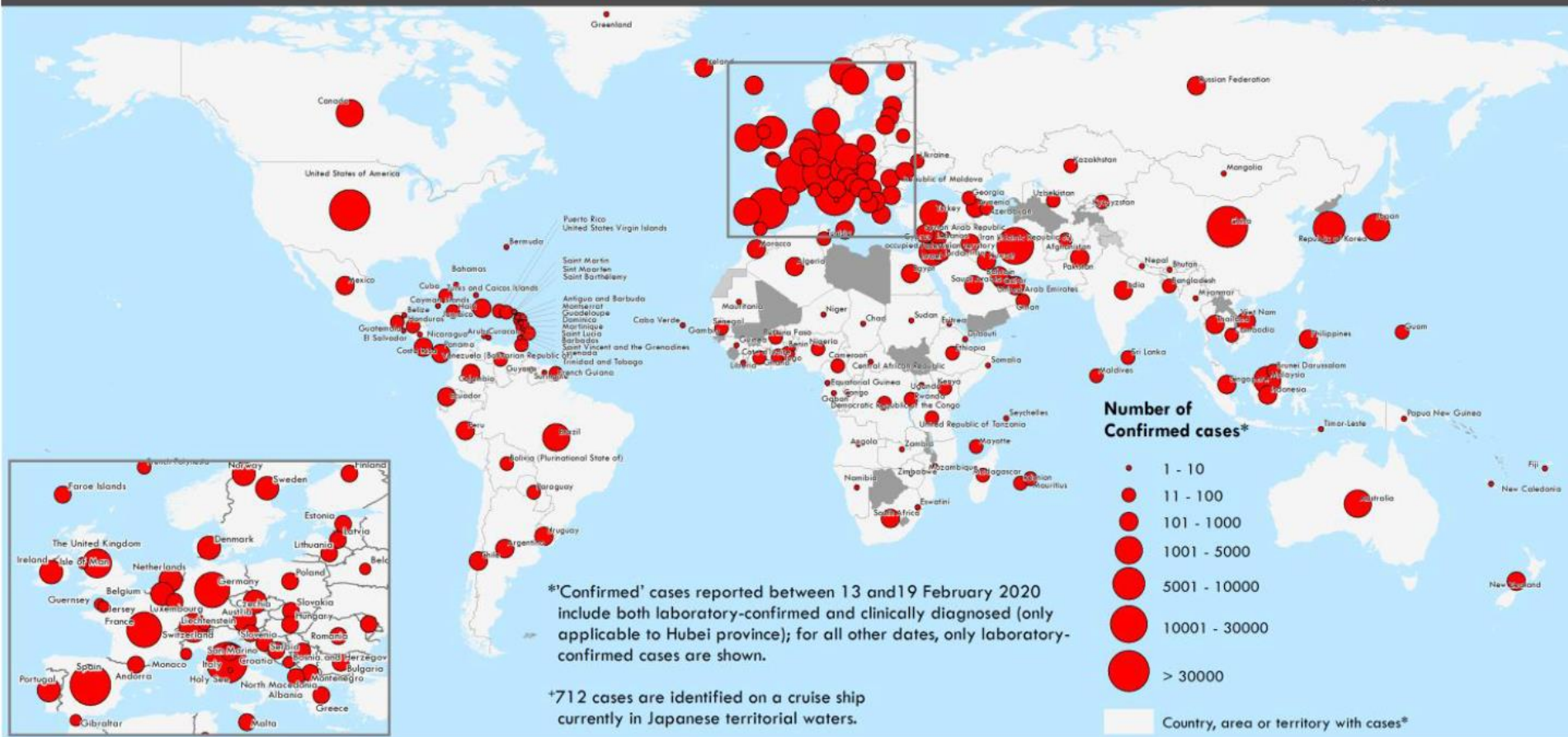


Reporte 64 de la Organización Mundial de la Salud (21-3-2020)



Distribution of COVID-19 cases as of 24 March 2020, 10:00 (CET)



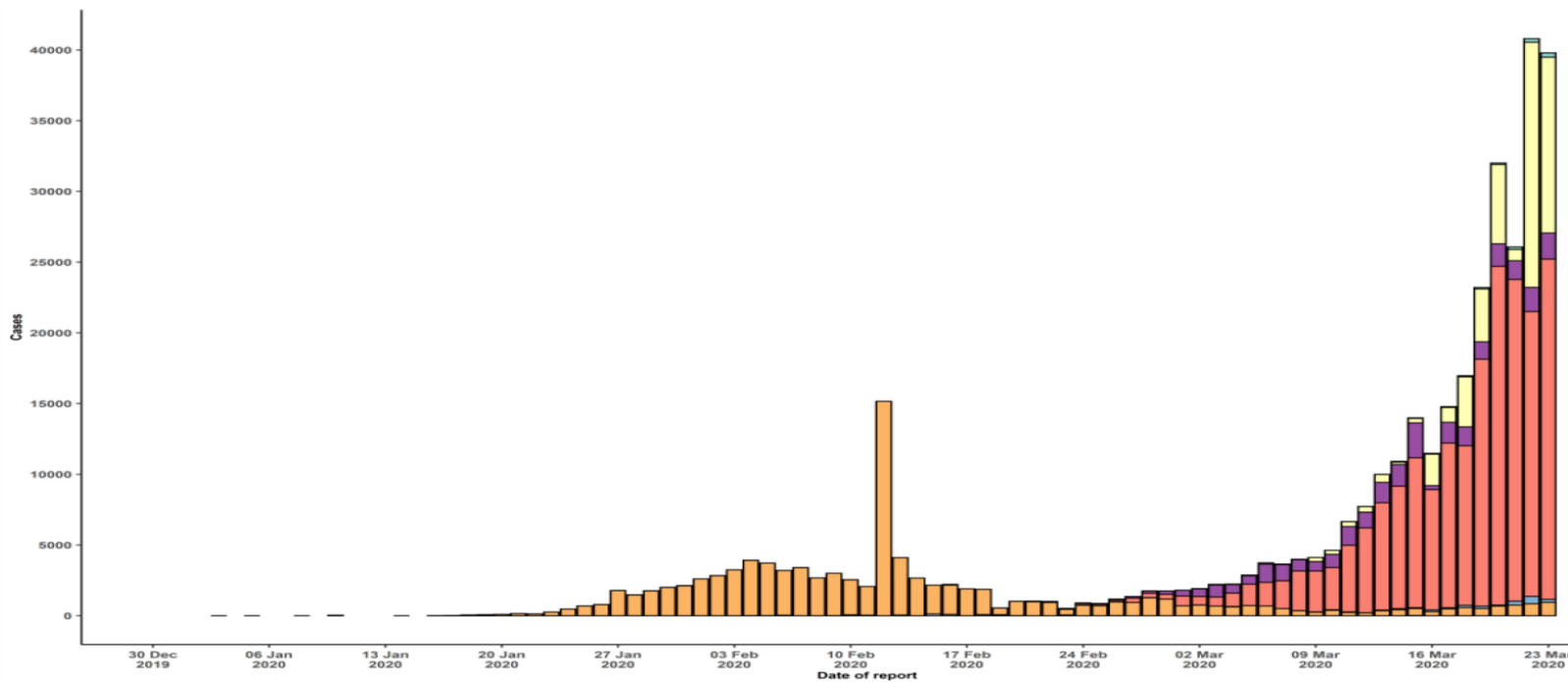
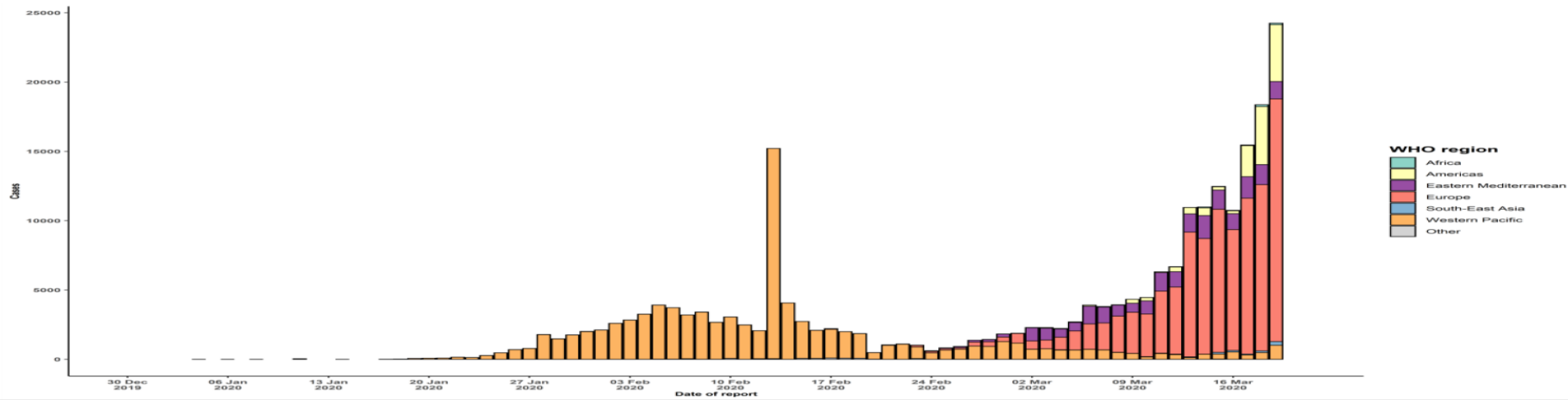
Data Source: World Health Organization
Map Production: WHO Health Emergencies Programme

Not applicable

0 2,500 5,000 km
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The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Reporte 60-64 de la Organización Mundial de la Salud (19 al 24 3-2020)





Reporte
Epidemiológico
de Córdoba

20 DE MARZO
2020
REC 2.296



Imperial College
London

EL INFORME SOBRE LA COVID-19 QUE
PROVOCÓ UN CAMBIO RADICAL EN LA ESTRATEGIA
DEL REINO UNIDO Y ESTADOS UNIDOS

18/03/2020

Impact of non-pharmaceutical interventions (NPIs) to reduce COVID-19 mortality and healthcare demand

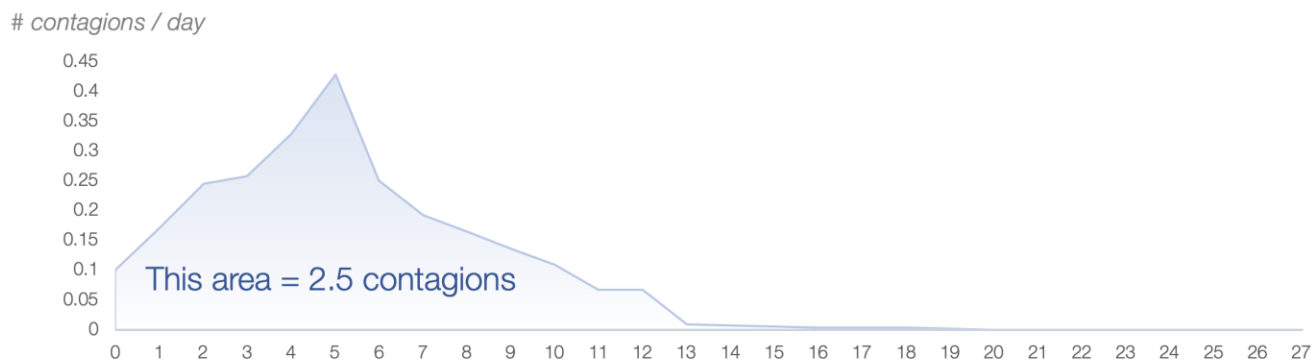
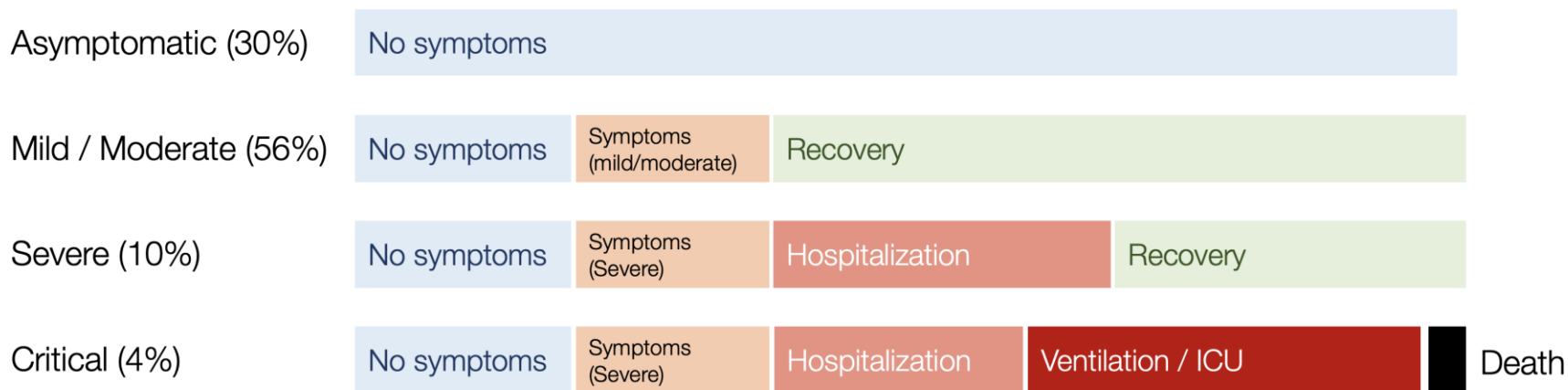
Neil M Ferguson, Daniel Laydon, Gemma Nedjati-Gilani, Natsuko Imai, Kylie Ainslie, Marc Baguelin, Sangeeta Bhatia, Adhiratha Boonyasiri, Zulma Cucunubá, Gina Cuomo-Dannenburg, Amy Dighe, Ilaria Dorigatti, Han Fu, Katy Gaythorpe, Will Green, Arran Hamlet, Wes Hinsley, Lucy C Okell, Sabine van Elsland, Hayley Thompson, Robert Verity, Erik Volz, Haowei Wang, Yuanrong Wang, Patrick GT Walker, Caroline Walters, Peter Winskill, Charles Whittaker, Christl A Donnelly, Steven Riley, Azra C Ghani.

On behalf of the Imperial College COVID-19 Response Team

WHO Collaborating Centre for Infectious Disease Modelling
MRC Centre for Global Infectious Disease Analysis
Abdul Latif Jameel Institute for Disease and Emergency Analytics
Imperial College London

Correspondence: neil.ferguson@imperial.ac.uk

Chart 14: Transmission Rate during Coronavirus Stages in Patients



Source: Tomas Pueyo, John Hsu, WHO, Eurosurveillance, Medrxiv, ECDC, The Lancet, Impact of non-pharmaceutical interventions (NPIs) to reduce COVID19 mortality and healthcare demand, The Incubation Period of Coronavirus Disease 2019 (COVID-19) From Publicly Reported Confirmed Cases: Estimation and Application, Mixing patterns between age groups in social networks.

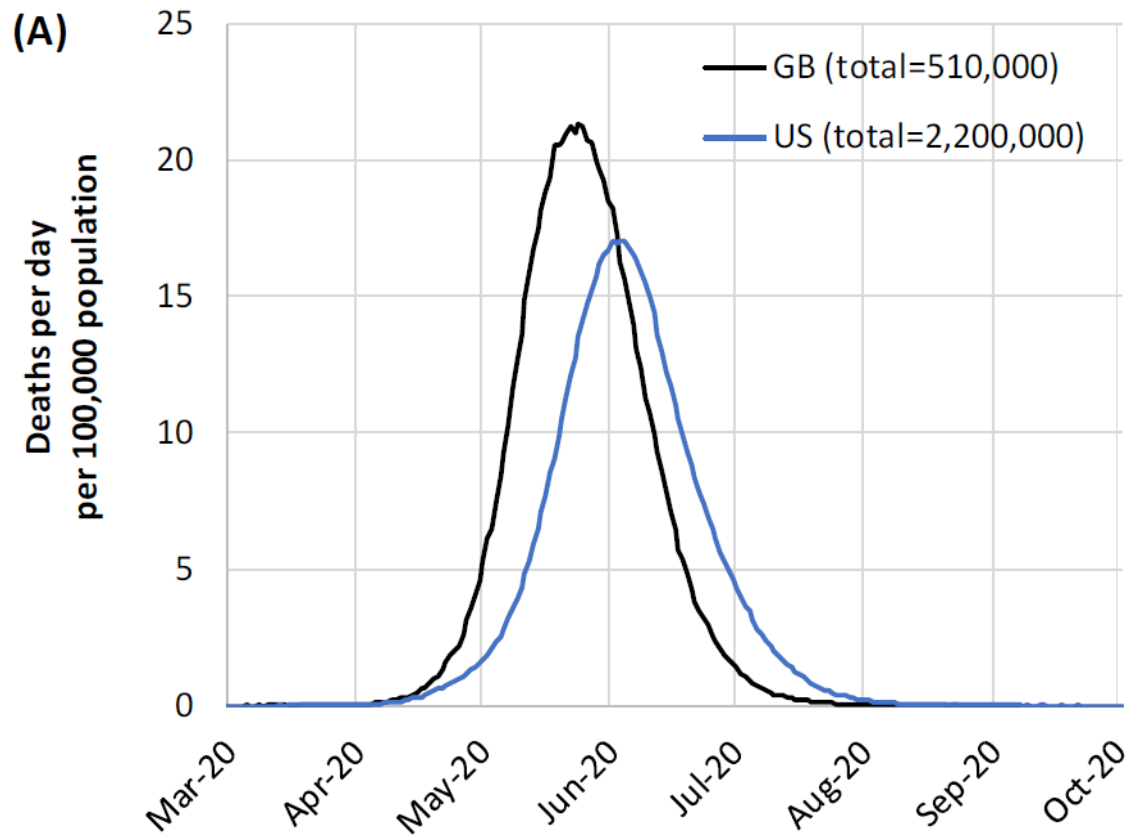
We assume that 0.6 of cases are sufficiently symptomatic to self-isolate (if required by policy) within 1 day of symptom onset, and a mean delay from onset of symptoms to hospitalisation of 5 days.

Age-group (years)	% symptomatic cases requiring hospitalisation	% hospitalised cases requiring critical care	Infection Fatality Ratio
0 to 9	0.1%	5.0%	0.002%
10 to 19	0.3%	5.0%	0.006%
20 to 29	1.2%	5.0%	0.03%
30 to 39	3.2%	5.0%	0.08%
40 to 49	4.9%	6.3%	0.15%
50 to 59	10.2%	12.2%	0.60%
60 to 69	16.6%	27.4%	2.2%
70 to 79	24.3%	43.2%	5.1%
80+	27.3%	70.9%	9.3%

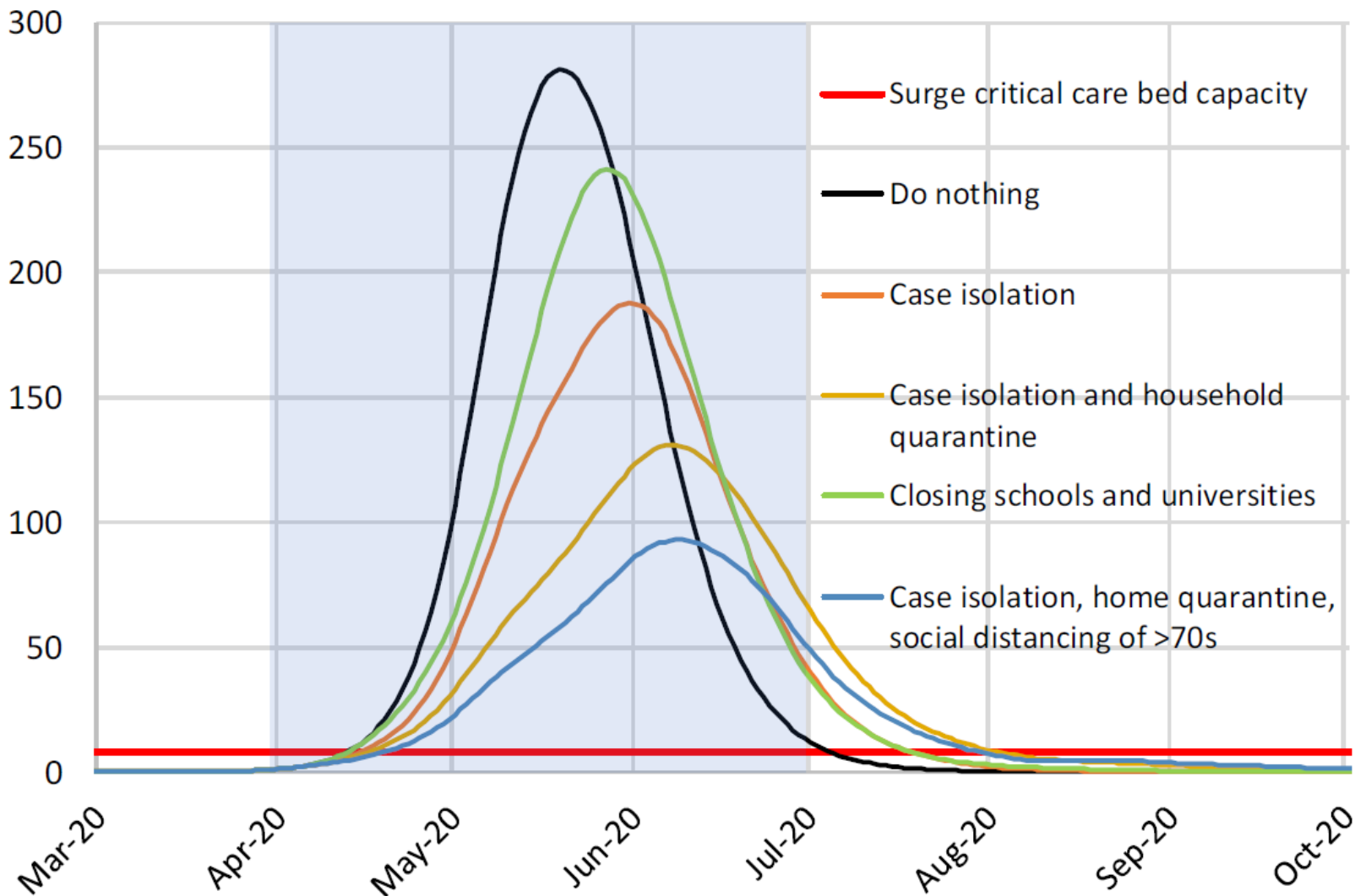
Table 2: Summary of NPI interventions considered.

Label	Policy	Description
CI	Case isolation in the home	Symptomatic cases stay at home for 7 days, reducing non-household contacts by 75% for this period. Household contacts remain unchanged. Assume 70% of household comply with the policy.
HQ	Voluntary home quarantine	Following identification of a symptomatic case in the household, all household members remain at home for 14 days. Household contact rates double during this quarantine period, contacts in the community reduce by 75%. Assume 50% of household comply with the policy.
SDO	Social distancing of those over 70 years of age	Reduce contacts by 50% in workplaces, increase household contacts by 25% and reduce other contacts by 75%. Assume 75% compliance with policy.
SD	Social distancing of entire population	All households reduce contact outside household, school or workplace by 75%. School contact rates unchanged, workplace contact rates reduced by 25%. Household contact rates assumed to increase by 25%.
PC	Closure of schools and universities	Closure of all schools, 25% of universities remain open. Household contact rates for student families increase by 50% during closure. Contacts in the community increase by 25% during closure.

In an unmitigated epidemic, we would predict approximately 510,000 deaths in GB and 2.2 million in the US,



Critical care beds occupied per 100,000 of population



Relative impact of NPI combinations applied nationally for 3 months in GB on total deaths and peak hospital ICU

The cells show the percentage reduction in peak ICU bed demand for a variety of NPI combinations and for triggers based on the absolute number of ICU cases diagnosed in a county per week.

	Trigger (cumulative ICU cases)	PC	CI	CI_HQ	CI_HQ_SD	CI_SD	CI_HQ_SDOL70	PC_CI_HQ_SDOL70
R ₀ =2.4 Peak beds	100	14%	33%	53%	33%	53%	67%	69%
	300	14%	33%	53%	34%	57%	67%	71%
	1000	14%	33%	53%	39%	64%	67%	77%
	3000	12%	33%	53%	51%	75%	67%	81%
R ₀ =2.4 Total deaths	100	2%	17%	31%	13%	20%	49%	29%
	300	2%	17%	31%	14%	23%	49%	29%
	1000	2%	17%	31%	15%	26%	50%	30%
	3000	2%	17%	31%	19%	30%	49%	32%

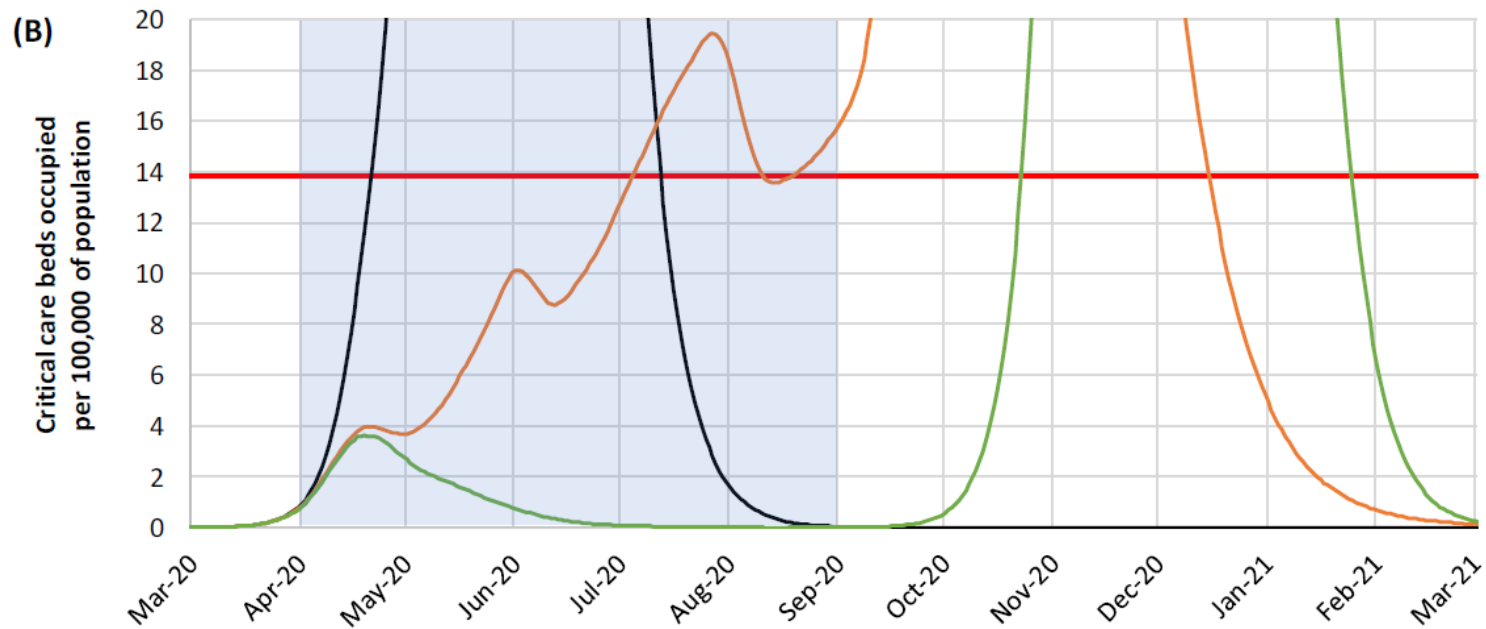
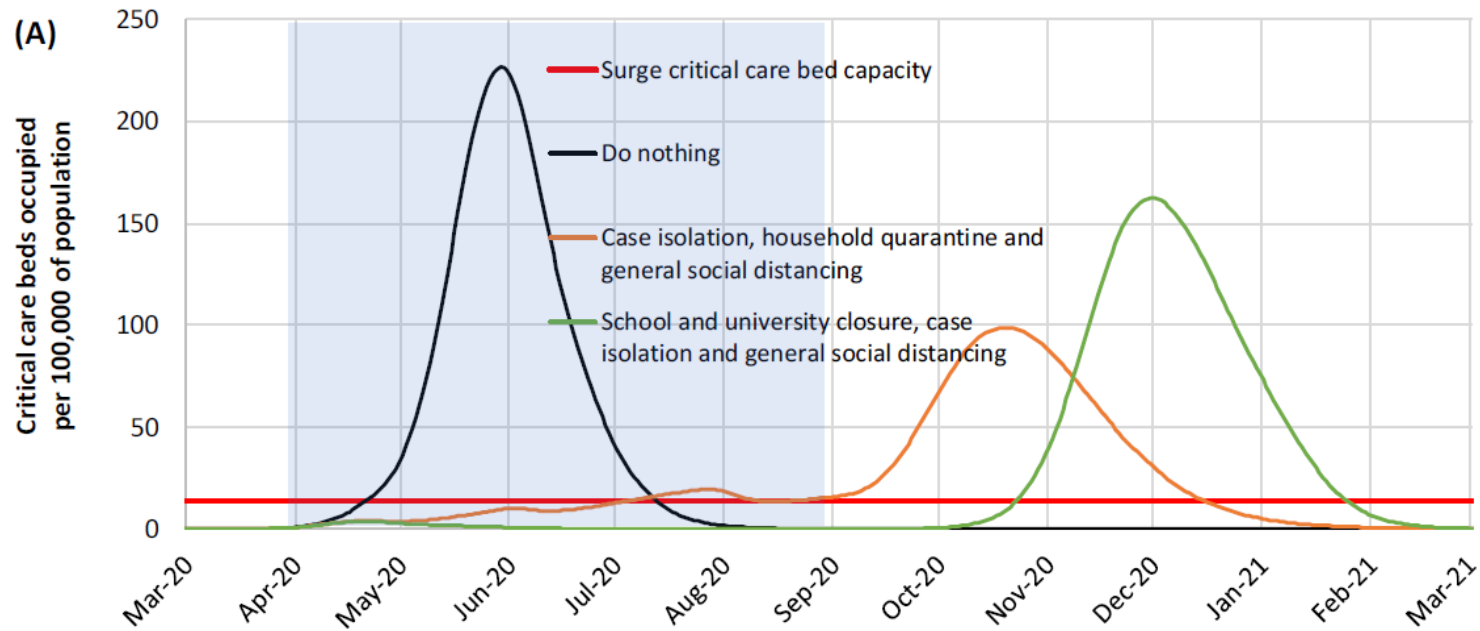
PC=school and university closure, CI=home isolation of cases, HQ=household quarantine, SD=social distancing of the entire population, SDOL70=social distancing of those over 70 years

- The interventions need to remain in place for as much of the epidemic period as possible.
- it is necessary to balance the timing of introduction with the scale of disruption imposed and the likely period over which the interventions can be maintained.

Pensemos que

- vacuna se espera que esté disponible para su uso en 12-18 meses
- Antivirales candidatos: Favipiravir, Cloroquina o Cloroquina combinados con Azitromicina

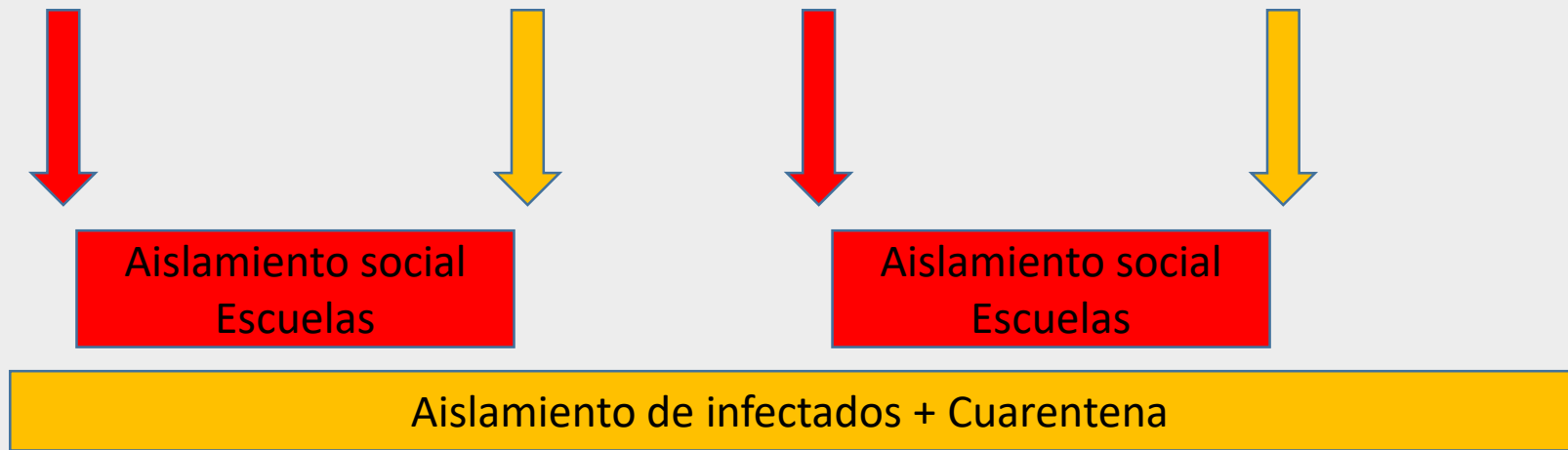
Given that **mitigation** is unlikely to be a viable option without overwhelming healthcare systems, **suppression** is likely necessary in countries able to implement the intensive controls required



Adaptive policy in which

suppression is ON after weekly confirmed case incidence in ICU patients

suppression is relaxed when ICU case incidence falls below a certain “off” threshold



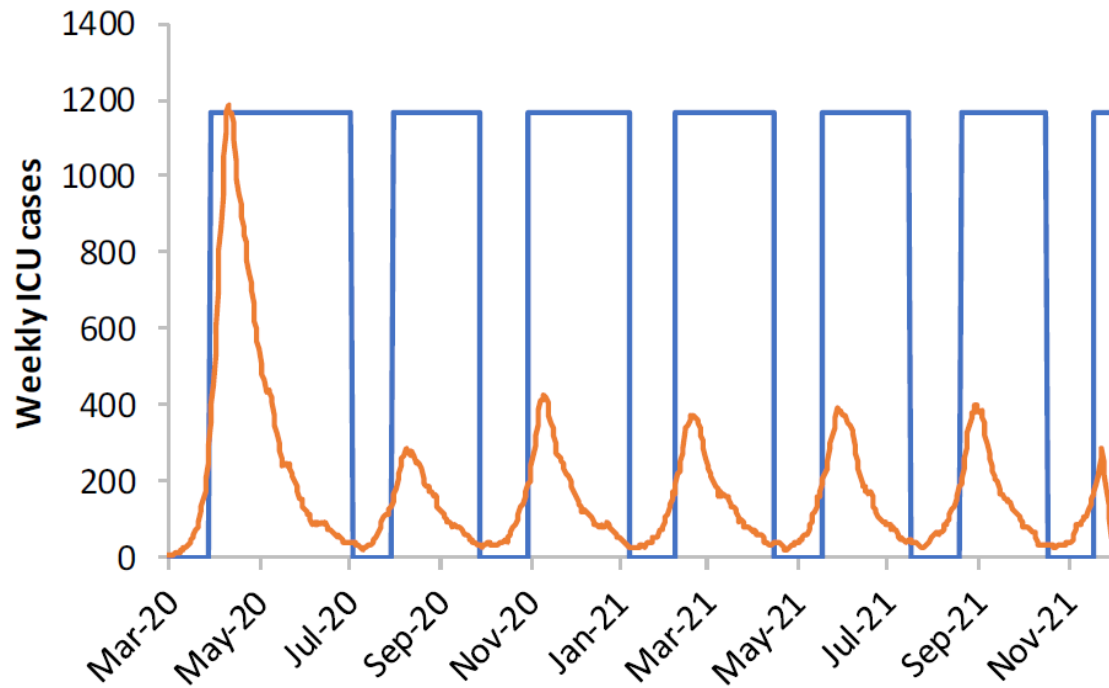


Figure 4: Illustration of adaptive triggering of suppression strategies in GB, for $R_0=2.2$, a policy of all four interventions considered, an “on” trigger of 100 ICU cases in a week and an “off” trigger of 50 ICU cases. The policy is in force approximate 2/3 of the time. Only social distancing and school/university closure are triggered; other policies remain in force throughout. Weekly ICU incidence is shown in orange, policy triggering in blue.

		Total deaths			
R ₀	On Trigger	Do nothing	CI_HQ_SD	PC_CI_SD	PC_CI_HQ_SD
2	60	410,000	47,000	6,400	5,600
	100	410,000	47,000	9,900	8,300
	200	410,000	46,000	17,000	14,000
	300	410,000	45,000	24,000	21,000
	400	410,000	44,000	30,000	26,000
2.2	60	460,000	62,000	9,700	6,900
	100	460,000	61,000	13,000	10,000
	200	460,000	64,000	23,000	17,000
	300	460,000	65,000	32,000	26,000
	400	460,000	68,000	39,000	31,000
2.4	60	510,000	85,000	12,000	8,700
	100	510,000	87,000	19,000	13,000
	200	510,000	90,000	30,000	24,000
	300	510,000	94,000	43,000	34,000
	400	510,000	98,000	53,000	39,000

Peak ICU beds			
Do nothing	CI_HQ_SD	PC_CI_SD	PC_CI_HQ_SD
130,000	3,300	930	920
130,000	3,500	1,300	1,300
130,000	3,500	1,900	1,900
130,000	3,500	2,200	2,200
130,000	3,800	2,900	2,700
160,000	7,600	1,200	1,100
160,000	7,700	1,600	1,600
160,000	7,700	2,600	2,300
160,000	7,300	3,500	3,000
160,000	7,300	3,700	3,400
180,000	11,000	1,200	1,200
180,000	11,000	2,000	1,800
180,000	9,700	3,500	3,200
180,000	9,900	4,400	4,000
180,000	10,000	5,700	4,900

Proportion of time with SD in place		
CI_HQ_SD	PC_CI_SD	PC_CI_HQ_SD
96%	69%	58%
96%	67%	61%
95%	66%	57%
95%	64%	55%
94%	63%	55%
96%	82%	70%
96%	80%	66%
89%	76%	64%
89%	74%	64%
82%	72%	62%
87%	89%	78%
83%	88%	77%
77%	82%	74%
72%	81%	74%
68%	81%	71%

		Total deaths											
R_0	On Trigger	Do nothing	CI	HQ	SD	PC	CI	SD	PC	CI	HQ	SD	
2.4	60	510,000	85,000			12,000			8,700				
	100	510,000	87,000			19,000			13,000				
	200	510,000	90,000			30,000			24,000				
	300	510,000	94,000			43,000			34,000				
	400	510,000	98,000			53,000			39,000				

		Peak ICU beds			
R_0	On Trigger	Do nothing	CI_HQ_SD	PC_CI_SD	PC_CI_HQ_SD
2.4	60	180,000	11,000	1,200	1,200
	100	180,000	11,000	2,000	1,800
	200	180,000	9,700	3,500	3,200
	300	180,000	9,900	4,400	4,000
	400	180,000	10,000	5,700	4,900

Proportion of time with SD in place

R ₀	On Trigger	Proportion of time with SD in place		
		CI_HQ_SD	PC_CI_SD	PC_CI_HQ_SD
2.4	60	87%	89%	78%
	100	83%	88%	77%
	200	77%	82%	74%
	300	72%	81%	74%
	400	68%	81%	71%

Adaptive hospital surveillance-based triggers for switching on and off population-wide social distancing and school closure offer greater robustness to uncertainty.

Given local epidemics are not perfectly synchronised, local policies are also more efficient and can achieve comparable levels of suppression

Opción de ON/OFF con criterios locales, no nacionales

The measures used to achieve suppression might also evolve over time. As case numbers fall, it becomes more feasible to adopt intensive testing, contact tracing and quarantine measures akin to the strategies being employed in South Korea today.

Otros métodos futuros para lograr supresión como análisis masivo y trazabilidad de los infectados (celulares)

if intensive NPI packages aimed at suppression are not maintained, our analysis suggests that transmission will rapidly rebound, potentially producing an epidemic comparable in scale to what would have been seen had no interventions been adopted.

Si las medidas supresivas no se mantienen, el brote epidémico se produce lo mismo

Situación del CoVID-19 en España

Comentario Científico

ES INDISPENSABLE DECRETAR UN CONFINAMIENTO TOTAL

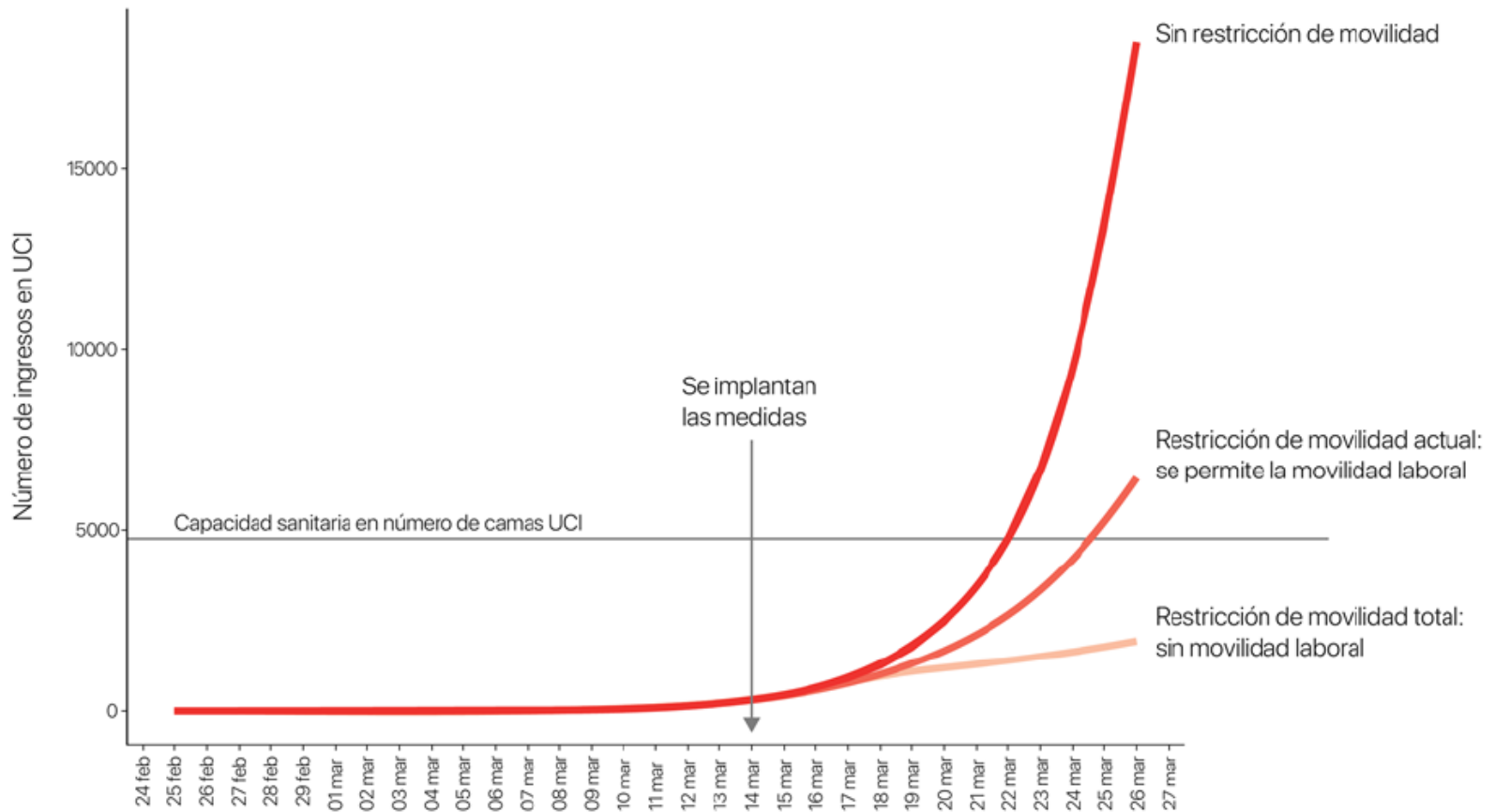
Las simulaciones matemáticas advierten que las medidas actuales del sistema llevarán a un colapso del sistema sanitario alrededor del 25 de marzo.

Dadas las proyecciones y la experiencia en otros países, es necesario anticiparse a la situación y no es razonable esperar a reaccionar.

Para evitar el colapso del sistema sanitario sólo existe la opción de intensificar las medidas de confinamiento y de restricción de la movilidad.

- Escenario 1: Sin ningún tipo de restricción de movilidad.
- Escenario 2: Con restricción de movilidad parcial (donde se permite movilidad laboral en un 50%) – **situación actual.**
- Escenario 3: Con restricción total de movilidad (no se permite movilidad laboral, salvo en servicios de primera necesidad) – **situación recomendada.**

Predicción de curvas de incidencia de casos CoVID-19 críticos en España



Las proyecciones matemáticas muestran que para poder reducir la R_0 de forma eficaz es necesaria la combinación de múltiples intervenciones, incluyendo el

- **aislamiento de casos (AC),**
- **la cuarentena de contactos (CC),**
- **el distanciamiento social de personas >70 años (D70),**
- **el distanciamiento social de toda la población (D100) y**
- **el cierre de escuelas y universidades (CE).**

1- **Zonas A:** Cierre de las áreas geográficas con mayor afectación del virus y confinamiento total de sus ciudadanos/residentes, con excepción de los servicios básicos esenciales (incluyendo hospitales, centros sanitarios y de investigación), por un **período mínimo de 15-21 días**. En particular, se debe adoptar de un modo especial para comunidades con **más de 25 casos/millón habitantes**

2- Zonas B: Confinamiento parcial (50% de la actividad laboral permitida y 25% transporte) en el resto del Estado, con un seguimiento especial **de las tasas de crecimiento de nuevos casos en esas zonas para decidir el incremento a Zona A** si fuera necesario.

3- Movilidad entre zonas: Interrupción total del tráfico interurbano no esencial de pasajeros y de las conexiones domésticas aéreas, marítimas y ferroviarias peninsulares por un período mínimo de 15 días (hasta el 4 de abril aproximadamente).

Coronavirus: el martillo y la danza



ESCRITO POR

Tomás Pueyo

2 Maestría en Ingeniería. Stanford MBA. Ex consultor. Creador de aplicaciones virales con más de 20 millones de usuarios. Actualmente lidera un negocio de mil millones de dólares en Course Hero

Chart 16: How to Dance around the R

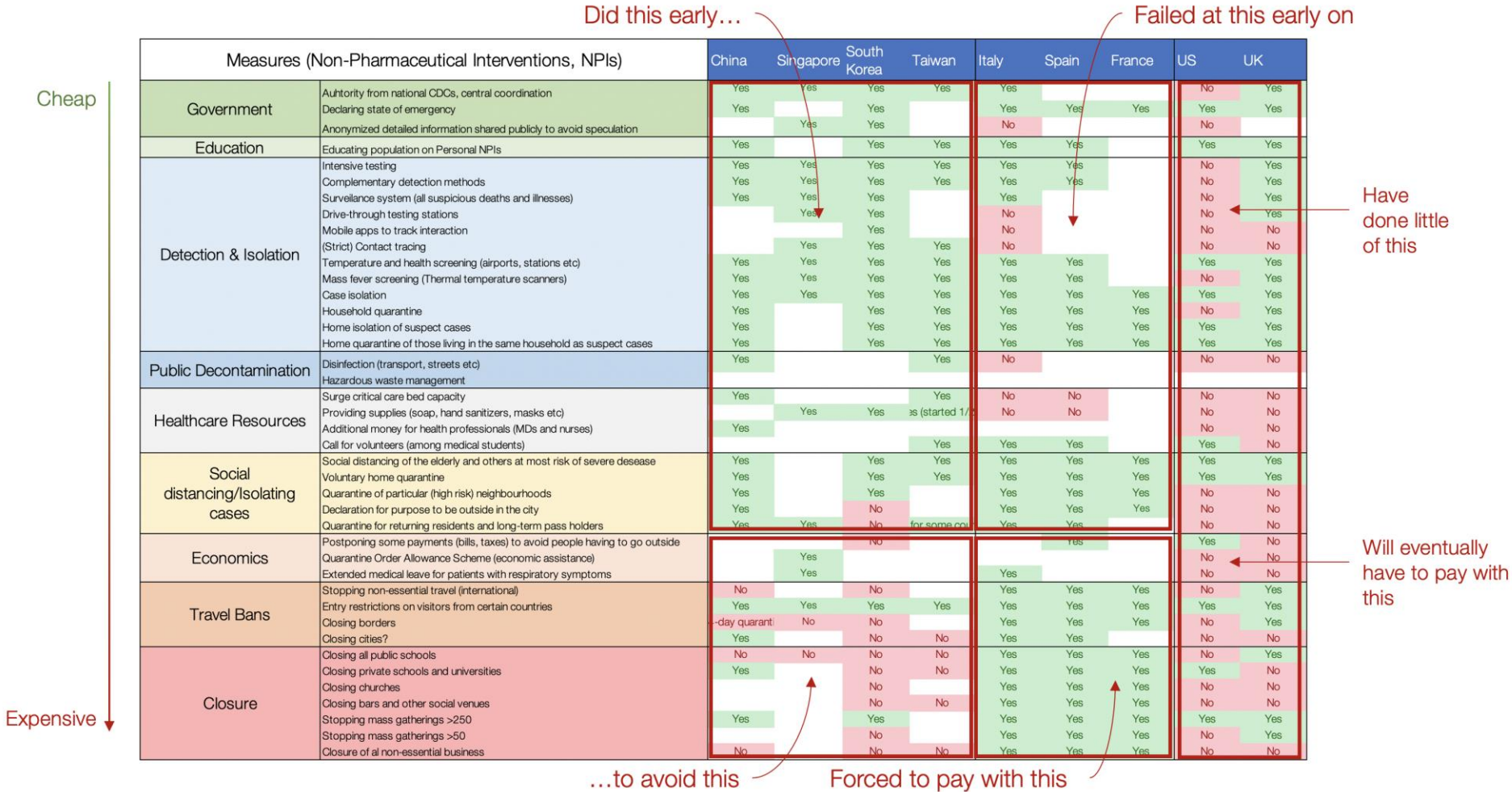
Illustrative Example of Data-Driven Decision-Making for Politicians, including costs, benefits, and confidence

		Benefit in R	Confidence in benefit	Cost per week	Confidence in cost	Implement?
Social Distancing	Close groceries and urgent services	0.21	Low	\$1,000,000,000	Low	No
	Ask to remain home except for food and urgent services	0.22	High	\$ 500,000,000	Low	No
	Most services close	0.07	Medium	\$2,000,000,000	Low	No
	Schools and universities close	0.15	Very high	\$ 500,000,000	Medium	No
	Bars and restaurants close	0.24	Very high	\$ 300,000,000	Very high	No
	Clubs close	0.03	Medium	\$ 200,000,000	Very high	Yes
	Sports close	0.07	Medium	\$ 100,000,000	Very high	Yes
	Conferences close	0.04	Medium	\$ 120,000,000	Very high	Yes
	Bans of gatherings above a certain size	0.13	Very high	\$ 40,000,000	High	Yes
	Travel restrictions	0.13	Very high	\$ 300,000,000	Medium	Yes
	Airgaps with food delivery	0.01	Low	\$200,000	Very high	Yes
	Temperature checkpoints	0.07	Medium	\$ 3,000,000	Very high	Yes
	Reduce contagiousness	Large scale disinfection	0.03	Low	\$ 50,000,000	Very high
Contact tracing		0.20	Very high	\$ 20,000,000	Very high	Yes
Hand washing and sanitizing public education		0.20	Very high	\$ 200,000	Very high	Yes
Aggressive testing		0.33	Very high	\$ 25,000,000	Very high	Yes

R after all Chosen Measures are Implemented **0.89**

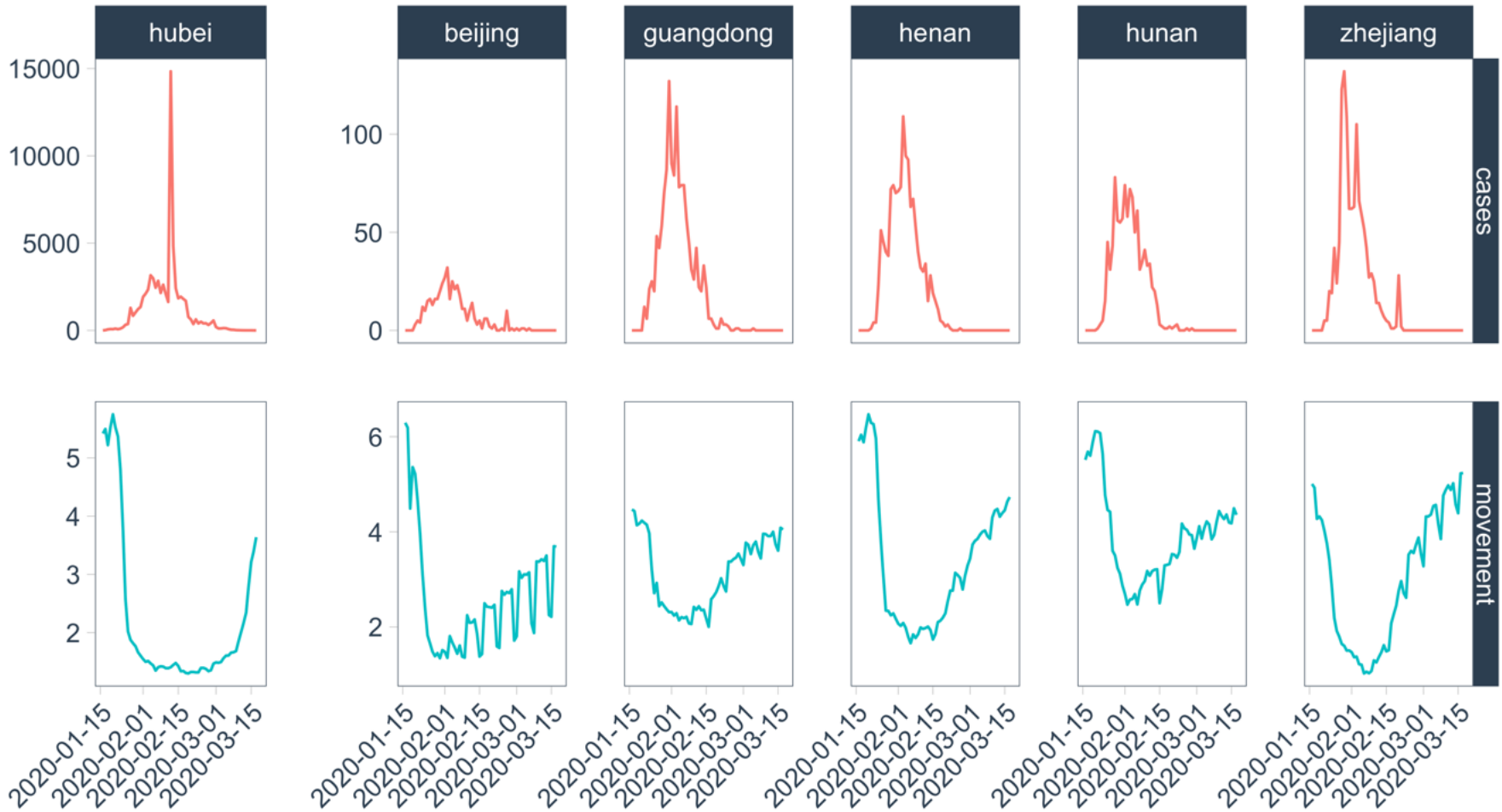
Source: Tomas Pueyo

Chart 13.b: NPI Measures per Country



Source: Matt Bell, Elena Baillie, Genevieve Gee, Tomas Pueyo

Report 11: Evidence of initial success for China exiting COVID-19 social distancing policy after achieving containment



Inicio
Relajación

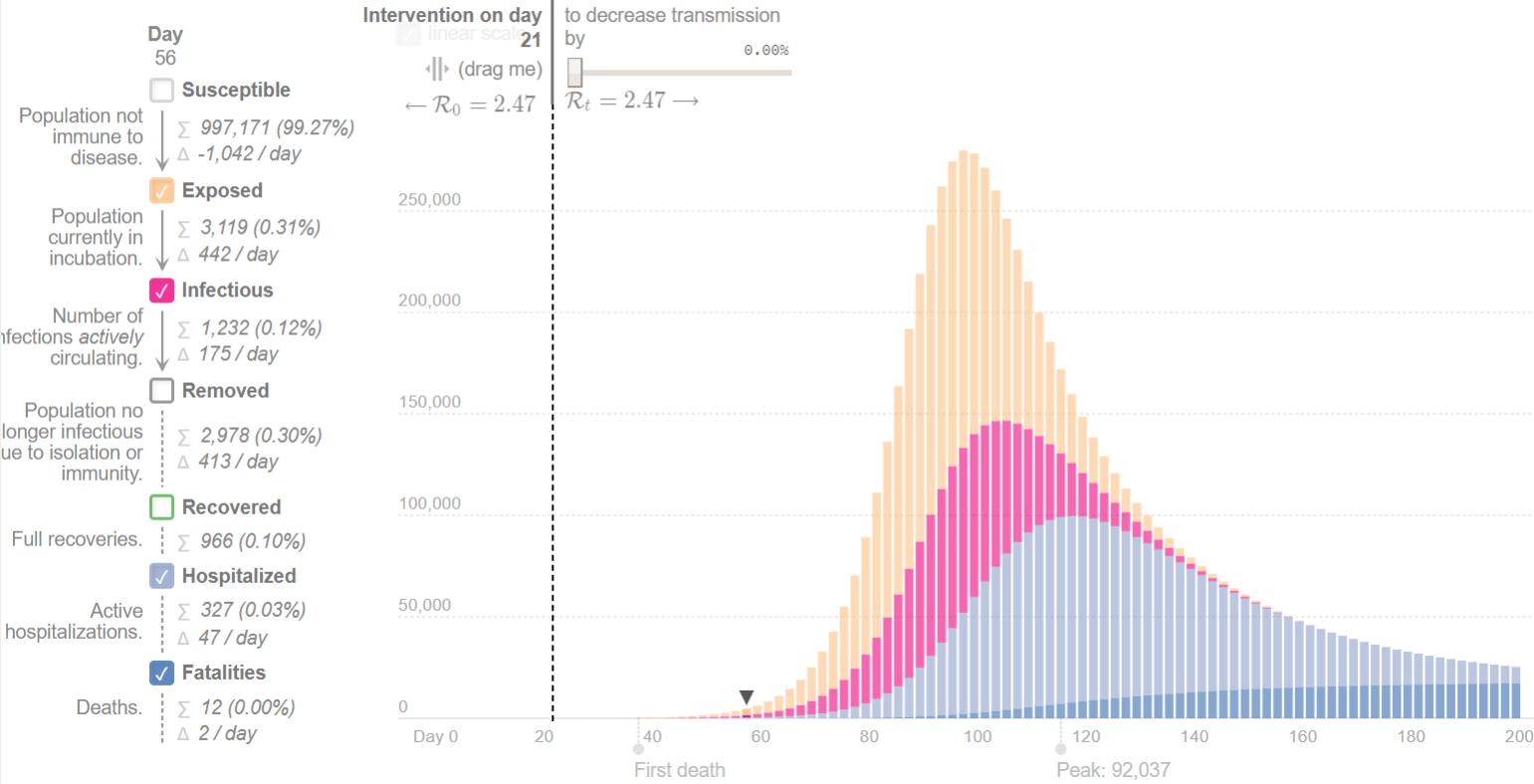
R (transmisibilidad del virus) correlaciona con la movilidad intra ciudad
R (transmisibilidad del virus) NO correlaciona con la movilidad intra ciudad

The reproduction number (R_t) is defined as the average number of new cases generated by each case.



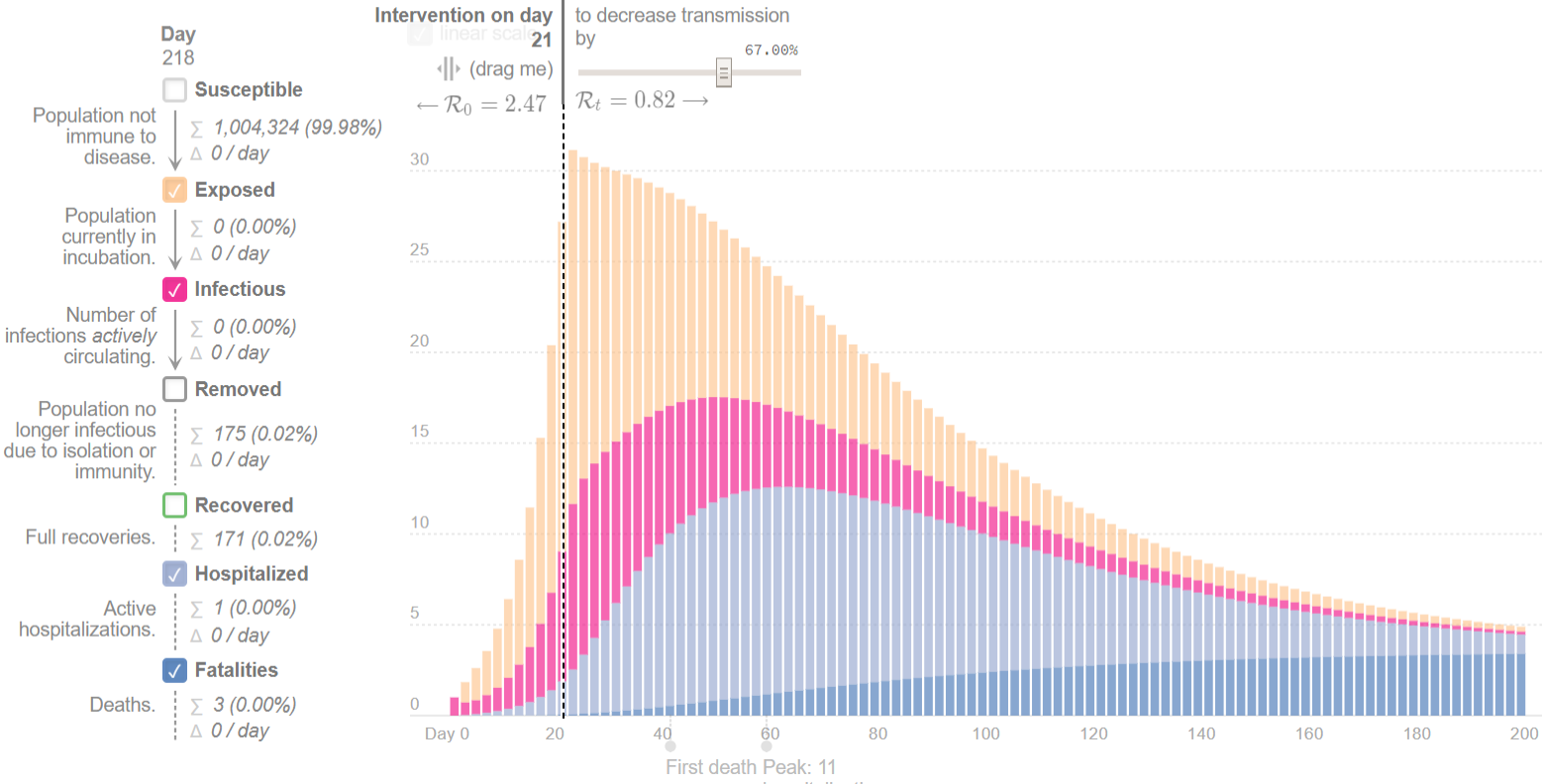
Mendoza, 1 millón de habitantes.
 Ingresa un infectado no confinado

Epidemic Calculator



Mendoza, 1 millón de habitantes.
 Ingresa un infectado no confinado
 Se toman medidas supresivas al día 21

Epidemic Calculator



Conclusiones

- En Argentina y en particular en Mendoza, se han tomado las medidas más extremas, supuestamente de supresión de la transmisión, antes de que el virus esté en el ambiente. Estamos comparativamente a salvo
- La supresión no se puede mantener indefinidamente. Tiene un elevadísimo costo económico y social
- Una política de supresión/relajación en base a indicadores epidemiológicos locales parece la mejor opción.
- No hay que alarmarse cuando las medidas se relajen y los números crezcan

Estos días nos han comprado tiempo:

- mejores condiciones del sistema de saludo para afrontar la epidemia
- mejores posibilidades de test diagnósticos
- mejores posibilidad de terapias
- más cerca de la vacuna