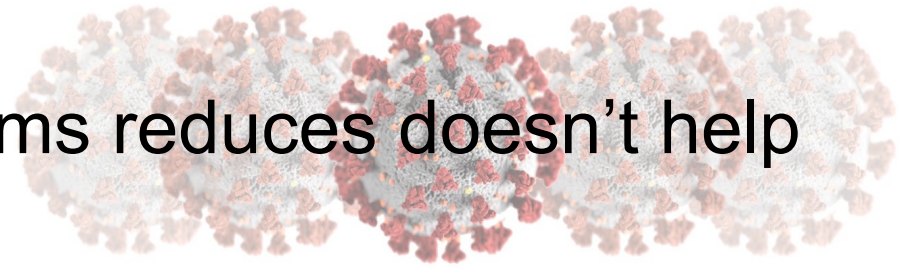
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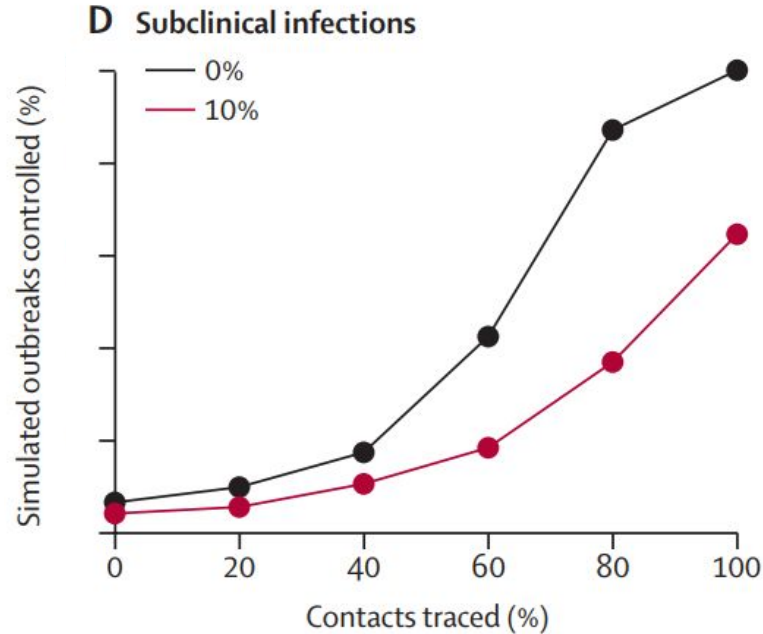
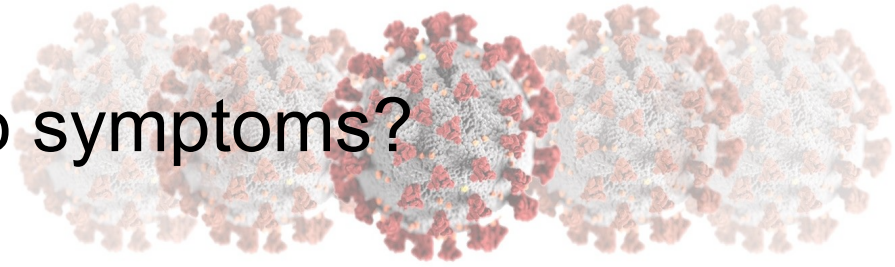
Tracing: The earlier the better



Transmitting before symptoms reduces doesn't help



What if some experience no symptoms?



Tracing and (self-)isolation not enough

