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MINISTERIO DE SANIDAD

Lecciones aprendidas y perspectivas futuras de la vigilancia de COVID-19

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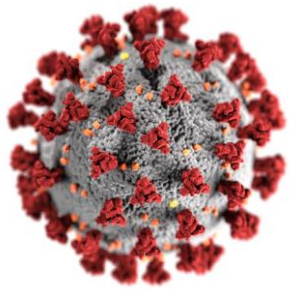


UIMP
Universidad Internacional Menéndez Pelayo

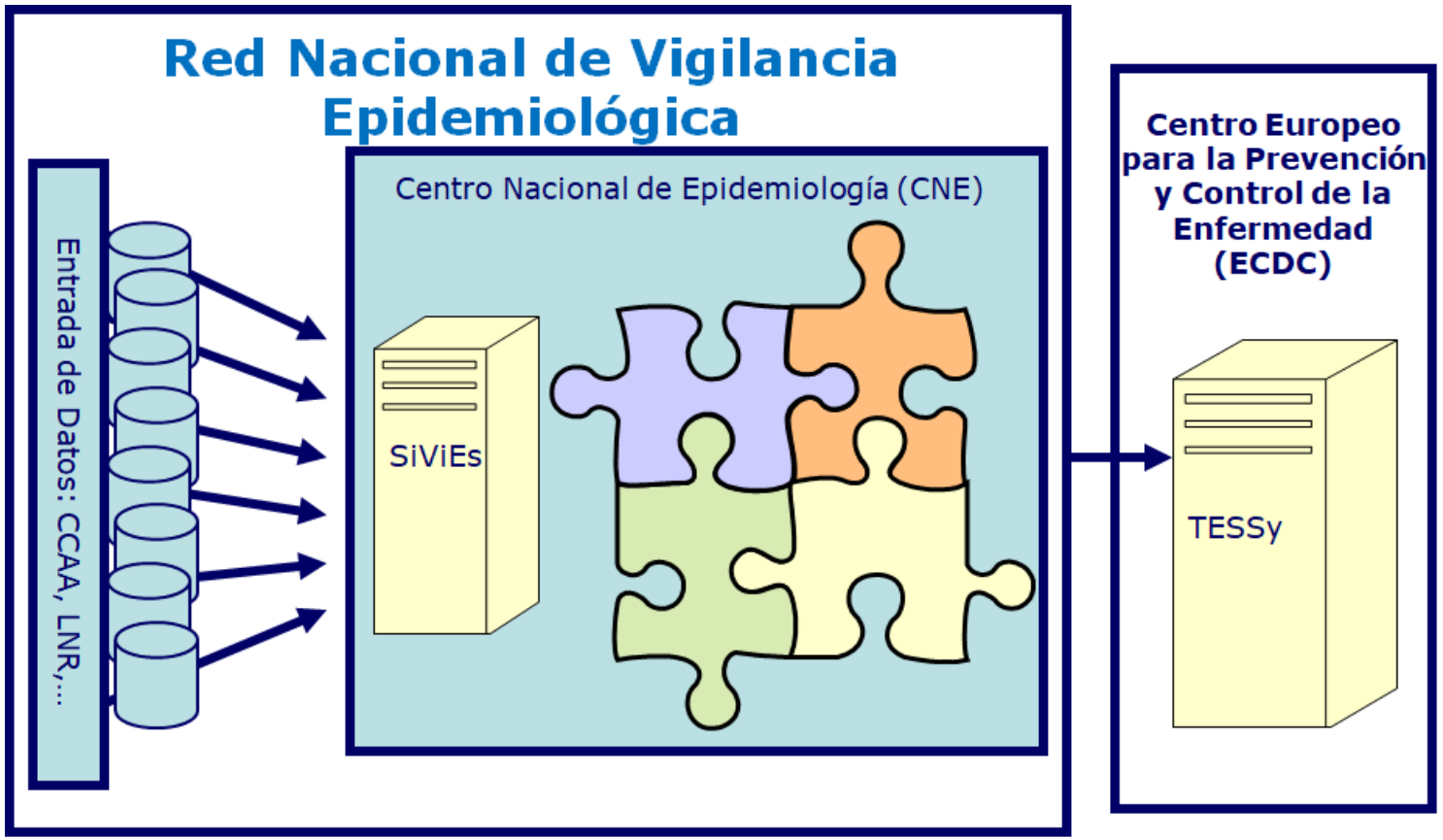
SANTANDER 2020

SEMINARIO

COVID-19:
la epidemiología,
la microbiología
y la investigación
en las estrategias
de vigilancia y
control de la
pandemia

Lecciones aprendidas

Vigilancia para: **proporcionar información** para **tomar decisiones** y **minimizar el impacto** de la pandemia



Plataformas informáticas para vigilancia de enfermedades:

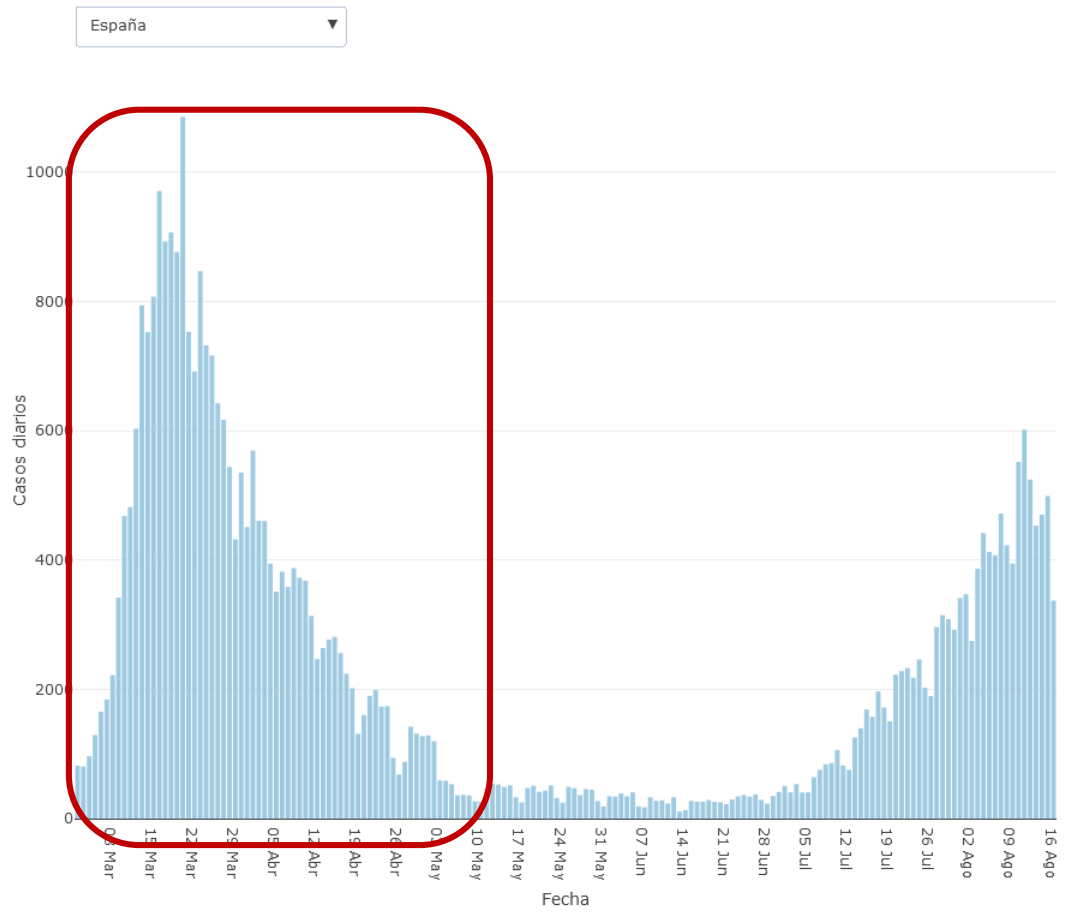
- SiViEs: Sistema de Vigilancia en España
- TESSy: Sistema de Vigilancia en Europa

Punto 1: ¿Qué vigilar?

COVID-19 | Distribución geográfica | **Evolución pandemia** | Documentación y datos

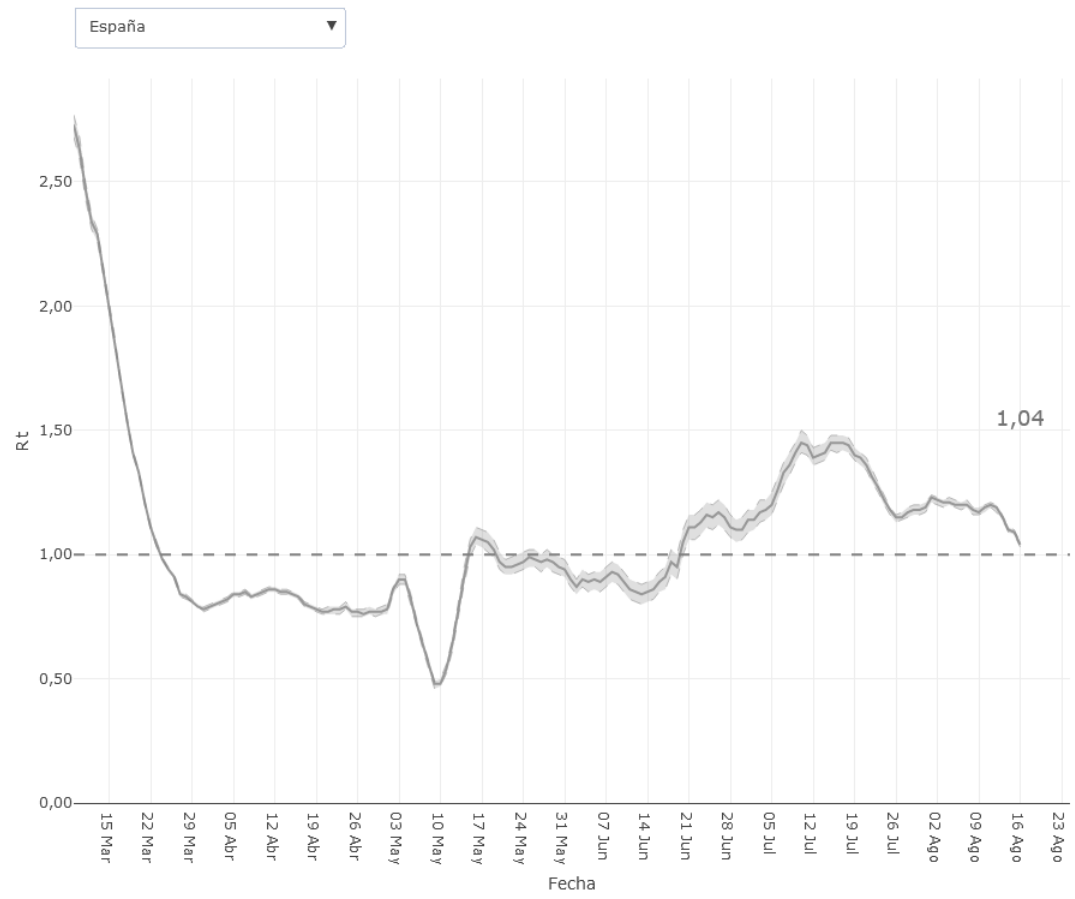
https://cnecovid.isciii.es/covid19/#ccaa

Curva epidémica



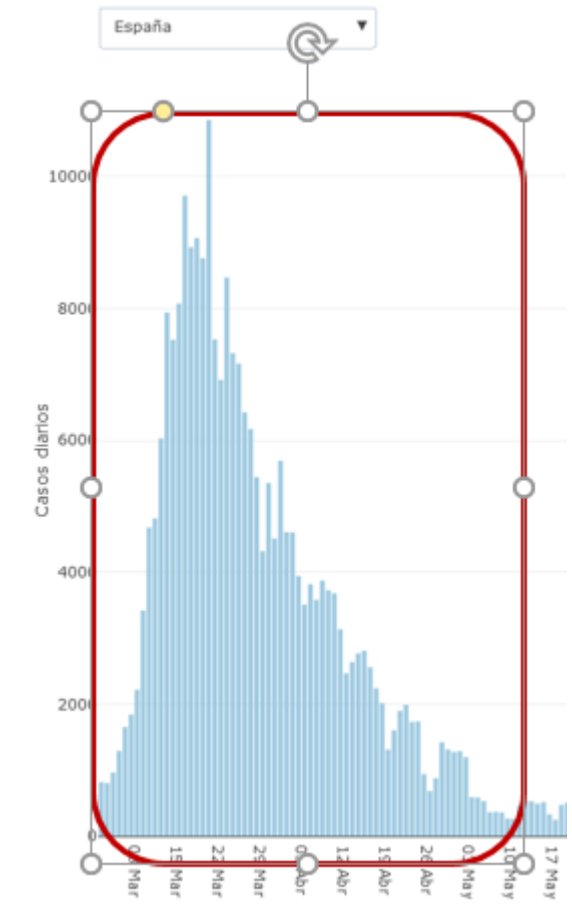
Curva epidémica de la pandemia. Datos obtenidos a partir de datos individualizados notificados a la RENAVE. Es importante resaltar que todos los resultados son provisionales y deben interpretarse con precaución porque se ofrece la información disponible en el momento de la extracción de datos.

Número reproductivo básico instantáneo (Rt)



El número de reproducción básico instantáneo (Rt) es el número promedio de casos secundarios que cada sujeto infectado puede llegar a infectar en una etapa de tiempo (t). Estimaciones realizadas con los datos individualizados notificados a la RENAVE. Es importante resaltar que todos los resultados son provisionales y deben interpretarse con precaución porque se ofrece la información disponible en el momento de la extracción de datos.

Punto 1: ¿Qué vigilar?



CCAA	Casos notificados a la RENAVE[1]
Andalucía	15819
Aragón	6766
Asturias	2690
Baleares	2084
Canarias	2312
Cantabria	2628
Castilla-La Mancha	20477
Castilla y León	23192
Cataluña	55196
C. Valenciana	13777
Extremadura	4991
Galicia	9507
Madrid	64408
Murcia	2301
Navarra	6340
País Vasco	13533
La Rioja	3951
Ceuta	169
Melilla	132
Total	**250273**

250.000 COVID-19
versus
2,2 a 2,5 millones de infectados
(estimador ENE-COVID)

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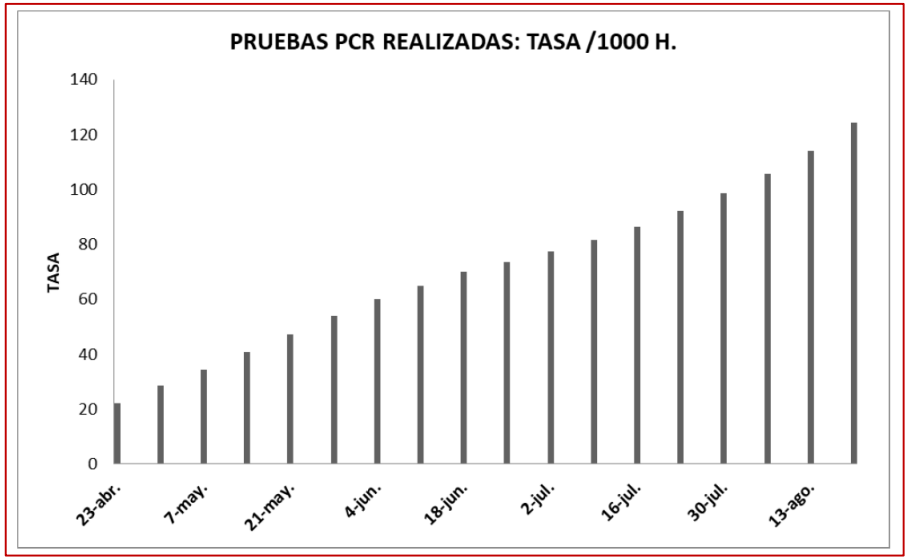
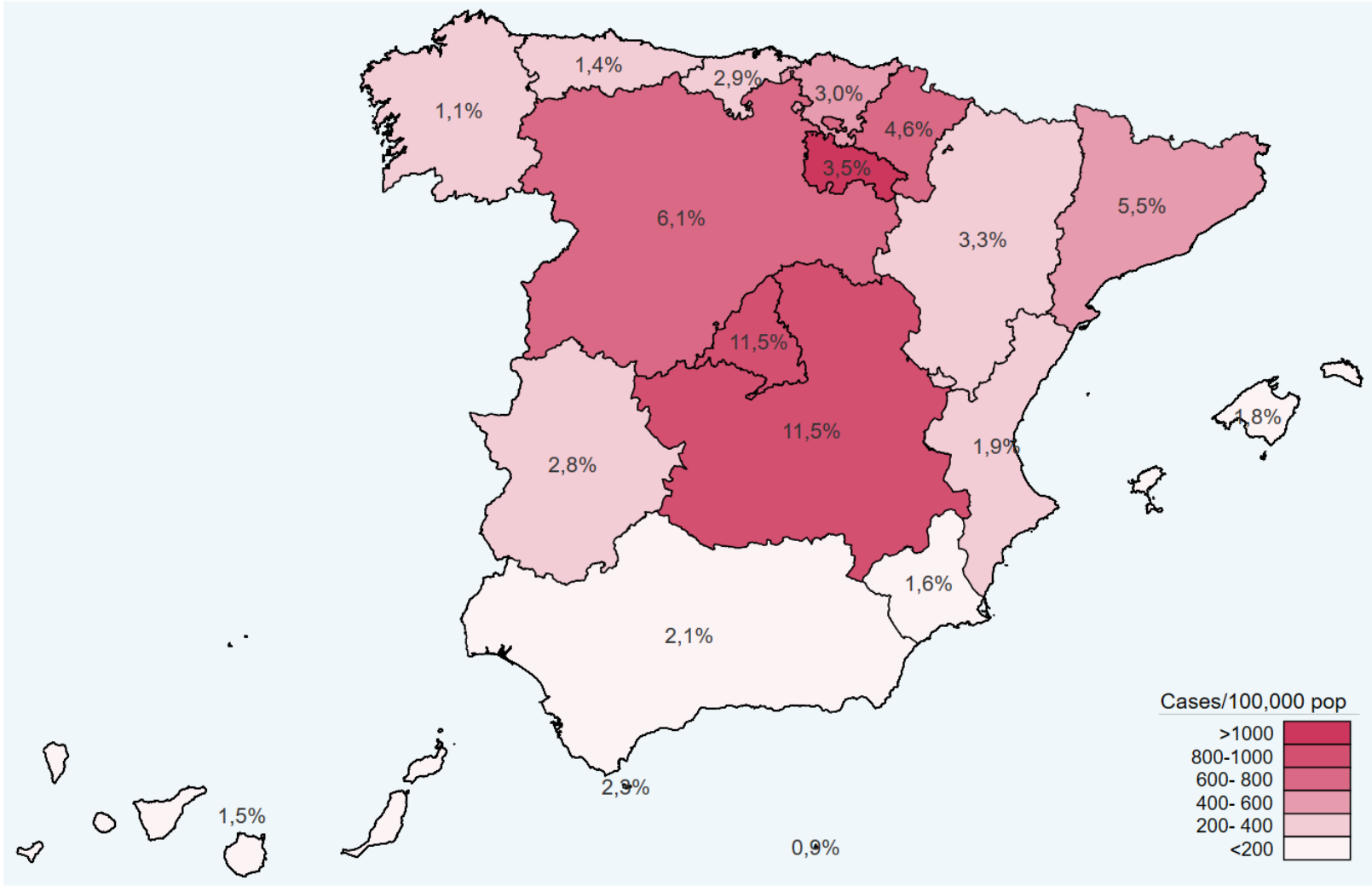
Existencia de asintomáticos

Diagnóstico incompleto



Comparación de incidencia acumulada y seroprevalencia

Regional cumulative incidence rate of COVID-19* (1st Feb-14 Apr) & ENE-COVID seroprevalence** (27 Apr-11 May)



* Rates correspond to PCR+ cases reported by date of onset of symptoms date ** % correspond to seroprevalence according to immunoassay results

Punto 2: Puntos críticos

Table 1. Routes of Respiratory Virus Transmission.[2]

Type of Transmission	Mechanism	Comments

	Point-of-care test		Immunoassay	
	Number of participants	Seroprevalence (95% CI)	Number of participants	Seroprevalence (95% CI)
Contact with confirmed case				
No contact	55 989	3·9% (3·6–4·2)	47 385	3·4% (3·1–3·7)
Household member	1011	31·4% (26·5–36·8)	860	37·4% (31·8–43·3)
Non-cohabitating family member or friend	1467	13·2% (11·0–15·8)	1284	13·7% (11·2–16·7)
Co-worker	1579	10·6% (8·5–13·1)	1461	9·9% (8·0–12·2)
Cleaning staff, housemaid, or caregiver	83	13·5% (6·3–26·5)	78	12·4% (7·0–21·0)
Client†	940	11·7% (9·1–14·9)	888	11·2% (8·6–14·4)
Contact with symptomatic person				
No contact	50 691	3·2% (3·0–3·5)	42 894	2·7% (2·4–3·0)
Household member	4503	15·1% (13·3–17·0)	3728	15·6% (13·6–17·9)
Non-cohabitating family member or friend	2351	12·7% (10·7–14·9)	2037	12·2% (10·0–14·7)
Co-worker	2382	10·7% (9·0–12·6)	2221	10·1% (8·4–12·1)
Cleaning staff, housemaid, or caregiver	109	8·8% (3·9–18·8)	96	6·1% (2·9–12·3)
Client†	1033	10·0% (7·8–12·8)	980	10·2% (7·8–13·1)

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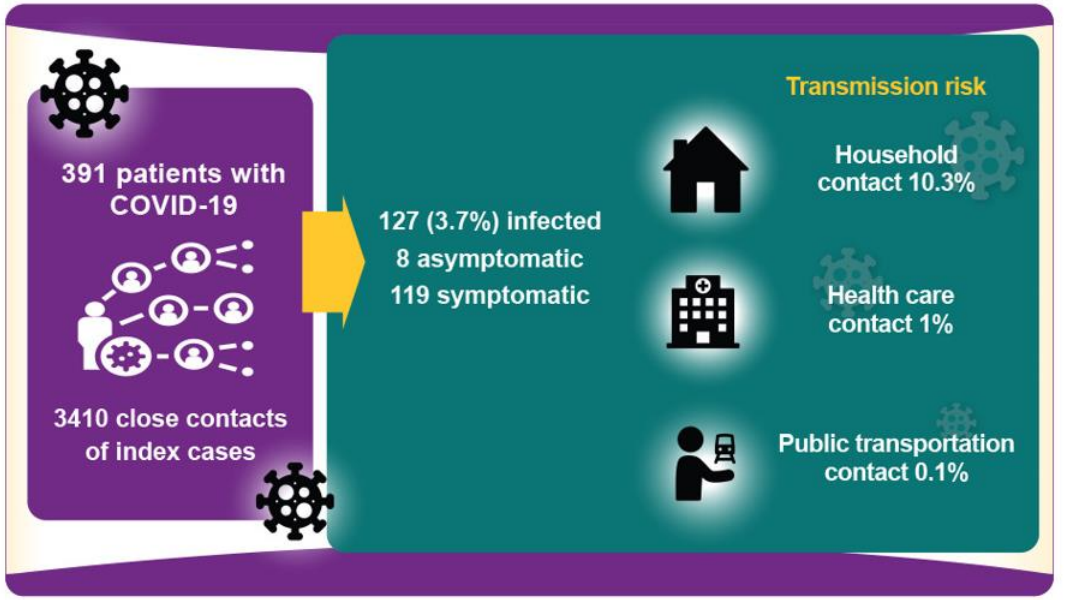

Annals of Internal Medicine

Luo L, Liu D, Liao X, et al. Contact settings and risk for transmission in 3410 close contacts of patients with COVID-19 in Guangzhou, China. A prospective cohort study. Ann Intern Med. 2020. [Epub ahead of print]. doi:10.7326/M20-2671 http://acpjournals.org/doi/10.7326/M20-2671

Punto 2: Puntos críticos

Transmission Hotspots

The probability of SARS-CoV-2 transmission is a function of time and closeness of contact between infected and susceptible individuals. The following settings are catalyzers of local outbreaks:

- Homes (+ intense social life with friend and colleagues)
- Workplaces
- Hospitals
- Nursing facilities
- Cruise ships
- Aircraft carriers and other military vessels
- Mass gatherings and religious gatherings
- Schools
- Prisons
- Homeless shelters
- Industrial meat-packing plants
- Choirs

Bernd Sebastian Kamps
Christian Hoffmann
COVID Reference
www.CovidReference.com
Fourth Edition 2020~4
Uploaded on 15 July 2020

	Point-of-care test		Immunoassay	
	Number of participants	Seroprevalence (95% CI)	Number of participants	Seroprevalence (95% CI)
Occupation sector†				
Telecommuting	11 899	6·4% (5·7–7·0)	10 947	5·9% (5·3–6·6)
Retail	1640	4·7% (3·4–6·6)	1515	4·5% (3·1–6·5)
Transport	800	5·9% (3·9–8·7)	731	5·8% (3·6–9·2)
Police, firefighters, or public safety	643	6·2% (4·1–9·2)	589	6·3% (4·0–9·9)
Cleaning	804	4·1% (2·6–6·4)	748	4·5% (2·9–7·1)
Health care	1109	10·2% (7·9–13·0)	1048	10·0% (7·7–12·9)
Nursing home or other social work	1016	7·7% (5·6–10·5)	947	7·9% (5·9–10·6)
Home caregiver	403	6·4% (3·1–12·1)	372	3·7% (1·6–8·3)
Other	7444	4·3% (3·6–5·0)	6865	3·4% (2·8–4·0)

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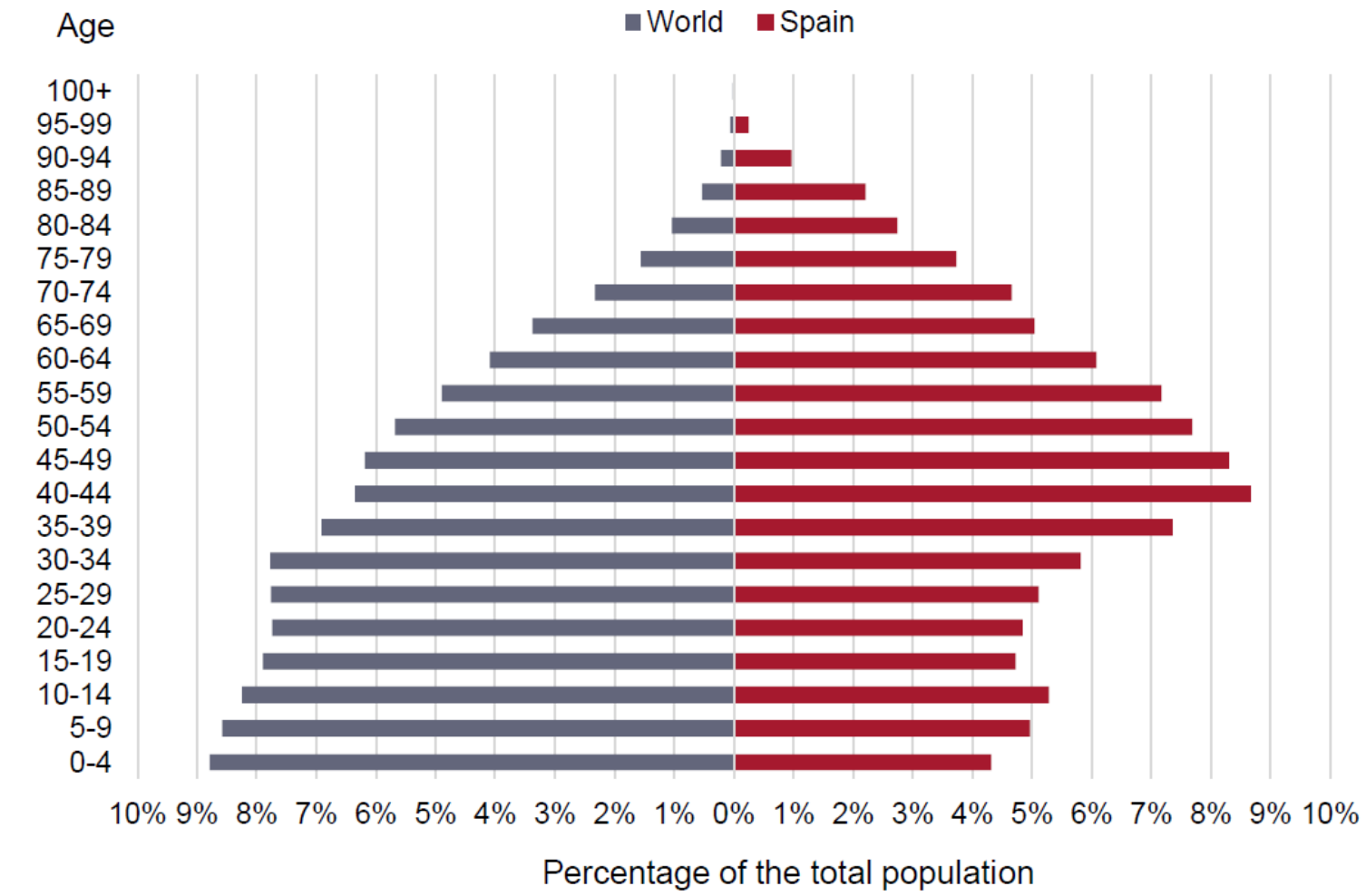
Punto 2: Puntos críticos

Figure 2. Demographic distribution in Spain and the world (2019)



Punto 2: Puntos críticos

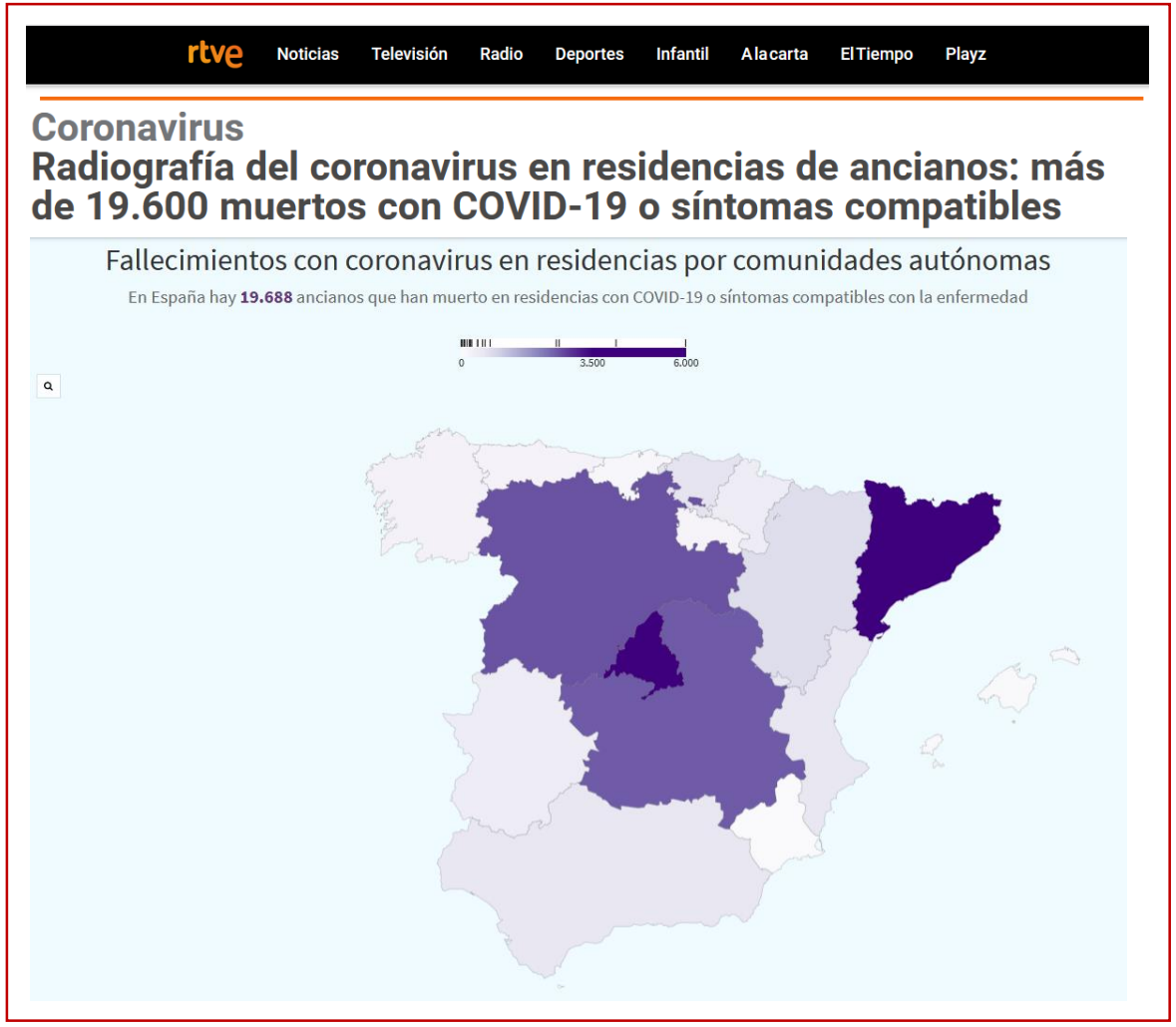


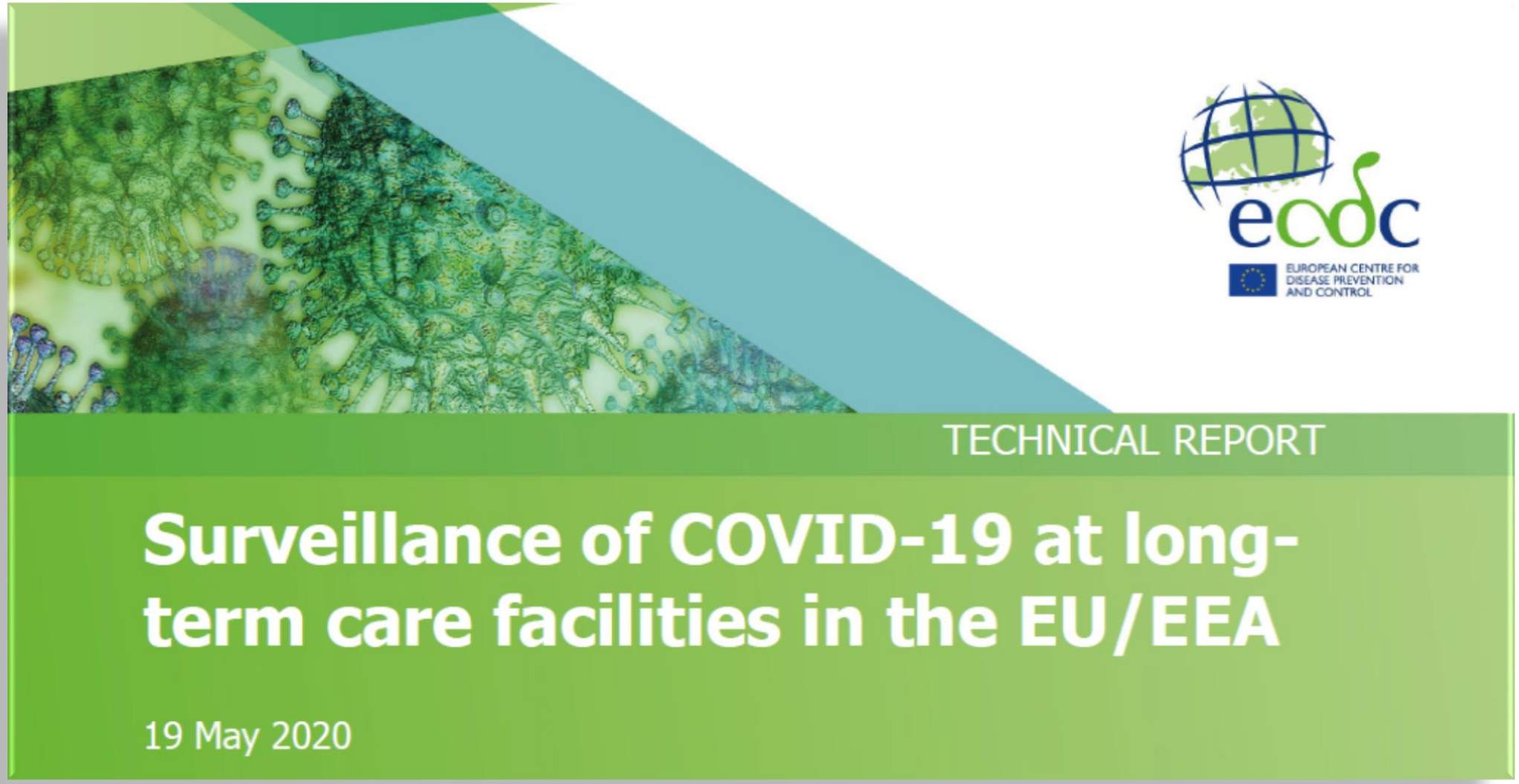
Table S.1 COVID-19 deceases in nursing homes in Spain according to Regional Authorities†

Autonomous Community	Update date	Total	Confirmed cases	Suspected cases (with symptoms but no confirmatory test)
Andalucía[5]	15/07/2020	558	558	0
Aragón[6]	19/07/2020	760	760	0
Asturias[7]	21/07/2020	243	236	7
Baleares[8,9]	20/07/2020	89	73	16
Canarias‡[10,11]	20/05/2020	26	19	7
Cantabria[12]	30/06/2020	152	141	11
Castilla-La Mancha‡[10,13]	15/07/2020	2522	1335	1187
Castilla y León[14,15]	15/07/2020	2601	1496	1105
Cataluña[N]‡[10,16]	15/07/2020	4113	1759	2354
Comunidad Valenciana‡[10,11,17]	15/07/2020	559	516	43
Extremadura[18]	29/06/2020	432	342	90
Galicia[19]	15/07/2020	296	274	22
La Rioja[20]	20/07/2020	211	211	0
Madrid[21]	23/06/2020	5987	1253	4734
Murcia[22]	01/07/2020	68	68	0
Navarra[23]	30/06/2020	432	268	164
País Vasco[24–26]	03/07/2020	632	600	32
Ceuta/Melilla‡[10]	22/06/2020	0	0	0
Overall		**19681**	**9909**	**9772**

†Data may include a small number of deaths from other collective establishments in several regions; also, some Autonomous Communities always limit their reports to confirmed cases.
‡ Reports from health authorities have been complemented with data provided by the Autonomous Community to press media to update distribution of confirmed/suspected cases

medRxiv preprint doi: https://doi.org/10.1101/2020.08.06.20169722.

Punto 2: Puntos críticos



Punto 2: Puntos críticos

The role of children in transmission of SARS-CoV-2: A rapid review

www.jogh.org • doi: 10.7189/jogh.10.011101

Xue Li[1,*], Wei Xu[1,*], Marshall Dozier[2], Yazhou He[1], Amir Kirolos[1,3], Evropi Theodoratou[1,4]; on behalf of UNCOVER

[1] Centre for Global Health, Usher Institute, University of Edinburgh, Edinburgh, UK

[2] College of Medicine and Veterinary Medicine, University of Edinburgh, Edinburgh, UK

Background Understanding the role of children in the transmission of SARS-CoV-2 is urgently required given its policy implications in relation to the re-opening of schools and intergenerational contacts.

Methods We conducted a rapid review of studies that investigated the role of children in the transmission of SARS-CoV-2. We synthesized evidence for four categories: 1) studies reporting documented cases of SARS-CoV-2 transmission by infected children; 2) studies presenting indirect evidence on the potential of SARS-CoV-2 transmission by (both symptomatic and asymptomatic) children; 3) studies reporting cluster outbreaks of COVID-19 in schools; 4) studies estimating the proportions of children infected by SARS-CoV-2, and reported results narratively.

Conclusions: Preliminary results from population-based and school-based studies suggest that children may be less frequently infected or infect others, however current evidence is limited. Prolonged faecal shedding observed in studies highlights the potentially increased risk of faeco-oral transmission in children. Further seroprevalence studies (powered adequately for the paediatric population) are urgently required to establish whether children are in fact less likely to be infected compared to adults.

Punto 3: Nuevos indicadores

1. Key pillars

Pillar 1: Country-level coordination, planning, and monitoring

Pillar 2: Risk communication and community engagement

Pillar 3: Surveillance, rapid response teams and case investigation

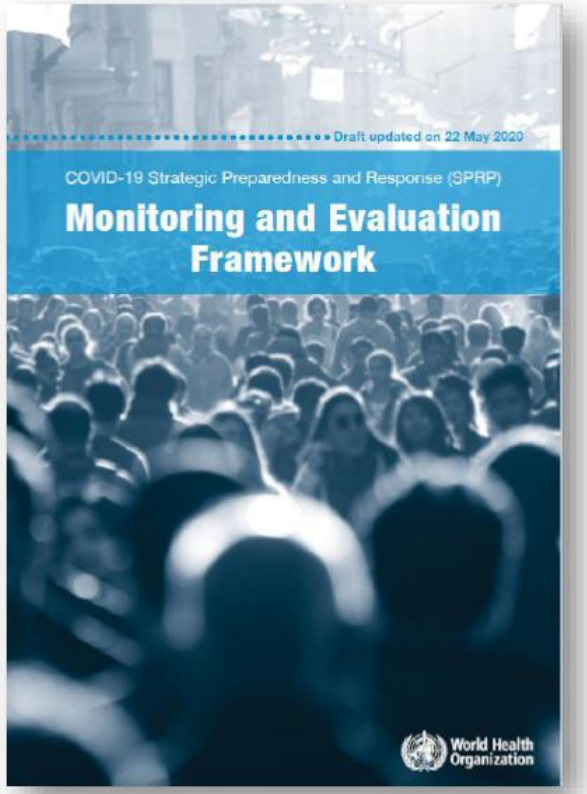
Pillar 4: Vaccine monitoring (policy, coverage, safety, effectiveness and acceptance)*

Pillar 5: National laboratories (and testing capacity)

Pillar 6: Infection prevention and control

Pillar 7: Case management

Pillar 8: Maintaining essential health services and systems



*Not included in WHO framework
ECDC's framework does not include two pillars from the WHO framework: pillar 4: on "points of entry, international travel and transport" and pillar 8: "Operational support and logistics"

The 13 EU level indicators currently not collected

Pillar 3: Surveillance, rapid response teams and case investigation

Indicators:	Justification:
COVID-19 surveillance case definition	Allows for better understanding and comparability of data.
Surveillance system for long term care facilities in place	Long term care facilities account for a large proportion of deaths due to COVID-19. A dedicated surveillance system would allow for rapid response to outbreaks and prevent mortality.
Proportion of long term care facilities reporting weekly surveillance data	Allows for better comparability and understanding of reported surveillance data as well as mortality.
Surveillance of specific risk groups or settings in place (e.g. healthcare workers, schools etc.)	Provides understanding of which priority groups and settings are under surveillance in Member States.
PCR-based prevalence study implemented in previous month	PCR-based prevalence studies provide an indication of the ongoing transmission of SARS-CoV-2 and complement other surveillance data.
Estimates from PCR-based prevalence studies implemented in previous month	Provides key information on the level of transmission of SARS-CoV-2 in the population.
Regular estimates of seroprevalence at sub-national level	Provides key information on which countries are regularly conducting seroprevalence studies which will inform the public health response to COVID-19.
System in place to assess of surveillance data quality (completeness of key variables)	
Number of probable and confirmed deaths in long-term care facilities per week.	Will provide a better understanding of the contribution of deaths in LTCF which account for a large proportion of deaths in many countries.
Effective reproductive number (Rt) per week.	Provides information on the course of the pandemic and effectiveness of control measures.

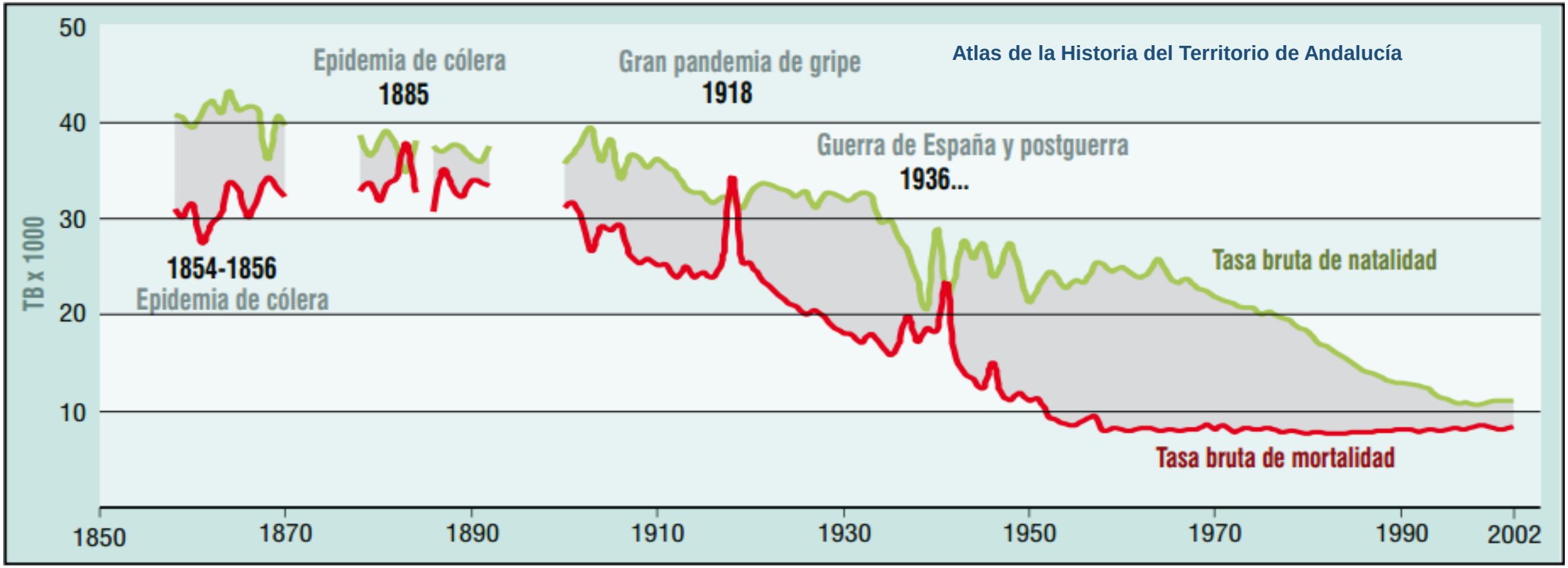
Pillar 5: National laboratories (and testing)

Indicators:	Justification:
Testing capacity for case finding and management (not including surveys): Number of persons tested for SARS-CoV-2 viral RNA or antigen disaggregated by age group, sex, test type (at minimum laboratory, point-of-care and self-test), care sector and subnational region per week	Justification: For monitoring testing capacity for case finding and management
Testing capacity for case finding and management (not including surveys): Number of persons tested for SARS-CoV-2 antibodies for clinical care and case management disaggregated by age group, sex, test type (at minimum laboratory, point-of-care and self-test), care sector and subnational region per week	

Pillar 8: Maintaining essential health services and systems

Indicators:	Justification:
Measles vaccination coverage in children under 12 months /of age	Data on vaccine coverage collected via WHO

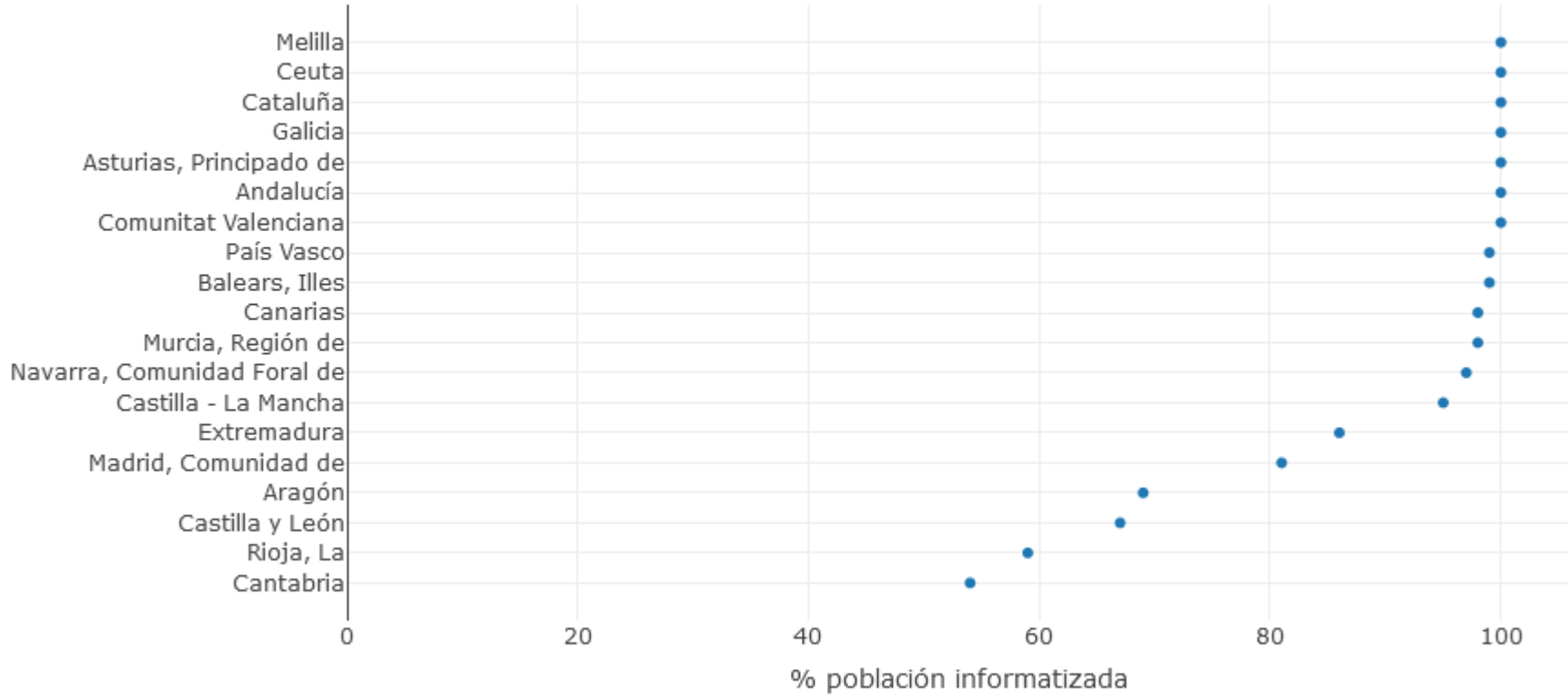
Punto 4: Impacto de la pandemia



Punto 4: Impacto de la pandemia

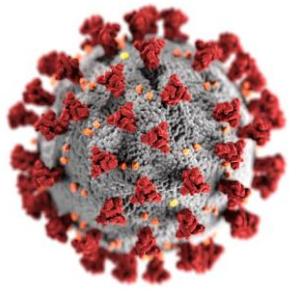
Mortalidad por todas las causas. España

Porcentaje de población informatizada



Porcentaje de población informatizada, calculado como la suma de la población de los municipios informatizados entre la población total de la CCAA

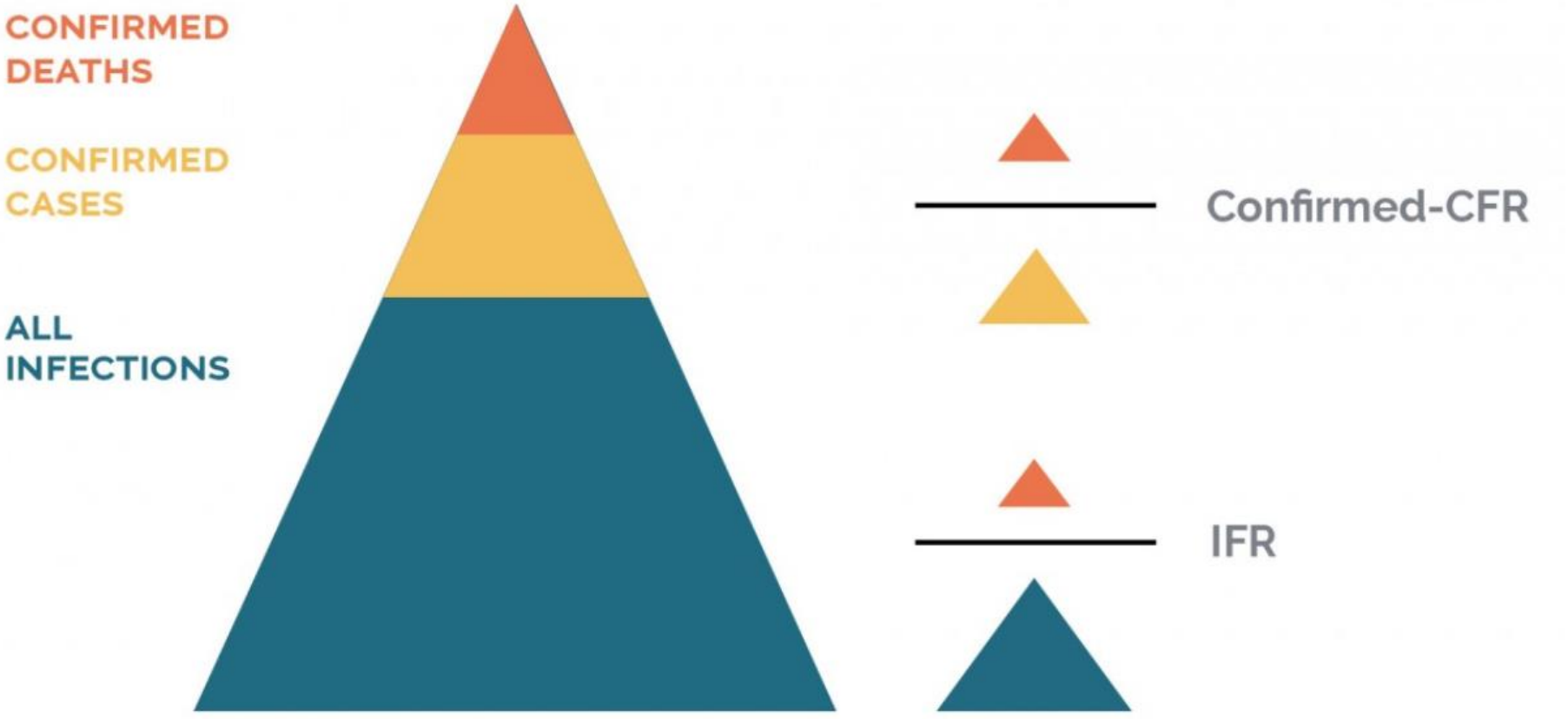
Defunciones observadas (negro) y defunciones estimadas (azul), con el intervalo de confianza al 99% (banda azul). España.



Punto 4: Impacto: Letalidad y Mortalidad

CASE FATALITY RISK: Riesgo de morir en pacientes COVID-19

INFECTION FATALITY RISK: Riesgo de morir en infectados por SARS-CoV-2



https://www.ispionline.it/en/publication/covid-19-and-italys-case-fatality-rate-whats-catch-25586

Estimación de la letalidad de SARS-CoV-2 en España

SARS-CoV-2 infection fatality risk in a nationwide seroepidemiological study

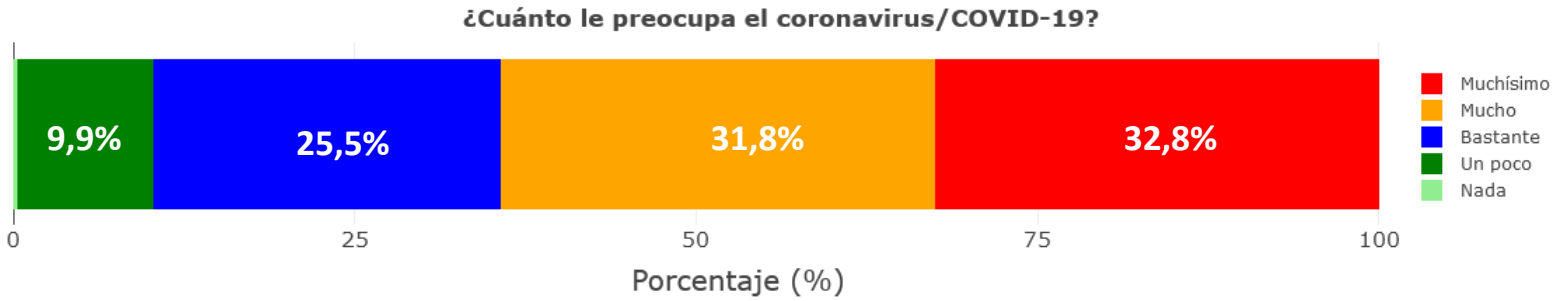
Roberto Pastor-Barriuso[†a,b], Beatriz Pérez-Gómez[†a,b], Miguel A. Hernán[c], Mayte Pérez-Olmeda[d], Raquel Yotti[e], Jesús Oteo[d,f], Jose L Sanmartín[g], Inmaculada León-Gómez[a,b], Aurora Fernández-García[b,d], Pablo Fernández-Navarro[a,b], Israel Cruz[h], Mariano Martín[g], Concha Delgado-Sanz[a,b], Nerea Fernández de Larrea[a,b], Jose León Paniagua[e], Juan F. Muñoz-Montalvo[g], Faustino Blanco[g], Amparo Larrauri [a,b§], Marina Pollán [a,b§*], on behalf of the ENE-COVID Study Group[‡]

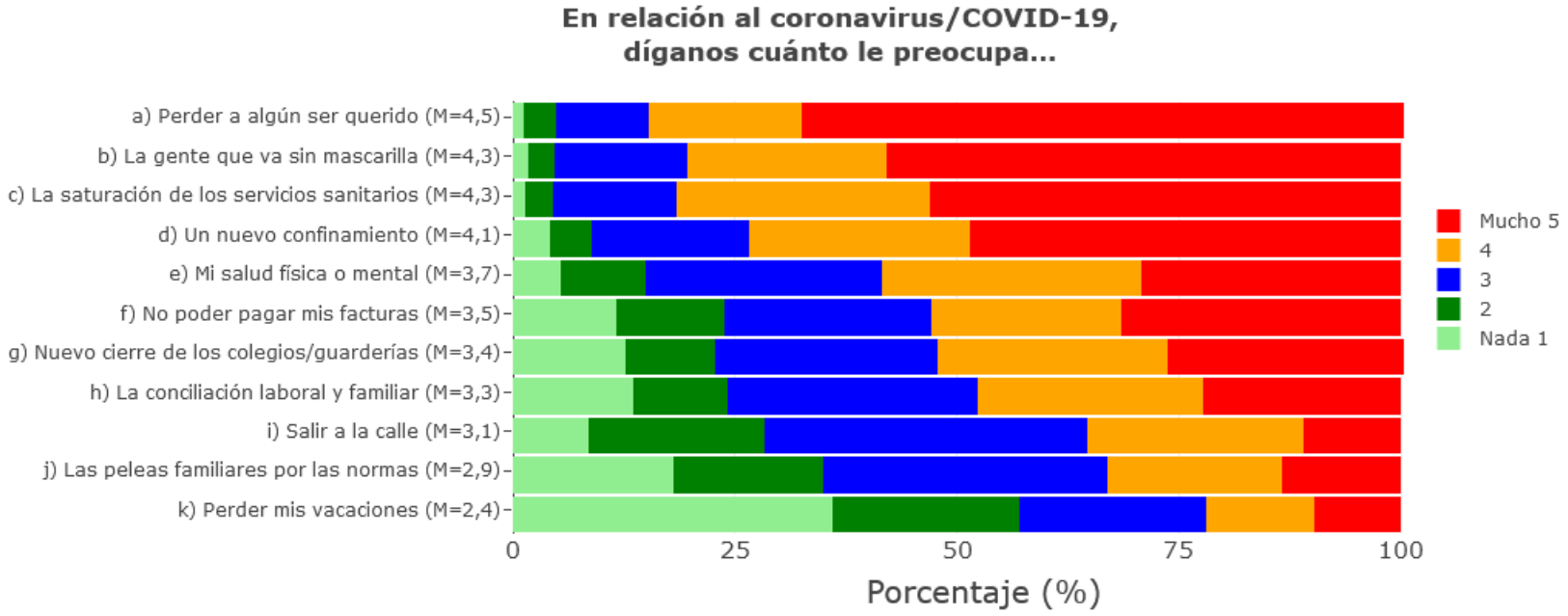
Sex, age (years)	Infection fatality risk, % (95% CI)	
	Based on confirmed COVID-19 deaths	Based on excess all-cause deaths
Overall	0.83 (0.78–0.89)	1.07 (1.00–1.15)
Men	1.11 (1.02–1.21)	1.40 (1.29–1.52)
Women	0.58 (0.53–0.62)	0.77 (0.71–0.84)

medRxiv preprint doi: https://doi.org/10.1101/2020.08.06.20169722.this version posted August 7, 2020.

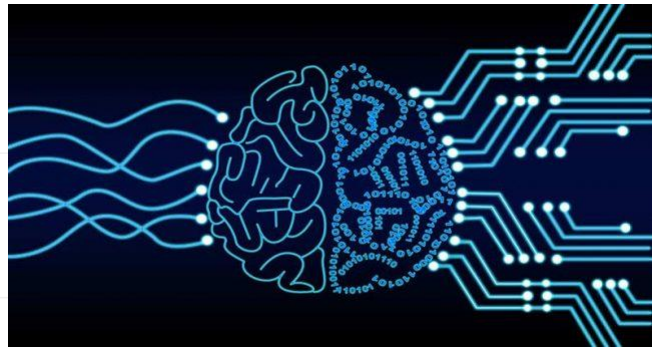
Punto 4: Impacto: Otros aspectos

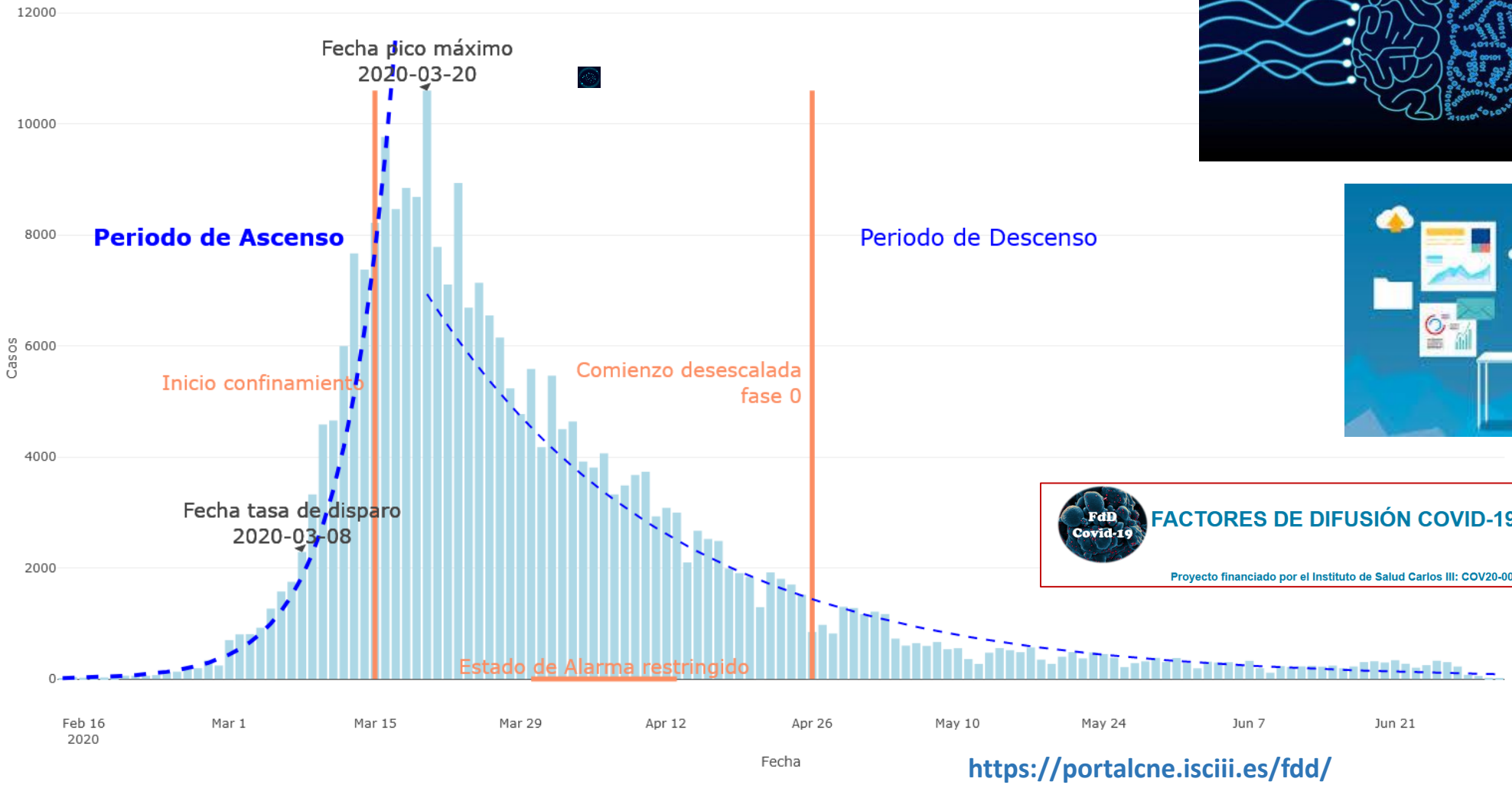
https://portalcne.isciii.es/cosmo-spain/





Punto 5: Inteligencia





FdD Covid-19

FACTORES DE DIFUSIÓN COVID-19 EN ESPAÑA

Proyecto financiado por el Instituto de Salud Carlos III: COV20-00881

https://portalcne.isciii.es/fdd/

Casos diarios declarados a la RENAVE desde el comienzo de la pandemia, por fecha de inicio de síntomas y en su ausencia fecha de diagnóstico menos 6 días. La tasa de disparo es el día en el que la incidencia acumulada supera 5/1000000 habitantes. El periodo de ascenso comienza el día en que supera la tasa de disparo hasta el día del pico máximo de casos. Las líneas naranjas representan las medidas de control establecidas durante el estado de alarma. Más información en Material.

Punto 6: Evaluación

Documento de Trabajo - 2020/03

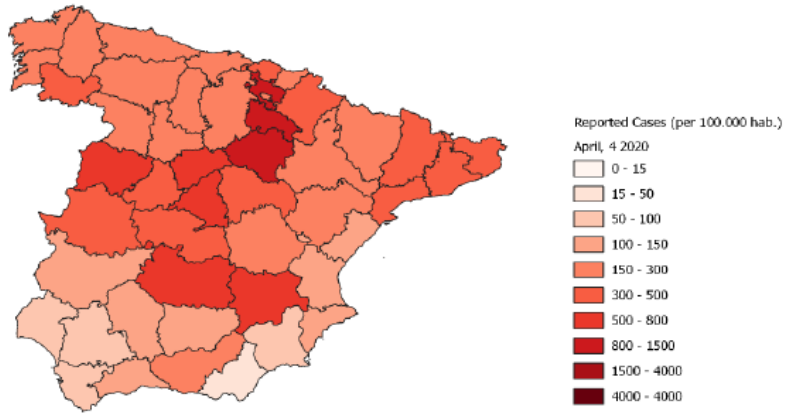
How effective has been the Spanish lockdown to battle COVID-19?
A spatial analysis of the coronavirus propagation across provinces

Luis Orea
(University of Oviedo)

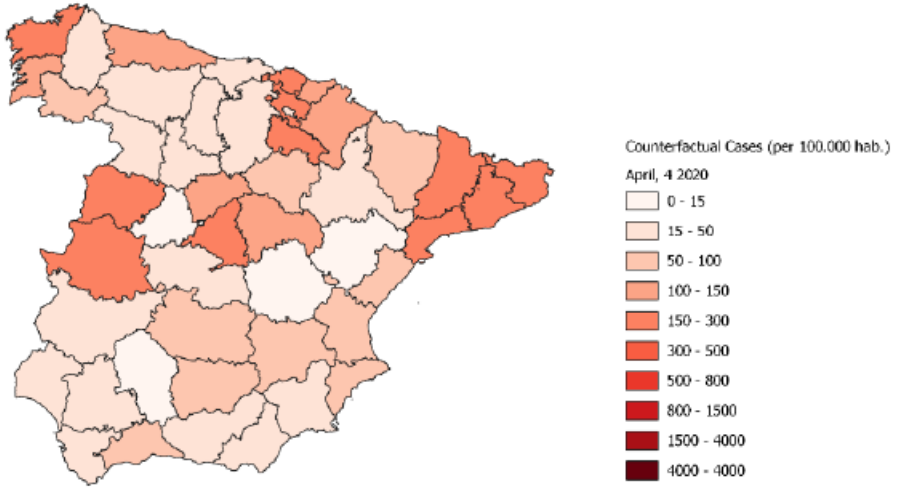
Inmaculada C. Álvarez
(University of Oviedo and Universidad Autónoma de Madrid)

fedea

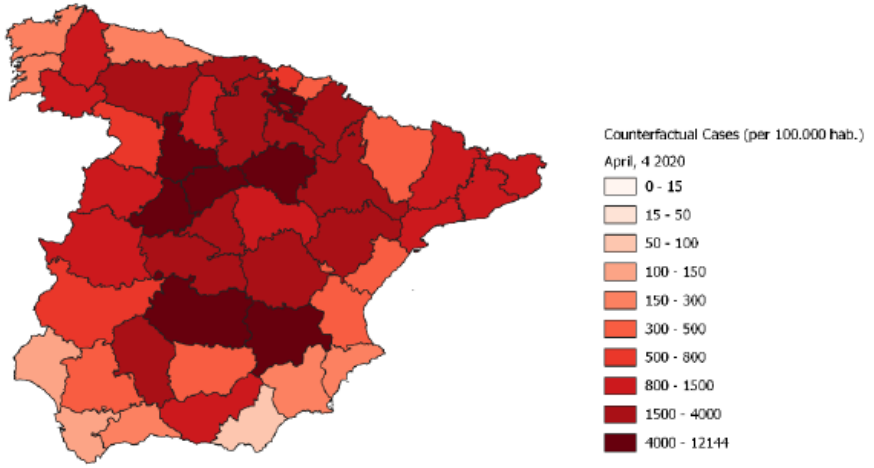
b) Actual cases with the lockdown implemented on March 14, 2020



a) Counterfactual cases if the lockdown were implemented on March 7,



c) Counterfactual cases with no lockdown



Punto 6: Evaluación

RESEARCH

thebmj | *BMJ* 2020;370:m2743 | doi: 10.1136/bmj.m2743

Physical distancing interventions and incidence of coronavirus disease 2019: natural experiment in 149 countries

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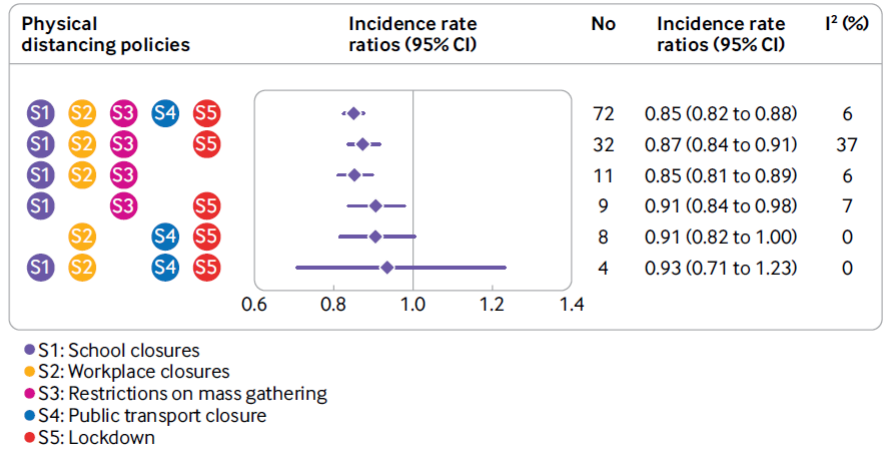
WHAT THIS STUDY ADDS

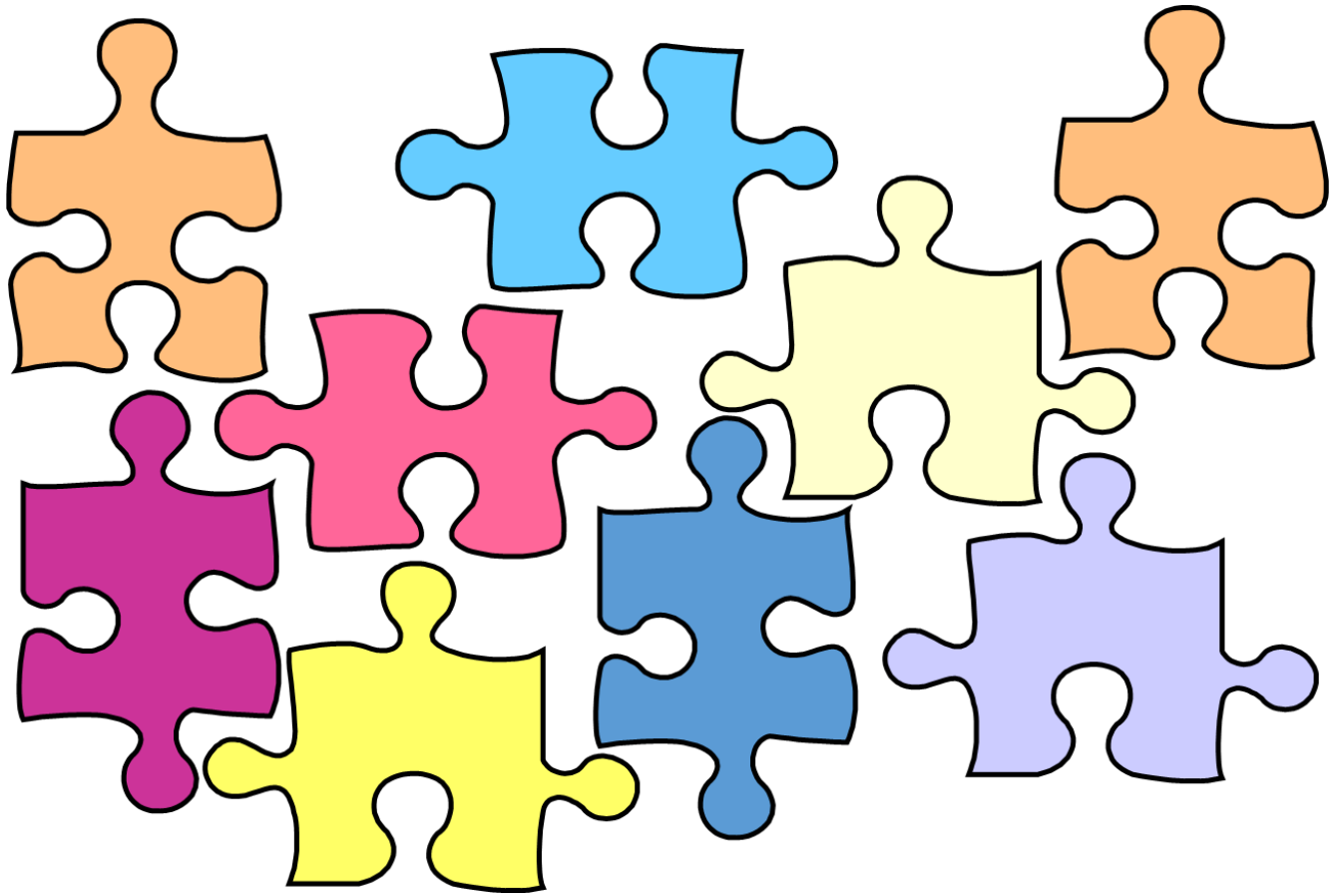
Data from 149 countries showed that the incidence of covid-19 decreased by an average of 13% in association with physical distancing interventions

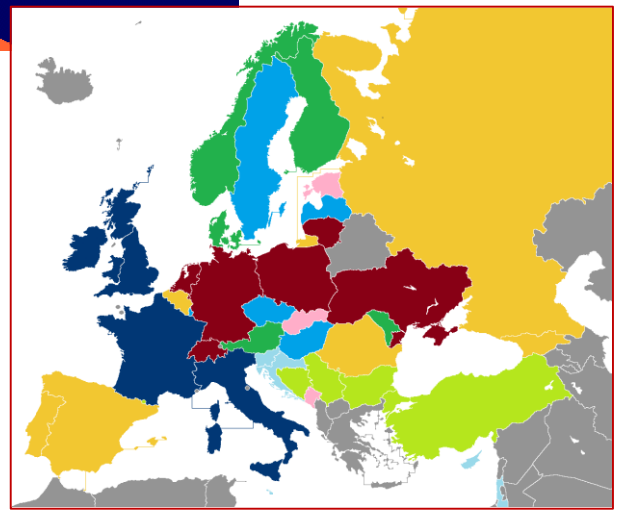
No evidence was found of additional benefits from closure of public transport when four other physical distancing measures (school closures, workplace closures, restrictions on mass gatherings, and lockdown) were in place

Earlier implementation of lockdown was associated with a larger reduction in the incidence of covid-19



Punto 7: Más coordinación

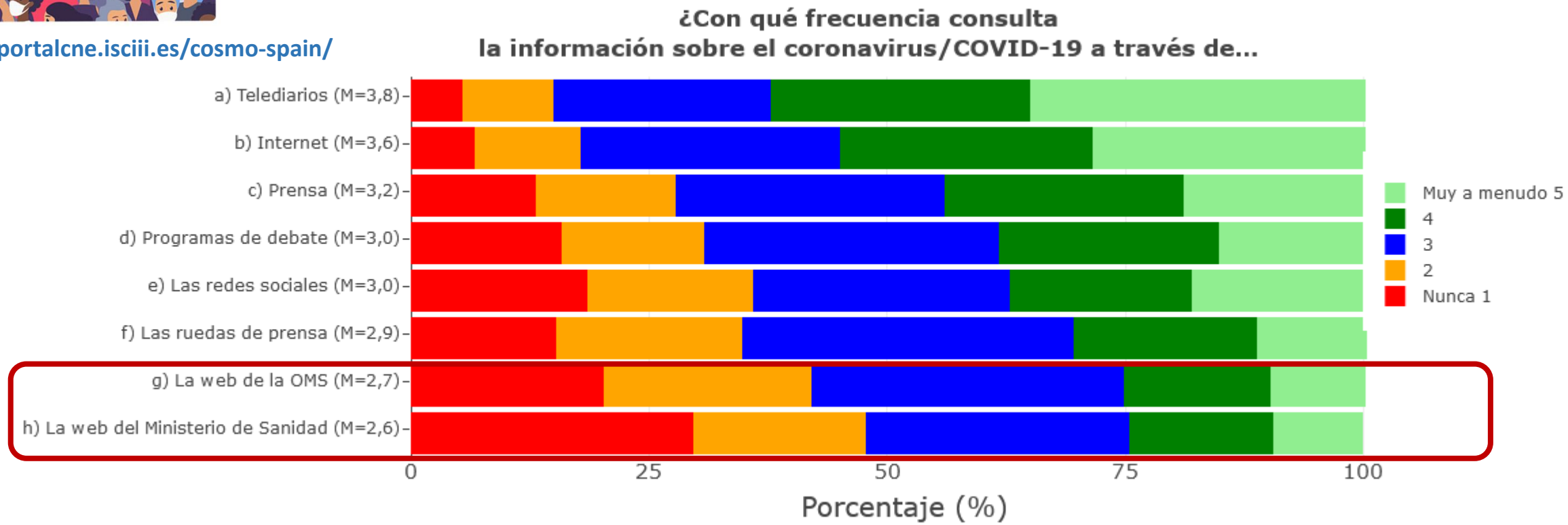




WHO

Punto 8: Información y formación ciudadana

https://portalcne.isciii.es/cosmo-spain/



Punto 9: Liderazgo de expertos y participación ciudadana

frontiers in Public Health

HYPOTHESIS AND THEORY
published: 14 July 2020
doi: 10.3389/fpubh.2020.00356

The Role of Experts in the Covid-19 Pandemic and the Limits of Their Epistemic Authority in Democracy

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We thus agree with Kearnes et al. (43) when they say that expert judgements don't exist in a vacuum. They arise from specific social and political contexts. To understand them, we, therefore, need to acknowledge the tacit assumptions embedded within expert knowledge claims, especially assumptions concerning how publics respond to expert advice.

In this vein, the lesson we can learn from the Covid-19 pandemic is two fold. The first idea is that the epistemic authority of experts in biomedical disciplines is fundamental and should be given priority by political authorities[31]. The second idea is that not all expert recommendations need to be automatically implemented, as some recommendations include axiological and regulatory elements that should be justified in the political process, not only epistemically but also normatively. In those cases, the decision-making process should, therefore, be civil, participatory in character, and perhaps even political, without giving up the criteria of competence and rationality.

Responding to global systemic shocks: applying lessons from previous crises to Covid-19

Global agenda

30 March 2020 | 25 min read

EsadeEcPol Insight

By EsadeEcPol

Authors: Ana Revenga (Senior Fellow, Brookings Institution) & Jorge Galindo (Director of Economic Policy and Data Visualisation, EsadeEcPol)

Executive summary

- The world is going through **a global crisis that goes beyond health issues** and affects livelihoods in many countries nearly simultaneously.
- The SARS epidemic of 2003 left the world **four clear lessons** for improved healthcare:
  - **invest** in preparedness systems
  - **centralise** decision making
  - **strengthen** investment in public health and research
  - **be transparent and timely** in public communications

No es la primera vez……

SCIENCE

FRIDAY, MAY 30, 1919

CONTENTS

The Lessons of the Pandemic: MAJOR GEORGE A. SOPER 501

THE LESSONS OF THE PANDEMIC

THE pandemic which has just swept round the earth has been without precedent. There have been more deadly epidemics, but they have been more circumscribed; there have been epidemics almost as widespread, but they have been less deadly. Floods, famines, earthquakes and volcanic eruptions have all written their stories in terms of human destruction almost too terrible for comprehension, yet never before has there been a catastrophe at once so sudden, so devastating and so universal.

The most astonishing thing about the pandemic was the complete mystery which surrounded it. Nobody seemed to know what the disease was, where it came from or how to stop it. Anxious minds are inquiring to-day whether another wave of it will come again.

The fact is that although influenza is one of the oldest known of the epidemic diseases, it is the least understood. Science, which by patient and painstaking labor has done so much to drive other plagues to the point of extinction has thus far stood powerless before it. There is doubt about the causative agent and the predisposing and aggravating factors. There has been a good deal of theorizing about these matters, and some good research, but no common agreement has been reached with respect to them.

Commentary by Parameswaran Hari

Plus ça change, plus c'est la même chose (The more it changes, the more it's the same thing)

In 1918-1919, Major George A. Soper, a sanitation engineer from New York, wrote these eloquent and prescient articles on the Influenza pandemic for the journal Science. The submission published in October 1918 describes the epidemiology of Influenza spread in US Army camps (no aircraft carriers then). The following publication, from May 1919, is a very perceptive piece on the lessons of the pandemic. Major Soper by that time was already famous for tracking down and isolating Mary Mallon (unfairly described as Typhoid Mary to this day). Despite the intervening hundred years of medical progress, virologic study and genomic insight we can both feel for and identify with Soper - who wrote this at the peak of the great Influenza pandemic. If one substitutes "Covid 19" for "influenza", every sentence in the first two pages could apply just as well to what we are going through now. I found this to be refreshingly forthright and germane for us despite the lack of applicability of the some of the specific measures proposed. It is a timely reminder that human wisdom and experiences will transcend many challenges and remain relevant for a very long time.

Ni será la última……