

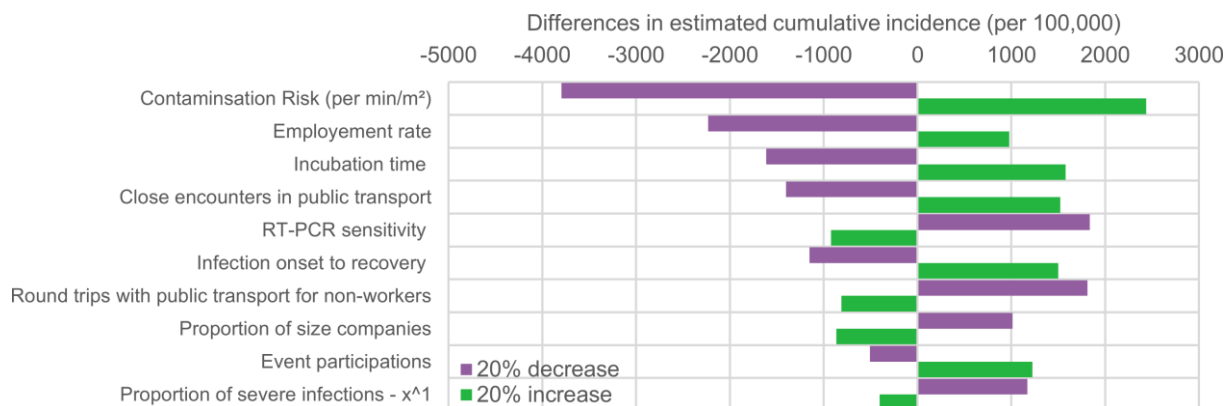
SUPPLEMENTARY MATERIAL

eTable 1. Summary of model parameters.

Parameters	Value	Source
Individuals' characteristics		
Family structure (%)		
Singles	32.2%	US Census Bureau (22)
Couples with children	41.2%	
Couples without children	15.8%	
Singles with children	10.8%	
Age structure (categorized by 5-year age groups)		US Census Bureau (22)
Condition or disease associated with increased risk of death from SARS-COV2 (i.e., smoking, hypertension, diabetes, coronary diseases, and chronic obstructive pulmonary disease)	Estimates per age and sex	Department of Health of the New York State (23)
Social contacts		
School class size (average)	26	NYC Department of Education (31)
Proportion of small companies (<20 employees)	89%	City of New York (32)
Number of colleagues in small companies (average)	2	Assumption
Number of colleagues in bigger companies (average)	10	Assumption
Employment rate (for people aged 20 to 65 years)	95.9%	US Census Bureau (22)
Shopping density (per 100,000 inhabitants)	23.0	AECOM (34)
Number of people met during shopping (average)	5	Assumption
Number of shopping trips (average per week)	1.2	Assumption
Social network distance	22	Gilbert et al. (33)
Frequency of meeting friends (average per week)	1	Assumption
Event participations, i.e., museum, cinema, music and sport events (average per year)	3.1	Statista (55)
Close encounters per event participation (average)	4	Assumption
Round trips with public transport (average per week) for workers	5	Assumption
Round trips with public transport (average per week) for non-workers	1.7	Assumption

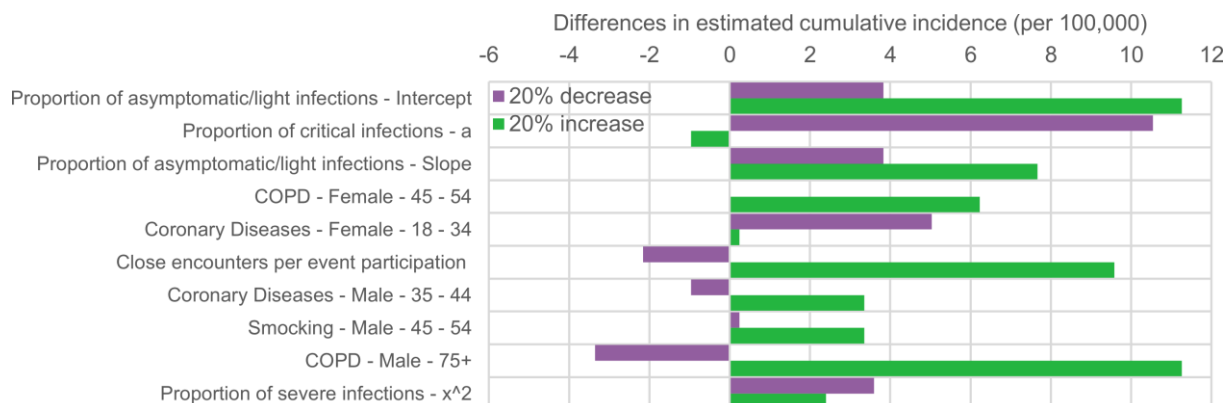
Close encounters in public transport	3-5	Assumption, with work-related trips assumed to happen at peak times with more encounters
International contamination (average, per week)	1.8	Approximated using the frequency of imported cases observed in France initially
COVID-19 infection characteristics		
Contamination risk (per min/m ²)	0.04	Calibrated on the observed cumulative incidence of confirmed cases in NYC
Proportion of asymptomatic/light/mild/severe/critical infections in diagnosed patients		CDC (37)
Proportion of severe infections	[2%-70%]	CDC (37)
Proportion of critical infections	[0%-36%]	CDC (37)
Proportion of asymptomatic/light infections that will not be diagnosed		Set at 100% in children since almost no children have been diagnosed with COVID-19 (39), and this percentage was assumed to decrease linearly with age, with a slope of this decrease calibrated to show a cumulative incidence (diagnosed + undiagnosed) of 1 in 100 diagnosis rate as previously suggested (26, 41, 42)
Mortality rate for critical infections	26%	(43)
Delays (days)		
Incubation time (average, standard deviation)	6.4 (2.3)	(44)
Infection onset to diagnosis (average, standard deviation)	2.1 (2.6)	(10)
Infection onset to hospital admission (average, standard deviation)	5.8 (4.2)	London Imperial College (40)
Infection onset to recovery (average, standard deviation)	20.5 (6.7)	London Imperial College (40)
Infection onset to death (average, standard deviation)	16.0 (8.21)	London Imperial College (40)
Hospital to ICU (average, standard deviation)	2 (1)	Assumption
RT-PCR sensitivity (average)	71%	(48)

eFigure 1. Sensitivity analysis: impact of varying by +/-20% each model parameter value on the estimated cumulative incidence for a two-step quarantine lifting using a 70-year of age cut-off.



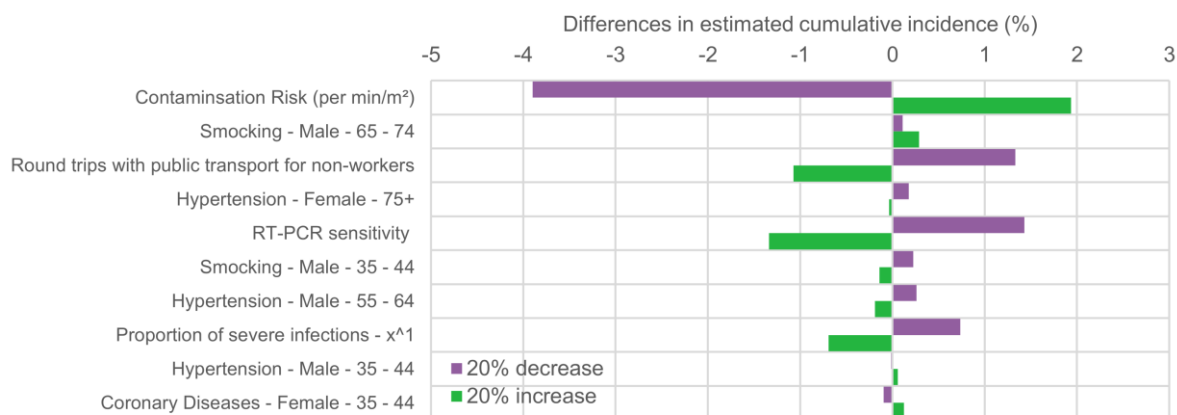
Only the 10 parameters having the highest impact are presented.

eFigure 2. Sensitivity analysis: impact of varying by +/-20% each model parameter value on the estimated cumulative mortality for a two-step quarantine lifting using a 70-year of age cut-off.



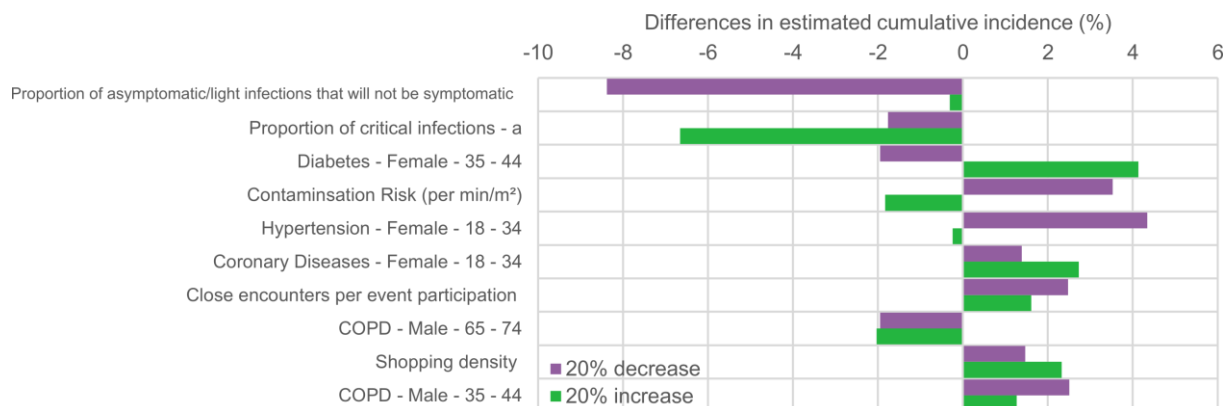
Only the 10 parameters having the highest impact are presented.

eFigure 3. Sensitivity analysis: impact of varying by +/-20% each model parameter value on the difference in cumulative incidence between a one-step 16-week quarantine and a two-step quarantine lifting using a 70-year of age cut-off.



Only the 10 parameters having the highest impact are presented.

eFigure 4. Sensitivity analysis: impact of varying by +/-20% each model parameter value on the difference in cumulative mortality between a one-step 16-week quarantine and a two-step quarantine lifting using a 70-year of age cut-off.



Only the 10 parameters having the highest impact are presented.

SUPPLEMENTAL TEXT SECTION

Social contact model parameters

Contacts were defined by their average duration (in minutes), their average distance (in meters), their frequency, and the number of individuals involved. For intrafamilial contacts, it was assumed that their average duration was 6 hours per day at a 1-meter distance every day for all household members. For contacts at school, outside the quarantine period during which these contacts were considered null, average duration was 6 hours at an average 2-meter distance, 5 days a week, for all classmates. Classmates were identified as children of the same age living in a similar location to represent the geographic clustering of schools. The average class size in NYC was estimated at 26.1 (31). For contacts at work, outside the quarantine period during which these contacts were considered null, average contact duration with colleagues was assumed to be 7.5 hours at a 2-meter distance, 5 times a week. Only employed individuals aged 20 to 65 years had work-related contacts. We distinguished between small companies with 20 or fewer employees and regular or large ones (32). Individuals working in small companies had two colleagues on average, while employees of regular or large companies had an average of 10 colleagues. The number of colleagues was randomly drawn from a Poisson distribution. Work colleagues were identified at random within the city grid. For friends and family contacts, outside the quarantine period during which these contacts were considered null, it was assumed that the average duration was 180 minutes at a 1-meter distance, with one meeting a week on average. Outside the quarantine period, it was also considered that friend and family contacts occurred between households, for example, a couple with children could visit a friend's or grandparent's household.

Social networks were based on methods described by Gilbert et al. (33) with a distance of 22 (Poisson distributed) in order to incorporate key aspects of social networks, such as the different sizes of personal networks, high clustering, positive assortment of degree of

connectivity, and low density. Individuals were considered to visit the closest grocery store from their location 1.2 times a week, and meet an average of five people (Poisson distributed). Grocery stores were uniformly distributed throughout the city grid and their density was estimated at 23 stores per 100,000 inhabitants (34). Outside the quarantine period, contacts when going out of home were limited to cultural activities such as museum, sport, music or cinema events. It was assumed that contacts in restaurants or bars were captured through the friend and family contacts. The average number of times the family went out per year (Poisson distributed) was based on ticket sales' from US statistics (35). Attendance at any public event was associated with a duration of 120 minutes at a 2-meter distance with an average of 4 individuals (Poisson distributed) randomly identified in the city grid. We considered that all individuals used public transport 1.7 times a week for shopping or seeing family or friends. Workers were considered using public transports five times a week, twice a day (Poisson distributed). For public transport, a 30-minute average duration at a 1-meter distance from a mean number of 3 to 5 individuals (Poisson distributed) randomly identified in the city grid was assumed.

It was also considered that the first patients were individuals contaminated through international travel. Thus, individuals could become infected through international contacts over time at a rate based on the frequency of infected patients that were initially diagnosed in NYC (6).

Finally, based on epidemiological data from South Korea (36), it was assumed that the risk of transmission between individuals would be divided by four (representing an additional 1-meter distance for all contacts) if all individuals adhered to social distancing.

