# Mitos y Realidades del Coronavirus

**Dra. Lourdes Dueñas de Chicas**
**Pediatra Infectologa**

# Son algo nuevo las Pandemias?

## Pandemias de Influenza

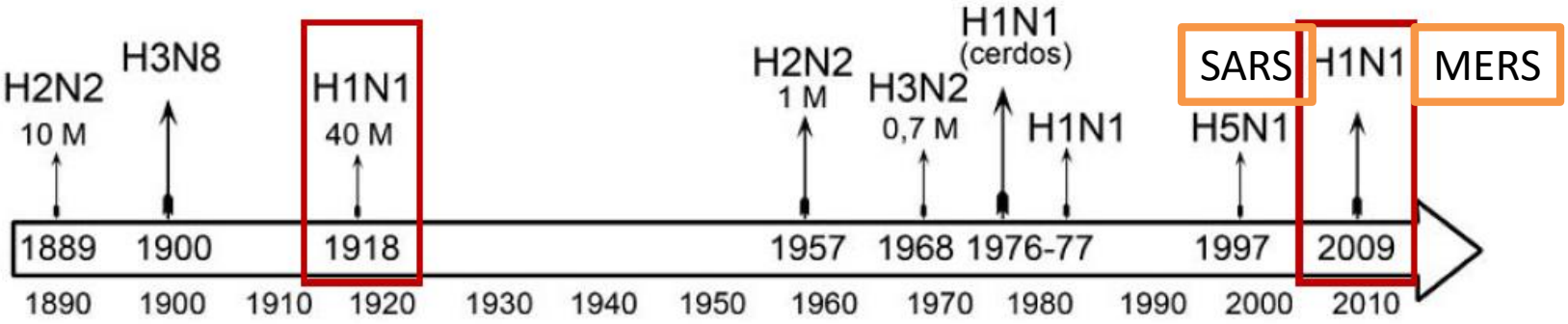
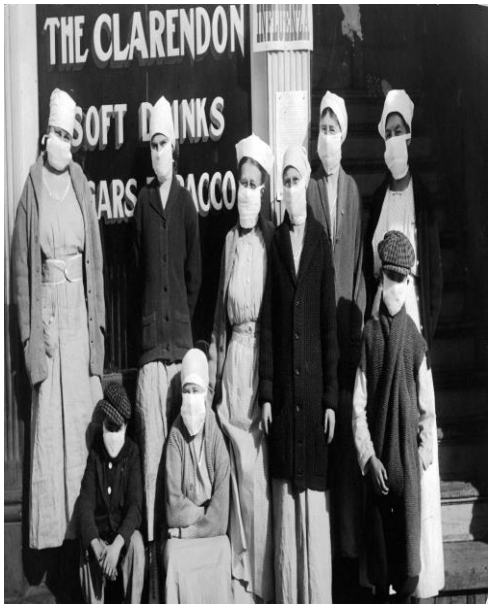
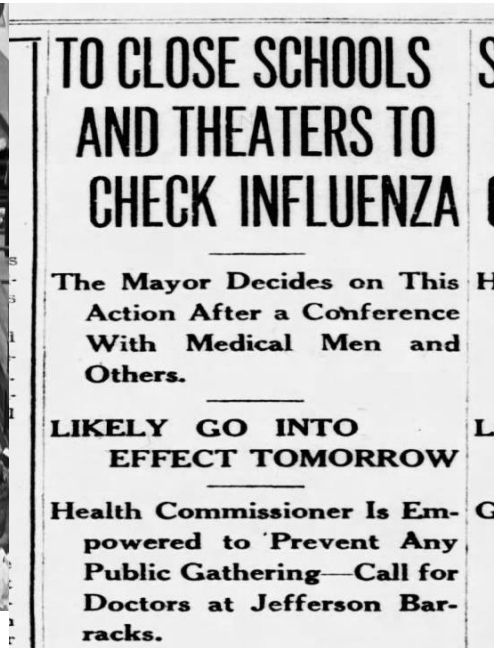



**Figura 5.** Aparición relativa de cada cepa de virus influenza A de importancia a lo largo del tiempo. Debajo de algunos de los subtipos, se indica el número de personas afectadas en cada evento pandémico.

# Hay cosas que nunca cambian

TO CLOSE SCHOOLS AND THEATERS TO CHECK INFLUENZA

The Mayor Decides on This Action After a Conference With Medical Men and Others.

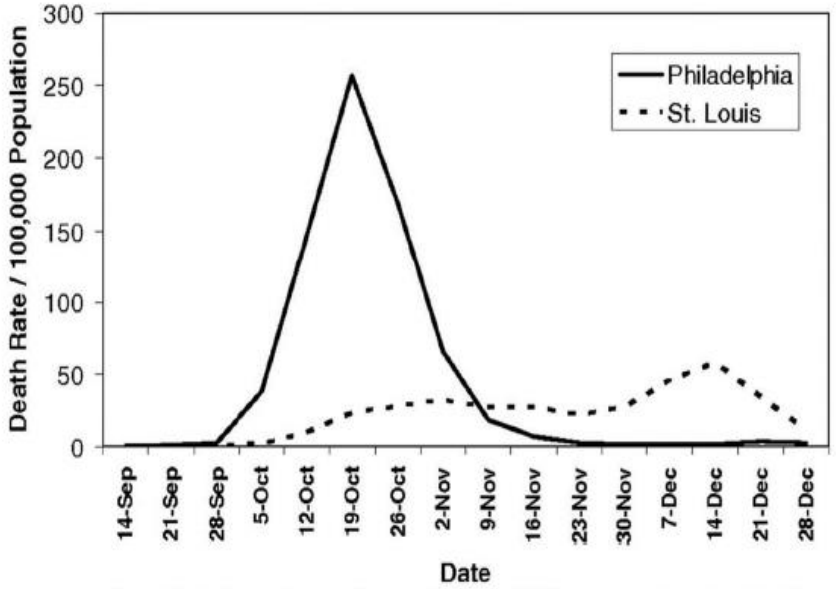
LIKELY GO INTO EFFECT TOMORROW

Health Commissioner Is Empowered to Prevent Any Public Gathering—Call for Doctors at Jefferson Barracks.

# Distanciamiento Social

## Tasas de mortalidad por influenza de 1918 en ciudades con diferentes medidas de distanciamiento social

Chart 19: Death Rate of 1918 Flu Pandemic in Cities with Different Social Distancing Measures



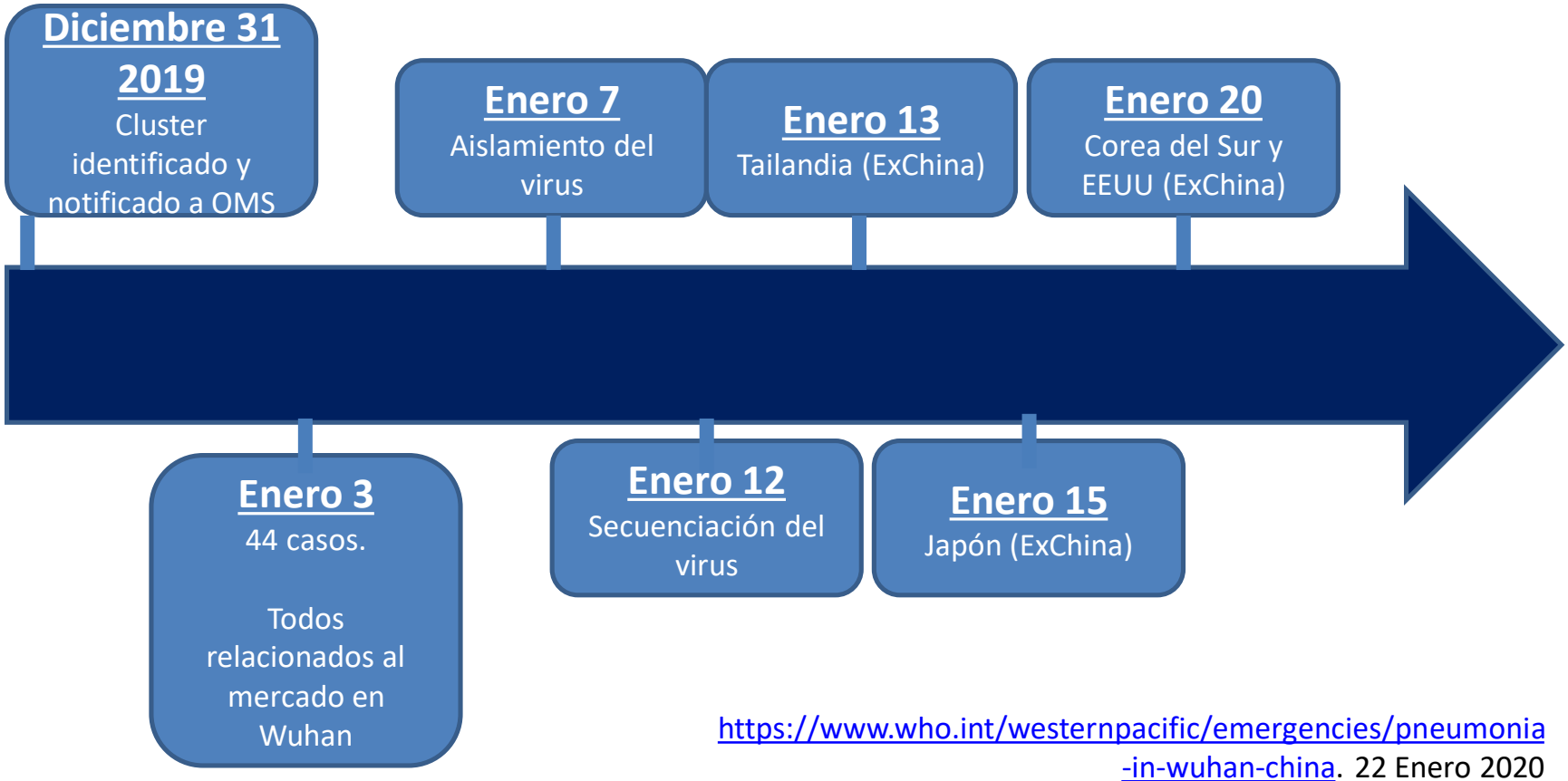

The first cases of disease among civilians in Philadelphia were reported on September 17, 1918, but authorities downplayed their significance and allowed large public gatherings, notably a city-wide parade on September 28, 1918, to continue. School closures, bans on public gatherings, and other social distancing interventions were not implemented until October 3, when disease spread had already begun to overwhelm local medical and public health resources.

In contrast, the first cases of disease among civilians in St. Louis were reported on October 5, and authorities moved rapidly to introduce a broad series of measures designed to promote social distancing, implementing these on October 7.

The difference in response times between the two cities (≈14 days, when measured from the first reported cases) represents approximately three to five doubling times for an influenza epidemic.

*Source: Public health interventions and epidemic intensity during the 1918 influenza pandemic, Proceedings of the National Academy of Sciences of the USA https://www.pnas.org/content/104/18/7582*

**Se puede ver cómo Filadelfia no actuó rápidamente y tuvo un pico masivo de muertes. Compárese con St. Louis, que sí lo hizo**




https://www.who.int/westernpacific/emergencies/pneumonia-in-wuhan-china. 22 Enero 2020

The NEW ENGLAND JOURNAL of MEDICINE

# History in a Crisis — Lessons for Covid-19

David S. Jones, M.D., Ph.D.

Pandemia 11 de Marzo 2020

**An Emergency Hospital in Brookline, Massachusetts, Where Patients Were Cared for during the 1918 Influenza Epidemic**

From the National Archives.

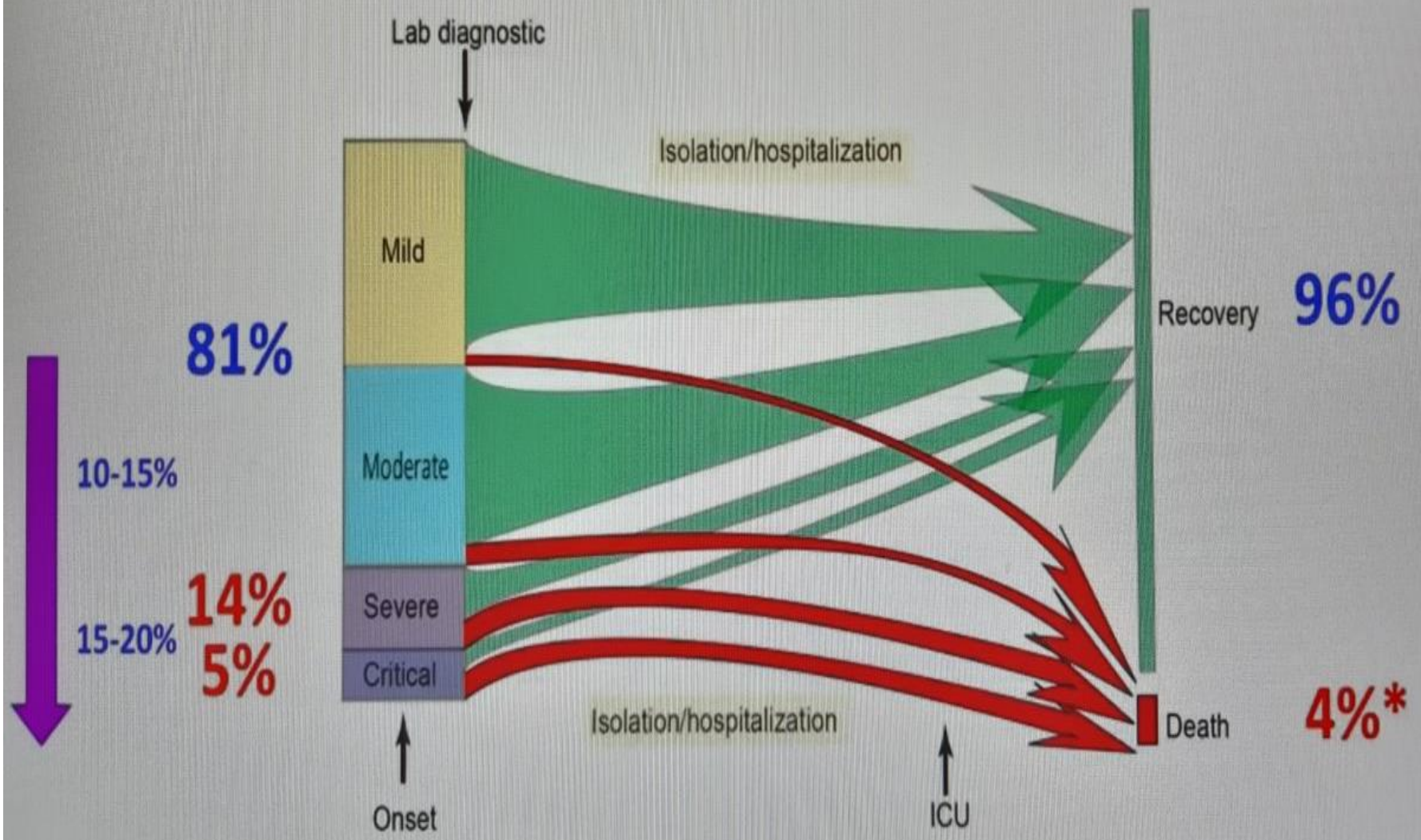
# Es la Pandemia del Coronavirus de alta gravedad y mortalidad

La propagación global se está acelerando con más informes de transmisión local


1. Previously counted only countries; now aligned with WHO reports to include territories and dependencies; excluding cruise ship
2. Previously noted as community transmission in McKinsey documents; now aligned with WHO definition

Sources: World Health Organization, John Hopkins University, CDC, news reports

# Clinical Prognosis and Recovery in China

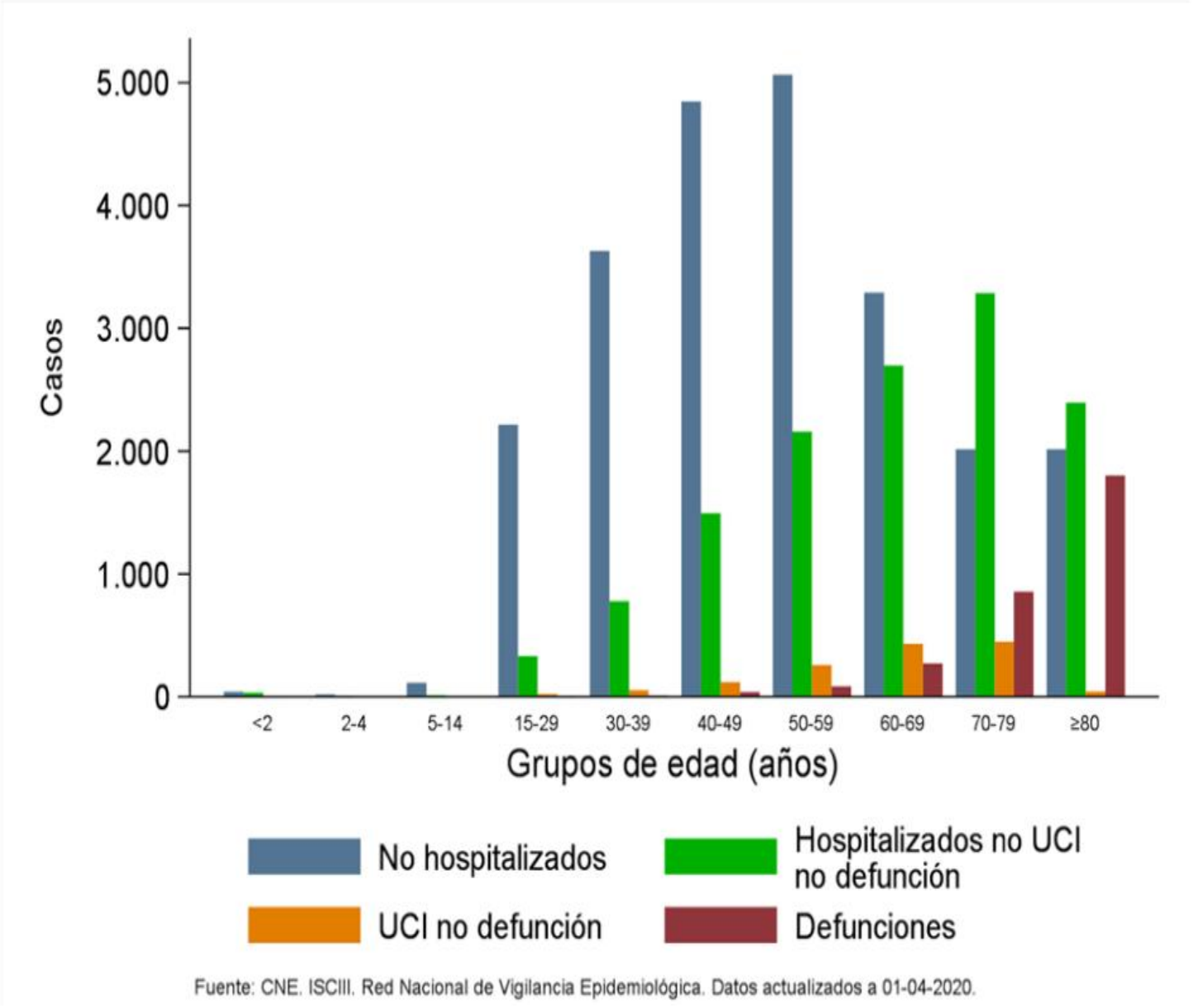



* ≈50% of deaths (1023/2087) among critically ill patients

Huang C et al. Lancet. January 24, 2020 https://doi.org/10.1
Aylward B et al, WHO-China Mission.

Es una enfermedad de personas Mayores ?

***Figura 3. Distribución por grupos de edad y situación clínica. Casos de COVID-19 notificados a la RENAVE***



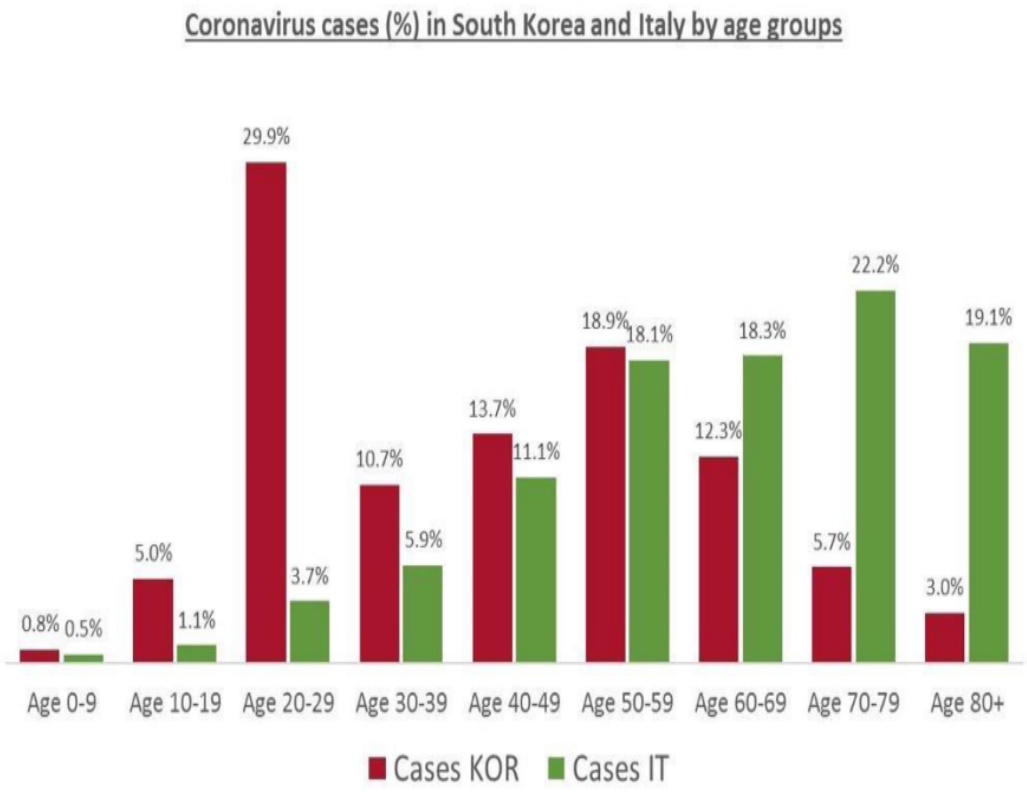

Fuente: CNE. ISCIII. Red Nacional de Vigilancia Epidemiológica. Datos actualizados a 01-04-2020.

London Business School

# No todos los casos son en personas mayores

LA DIFERENCIA:

- ✓ Korea a testetado a gran parte de la población sintomático y asintomático
- ✓ Italia solo los sintomáticos ( moderados a graves)
- ✓ En Venecia examinaron 3,300 habitantes el 80% de los positivos fueron jóvenes asintomáticos



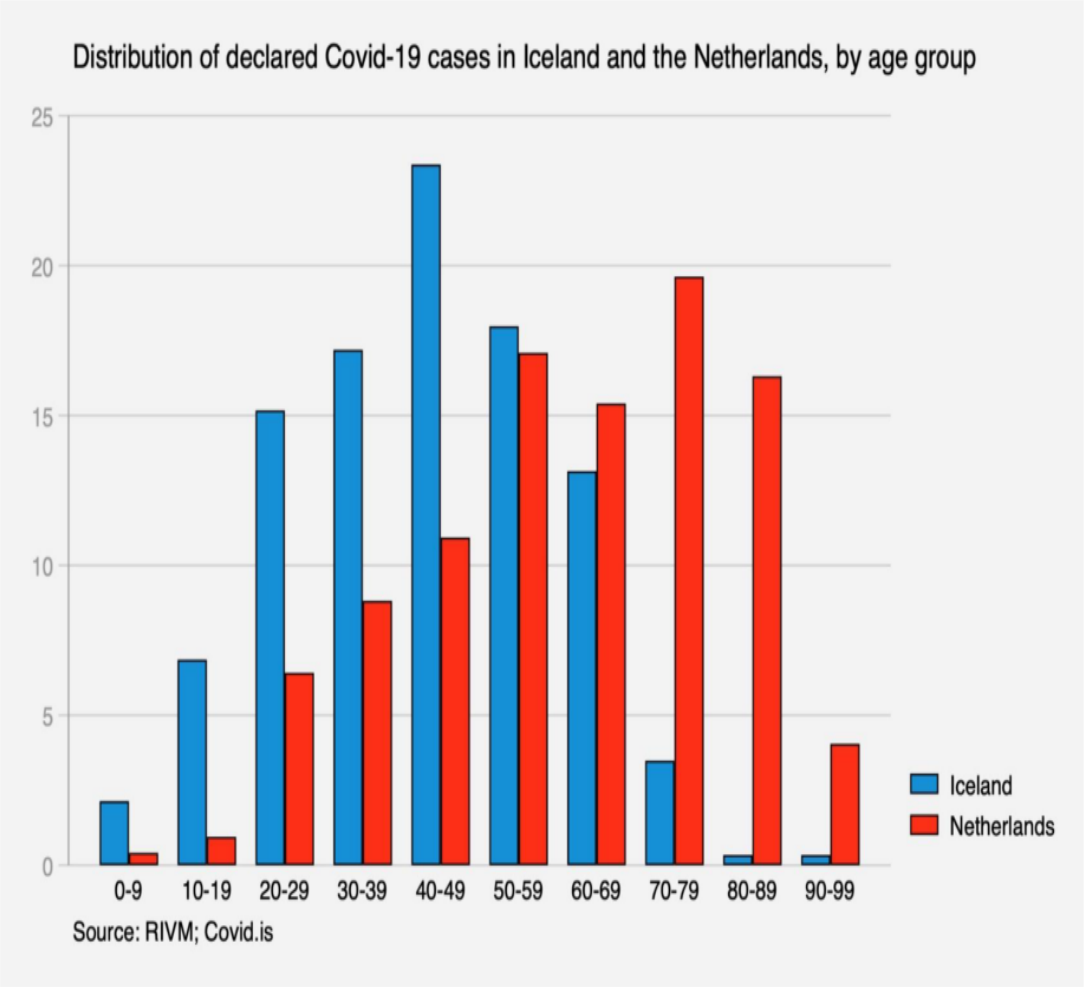

Source: Backhaus (13 Mar, Medium.com), Buck (20 March, ft.com)

London Business School

# No todos los casos son en personas mayores

LA DIFERENCIA:

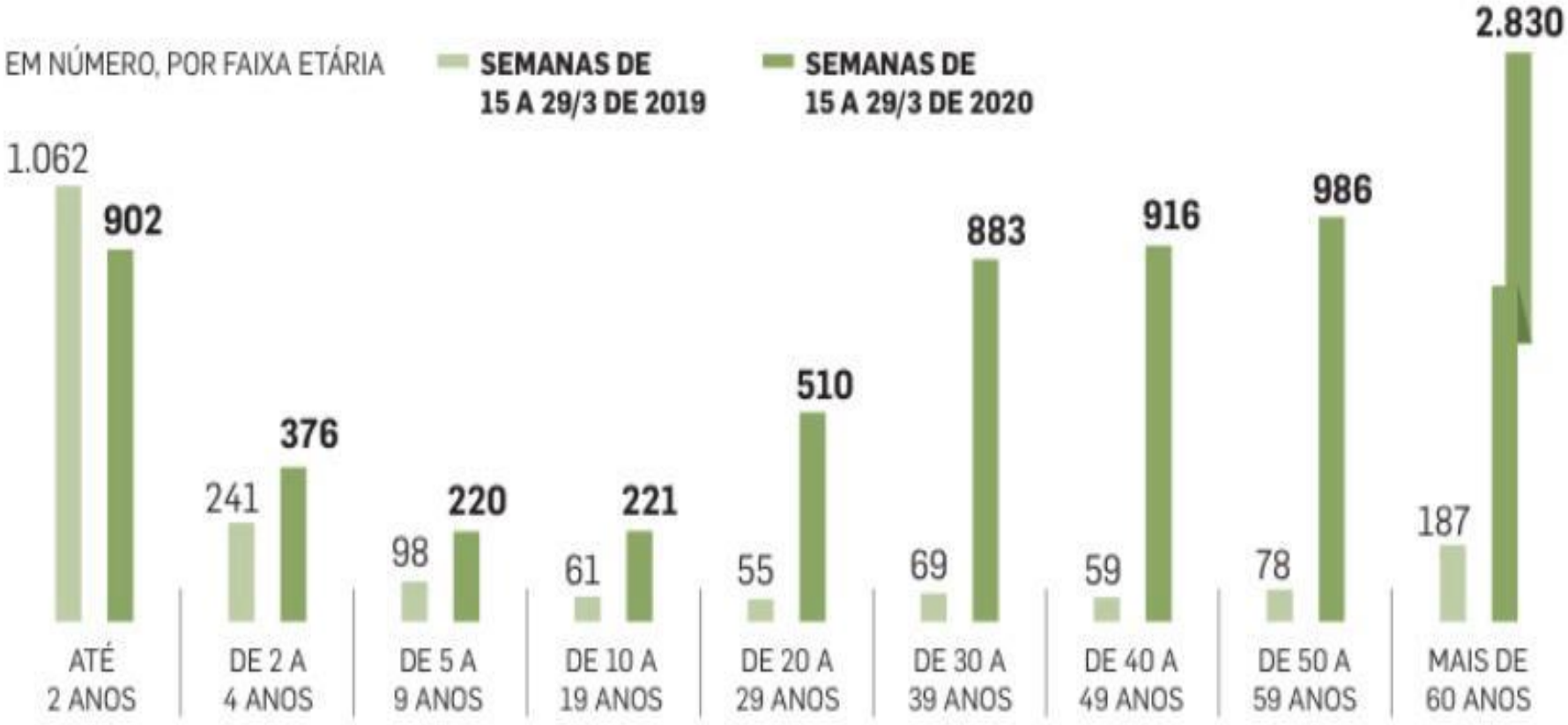
- ✓ Islandia a testetado a gran parte de la población sintomático y asintomático
- ✓ Holanda solo los sintomáticos graves
- ✓ En Alemania con similar estructura demografía que Italia, realizaron 160,000 pruebas semanales, un alto número de casos fueron en personas debajo de 40 años con una mortalidad del 0.5%




Source: National Institute for Public Health and the Environment Ministry of Health, Welfare and Sport (RIVM, Netherlands); Islandic Directorate of Health (Covid); Mai (27 March, Vox.com)

# A IDADE DOS INTERNADOS

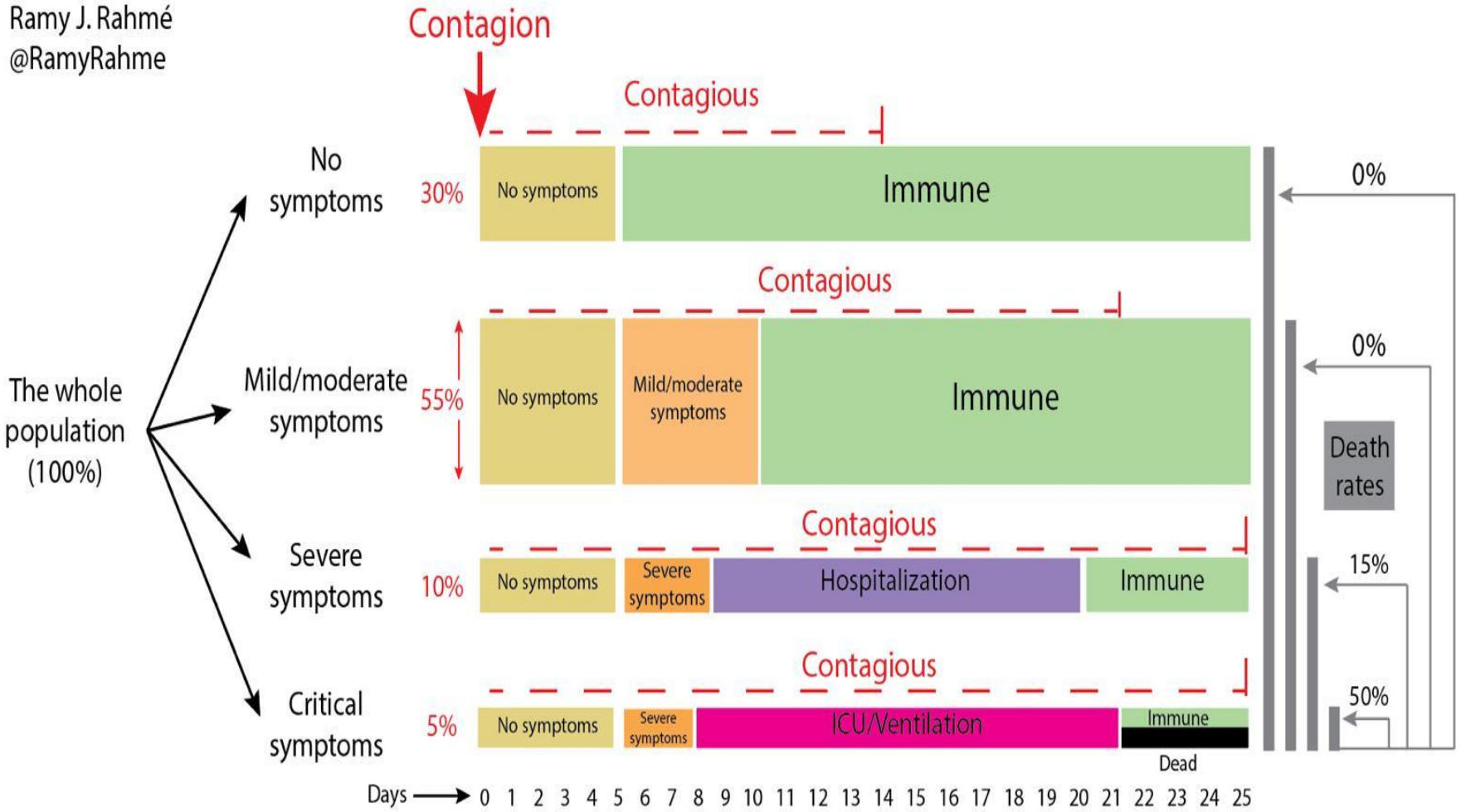
● **Maioria dos pacientes com síndrome respiratória aguda grave entre 15 e 29 de março tinha mais de 60 anos, mas faixa entre 30 e 59 anos também chama atenção**




**FONTE:** INFOGRIPE / FIOCRUZ SOBRE DADOS DISPONÍVEIS NO SISTEMA ATÉ 29/3

INFOGRÁFICO/ESTADÃO

Ramy J. Rahmé
@RamyRahme

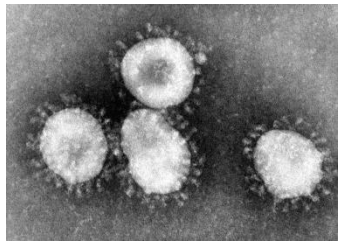


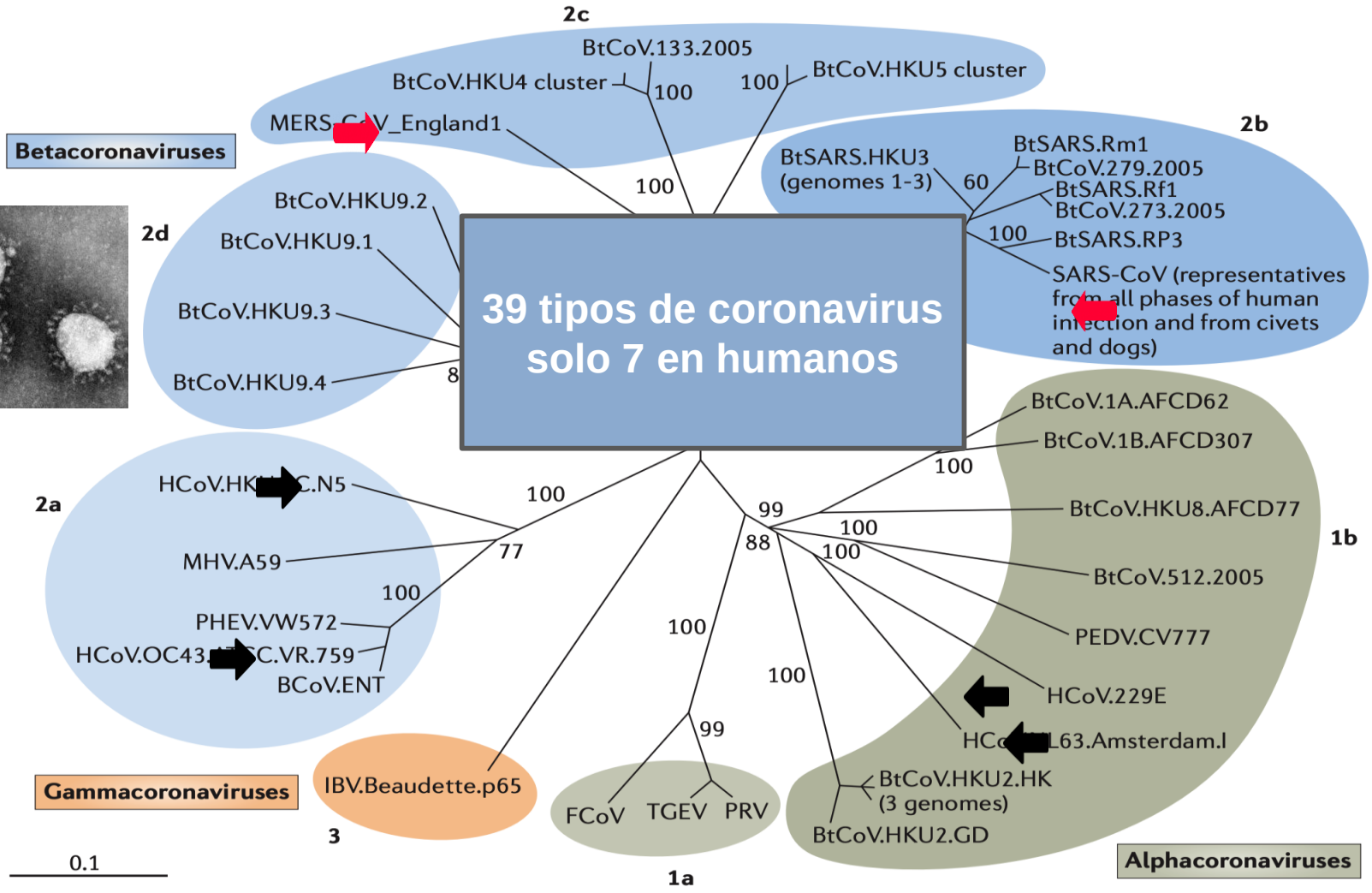

References:

1. The Incubation Period of Coronavirus Disease 2019 (COVID-19) From Publicly Reported Confirmed Cases: Estimation and Application. Lauer SA et al. Ann Intern Med. 2020 Mar 10.
2. Impact of non-pharmaceutical interventions (NPIs) to reduce COVID19 mortality and healthcare demand. Neil M Ferguson et al. Imperial College COVID-19 Response Team. 16 March 2020.
3. Viral dynamics in mild and severe cases of Covid-19. Yang Liu et al. The Lancet, March 19, 2020.

Cual es el origen del nuevo coronavirus ?

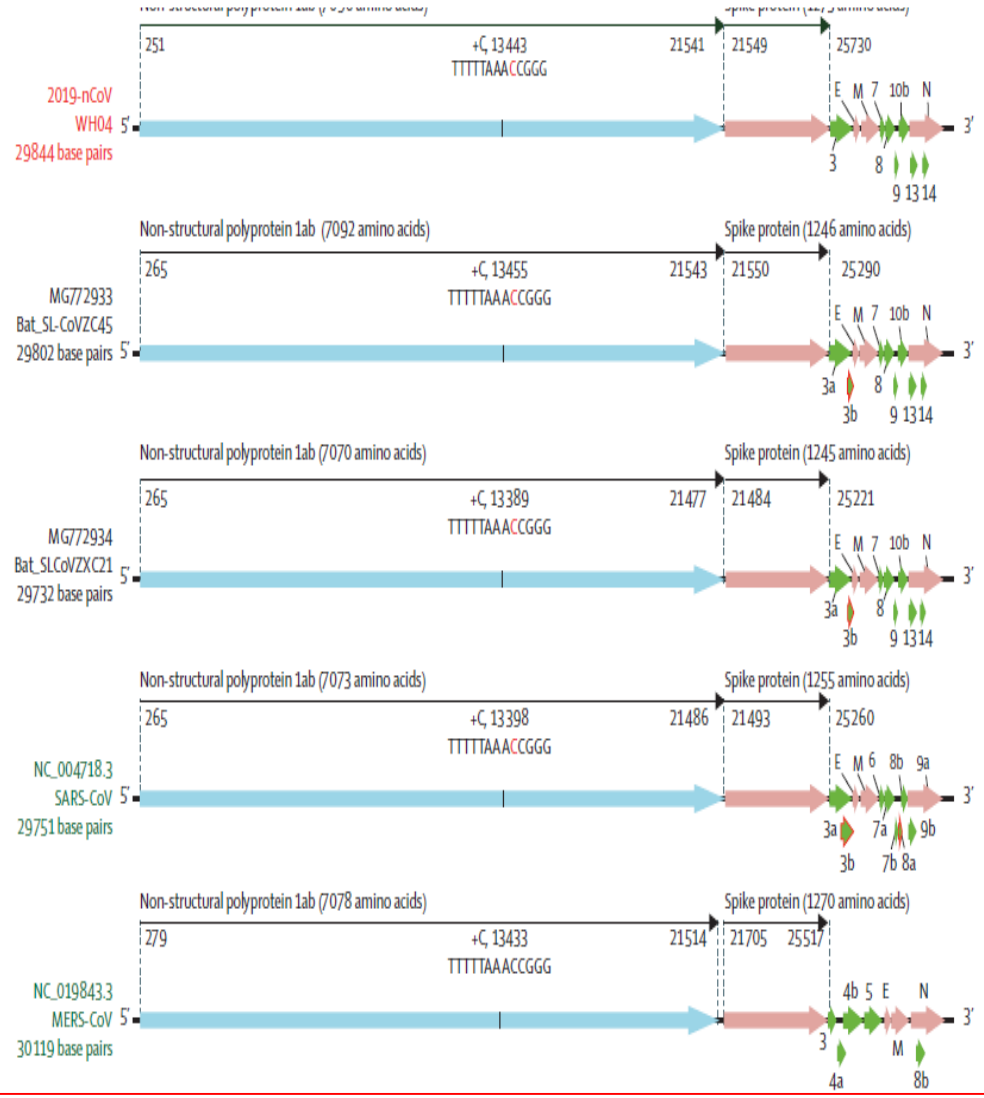
# Mito: el coronavirus fue fabricado por el hombre

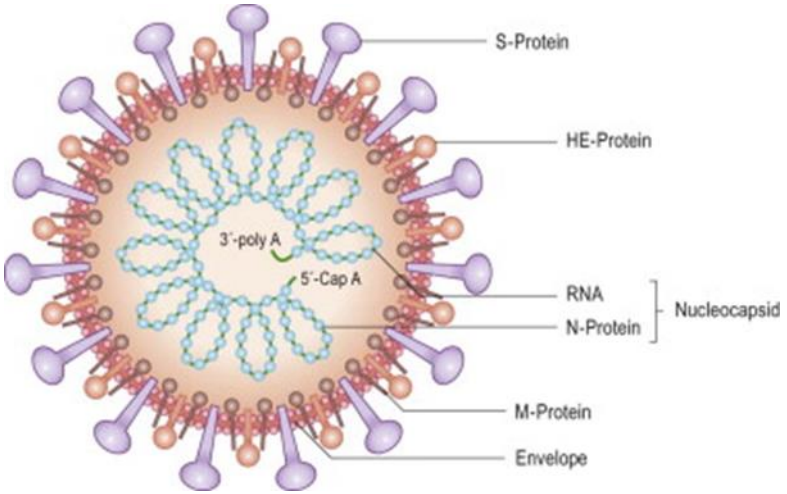





Nat Rev Microbiol. 2013 Dec;11(12):836-48

# Codificación de proteínas




**88%** de similitud con dos serotipos de SARS

**50%** de similitud con MERS

Lu R et all. Lancet 2020

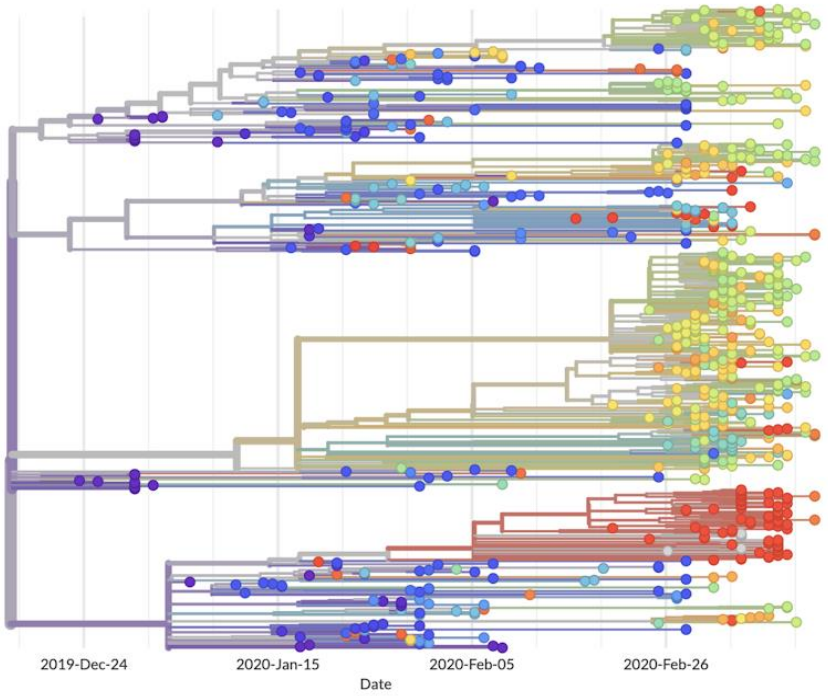
Virus ARN homología 80% al anterior SARS Cov y 96% del coronavirus del murciélago BattCiVRaTG13

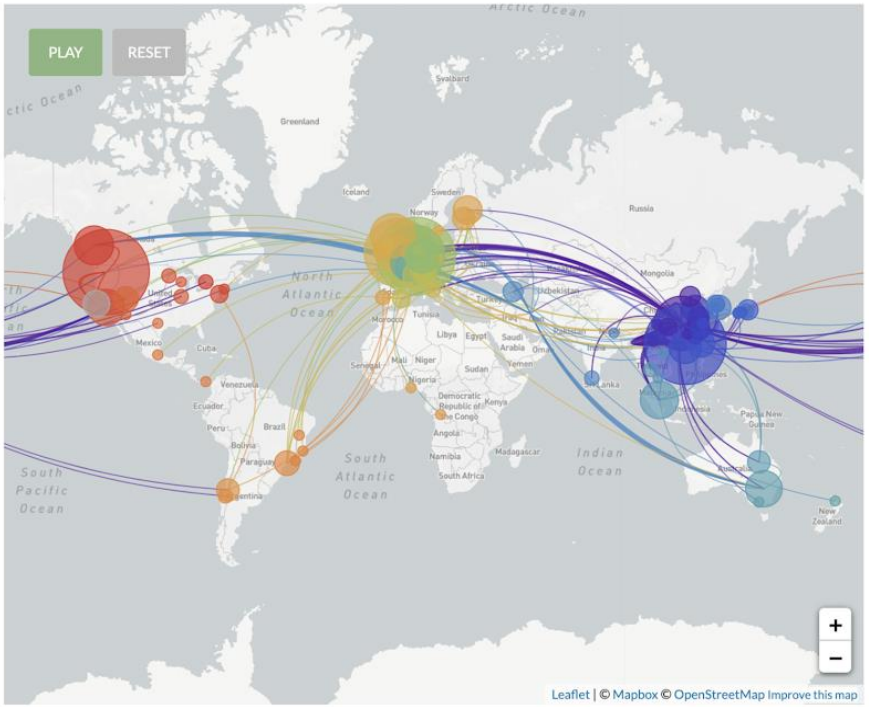
# Genomic epidemiology of novel coronavirus (hCoV-19)

Built with nextstrain/ncov using data from GISAID.

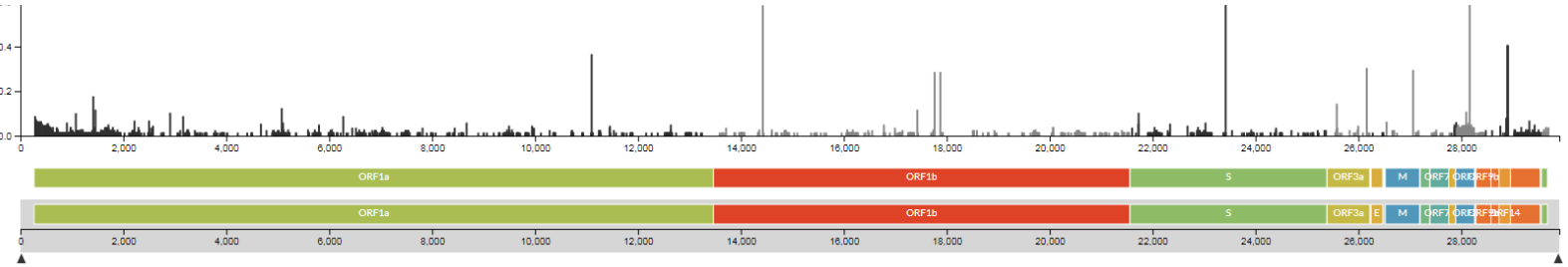
Showing 519 of 519 genomes sampled between Dec 2019 and Mar 2020.

## Chart 6: Mutations in the Coronavirus



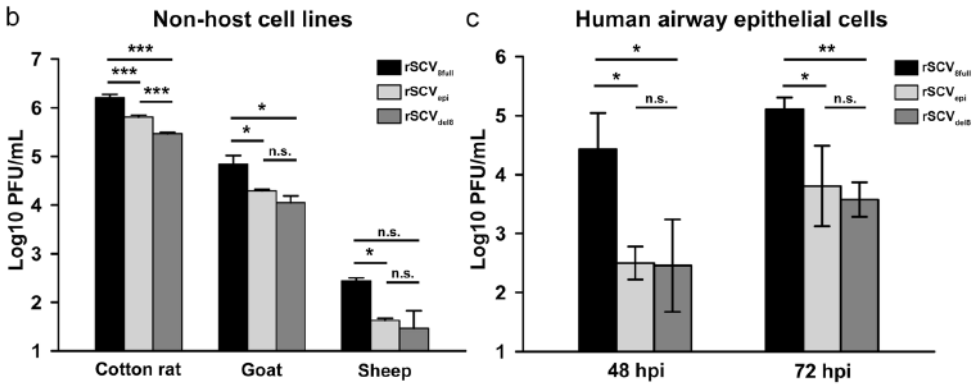

*Source: Nextstrain, based on open source information gathered through GISAID*



# Atenuación de la replicación viral en SARS

Mutación de 29 pares – ORF8

SARS-CoV → Humanos

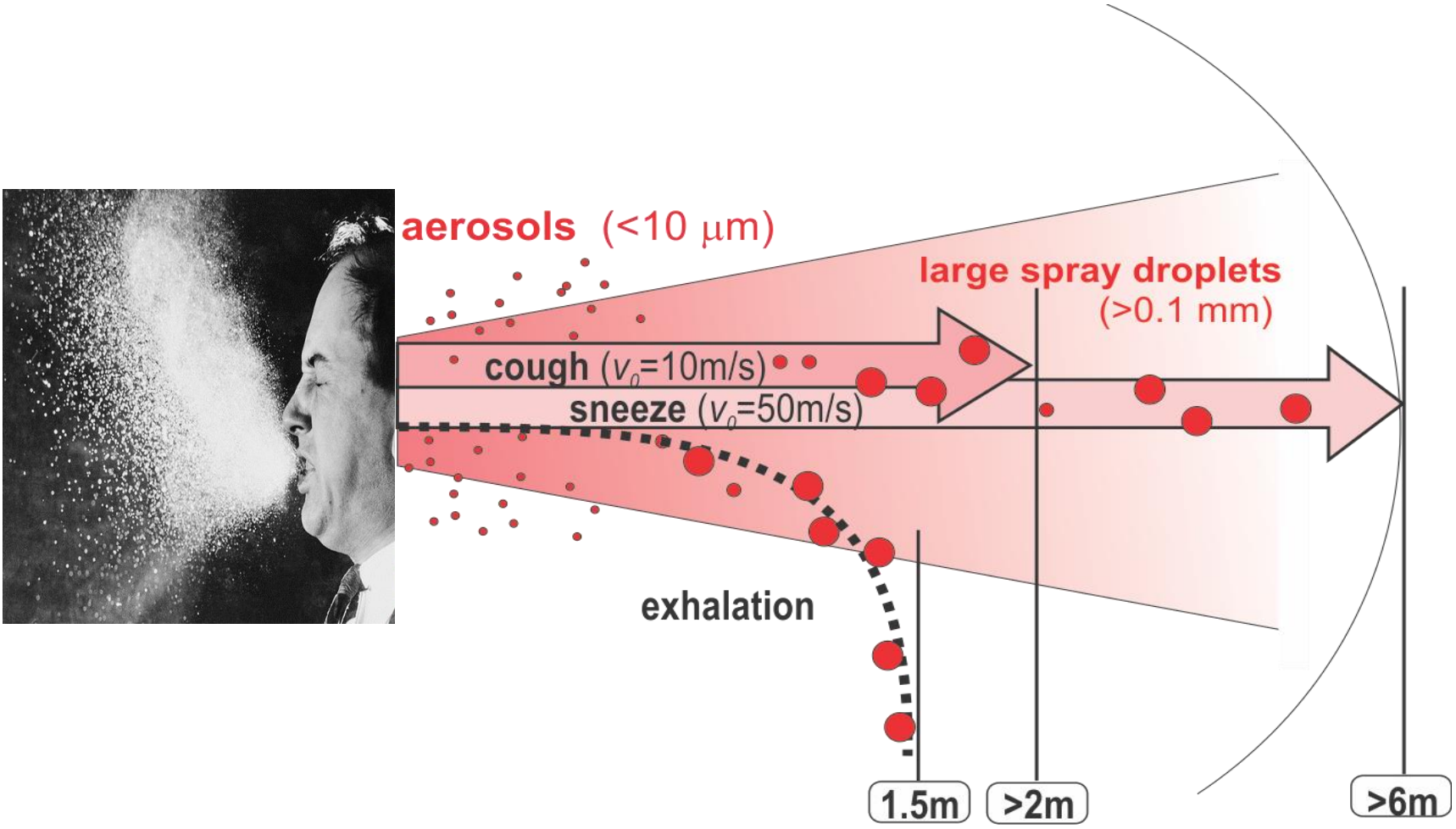



**23 veces menos** capacidad de replicación

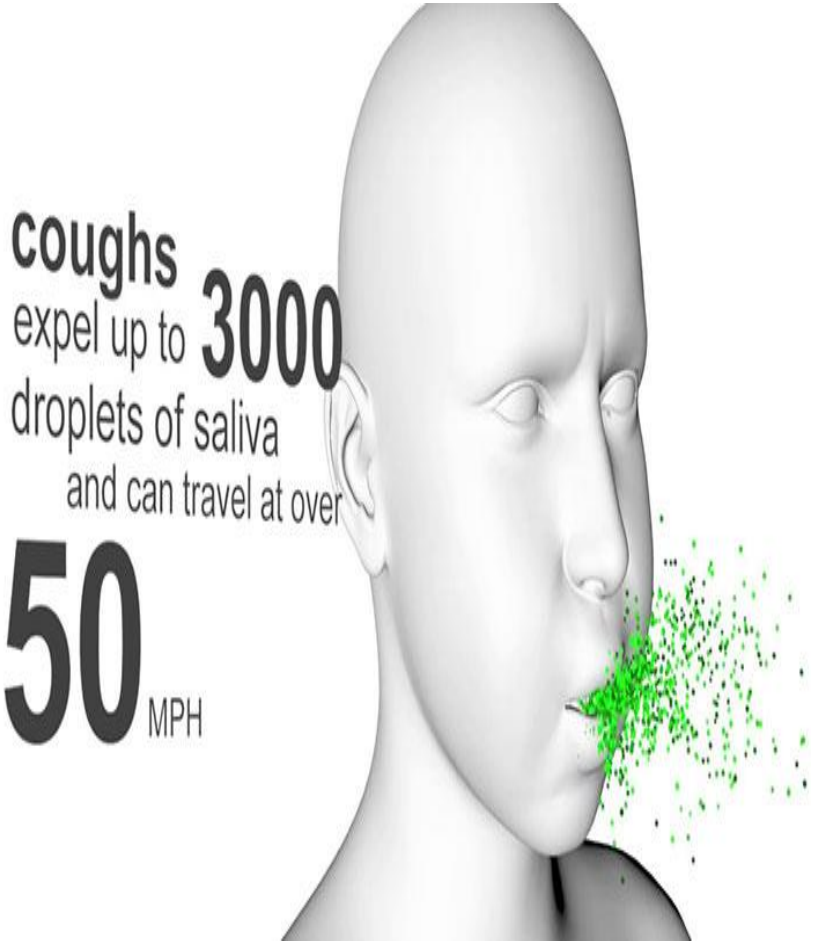
SCIENTIFIC REPORTS

Dorieen M et al. Nature 2018

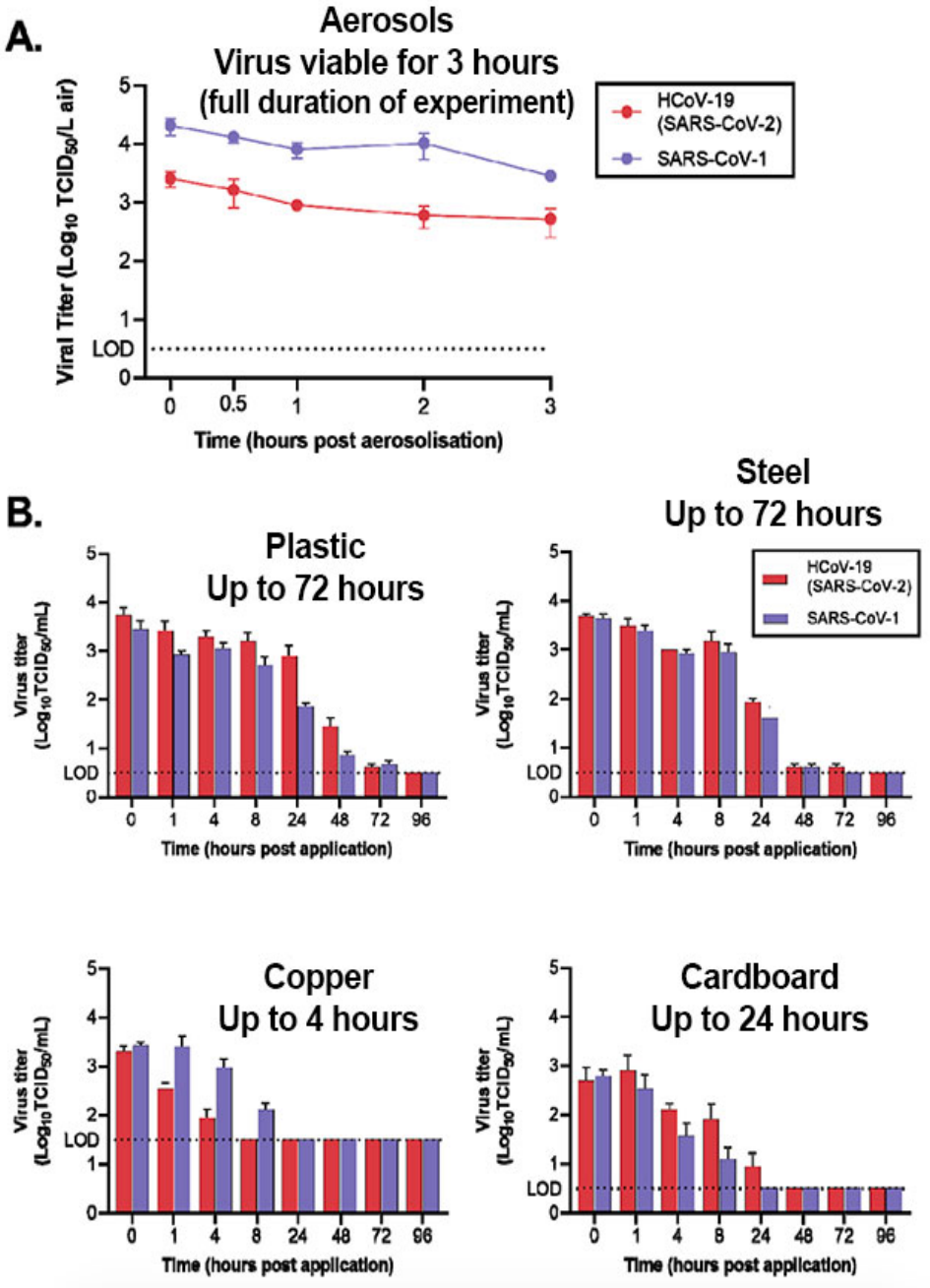
Como se transmite y que causa el COVID19 en nuestro cuerpo?




Gotas de más de 10um (micrómetro), alcanzando 100um o más. (partículas grandes ) en el aerosol generado al toser o estornudar (0.1 um de diámetro a más). Los cálculos de Xie et al sugieren que si se exhala, las gotas> 0.1 um pueden evaporarse o caer a una superficie dentro de 2 m, dependiendo del tamaño, la humedad del aire y la temperatura.



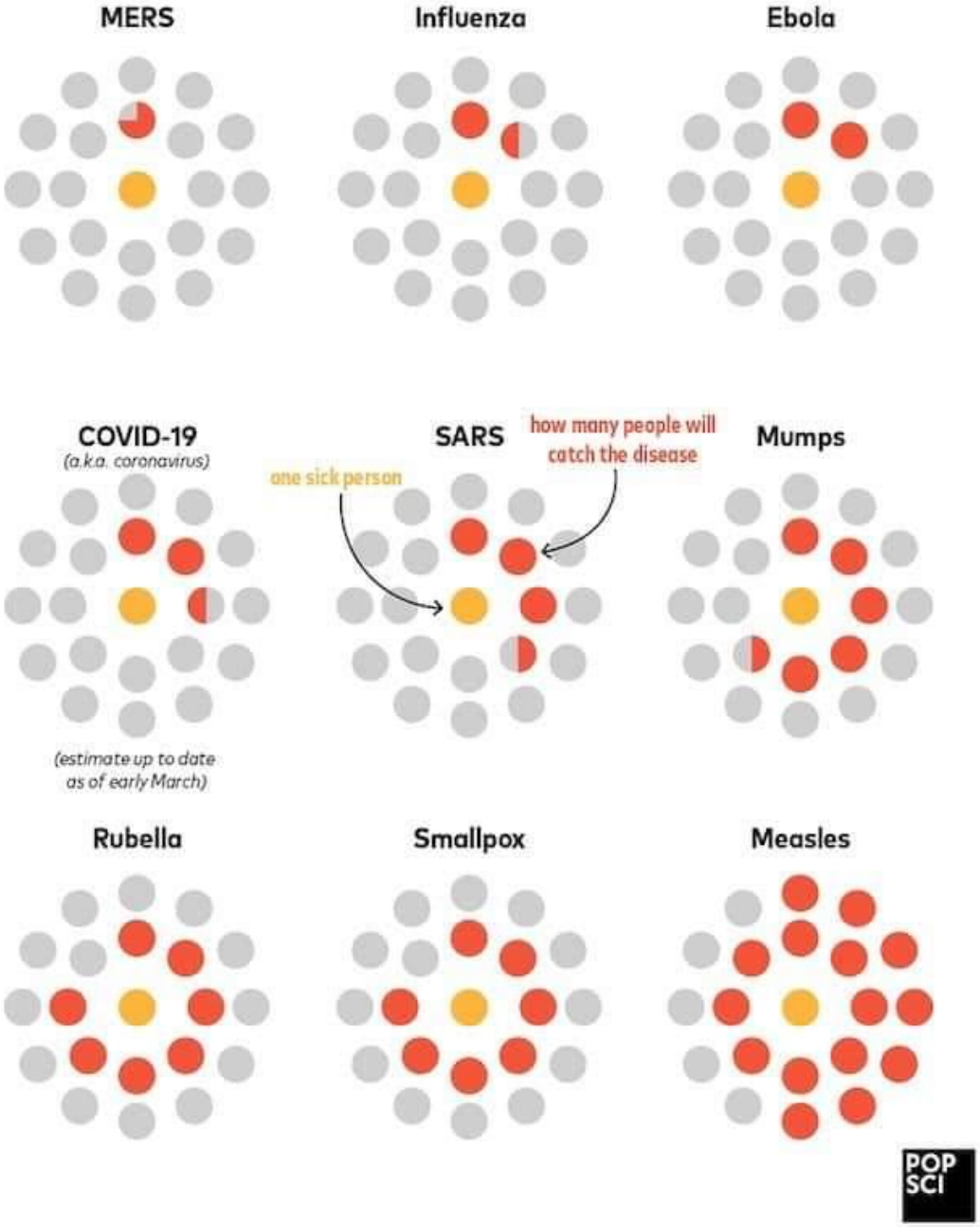

1 célula infectada por COVID 19 libera 100,000 partículas virales



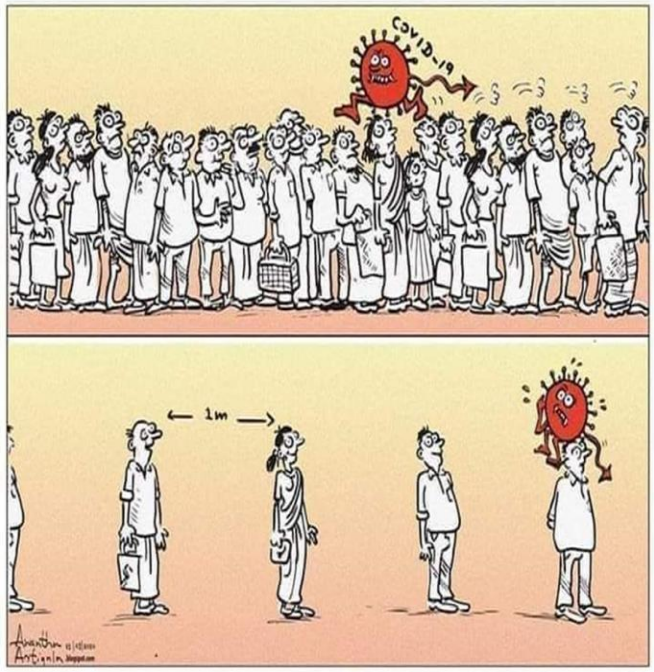
AHA webinar

Source: Dr. James Lawler, professor at the University of Nebraska Medical Center, for the American Hospital Association, via Business Insider, https://www.businessinsider.com/presentation-us-hospitals-preparing-for-millions-of-hospitalizations-2020-3

- $R_0$ = 2.5; tiempo de duplicación 7-10días
- Tasa de ataque comunitario = 30-40%
- Casos que requieren hospitalización = 5%
- Casos que requieren manejo en UCI = 1-2%
- Casos que requieren soporte ventilatorio = 1
- Tasa de letalidad = 0.5%



- **El poder del distanciamiento social**



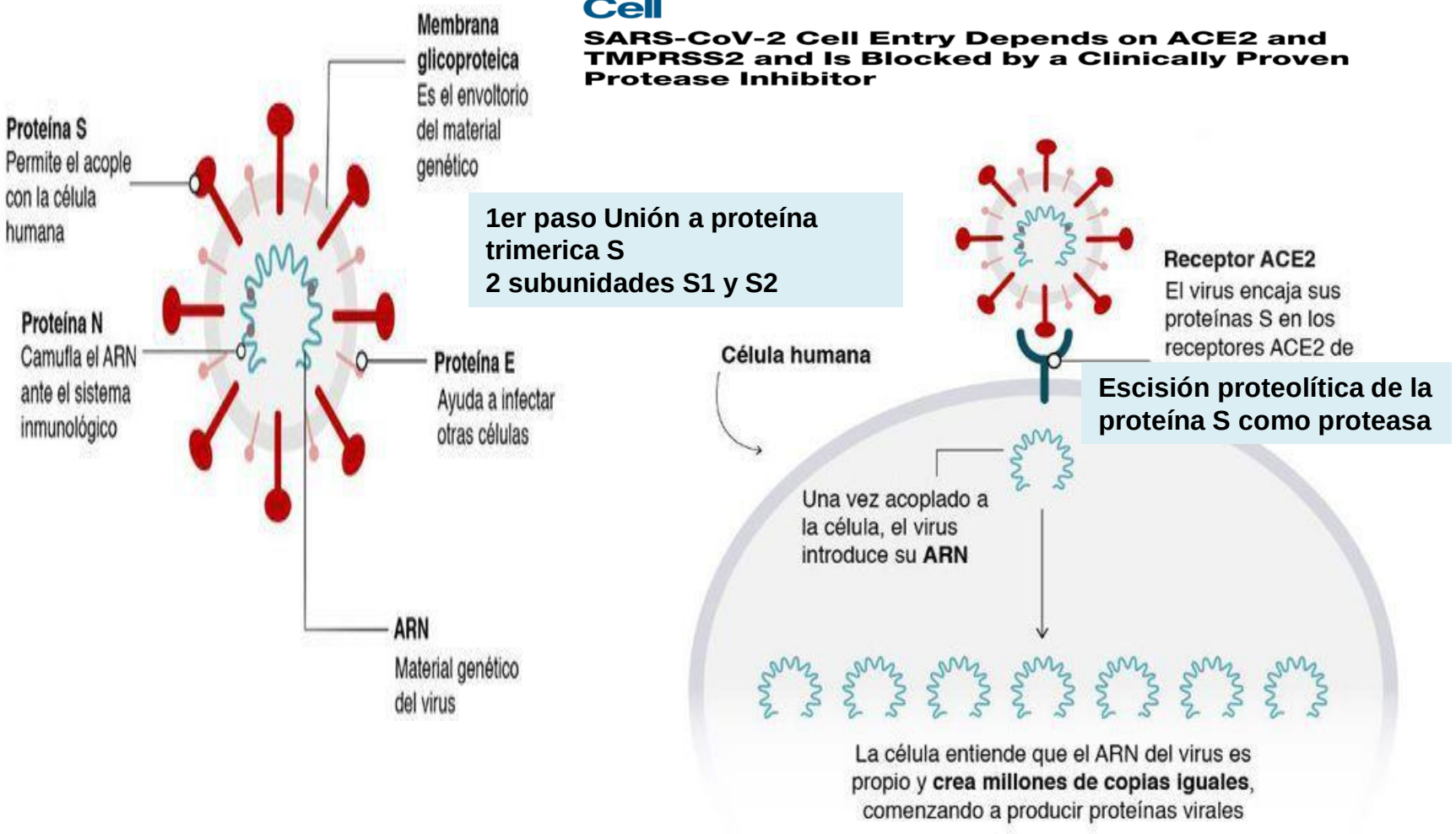


**50% menos de exposición**


**75% menos de exposición**

Cell

**SARS-CoV-2 Cell Entry Depends on ACE2 and TMPRSS2 and Is Blocked by a Clinically Proven Protease Inhibitor**




EVENTOS:

1- Acumulación de Angiotensina II: Apoptosis de Neumocito tipo I

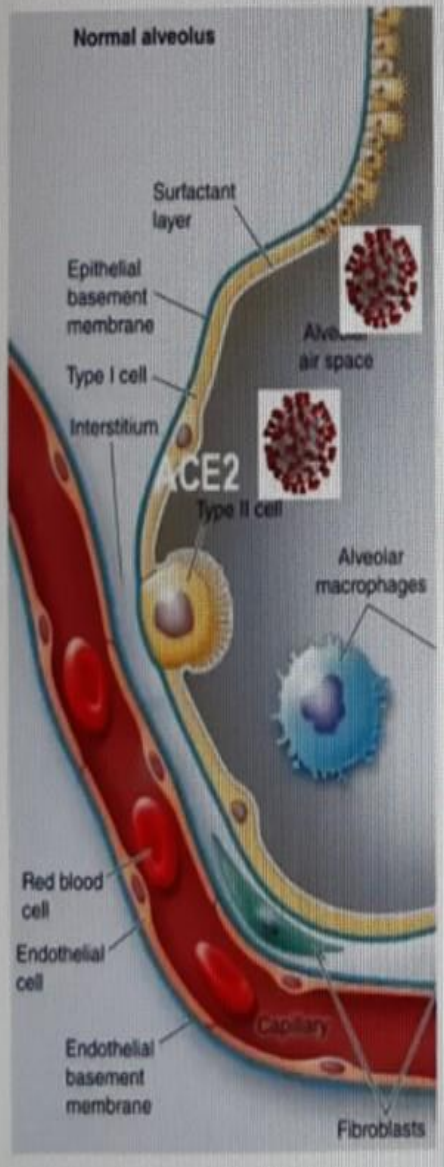
2- Hiperreactividad de vías aéreas, oxigenación, reduce infiltración celular

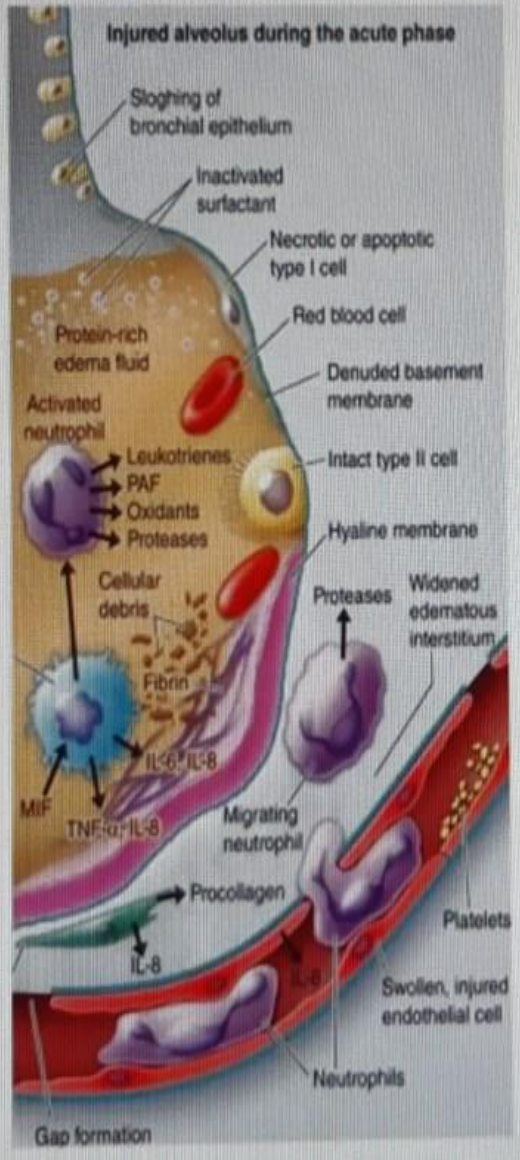
3- Hipertensión Pulmonar

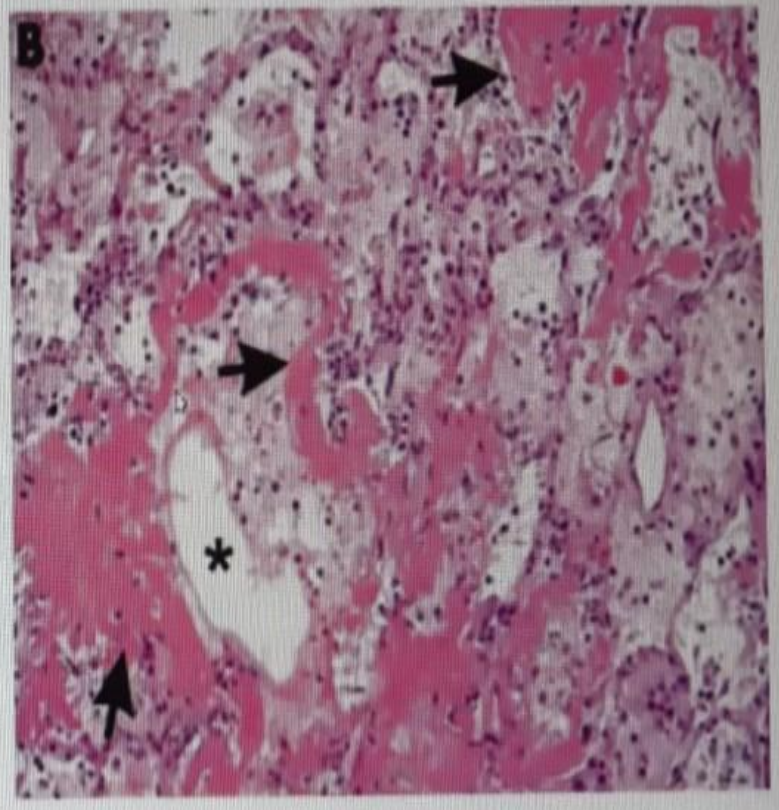
4- Reduce efecto proiflamatorio y aumenta antiinflamatorio

5- Reduce fibrosis pumonar

# SARS-CoV-2 (COVID19) Pathogenesis: ARDS




**Acute Respiratory Distress Sydrome (ARDS) pathology**

Acute diffuse alveolar damage, with pulmonary edema and formation of a hyaline membrane in a SARS-CoV patient

The airspaces are indicated by asterisks and some of the hyaline membranes lining the alveolar spaces are highlighted by arrows. (hematoxylin and eosin stain, original magnification, x100)

Tse GMK et al. J Clin Pathol 2004;57:260–265

pubs.acs.org/chemneuro Viewpoint

# Evidence of the COVID-19 Virus Targeting the CNS: Tissue Distribution, Host–Virus Interaction, and Proposed Neurotropic Mechanisms

Abdul Mannan Baig,* Areeba Khaleeq, Usman Ali, and Hira Syeda

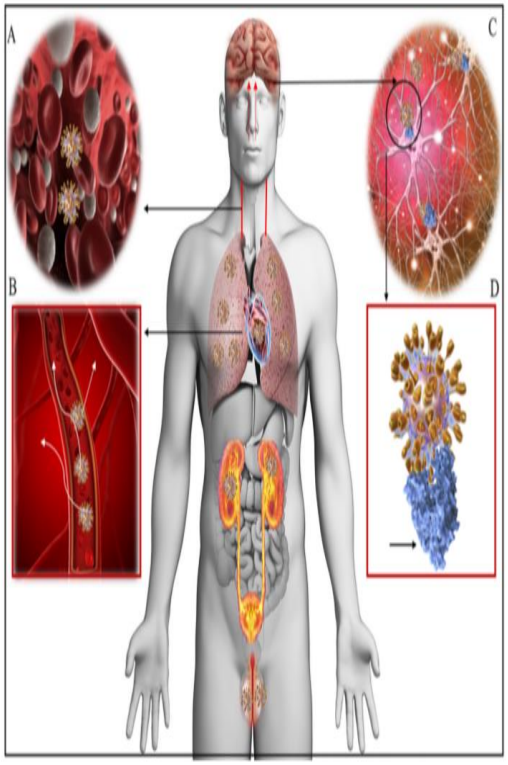


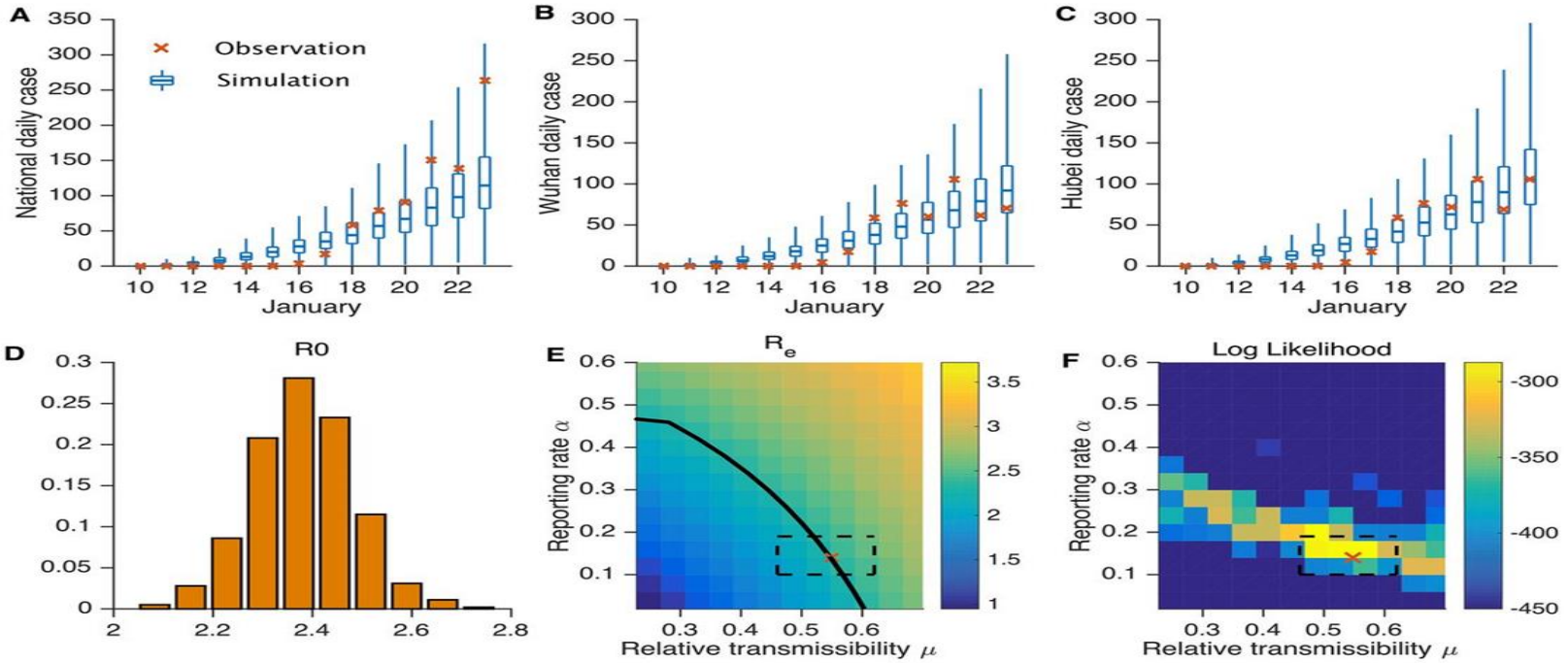

Figure 1. Tissue distribution of ACE2 receptors in humans. Viremia (A) disseminates the COVID-19 virus throughout the body via the bloodstream (B). Neurotropism may occur via circulation and/or an upper nasal trancribrial route that enables the COVID-19 to reach the brain (C) and bind and engage with the ACE2 receptors (D, blue). COVID-19 docks on the ACE2 via spike protein (D, golden spikes). Shown are lungs, heart, kidneys, intestines, brain, and testicles that are well-known to express ACE2 receptors and are possible targets of COVID-19.

- ✓ **Inmunología en COVID19**
- ✓ Tormenta de citoquinas (IL6, interferón TNF)) y quimiomiquinas → SDRA Y Fallo orgánico
- ✓ Linfohistiocitosis hemofagocitica secundaria → Sd Hiperinflamatorio (activación del macrófago) Fiebre, citopenia e hiperferritina
- ✓ Funcion de Linfocitos T CD8 y NK disminuida.
- ✓ Linfocitos CD4 (IFN.ganma+) bajos y funcionalmente agotados
- ✓ Replicación Viral Alta → Interfiere y retrasa IFN-1

- Es posible contagiarme de una persona asintomática?
- Es posible contagiarme de las heces, orina u otro fluido de una persona con COVID 19?
- Es necesario suspender la lactancia materna si la madre tiene COVID 19?

# Substantial undocumented infection facilitates the rapid dissemination of novel coronavirus (SARS-CoV2)

*by Ruiyun Li, Sen Pei, Bin Chen, Yimeng Song, Tao Zhang, Wan Yang, and Jeffrey Shaman*




el 86% de todas las infecciones eran indocumentadas antes de las restricciones de viaje , luego fue del 55%

*Science*
*Volume ():eabb3221*
*March 25, 2020*



Science
AAAS

RAPID COMMUNICATION

# Incubation period of 2019 novel coronavirus (2019-nCoV) infections among travellers from Wuhan, China, 20–28 January 2020

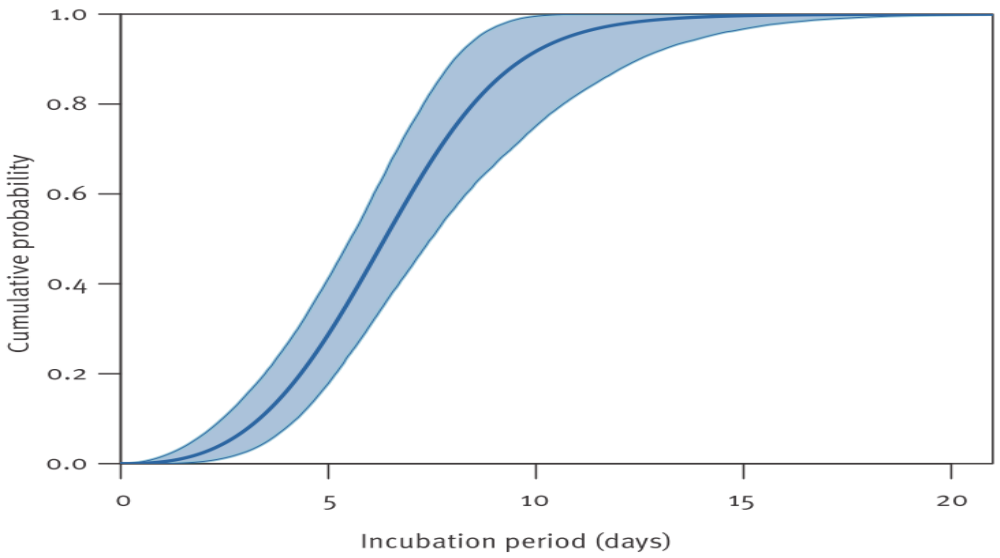
**Jantien A Backer[1], Don Klinkenberg[1], Jacco Wallinga[1,2]**
1. Centre for Infectious Disease Control, National Institute for Public Health and the Environment (RIVM), Bilthoven, Netherlands
2. Department of Biomedical Data Sciences, Leiden University Medical Center, Leiden, Netherlands

**Correspondence: Jantien A Backer (jantien.backer@rivm.nl)**

**Citation style for this article:**
Backer Jantien A , Klinkenberg Don , Wallinga Jacco . Incubation period of 2019 novel coronavirus (2019-nCoV) infections among travellers from Wuhan, China, 20–28 January 2020. Euro Surveill. 2020;25(5):pii=2000062. https://doi.org/10.2807/1560-7917.ES.2020.25.5.2000062

Article submitted on 27 Jan 2020 / accepted on 06 Feb 2020 / published on 06 Feb 2020

The cumulative density function of the estimated Weibull incubation period distribution for travellers infected with the 2019 novel coronavirus (2019-nCoV) in Wuhan, China, data 20–28 January 2020




Posterior median of mean is indicated by the dark blue line and the 95% credible interval by the light blue area.

# Characteristics of pediatric SARS-CoV-2 infection and potential evidence for persistent fecal viral shedding

Yi Xu[1,11], Xufang Li[1,11], Bing Zhu[2,11], Huiying Liang[3,4,11], Chunxiao Fang[1], Yu Gong[1], Qiaozhi Guo[5], Xin Sun[5],

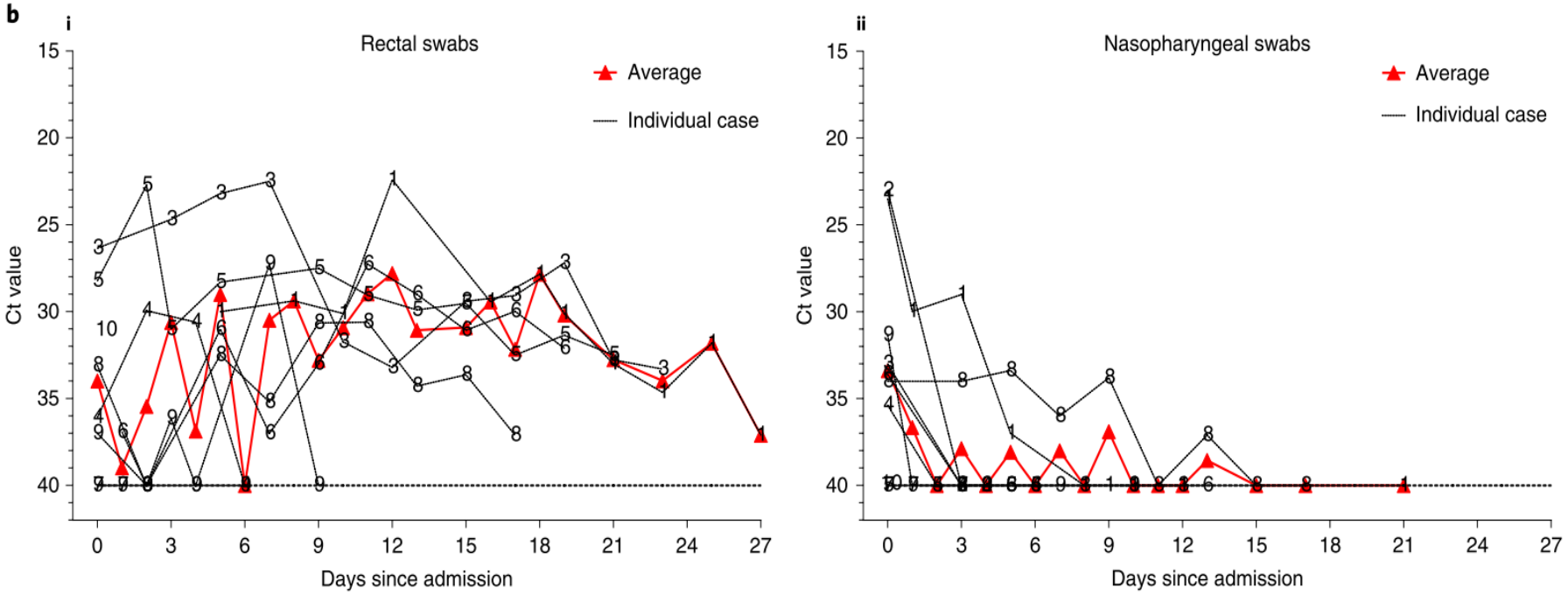
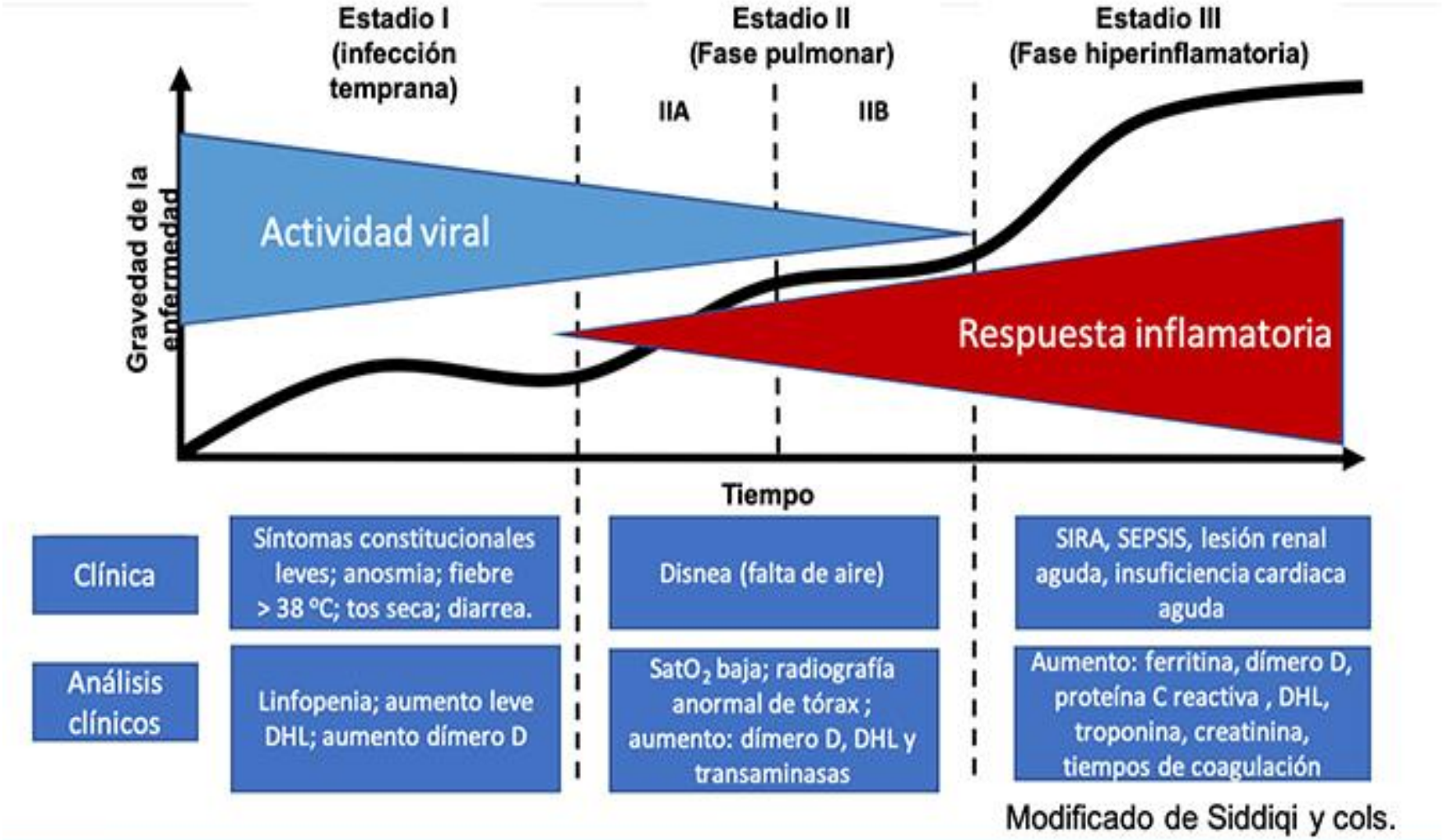



**Fig. 1 | Chronology of major epidemiological events and molecular testing results of *n* = 10 independent pediatric patients confirmed with SARS-CoV-2 infection. a**, Dates of exposure, illness onset and sampling and real-time RT-PCR results of nasopharyngeal swabs and rectal swabs. The total number of patients was *n* = 10 and real-time RT-PCR was assayed only once for one type of sample at one time point from one independent patient. Colors in the figure represent individual patients. **b**, Chronological changes in Ct values of *Orf1ab* and *N* genes using real-time RT-PCR after hospital admission. The Ct values of *Orf1ab* and *N* genes on real-time RT-PCR detected in rectal swabs obtained from *n* = 10 independent patients (i) and Ct values in nasopharyngeal swabs from *n* = 10 independent cases (ii). The Ct value is supposed to be inversely related to viral RNA copy numbers and a value of 40 means the virus is molecularly undetectable.

El cuadro clínico del COVID 19 es igual para todas las edad o quienes tiene mas riesgo?

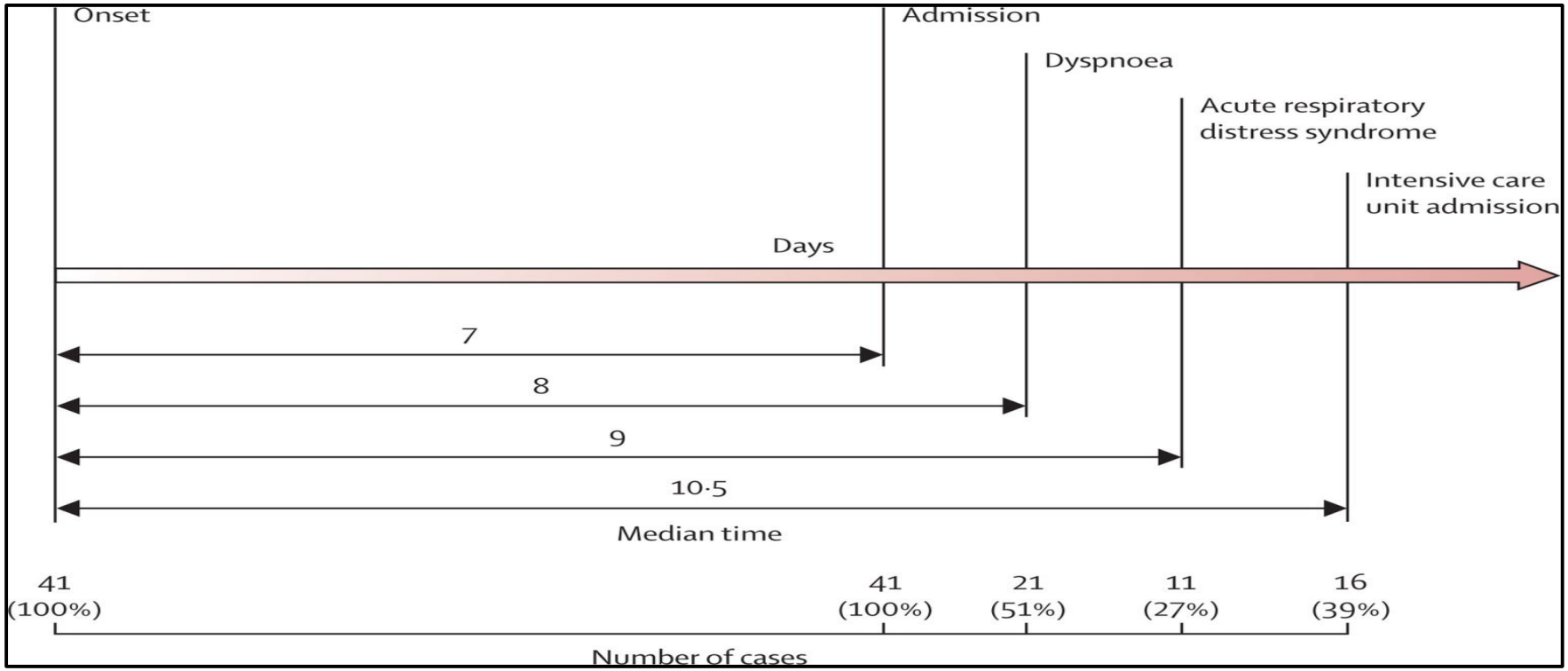
# Fases de la COVID-19

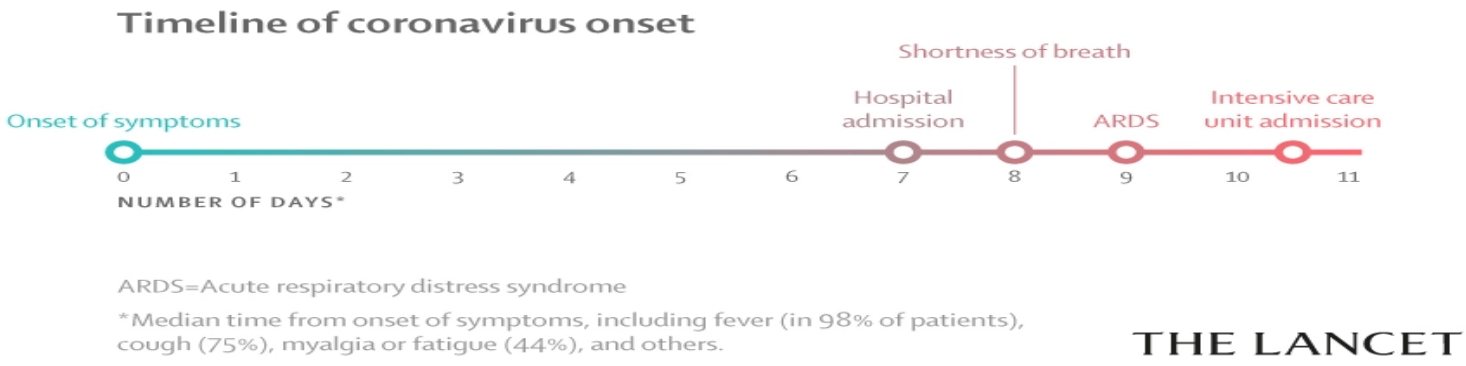



Modificado de Siddiqi y cols.



Cortesía Dr. Alejandro Yared Meraz Muñoz




*The Lancet* DOI: (10.1016/S0140-6736(20)30183-5)

# The Epidemiological Characteristics of an Outbreak of 2019 Novel Coronavirus Diseases (COVID-19) — China, 2020

The Novel Coronavirus Pneumonia Emergency Response Epidemiology Team

TABLE 1. (continued)

| Baseline characteristics | Confirmed cases, N (%) | Deaths, N (%) | Case fatality rate, % | Observed time, PD | Mortality, per 10 PD |
|---|---|---|---|---|---|
| Province | | | | | |
| Hubei | 33,367 (74.7) | 979 (95.7) | 2.9 | 496,523 | 0.020 |
| Other | 11,305 (25.3) | 44 (4.3) | 0.4 | 165,086 | 0.003 |
| Wuhan-related exposure* | | | | | |
| Yes | 31,974 (85.8) | 853 (92.8) | 2.7 | 486,612 | 0.018 |
| No | 5,295 (14.2) | 66 (7.2) | 1.2 | 71,201 | 0.009 |
| Missing | 7,403 | 104 | 2.8 | 103,796 | 0.010 |
| Comorbid condition† | | | | | |
| Hypertension | 2,683 (12.8) | 161 (39.7) | 6.0 | 42,603 | 0.038 |
| Diabetes | 1,102 (5.3) | 80 (19.7) | 7.3 | 17,940 | 0.045 |
| Cardiovascular disease | 873 (4.2) | 92 (22.7) | 10.5 | 13,533 | 0.068 |
| Chronic respiratory disease | 511 (2.4) | 32 (7.9) | 6.3 | 8,083 | 0.040 |
| Cancer (any) | 107 (0.5) | 6 (1.5) | 5.6 | 1,690 | 0.036 |
| None | 15,536 (74.0) | 133 (32.8) | 0.9 | 242,948 | 0.005 |
| Missing | 23,690 (53.0) | 617 (60.3) | 2.6 | 331,843 | 0.019 |
| Case severity§ | | | | | |
| Mild | 36,160 (80.9) | – | – | – | – |
| Severe | 6,168 (13.8) | – | – | – | – |
| Critical | 2,087 (4.7) | 1,023 (100) | 49.0 | 31,456 | 0.325 |
| Missing | 257 (0.6) | – | – | – | – |
| Period (by date of onset) | | | | | |
| Before Dec 31, 2019 | 104 (0.2) | 15 (1.5) | 14.4 | 5,142 | 0.029 |
| Jan 1–10, 2020 | 653 (1.5) | 102 (10.0) | 15.6 | 21,687 | 0.047 |
| Jan 11–20, 2020 | 5,417 (12.1) | 310 (30.3) | 5.7 | 130,972 | 0.024 |
| Jan 21–31, 2020 | 26,468 (59.2) | 494 (48.3) | 1.9 | 416,009 | 0.012 |
| After Feb 1, 2020 | 12,030 (26.9) | 102 (10.0) | 0.8 | 87,799 | 0.012 |

Abreviation: PD, person-days. -, not applicable.

* The Wuhan-related exposure variable, only includes a total of 37,269 patients and 919 deaths and these values were used to calculate percentages in the confirmed cases and deaths columns.

† The comorbid condition variable, only includes a total of 20,812 patients and 504 deaths and these values were used to calculate percentages in the confirmed cases and deaths columns.

RESEARCH LETTER

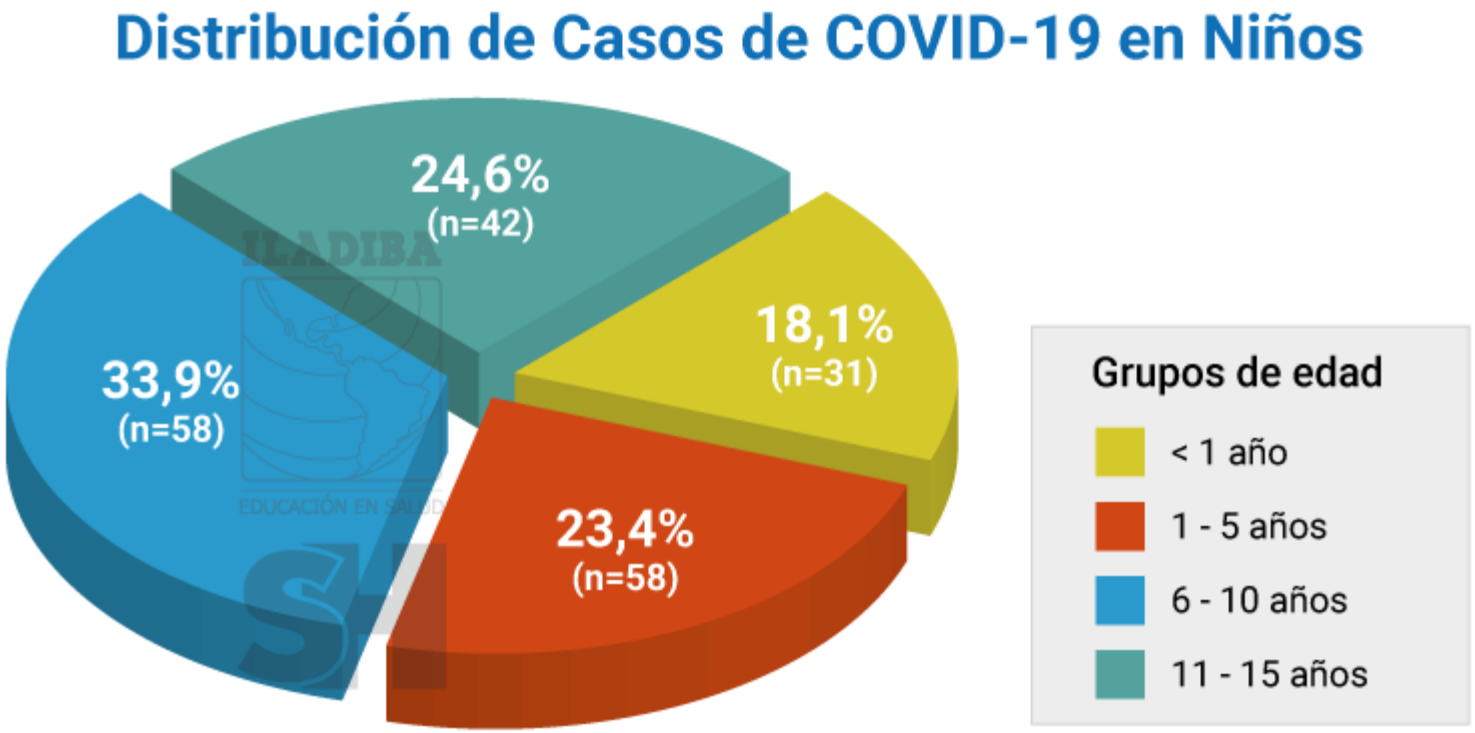
# Characteristics and Outcomes of 21 Critically Ill Patients With COVID-19 in Washington State

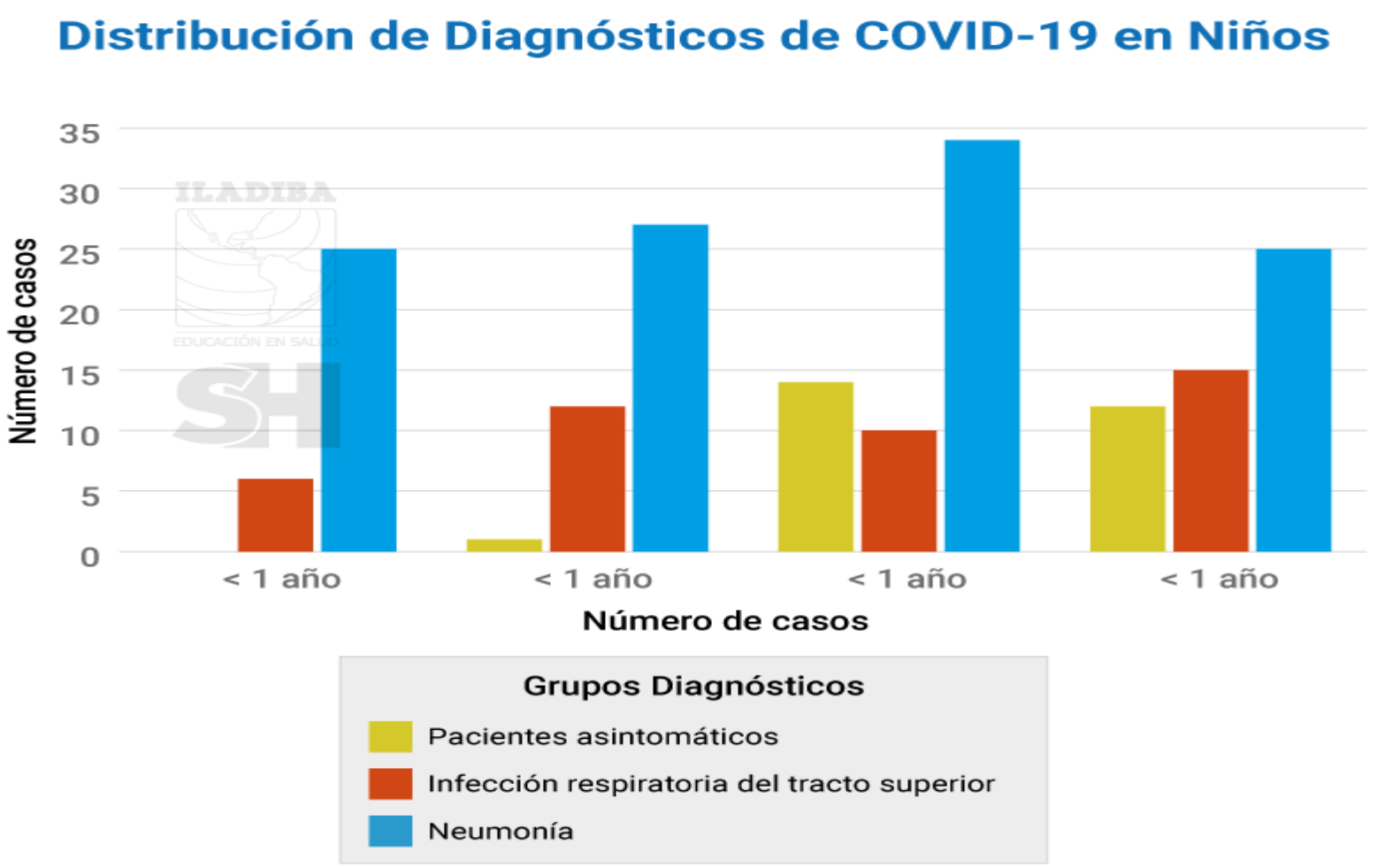
The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and the disease it causes, coronavirus disease 2019 (COVID-19), is an emerging health threat.[1] Until February 2020,

Table 1. Baseline Characteristics of 21 Patients With Coronavirus Disease 2019 at Presentation to the Intensive Care Unit

| Baseline characteristics | No. (%) of patients[a] | Reference range |
|---|---|---|
| Preadmission comorbidities | | |
| Asthma | 2 (9.1) | |
| Chronic obstructive pulmonary disease | 7 (33.3) | |
| Congestive heart failure | 9 (42.9) | |
| Diabetes | 7 (33.3) | |
| Rheumatologic disease | 1 (4.8) | |
| Obstructive sleep apnea | 6 (28.6) | |
| Chronic kidney disease | 10 (47.6) | |
| End-stage kidney disease | 2 (9.5) | |
| History of solid organ transplant | 2 (9.5) | |
| Cirrhosis | 1 (4.8) | |
| Immunosuppression[b] | 3 (14.3) | |
| Total with ≥1 comorbidity | 18 (85.7) | |
| **Admission chest radiograph findings[d]** | | |
| Bilateral reticular nodular opacities | 11 (52.4) | |
| Ground-glass opacities | 10 (47.6) | |
| Pleural effusion | 6 (28.6) | |
| Peribronchial thickening | 5 (23.8) | |
| Pleural effusion | 5 (23.8) | |
| Focal consolidation | 4 (19.0) | |
| Pulmonary edema | 2 (9.5) | |
| Venous congestion | 1 (4.8) | |
| Atelectasis | 1 (4.8) | |
| Clear | 1 (4.8) | |
| **Admission laboratory measures, mean (range)[a]** | | |
| White blood cell count, /μL | 9365 (2890-16 900) | 4000-11 000 |
| Absolute lymphocyte count, /μL | 889 (200-2390) | 1000-3400 |
| Hemoglobin, g/dL | 11.4 (8.0-13.7) | 11.2-15.7 |
| Platelet count, $\times 10^3$/μL | 215 (52-395) | 182-369 |
| Sodium, mmol/L | 137 (125-148) | 135-145 |
| Creatinine, mg/dL | 1.45 (0.1-4.5) | 0.6-1.2 |
| Total bilirubin, mg/dL | 0.6 (0.2-1.1) | 0-1.5 |
| Alkaline phosphatase, U/L | 80 (41-164) | 31-120 |
| Aspartate aminotransferase, U/L[e] | 273 (14-4432) | 5-40 |
| Alanine aminotransferase, U/L[e] | 108 (11-1414) | 5-50 |
| Creatinine kinase, U/L | 95 (45-1290) | 21-215 |
| Venous lactate, mmol/L | 1.8 (0.8-4.9) | <1.9 |
| Had troponin level >0.3 ng/mL, No. (%) | 3 (14.0) | |
| Brain-type natriuretic peptide, pg/mL | 4720 (69-33 423) | <450 |

New England Journal of Medicine
experiencia en la epidemia de Wuhan (18 de Marzo ) COVID-19
171 niños
Mediana 6.7 años (rango 1 día a 15 años)
75% menores de 10 años y 60% de sexo masculino.






*Pediatric Pulmonology*, 60% de los niños tuvieron fiebre y 65% tos
coinfección se detectó en 40%
85% elevación de procalcitonina
Un total de 27 pacientes (15.8%)
12 (42%) pacientes tenían cambios radiológicos de neumonía pero no tenían síntomas de infección.

# Epidemiological Characteristics of 2143 Pediatric Patients With 2019 Coronavirus Disease in China

Yuanyuan Dong, Xi Mo, Yabin Hu, Xin Qi, Fang Jiang, Zhongyi Jiang, Shilu Tong

**DOI:** 10.1542/peds.2020-0702
**Journal:** *Pediatrics*
**Citation:** Dong Y, Mo X, Hu Y, et al. Epidemiological characteristics of 2143 pediatric patients with 2019 coronavirus disease in China. *Pediatrics*. 2020; doi: 10.1542/peds.2020-0702

Table 2 Different Severity of Illness by Age Group

| Age group* | Asymptomatic | Mild | Moderate | Severe | Critical | Total |
|---|---|---|---|---|---|---|
| <1 | 7(7.4) | 205(18.8) | 127(15.3) | 33(29.5) | 7(53.8) | 379(17.7) |
| 1-5 | 15(16.0) | 245(22.5) | 197(23.7) | 34(30.4) | 2(15.4) | 493(23.0) |
| 6-10 | 30(31.9) | 278(25.5) | 191(23.0) | 22(19.6) | 0(0) | 521(24.3) |
| 11-15 | 27(28.7) | 199(18.2) | 170(20.5) | 14(12.5) | 3(23.1) | 413(19.3) |
| >15 | 15(16.0) | 164(15.0) | 146(17.5) | 9(8.0) | 1(7.7) | 335(15.7) |
| Total | 94 | 1091 | 831 | 112 | 13 | 2141(100) |

Data were presented with number and percent (%);*Two cases had missing values.

CORRESPONDENCE

# SARS-CoV-2 Infection in Children

**Table 1. (Continued)**

| Characteristic | Value |
|---|---|
| Exposure or contact information — no. (%) | |
| Family cluster | 154 (90.1) |
| Confirmed family members | 131 (76.6) |
| Suspected family members | 23 (13.5) |
| Unidentified source of infection | 15 (8.8) |
| Contact with other suspected case | 2 (1.2) |
| Signs and symptoms | |
| Cough — no. (%) | 83 (48.5) |
| Pharyngeal erythema — no. (%) | 79 (46.2) |
| Fever — no. (%) | 71 (41.5) |
| Median duration of fever (range) — days | 3 (1–16) |
| Highest temperature during hospitalization — no. (%) | |
| <37.5°C | 100 (58.5) |
| 37.5–38.0°C | 16 (9.4) |
| 38.1–39.0°C | 39 (22.8) |
| >39.0°C | 16 (9.4) |
| Diarrhea — no. (%) | 15 (8.8) |
| Fatigue — no. (%) | 13 (7.6) |
| Rhinorrhea — no. (%) | 13 (7.6) |
| Vomiting — no. (%) | 11 (6.4) |
| Nasal congestion — no. (%) | 9 (5.3) |
| Tachypnea on admission — no. (%)† | 49 (28.7) |
| Tachycardia on admission — no. (%)‡ | 72 (42.1) |
| Oxygen saturation <92% during period of hospitalization — no. (%) | 4 (2.3) |
| Abnormalities on computed tomography of the chest — no. (%) | |
| Ground-glass opacity | 56 (32.7) |
| Local patchy shadowing | 32 (18.7) |
| Bilateral patchy shadowing | 21 (12.3) |
| Interstitial abnormalities | 2 (1.2) |

* Percentages may not total 100 because of rounding.

Xing Y, Ni W, Wu Q, et al. Prolonged presence of SARS-CoV-2 in feces of pediatric patients during the convalescent phase.

| | Cai (n=10) | Tang* (n=26) | Xia (n=20) | Liu (n=6) | Wei (n=9) | Xu (n=10) | Zhang* (n=34) | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Symptoms** | | | | | | | | |
| Cough | 6 | 12 | 13 | 6 | 2 | 5 | 20 | 64/115 (55.7%) |
| Fever | 7 | 11 | 12 | 6 | 4 | 6 | 26 | 72/115 (62.6%) |
| Sore throat | 4 | NA | 1 | NA | NA | 4 | NA | 9/40 (22.5%) |
| Rhinorrhoea | 2 | 2 | 3 | NA | 2 | 2 | NA | 10/75 (13.3%) |
| GI upset | NA | 2 | 5 | 4 | NA | 2 | 4 | 17/96 (17.7%) |
| **Blood tests** | | | | | | | | |
| Lymphocytes | | | | | | | | |
| High | 1 | NA | NA | 0 | NA | 0 | 17 | 18/43 (41.9%) |
| Low | 0 | NA | NA | 4 | NA | 0 | 0 | 4/43 (9.3%) |
| CRP high ( >5mg/L) | 3 | 5 | 9 | NA | NA | 0 | 20 | 37/100 (37%) |
| **Radiography** | | | | | | | | |
| X-ray | | | | | | | | |
| Normal | 6 | 8 | NA | NA | NA | 10 | NA | 24/46 (52.2%) |
| Unilateral | 4 | 11 | NA | NA | NA | 0 | NA | 15/46 (32.6%) |
| Bilateral | 0 | 7 | NA | NA | NA | 0 | NA | 7/46 (15.2%) |
| CT Chest | | | | | | | | |
| Normal | NA | 8 | 4 | 1 | NA | 10 | 6 | 29/96 (30.2%) |
| Unilateral | NA | 11 | 6 | 0 | NA | 0 | 14 | 31/96 (32.3%) |
| Bilateral | NA | 7 | 10 | 4 | NA | 0 | 14 | 35/96 (36.5%) |

*data from pre-print and has not undergone peer review

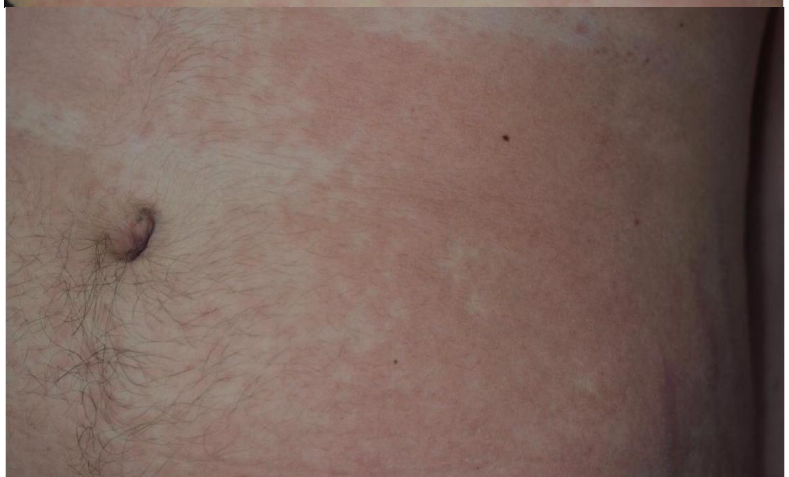
- El punto principal señalado en el documento es que, si bien los hisopos respiratorios fueron negativos dentro de las 2 semanas posteriores a la afección de los niños, las heces permanecieron positivas durante más de 4 semanas.

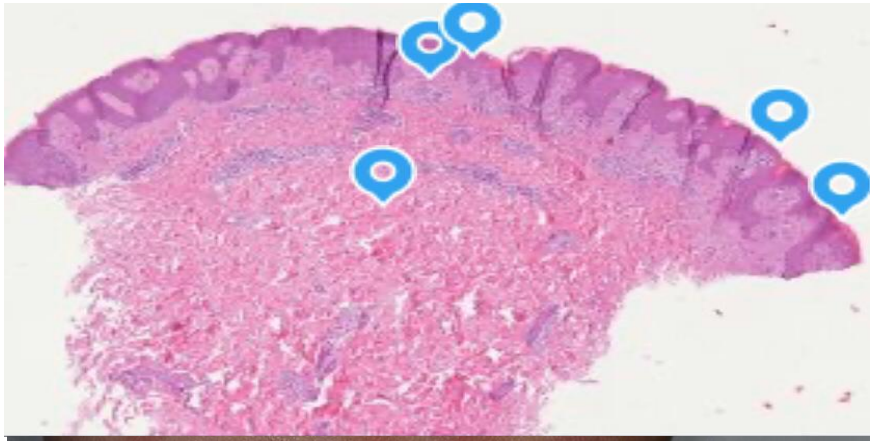
JAAD
Journal of the American Academy of Dermatology

# COVID-19 can present with a rash and be mistaken for Dengue

Beuy joob, PhD[1,*], Viroj Wiwanitkit, MD[2]

Published Online: March 22, 2020





# Manifestaciones cutáneas en COVID-19

una primera perspectiva

EADV European Academy of Dermatology and Venereology

desliza

Wuhan - China
Dic 2019

→ Italia
Hospital Lecco, Lombardia

ESTUDIO:
148 casos COVID-19 (+)

se excluyeron 60x

Muestra: 88px

**18** con clínica en piel
(20,4 %)

EADV European Academy of Dermatology and Venereology

desliza

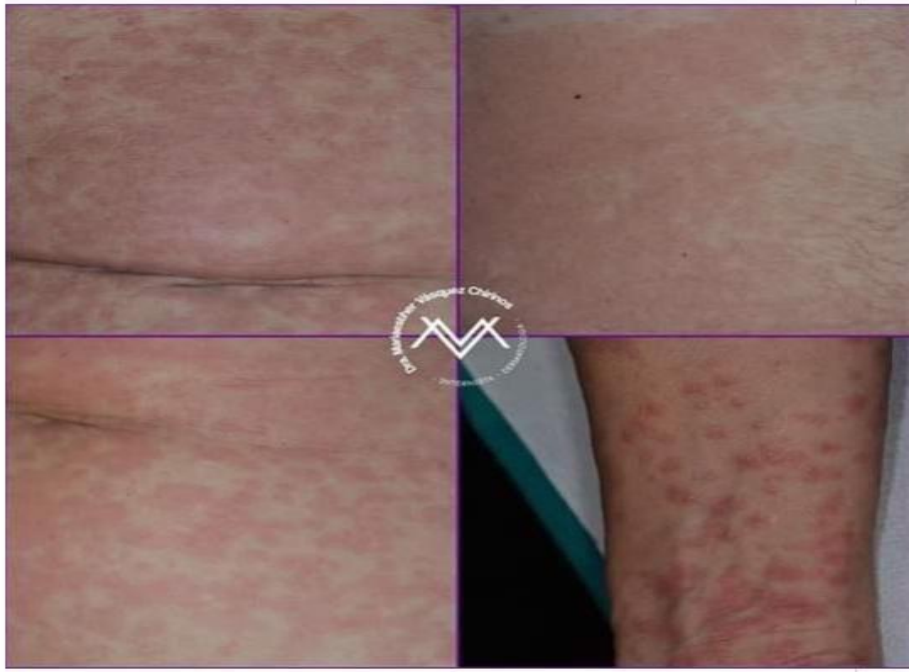
**18** con clínica en piel
(20,4 %)

| 14 | 3 | 1 |
|---|---|---|
| Rash eritematoso | Ulticaria generalizada | Erupción Variceliforme |

- ✓ Tronco
- ✓ Poco o escaso prurito
- ✓ Sin relación con severidad

EADV European Academy of Dermatology and Venereology

desliza



Published Online
April 1, 2020
https://doi.org/10.1016/
S1474-4422(20)30109-5

**Guillain-Barré syndrome associated with SARS-CoV-2 infection: causality or coincidence?**

---

# Isolated sudden onset anosmia in COVID-19 infection. A novel syndrome?*

Simon B. Gane[1], Christine Kelly[2], Claire Hopkins[3]

**Rhinology 58: 0,** 0 - 0, 2020

## Lu X, Zhang L, Du H, et al. SARS-CoV-2 Infection in Children. N Engl J Med 2020.

- Estudio retrospectivo
- 1391 niños examinados entre el 28 de enero y el 26 de febrero de 2020
- La mediana de edad fue de 6.7 años,
- Los niños eran predominantemente varones (104/171, 60.8%).
- Características clínicas: 48% tos, 46% inflamación faríngea (odiniofagia), 41% fiebre. 9% diarrea y 5% rinorrea.28% taquipneicos y 42% Taquicardia. Solo 2% saturaciones de oxígeno <92% durante la hospitalización.
- Ningún lactante ( 31) lactantes <1 año eran asintomáticos, Hubo tasas más altas de neumonía en los lactantes.
- Radiología:
- El más común fue la opacidad bilateral del vidrio esmerilado (56/171)
- Seguido de un sombreado irregular unilateral (32/171)
- Un sombreado irregular bilateral (21/171)
- Hubo varios niños con neumonía radiográfica que estaban asintomáticos.
- Sangre:
- Solo 3% pacientes tenían linfopenia, la gran mayoría estaban en el rango normal (Med. 2.9 × 109 / L, IQR 2.2 - 4.4).
- La PCR se elevó (> 10 ml / L) en 19% (Med 4, IQR 1.3 - 8) de los cuales 81% tenían neumonía.
- **Resultados: 3 pacientes requirieron admisión e intubación de la UIT. Los 3 tenían comorbilidades, que incluyen hidronefrosis, leucemia e invaginación intestinal. El niño con invaginación intestinal sufrió un fallo multiorgánico y murió después de 4 semanas**

Xia W, Shao J, Guo Y, Peng X, Li Z, Hu D. Clinical and CT features in pediatric patients with COVID-19 infection: Different points from adults [published online ahead of print, 2020 Mar 5]. Pediatr Pulmonol.

- Una serie de casos de 20 pacientes pediátricos con infección por COVID-19 identificados con NAT de COVID-19 en hisopos faríngeos del Hospital de Niños de Wuhan.
- Características clínicas: 75% tenía un historial de contacto claro.
- Incubación 24h-28dias.
- Sintomas : 65% tos, 60% fiebre

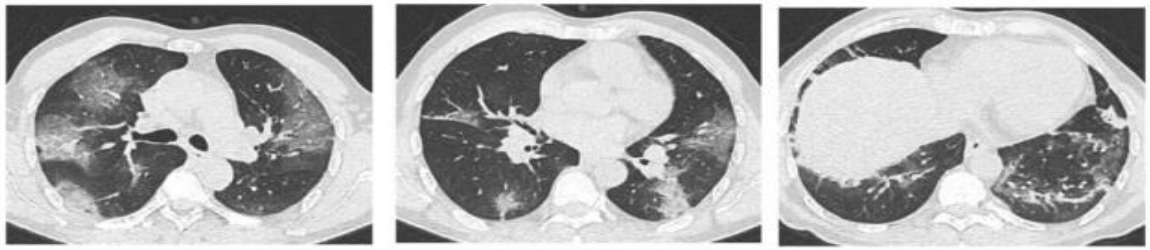
- Sangre: 55% tenía (N) CRP, es decir, menos de 3 mg / L y tenía PCT> 0.05

- Radiología: en CT:

- Se observaron hallazgos subpleurales en los 20 pacientes.
- El 50% tenía hallazgos bilaterales, con un 30% hallazgos unilaterales.
- Consolidación con halo en el 50% considerado como signos atípicos en pacientes pediátricos.
- **Confecciones: 45% coinfección, Micoplasma (44%), aunque la "gripe B", la gripe A o el VSR (66%)**
- **La duración media de la estancia 12,9 días.**

# Valoración de los hallazgos

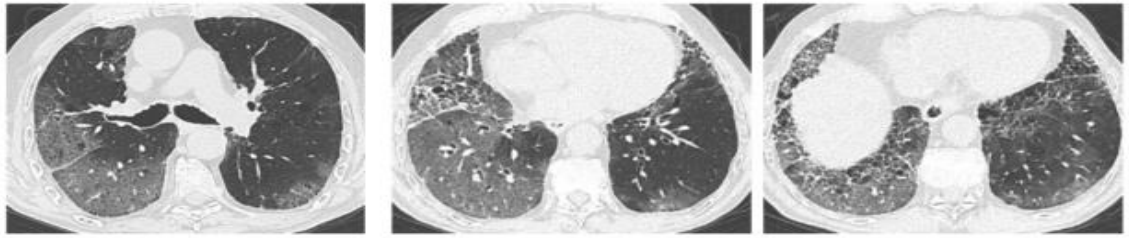
## Hallazgos sugerentes de COVID-19



Cualquiera de los siguientes en 1 o más lóbulos y con distribución periférica.

- Opacidades periféricas en vidrio deslustrado
- Patrón alveolar difuso
- Patrón en empedrado
- Neumonía organizativa

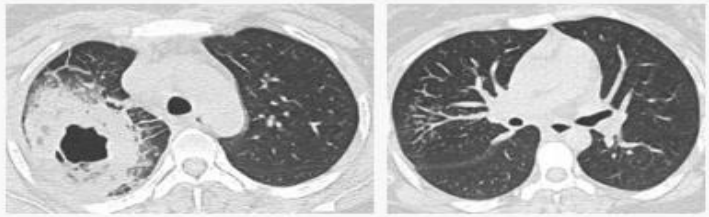
## Hallazgos indeterminados de COVID-19



Cualquiera de los siguientes en 1 o más lóbulos y con distribución periférica.

- Opacidades en vidrio deslustrado / parcheadas / no periféricas
- Derrame pleural
- Fibrosis con vidrio deslustrado
- Adenopatías
- Patrones complejos

## Hallazgos poco probables de COVID-19



Buscar diagnóstico alternativo.

- Neumonía lobar
- Infecciones cavitadas
- Patrón “tree in bud”

## Tórax normal

El recién nacido tiene riesgo de complicarse al nacer de una madre con COVIS 19?

Table. General Information and Clinical Features of 33 Newborns With Mothers With COVID-19 Pneumonia

| Variable | Neonates with SARS-CoV-2, No. (%) | | Patients with SARS-CoV-2 | | |
|---|---|---|---|---|---|
| | No (n = 30) | Yes (n = 3) | Patient 1 | Patient 2 | Patient 3 |
| Male | 16 (53) | 3 (100) | Yes | Yes | Yes |
| Preterm | 3 (10) | 1 (33) | GA: 40 wk | GA: 40 wk + 4 d | GA: 31 wk + 2 d |
| Small for gestational age | 2 (7) | 1 (33) | No; 3250 g | No; 3360 g | No; 1580 g |
| Asphyxia | 1 (3) | 1 (33) | No | No | Yes |
| Symptoms and complications | | | | | |
| Fever | 0 | 2 (67) | Yes | Yes | No |
| Pneumonia | 0 | 3 (100) | Yes | Yes | Yes |
| Respiratory distress syndrome | 3 (10) | 1 (33) | No | No | Yes |
| Shortness of breath | 3 (10) | 1 (33) | No | No | Yes |
| Cyanosis | 2 (7) | 1 (33) | No | No | Yes |
| Feeding intolerance | 2 (7) | 1 (33) | No | No | Yes |
| Laboratory test, median (range) | | | | | |
| White blood cell count, cells/μL | 9800 (6100-22 700) | 19 200 (8600-20 400) | 8600 | 19 200 | 20 400 |
| Lymphocyte count, cells/μL | 4300 (1500-10 700) | 2600 (800-3100) | 3100 | 2600 | 800 |
| Platelets, $\times 10^3$/μL | 184 (116-303) | 245 (230-265) | 245 | 265 | 230 |
| Creatine kinase isoenzymes, U/L | 13 (22.5-43) | 31 (18-39) | 18 | 31 | 39 |
| Aspartate aminotransferase | 27.5 (12-45) | 24 (8-63) | 8 | 24 | 63 |
| Alanine aminotransferase | 21 (9-95) | 17 (11-88) | 11 | 17 | 88 |
| Treatment | | | | | |
| Mechanical ventilation | 0 | 1 (33) | No | No | Yes |
| Antibiotic | 6 (20) | 1 (33) | No | No | Yes |
| Duration of neonatal intensive care unit, median (range), d | 0 (0-6) | 4 (2-11) | 2 | 4 | 11 |
| Death | 0 | 0 | No | No | No |
| Maternal features | | | | | |
| Fever on admission | 7 (23) | 1 (33) | Yes | No | No |
| Postpartum fever | 4 (13) | 1 (33) | Yes | No | No |
| Cough | 9 (30) | 1 (33) | No | Yes | No |
| Intensive care unit admission | 0 | 0 | No | No | No |
| Pneumonia per computed tomography diagnosis | 30 (100) | 3 (100) | Yes | Yes | Yes |
| Nasopharyngeal swab | 30 (100) | 3 (100) | Yes | Yes | Yes |
| Delivered by cesarean delivery | 23 (77) | 3 (100) | Yes | Yes | Yes |
| Premature rupture of membranes | 2 (7) | 1 (33) | Yes | No | No |

Abbreviations: COVID-19, coronavirus disease 2019; GA, gestational age; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

SI conversion factors: To convert the white blood cells and lymphocytes to cells × $10^9$/L, multiply by 0.001; to convert platelets to cells × $10^9$/L, multiply by 1.0; to convert creatinine, aspartate aminotransferase, and alanine aminotransferase to μkat/L, multiply by 0.0167.

Research Letter

ONLINE FIRST FREE

March 26, 2020

# Neonatal Early-Onset Infection With SARS-CoV-2 in 33 Neonates Born to Mothers With COVID-19 in Wuhan, China

Lingkong Zeng, MD[1]; Shiwen Xia, MD[2]; Wenhao Yuan, MD[1]; et al

» Author Affiliations | Article Information

*JAMA Pediatr.* Published online March 26, 2020. doi:10.1001/jamapediatrics.2020.0878

# ¿Transmisión intrauterina?

| | Patient 1 | Patient 2 | Patient 3 | Patient 4 | Patient 5 | Patient 6 | Patient 7 | Patient 8 | Patient 9 | n (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| Gestational age at delivery | 37 weeks, 2 days | 38 weeks, 3 days | 36 weeks | 36 weeks, 2 days | 38 weeks, 1 day | 36 weeks, 3 days | 36 weeks, 2 days | 38 weeks | 39 weeks, 4 days | .. |
| Birthweight (g) | 2870 | 3730 | 3820 | 1880 | 2970 | 3040 | 2460 | 2800 | 3530 | .. |
| Low birthweight (<2500 g) | No | No | No | Yes | No | No | Yes | No | No | 2 (22%) |
| Premature delivery | No | No | Yes | Yes | No | Yes | Yes | No | No | 4 (44%) |
| Apgar score (1 min, 5 min) | 8, 9 | 9, 10 | 9, 10 | 8, 9 | 9, 10 | 9, 10 | 9, 10 | 9, 10 | 8, 10 | .. |
| Severe neonatal asphyxia | No | No | No | No | No | No | No | No | No | 0 |
| Neonatal death | No | No | No | No | No | No | No | No | No | 0 |
| Fetal death or stillbirth | No | No | No | No | No | No | No | No | No | 0 |

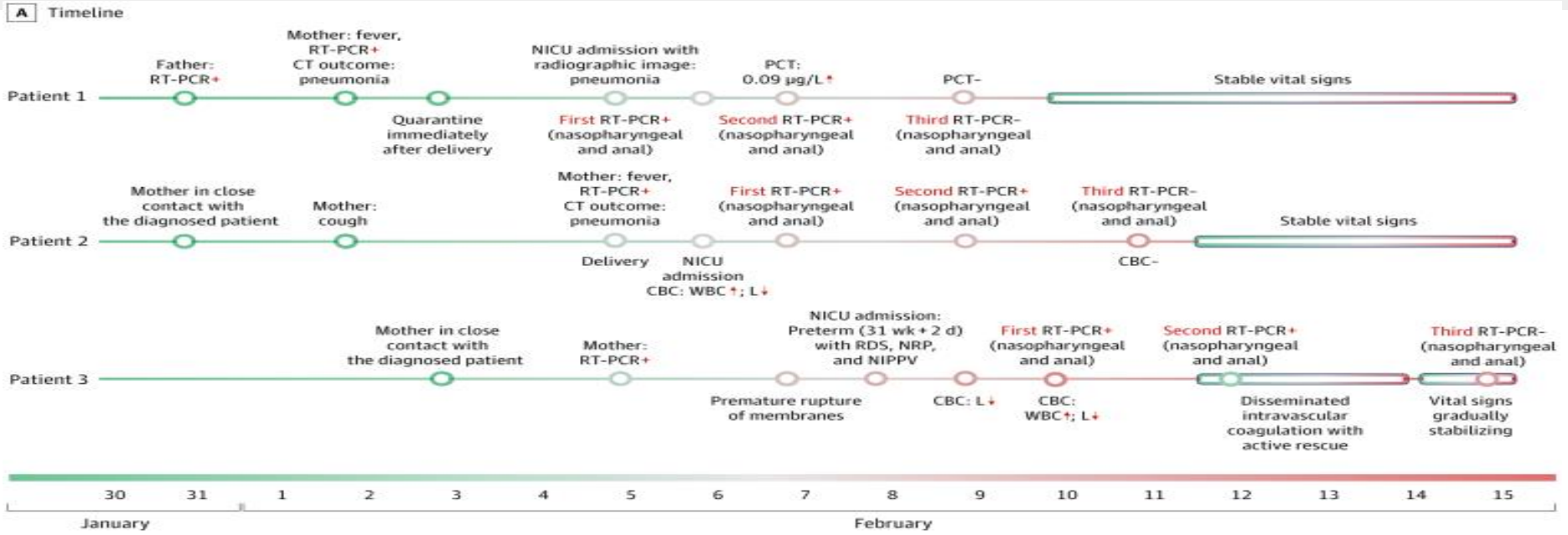
*Table 2:* Neonatal outcomes

Chen H et al. The Lancet 2020

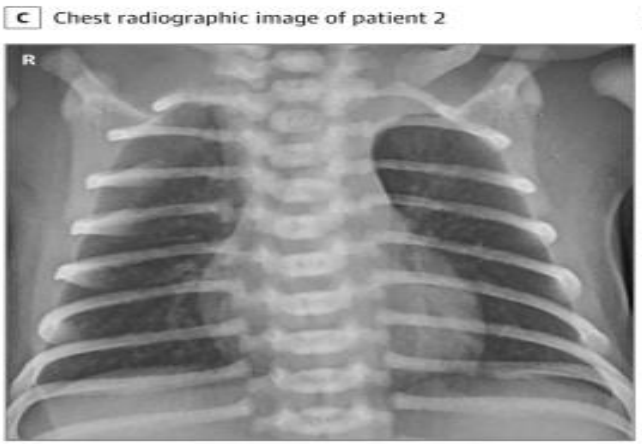
JAMA Network™

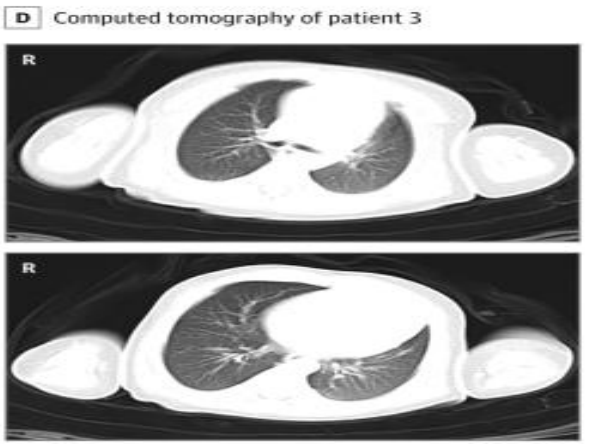
From: **Neonatal Early-Onset Infection With SARS-CoV-2 in 33 Neonates Born to Mothers With COVID-19 in Wuhan, China**

JAMA Pediatr. Published online March 26, 2020. doi:10.1001/jamapediatrics.2020.0878

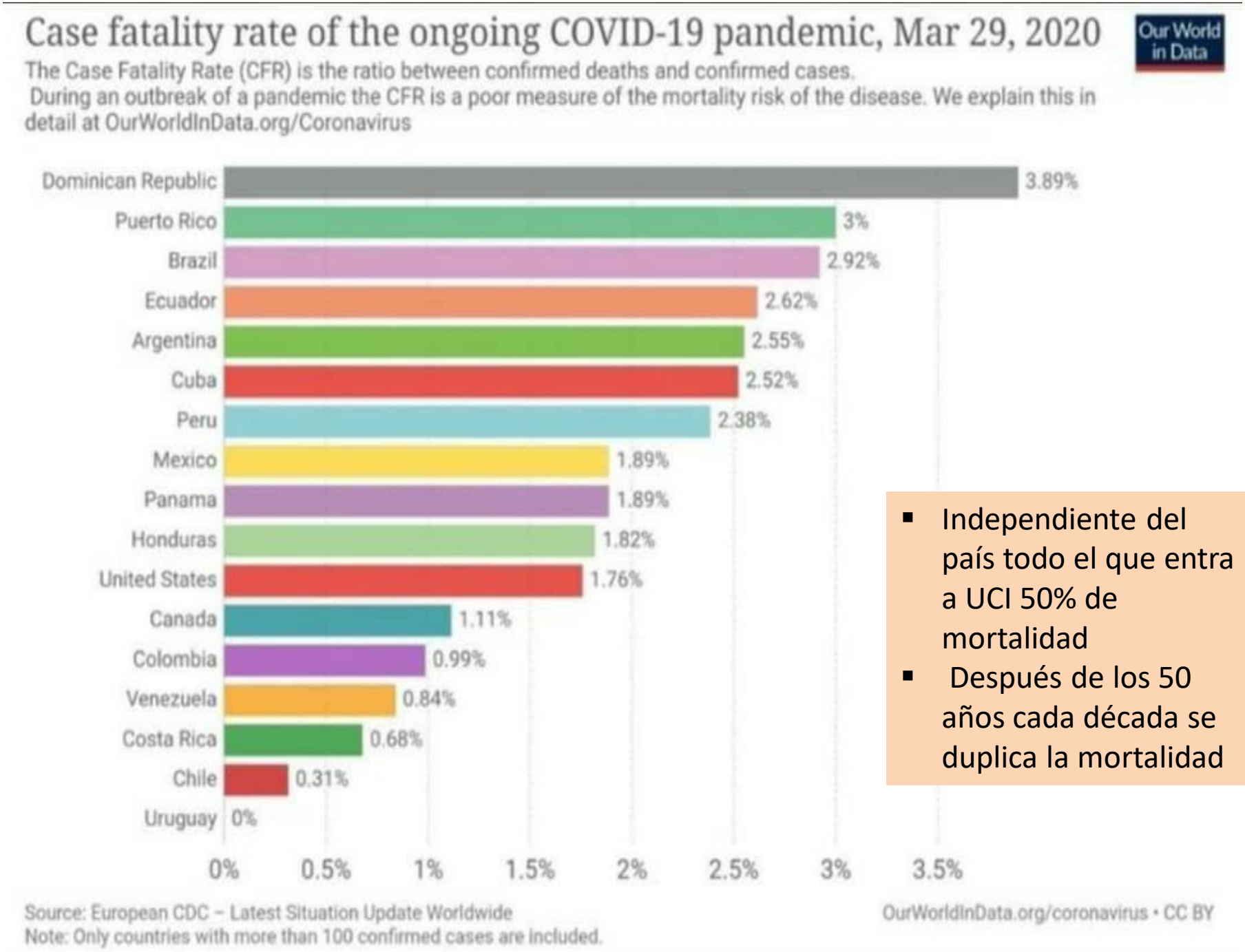






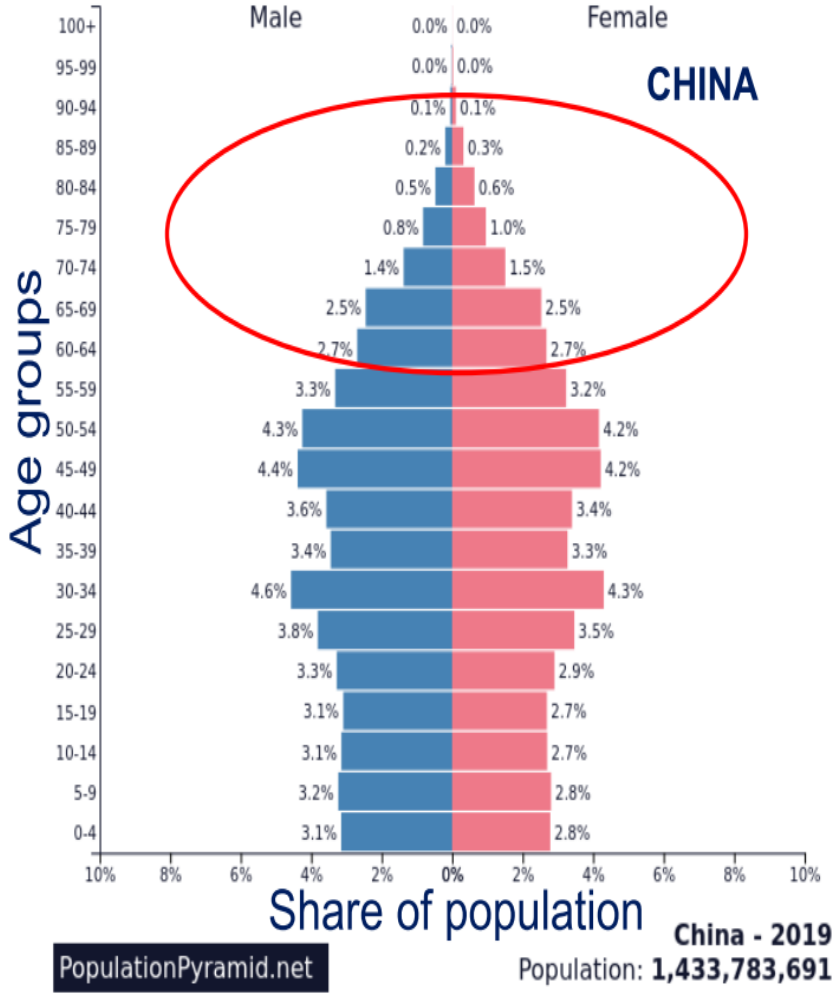
# De que depende la Mortalidad?

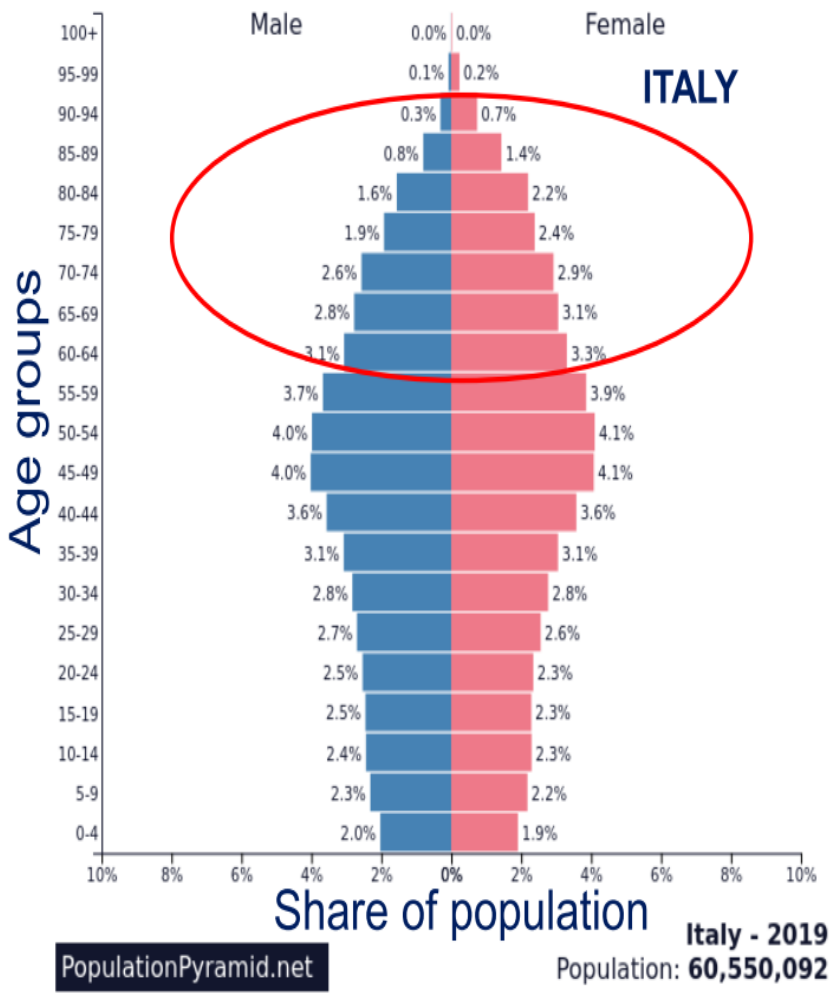



- Independiente del país todo el que entra a UCI 50% de mortalidad
- Después de los 50 años cada década se duplica la mortalidad

London Business School

# Italians are older

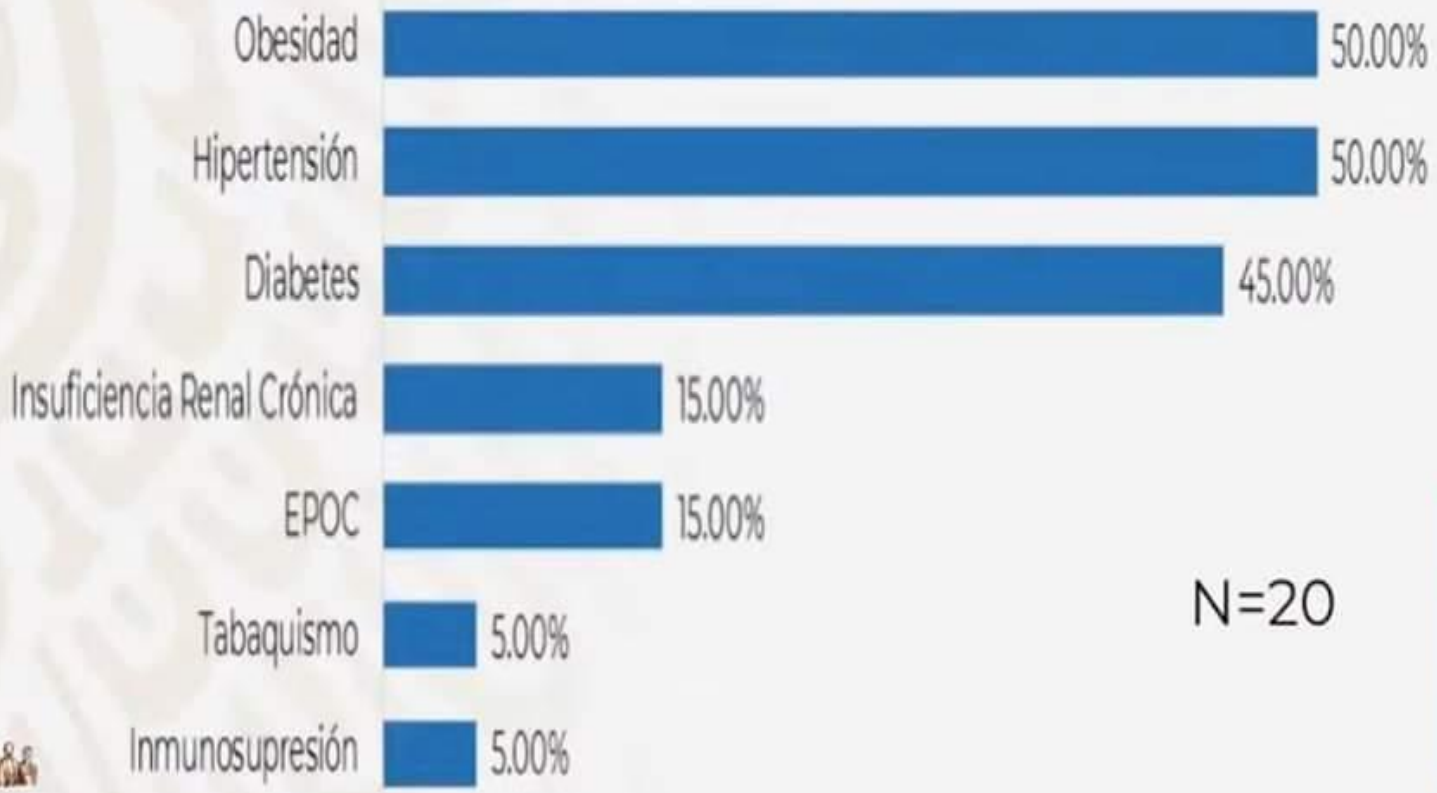



Source: https://www.populationpyramid.net/, based on United Nations Data

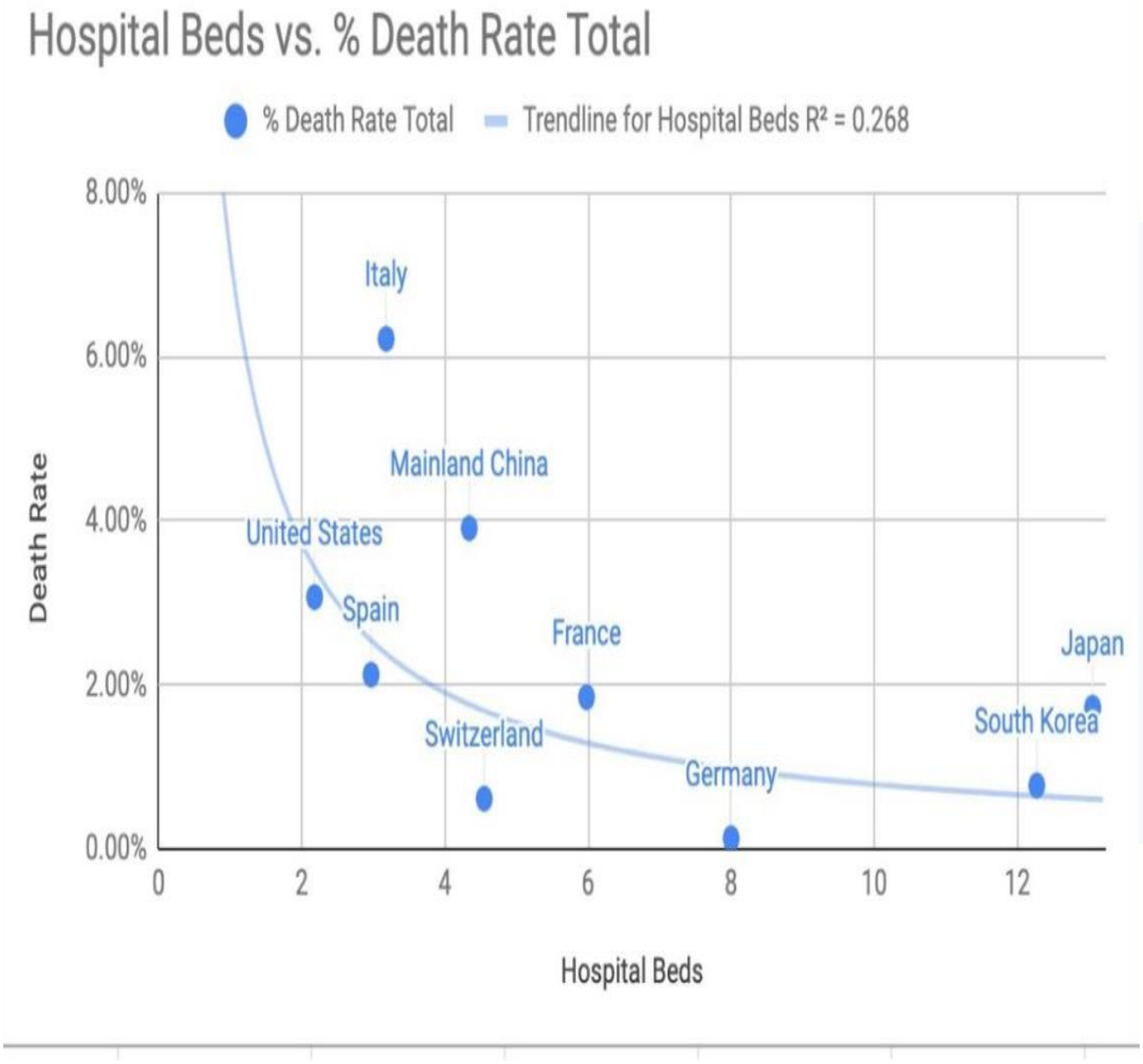
# Enfermedades asociadas a las defunciones por COVID-19 en México

SALUD
SECRETARÍA DE SALUD



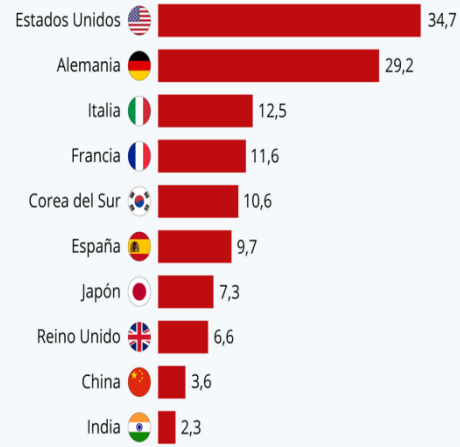

N=20

Fuente: SSA/SPPS/DGE/DIE/InDRE/Informe técnico COVID-19 /Mexico-29 de marzo 2020 (corte 13:00hrs)




## Las camas de cuidados intensivos por países

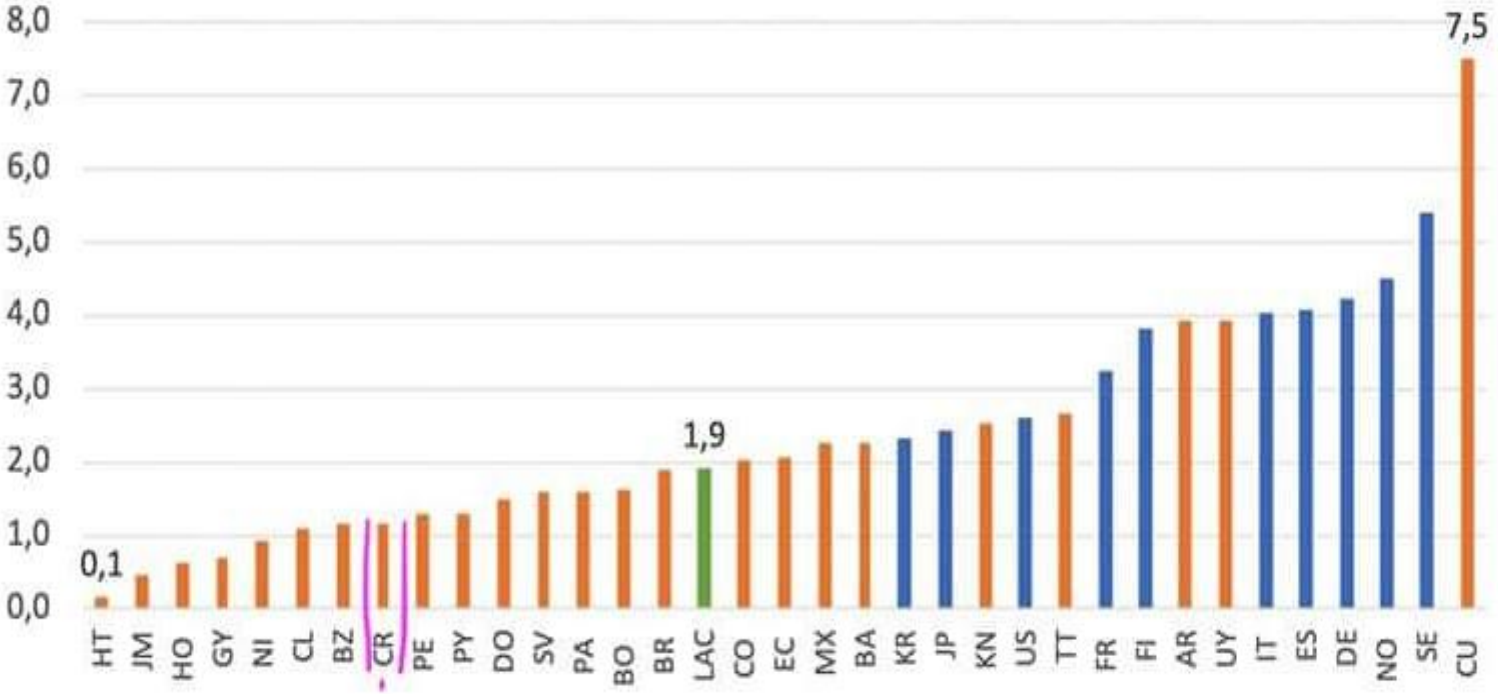
Camas de cuidados intensivos por cada 100.000 habitantes en países seleccionados*




* Datos más recientes de Estados Unidos y de la UE (2009 y 2012, respectivamente). Datos de Asia de 2017.
Fuentes: National Center for Biotechnology Information, Intensive Care Medicine, Critical Care Medicine

# El sistema salud de la región carece de los recursos humanos para enfrentar la pandemia

**América Latina y el Caribe: médicos por cada 10.000 habitantes, 2014[a]**




Fuente: Observatorio Mundial de la Salud de la OMS. A La cifra regional se basa es un promedio simple de 24 países.

# Capacidad del sistema de salud

ISSS y MINSAL (mayor tamaño y cobertura. Aprox. 90% de la capacidad de todo el sistema)

| | Actual | Peor escenario: requerimiento en 60 días* | Brecha |
|---|---|---|---|
| Camas | 6,557 | 16,926 | -10,369 |
| Camas de UCI | 238 | 1,089 | -851 |
| Médicos generales o residentes | 3,587 | 2,821 | 766 |
| Intensivistas** | 60 | 272 | -213 |
| Enfermeras | 4,605 | 4,232 | 374 |

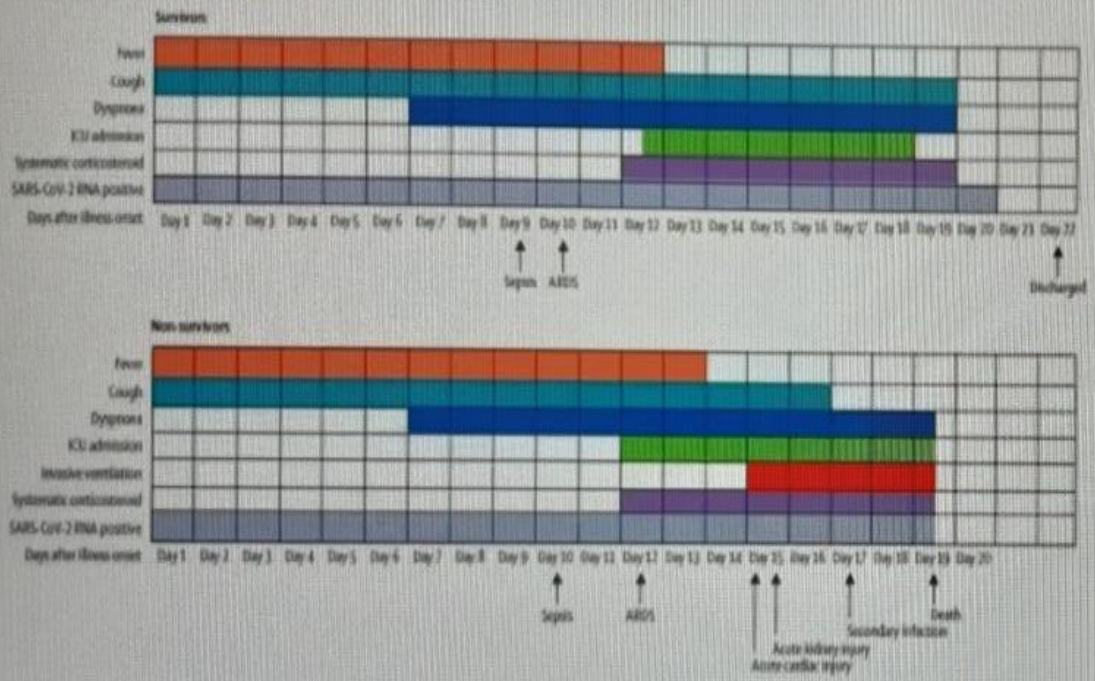
* Se asume 1 médico por 6 camas, 1 intensivista por 4 camas y 1 enfermera por 4 camas. Todos trabajando en turnos de 8 horas

** El número de intensivistas de MINSAL se estimó en 37, pero podrían ser menos. No fue posible encontrar información de otros especialistas que se requieren, por ejemplo: neumólogos y técnicos de terapia respiratoria.

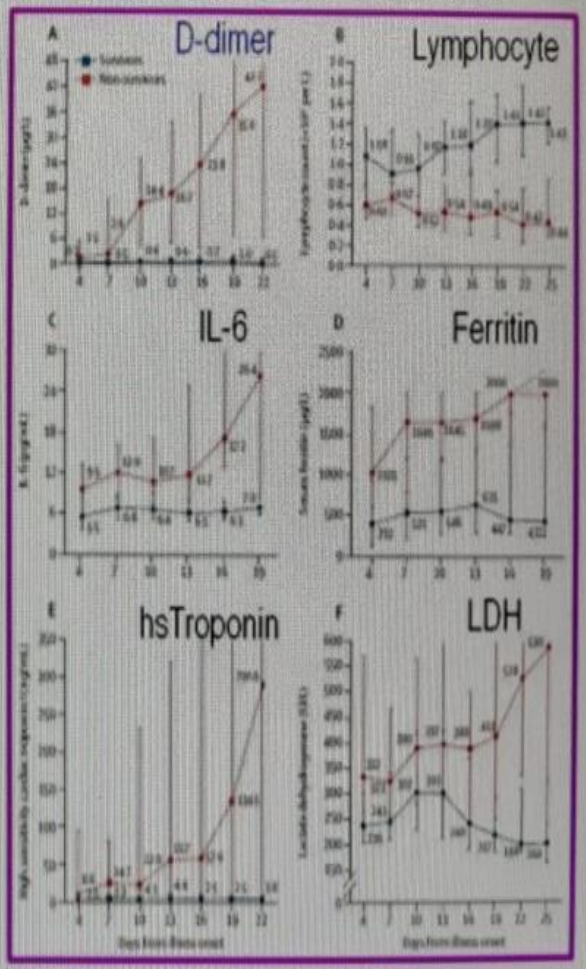
Fuente: cálculos propios con base en datos de ISSS y MINSAL 2018.

Hay exámenes que nos puedan predecir que paciente puede o no complicarse?

# In-hospital Mortality Prognostic factors




Temporal changes in laboratory markers from illness onset in hospitalized patients




- Age (per yr.): 1.10 (1.03-1.17)
- SOFA score: 5.65 (2,61-12,23)
- D-dimer >1 µg/mL: 18.42 (2.64-128)

Zhou F et al. Lancet, March 9, 2020 https://doi.org/10.1016

MASSACHUSETTS GENERAL HOSPITAL

**Massachusetts General Hospital**
**COVID-19 Treatment Guidance**

| **Table 1: Laboratories for diagnosis, prognosis / risk stratification, and/or safety of agents Suggested for all hospitalized patients with confirmed or suspected COVID-19** | |
|---|---|
| Recommended daily labs:<br>• CBC with diff (trend total lymphocyte count)<br>• Complete metabolic panel[1]<br>• CPK (creatine kinase) | Viral serologies:[2]<br>• HBV serologies (sAb, cAb, and sAg)<br>• HCV antibody, unless positive in past<br>• HIV 1/2 Ab/Ag |
| For risk stratification (may be repeated q2-3 days if abnormal or with clinical deterioration):<br>• D-dimer<br>• Ferritin / CRP / ESR<br>• LDH<br>• Troponin[3]<br>• Baseline ECG[4] | If clinically indicated:<br>• Routine blood cultures (2 sets)<br>• For acute kidney injury (i.e. serum creatinine >0.3 above baseline), send urinalysis and spot urine protein:creatinine<br>• Procalcitonin<br>• IL-6 See below for criteria |
| Radiology:<br>• Portable CXR at admission<br>• High threshold for PA/lateral in ambulatory patients, consider only if low suspicion for COVID-19 and result would change management or affect PUI status. | **Following up-to-date infection control guidelines and appropriate PPE**:<br>• SARS-CoV-2 test, if not already performed.[5]<br>• If available, send influenza A/B and RSV test |

MASSACHUSETTS GENERAL HOSPITAL

**Massachusetts General Hospital**
**COVID-19 Treatment Guidance**

**Identify High Risk Patients**: High risk features may include:

| **Table 2: Risk Factors for Severe COVID-19 Disease** | | |
|---|---|---|
| *Epidemiological – Category 1* | *Vital Signs – Category 2* | *Labs – Category 3* |
| Age > 55 | Respiratory rate > 24 breaths/min | D-dimer > 1000 ng/mL |
| Pre-existing pulmonary disease | Heart rate > 125 beats/min | CPK > twice upper limit of normal |
| Chronic kidney disease | SpO2 < 90% on ambient air | CRP > 100 |
| Diabetes with A1c > 7.6% | | LDH > 245 U/L |
| History of hypertension | | Elevated troponin |
| History of cardiovascular disease | | Admission absolute lymphocyte count < 0.8 |
| Use of biologics | | Ferritin > 300 ug/L |
| History of transplant or other immunosuppression | | |
| All patients with HIV (regardless of CD4 count) | | |

For more information about COVID19 Risk Factors, click here.

[6] The infectious disease consult service is actively discussing how to meet the needs of frontline clinicians. More information to follow.

# QUE PRUEBAS TENEMOS PARA HACER DIAGNOSTICO DE COVID 19?

**Opinion Paper**

Giuseppe Lippi*, Ana-Maria Simundic[a] and Mario Plebani[a]

# Potential preanalytical and analytical vulnerabilities in the laboratory diagnosis of coronavirus disease 2019 (COVID-19)

**Table 2:** Comparison of the (real time) reverse transcription polymerase chain reaction (rRT-PCR) diagnostic assay of the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) for diagnosing severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection.

| Test | Molecular targets | Scope | Limit of blank | Reference specimens | Storage conditions |
|---|---|---|---|---|---|
| WHO | | | | | |
| | E gene | First-line screening | 3.9 copies × reaction | Nasopharyngeal AND oropharyngeal swab or wash in ambulatory patients, lower respiratory specimens (sputum and/or endotracheal aspirate or bronchoalveolar lavage) | ≤5 days: 2–8 °C >5 days: ≤70 °C (dry ice) |
| | RdRp gene | Confirmatory testing | 3.6 copies × reaction | | |
| | N gene | Additional confirmatory testing | N/A | | |
| CDC | | | | | |
| | N1/2/3 gene | Combined assay | 1.0–3.2 copies/μL | Nasopharyngeal AND oropharyngeal swabs, sputum, lower respiratory tract aspirates, bronchoalveolar lavage and nasopharyngeal wash/aspirate or nasal aspirate | ≤4 days: 4 °C >4 days: ≤70 °C |
| | RNase P gene | Control assay | N/A | | |

E gene, envelop gene; N gene, nucleocapside gene; RdRp gene, RNA-dependent RNA polymerase gene; RNase P gene, human RNase P gene.

Opinion Paper

Giuseppe Lippi*, Ana-Maria Simundic[a] and Mario Plebani[a]

# Potential preanalytical and analytical vulnerabilities in the laboratory diagnosis of coronavirus disease 2019 (COVID-19)

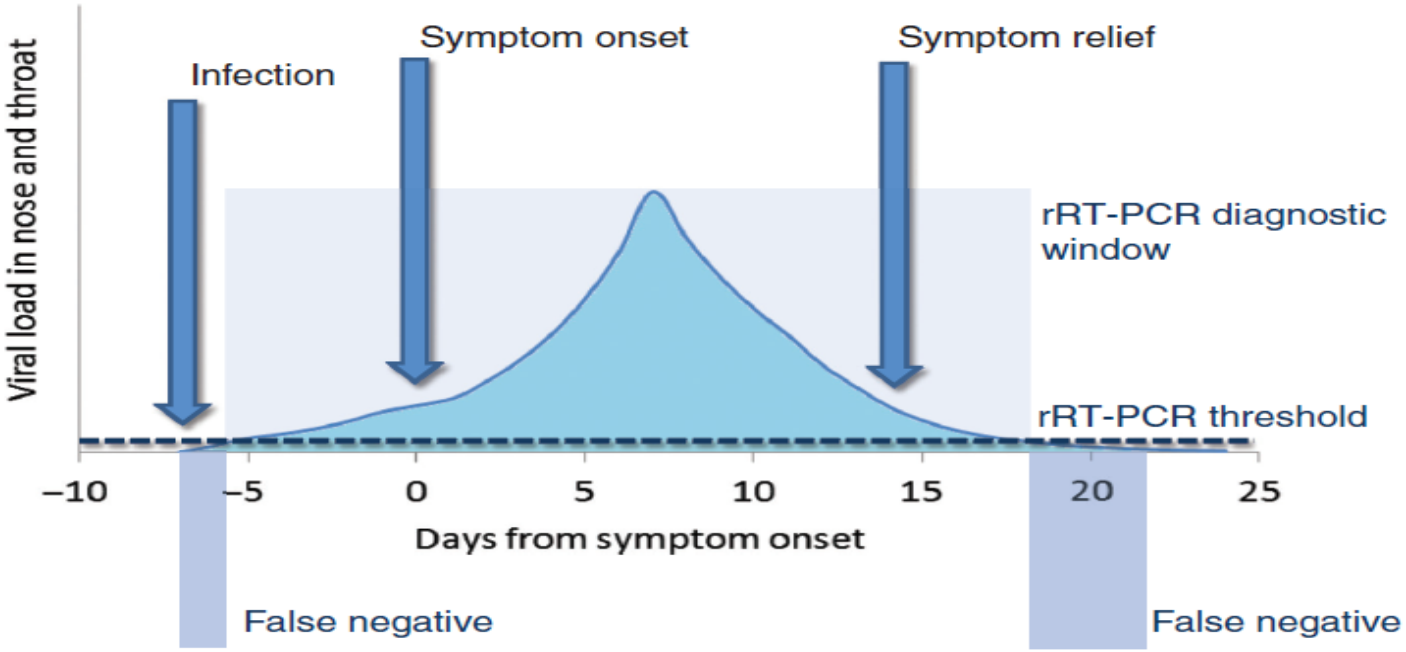
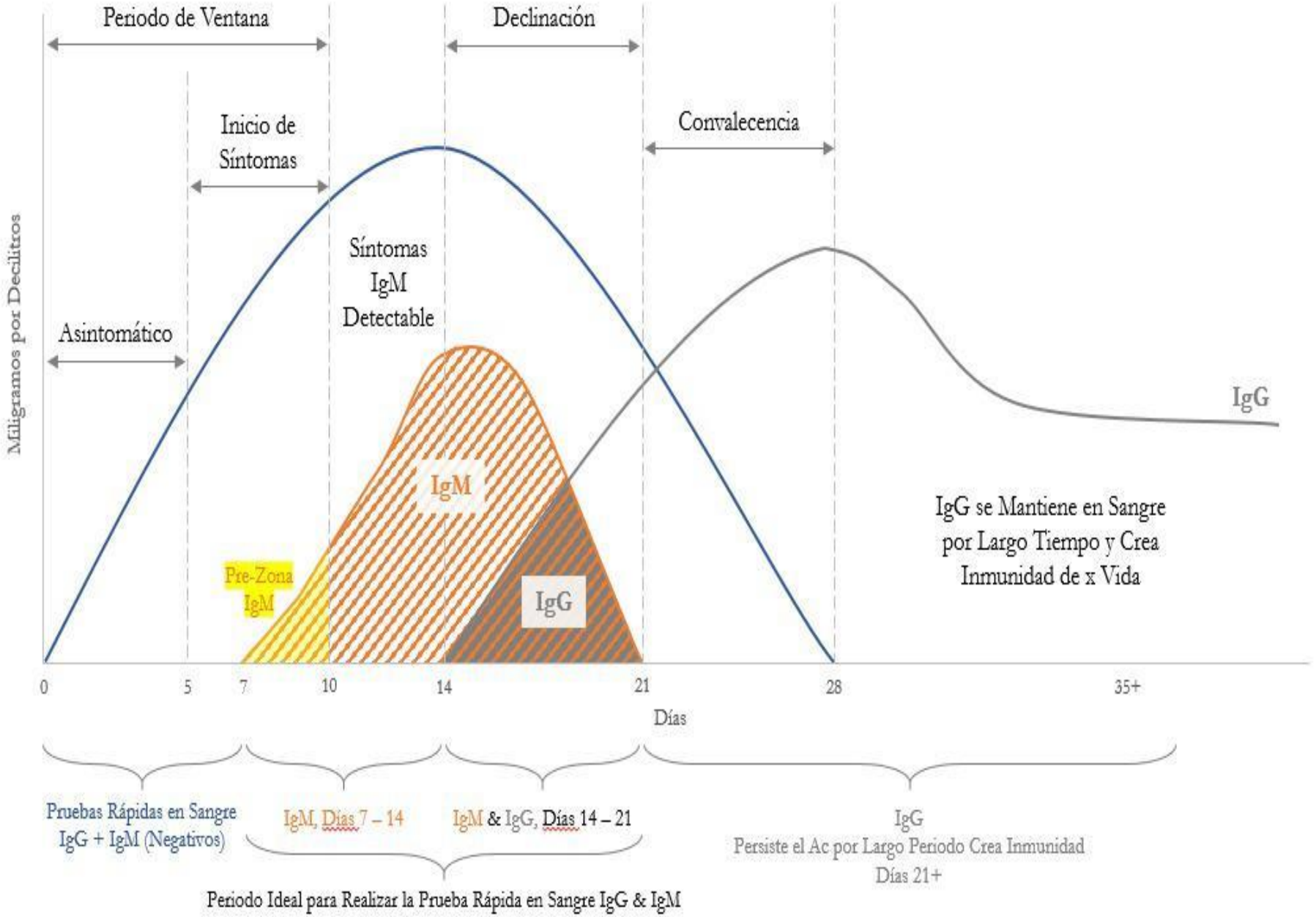



**Figure 1:** Correspondence between development of viral load during severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection, clinical course and positivity of (real time) reverse transcription polymerase chain reaction (rRT-PCR) assays.

La sensibilidad descrita es del 95% con un límite de detección de 136 copias/mL(24) y una tasa del 30% de falsos negativos.

# La Curva COVID-19[1]



# Hay un tratamiento eficaz contra el COVID 19?

No existen medicamentos aprobados por la Administración de Drogas y Alimentos de los Estados Unidos (FDA) específicamente para el tratamiento de pacientes con COVID-19.

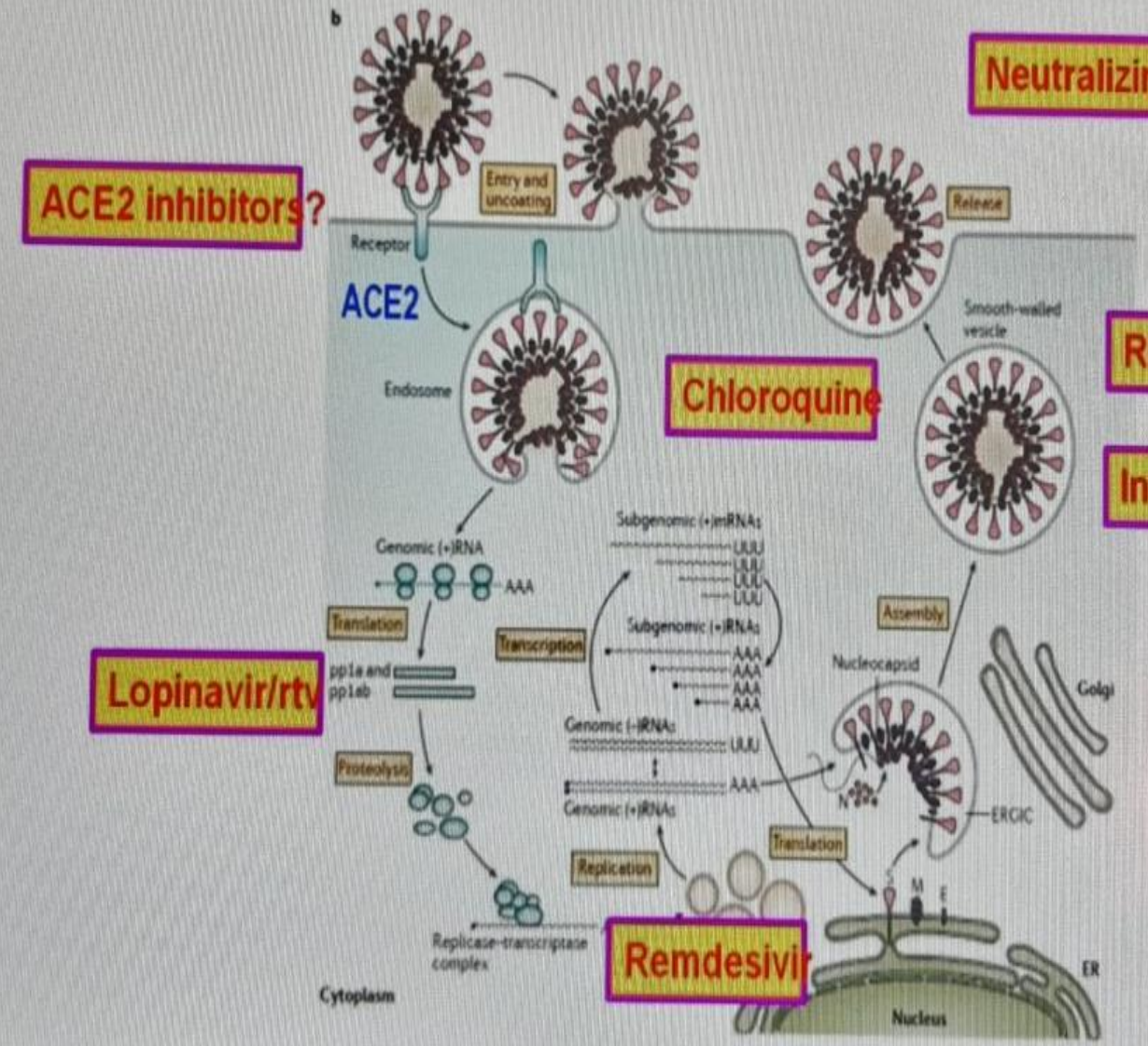
En la actualidad, el tratamiento clínico incluye medidas de prevención y control de infecciones y atención de apoyo, incluido oxígeno suplementario y soporte ventilatorio mecánico cuando esté indicado.

Se está estudiando una variedad de medicamentos aprobados para otras indicaciones, así como varios medicamentos en investigación en varios cientos de ensayos clínicos que se están llevando a cabo en todo el mundo.

- Algunos pacientes han recibido terapias en investigacion bajo criterios asociados a compasión (no controlados)
- **Estudios clínicos aleatorizados de medicamentos en investigación en pacientes hospitalizados por COVID-19 con neumonía**
  - Remdesivir (ECAs en China y los Estados Unidos)
  - Lopinavir-ritonavir (ECA en China)
  - Otros medicamentos (ECAs implementados o planeados en China)

https://www.cdc.gov/coronavirus/2019-ncov/hcp/therapeutic-options.html

# SARS-CoV-2 life cycle: Potential targets for antivirals




Neutralizing Antibodies?

ACE2 inhibitors?

Ribavirin

Chloroquine

Interferon-beta

Lopinavir/rtv

Remdesivir

Potential for combining several antiviral drugs

erferon induces hundreds of genes which can act on various parts of the lifecycle
n potentially degrading viral RNA (OAS, RNASL) to inhibiting virus egress (BST-2)

De Wit Nature Rev Microbiol, 2016; Sheahan TP, personal communication

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

# A Trial of Lopinavir–Ritonavir in Adults Hospitalized with Severe Covid-19

B. Cao, Y. Wang, D. Wen, W. Liu, Jingli Wang, G. Fan, L. Ruan, B. Song, Y. Cai, M. Wei, X. Li, J. Xia, N. Chen, J. Xiang, T. Yu, T. Bai, X. Xie, L. Zhang, C. Li,

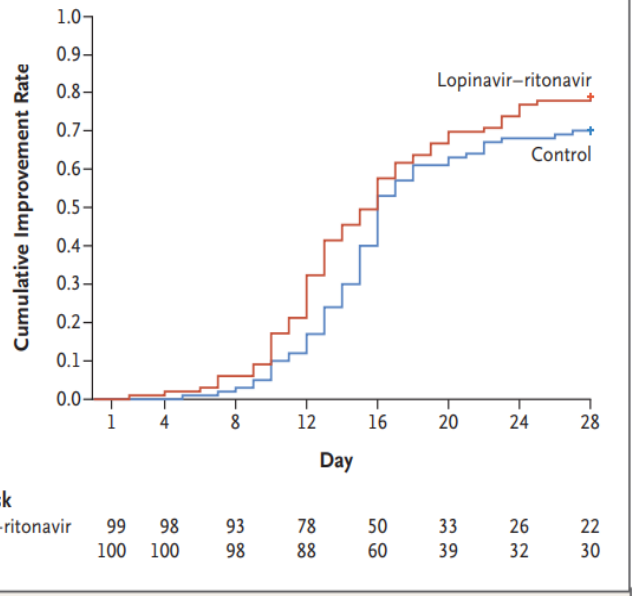



**Figure 2. Time to Clinical Improvement in the Intention-to-Treat Population.**

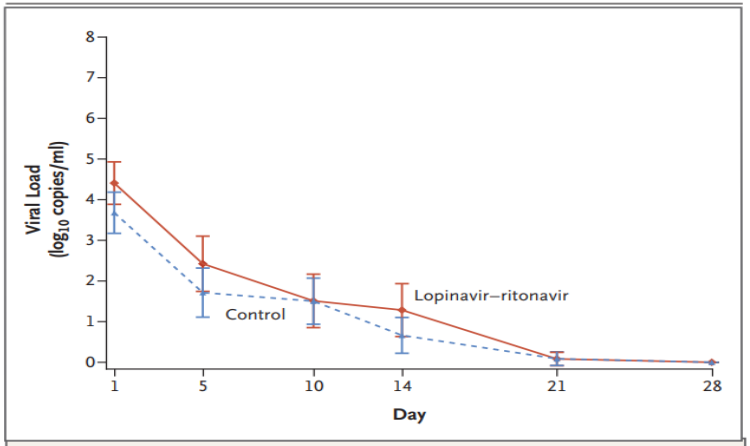



**Figure 3. Mean Change from Baseline in SARS-CoV-2 Viral RNA Load by qPCR on Throat Swabs.**

I bars indicate 95% confidence intervals. Results less than the lower limit of quantification of polymerase-chain-reaction (PCR) assay and greater than the limit of qualitative detection are imputed with 1 $\log_{10}$ copies per milliliter; results for patients with viral-negative RNA are imputed with 0 $\log_{10}$ copies per milliliter. Among the 199 patients, 130 (59 patients in the lopinavir–ritonavir group and 71 in the standard-care group) had virologic data that were used for viral load calculation, whereas the rest of the patients had undetectable viral RNA on throat swabs over the time.

El tratamiento con lopinavir-ritonavir no aceleró significativamente la mejoría clínica, redujo la mortalidad ni disminuyó la detección de ARN viral

200mg/50 mg cada 12 hrs o 5 ml cada 12 hrs 14 días se inicio en la mayoría al 13 día de enfermedad

This article was published on March 18, 2020, and updated on March 19, 2020, at NEJM.org

**Hydroxychloroquine and azithromycin as a treatment of COVID-19: results of an open-label non-randomized clinical trial**

Philippe Gautret[a,b$], Jean-Christophe Lagier[a,c$], Philippe Parola[a,b], Van Thuan Hoang[a,b,d], Line Meddeb[a], Morgane Mailhe[a], Barbara Doudier[a], Johan Courjon[e,f,g], Valérie Giordanengo[h], Vera Esteves Vieira[a], Hervé Tissot Dupont[a,c], Stéphane Honoré[i,j], Philippe Colson[a,c], Eric Chabrière[a,c], Bernard La Scola[a,c], Jean-Marc Rolain[a,c], Philippe Brouqui[a,c], Didier Raoult[a,c*].

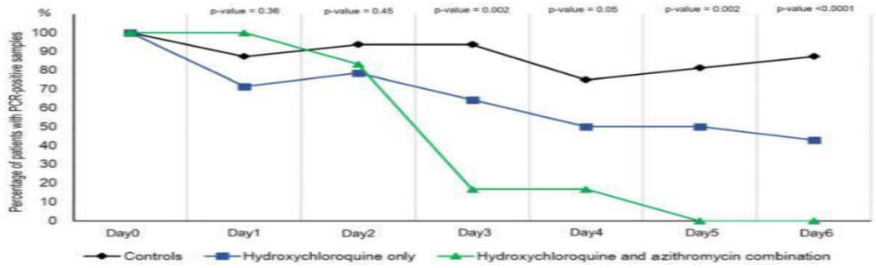
[a]IHU-Méditerranée Infection, Marseille, France.

Please cite this work as Gautret et al. (2020) Hydroxychloroquine and azithromycin as a treatment of COVID-19: results of an open-label non-randomized clinical trial. International Journal of Antimicrobial Agents – In Press 17 March 2020 – DOI : 10.1016/j.ijantimicag.2020.105949

- 6 pacientes asintomáticos
- 22 síntomas respirator
- 8 neumonías
- 20 tratados con Hidroxicloroquina mas azitromicina

**Hydroxychloroquine and azithromycin as a treatment of COVID-19: results of an openlabel non-randomized clinical trial**

pdf article to download:
Hydroxychloroquine_final_DOI_IJAA




*Percentage of patients with PCR-positive nasopharyngeal samples from inclusion to day6 post-inclusion in COVID-19 patients treated with hydroxychloroquine only, in COVID-19 patients treated with hydroxychloroquine and azithomycin combination, and in COVID-19 control patients.*

# Statistical review of *Hydroxychloroquine and azithromycin as a treatment of COVID-19: results of an open-label non-randomized clinical trial.*

March 23, 2020

**Dr Darren Dahly, PhD** - Principal Statistician, HRB Clinical Research Facility - Cork. HRB Trial Methodology Research Network. Senior Lecturer in Patient Focused Research Methods, University College Cork School of Public Health

Figure 1. Percentage of patients with PCR-positive nasopharyngeal samples from inclusion to day6 post-inclusion in COVID-19 patients trea with hydroxychloroquine and in COVID-19 control patients.

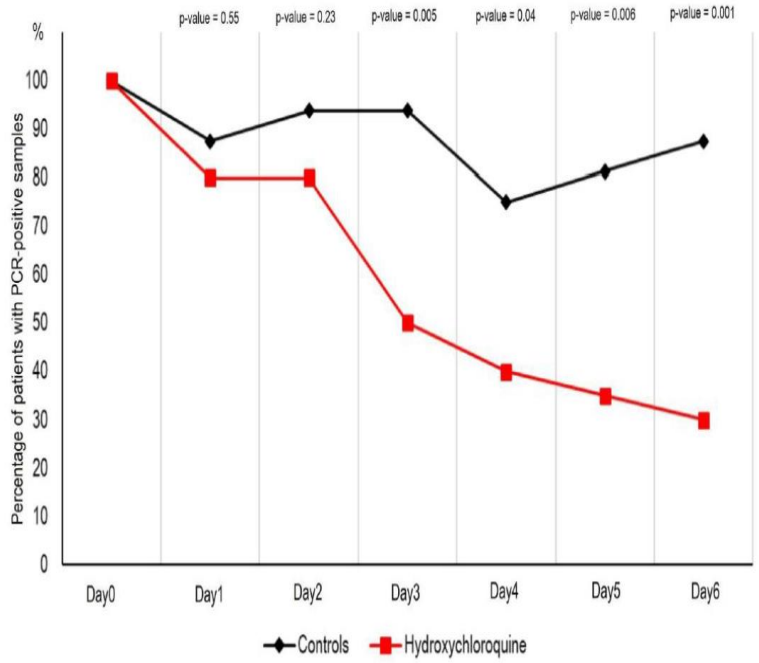
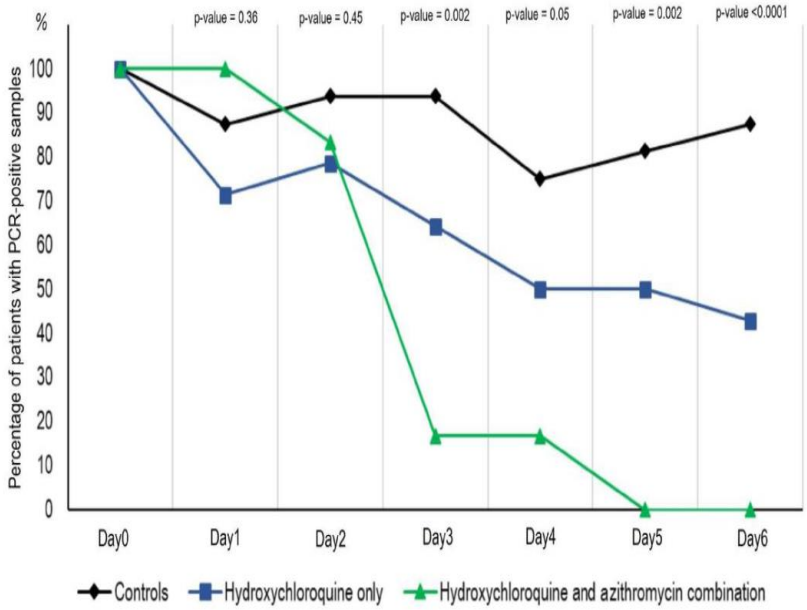



Figure 2. Percentage of patients with PCR-positive nasopharyngeal samples from inclusion to day6 post-inclusion in COVID-19 patients treate with hydroxychloroquine only, in COVID-19 patients treated with hydroxychloroquine and azithomycin combination, and in COVID-19 contr patients.

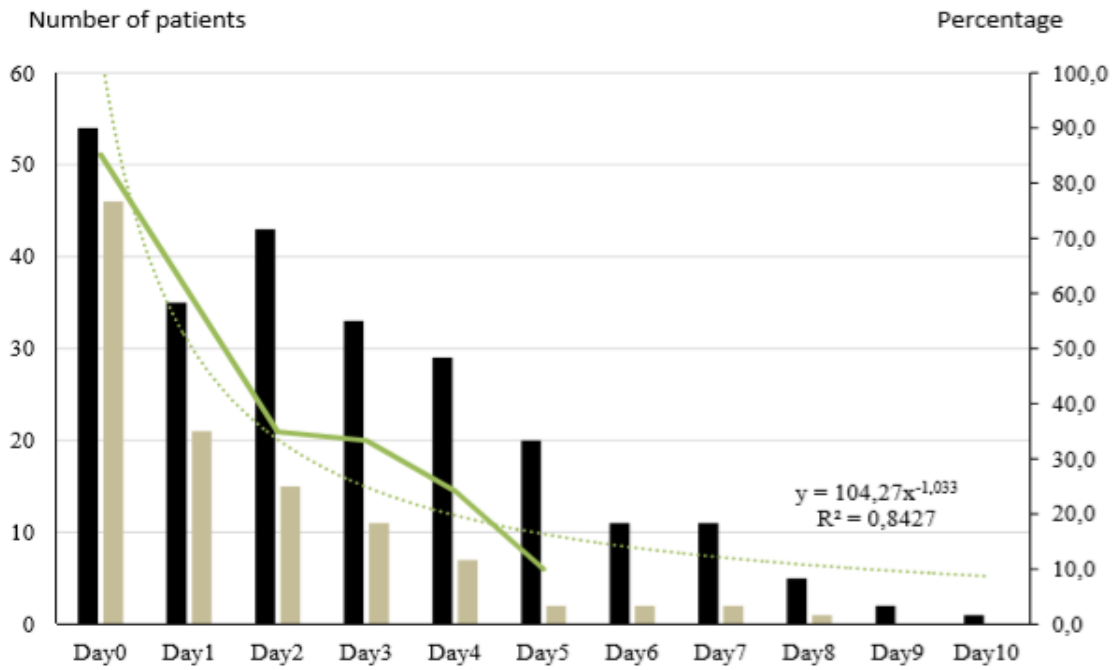



70% mejoro y PCR (-) al 6 día de tratamiento vs. control 12.5%
Hidroxicloroquina solo 60% vs. control 12.5%
Los 6 que recibieron combinado resolvieron al 6 día

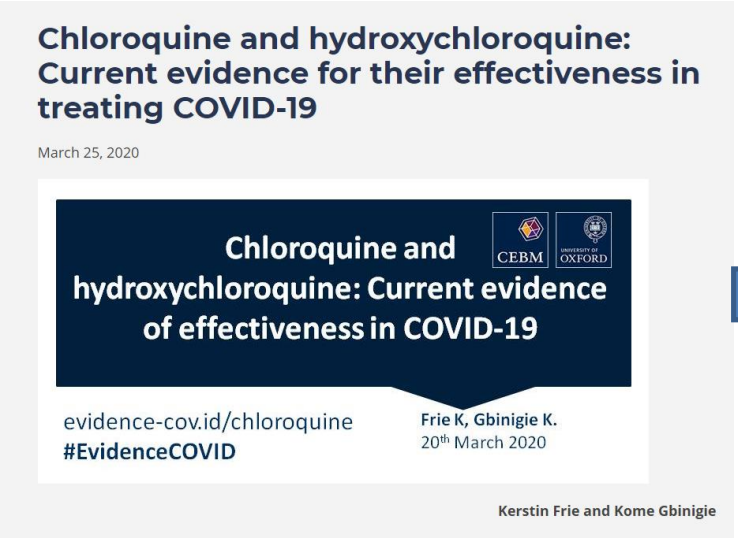
# Clinical and microbiological effect of a combination of hydroxychloroquine and azithromycin in 80 COVID-19 patients with at least a six-day follow up: an observational study

Running title: Hydroxychloroquine-Azithromycin and COVID-19

Figure 2. SARS-CoV-2 culture from nasopharyngeal samples overtime. Black bars: number of patients with available results, grey bars: number of patients with positive culture, solid line: percentage of patients with a positive culture, dashed line: polynomial regression curve.




- El objetivo terapéutico principal es tratar a las personas que tienen infecciones moderadas o graves en una etapa lo suficientemente temprana como para evitar la progresión a una condicion grave e irreversible
- La carga de ARN está asociada con la gravedad de la enfermedad
- Realizar un ECG antes o al comienzo del tratamiento




Estudios in vitro informan actividad antiviral de cloroquina e hidroxicloroquina contra el SARS-CoV-2. Los datos in vivo, se limitan actualmente a un estudio con limitaciones considerables.
La investigación adicional debe abordar la dosis óptima y la duración del tratamiento, y explorar los efectos secundarios y los resultados a largo plazo.

Existe un mayor riesgo de efectos secundarios en presencia de insuficiencia renal y hepática

La evidencia empírica sugiere que la hidroxicloroquina tiene un mejor perfil de seguridad.

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journal homepage: www.journals.elsevier.com/journal-of-critical-care


## A systematic review on the efficacy and safety of chloroquine for the treatment of COVID-19

Andrea Cortegiani [a,*], Giulia Ingoglia [a], Mariachiara Ippolito [a], Antonino Giarratano [a], Sharon Einav [b]

[a] Department of Surgical, Oncological and Oral Science (Di.Chir.On.S.), Section of Anaesthesia, Analgesia, Intensive Care and Emergency, Policlinico Paolo Giaccone, University of Palermo, Italy
[b] Intensive Care Unit of the Shaare Zedek Medical Medical Centre, Hebrew University Faculty of Medicine, Jerusalem, Israel

400 mg BID el primer día, luego diariamente durante 5 días;
400 mg BID el primer día, luego 200 mg BID durante 4 días;
600 mg BID en el primer día, luego 400 mg diarios en los días 2-5.

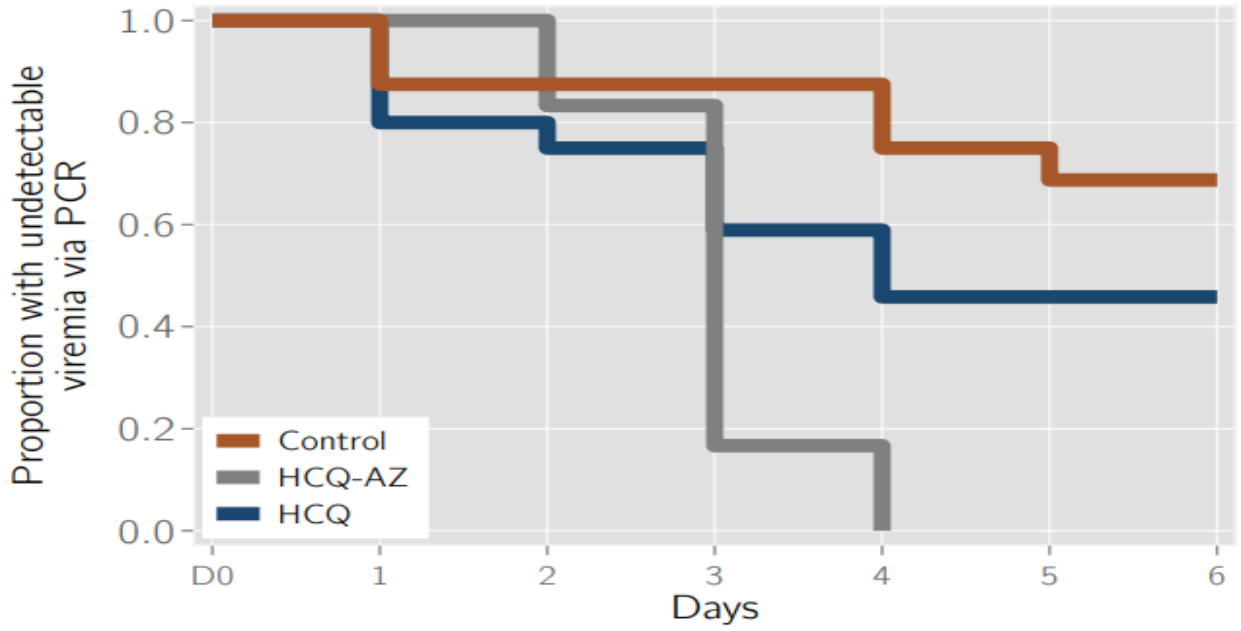
# QUANTIFYING TREATMENT EFFECTS OF HYDROXYCHLOROQUINE AND AZITHROMYCIN FOR COVID-19: A SECONDARY ANALYSIS OF AN OPEN LABEL NON-RANDOMIZED CLINICAL TRIAL

A PREPRINT

**Andrew A. Lover***
Department of Biostatistics and Epidemiology
University of Massachusetts- Amherst
Amherst, MA
alover@umass.edu

March 22, 2020





Cell Research

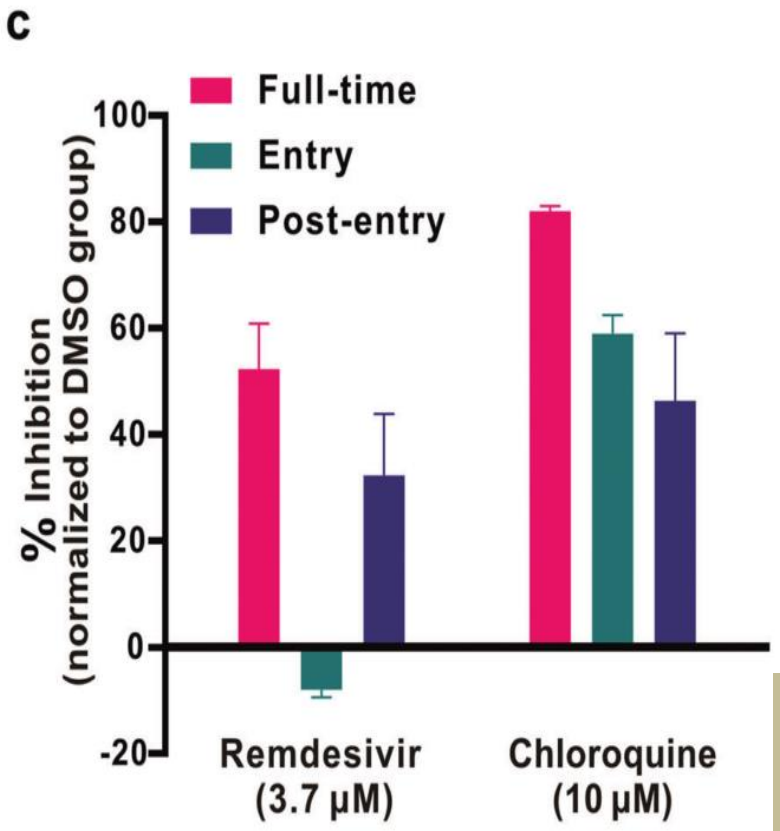
www.nature.com/
www.cell-research.co

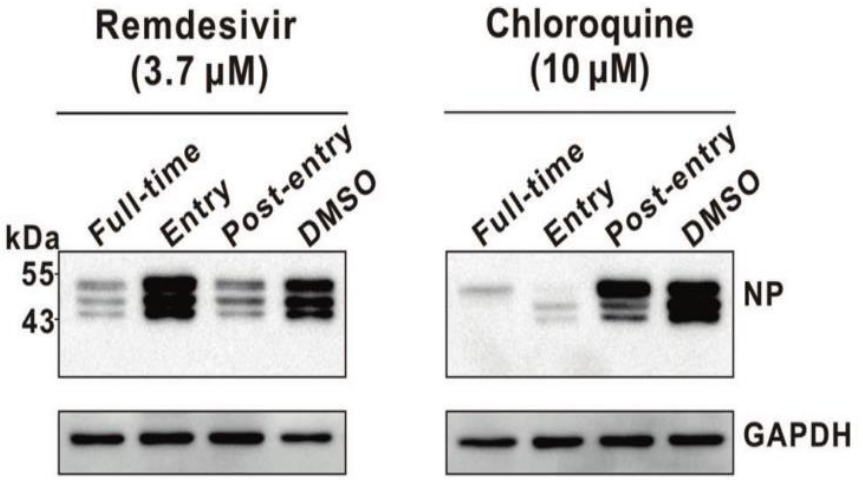
LETTER TO THE EDITOR OPEN

# Remdesivir and chloroquine effectively inhibit the recently emerged novel coronavirus (2019-nCoV) in vitro

*Cell Research* (2020) 30:269–271; https://doi.org/10.1038/s41422-020-0282-0

200 mg IV luego 100 mg cada día 2-10 días
Promedio e tratamiento 5 dias
Finaliza la cadena de nucleosido



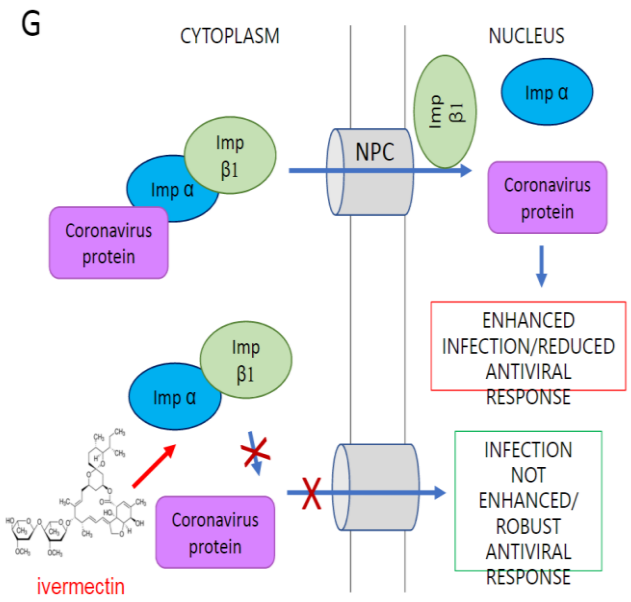




- Es un análogo de nucleótido que interfiere con la polimerización del ARN Mejora función pulmonar y reduce carga viral
- 10 veces mas activo que Kaletra

Antiviral Research
Available online 3 April 2020, 104787
In Press, Journal Pre-proof

# The FDA-approved Drug Ivermectin inhibits the replication of SARS-CoV-2 *in vitro*

Leon Caly [1], Julian D. Druce [1], Mike G. Catton [1], David A. Jans [2], Kylie M. Wagstaff [2]




- Actividad antiviral de amplio espectro in vitro, Inhibidor SARS-CoV-2 con una sola adición a Células Vero-hSLAM 2 horas después de la infección (
- Logro una reducción de ~ 5000 veces en el ARN viral a las 48 h

- La ivermectina justifica más investigación para posibles beneficios en humanos.

*Open Forum Infectious Diseases*

BRIEF REPORT

# High-Dose Intravenous Immunoglobulin as a Therapeutic Option for Deteriorating Patients With Coronavirus Disease 2019

**Wei Cao,[1] Xiaosheng Liu,[2] Tao Bai,[3] Hongwei Fan,[1] Ke Hong,[3] Hui Song,[3] Yang Han,[1] Ling Lin,[1] Lianguo Ruan,[3,a] and Taisheng Li[1,a]**

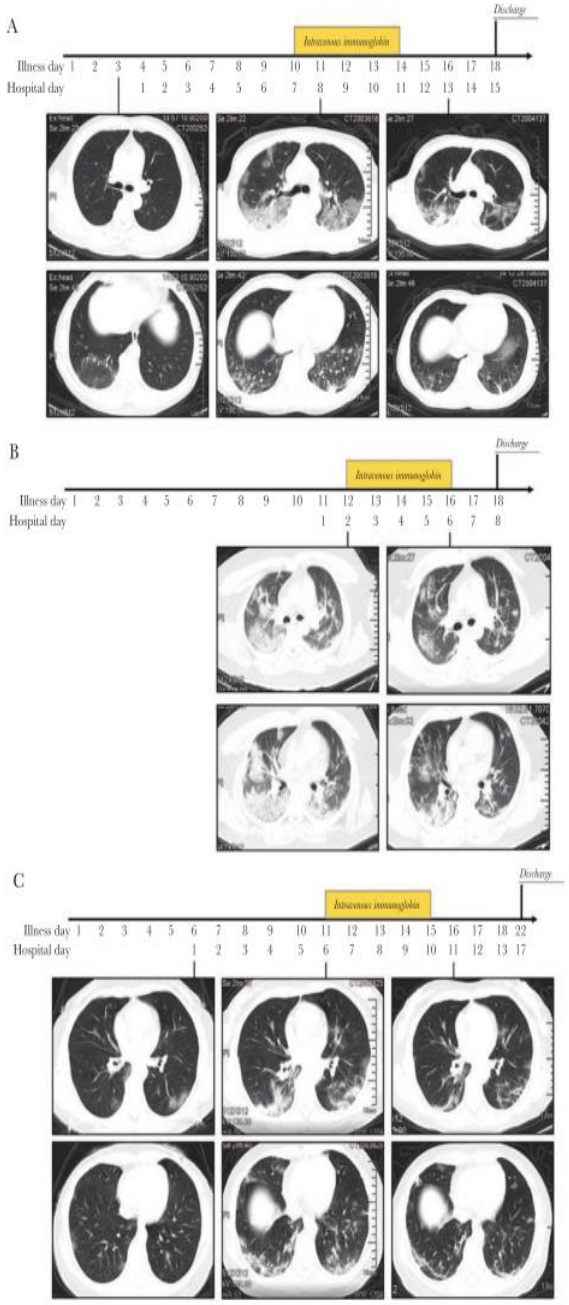
[1]Department of Infectious Diseases, Peking Union Medical College Hospital, Chinese Academy of Medical Sciences, Beijing, China, [2]Tsinghua-Peking Center for Life Sciences, School of Medicine, Tsinghua University, Beijing, China, and [3]Department of Infectious Diseases, Jin Yin-tan Hospital, Wuhan, China

**Table 1. Laboratory Tests of the 3 Patients Before and After Infusion of High-Dose Intravenous Immunoglobulin**

| | | Patient 1[a] | | | Patient 2[b] | | Patient 3[c] | | |
|---|---|---|---|---|---|---|---|---|---|
| | Reference | Illness Day 4 | Illness Day 9 | Illness Day 18 | Illness Day 12 | Illness Day 16 | Illness Day 6 | Illness Day 11 | Illness Day 14 |
| Measure | Range | Hospital Day 1 | Hospital Day 6 | Hospital Day 15 | Hospital Day 2 | Hospital Day 6 | Hospital Day 1 | Hospital Day 6 | Hospital Day 9 |
| WBC, $10^9$/L | 3.5–9.5 | 4.22 | 6.61 | 8.74 | 4.74 | 3.91 | 3.06[d] | 3.39[d] | 4.4 |
| RBC, $10^{12}$/L | 4.3–5.8 | 4.4 | 4.26[d] | 4.02[d] | 5.21 | 4.92 | 4.25 | 4.34 | 3.83 |
| Hb, g/L | 130–175 | 144 | 139 | 128[d] | 147 | 139 | 127 | 126 | 114 |
| PLT, $10^9$/L | 120–350 | 147 | 210 | 241 | 97[d] | — | 153 | 274 | 287 |
| NEUT#, $10^9$/L | 1.8–6.3 | 3.4 | 5.82 | 6.51[e] | 3.11 | 2.27 | 1.86 | 2.46 | 3.42 |
| LYM#, $10^9$/L | 1.1–3.2 | 0.48[d] | 0.58[d] | 1.63 | 1.2 | 1.04[d] | 0.85[d] | 0.60[d] | 0.85[d] |
| ESR, mm/h | 0–15 | 49[e] | — | 31[e] | 58.8[e] | — | | 40[e] | 41.5[e] |
| hsCRP, mg/L | 0–5 | 57.8[e] | 106.2[e] | 4.3 | 82.0[e] | 25.1[e] | 41.1[e] | 69.5[e] | 6.6[e] |
| Mb, ng/mL | 0–146.9 | 96.3 | 36.5 | — | 153.8[e] | — | 16.6 | — | — |
| hsTnI, pg/mL | 0–28 | 1.1 | 1.3 | — | 3.6 | — | 0 | — | — |
| SF, ng/mL | 21.8–274.66 | 459.57[e] | — | 563.02[e] | 806.99[e] | 632.55[e] | 85.91 | — | 232.62[e] |
| PCT, ng/mL | <0.05 | — | <0.05 | <0.05 | <0.05 | 0.05 | <0.05 | <0.05 | <0.05 |
| TBIL, μmol/L | 0–26 | 15.5 | 15.4 | 6.5 | 15 | — | 8.4 | — | 5.9 |
| ALT, U/L | 9–50 | 20 | 14 | 60[e] | 52[e] | — | 15 | — | 20 |
| AST, U/L | 14–40 | 36 | 34 | 40 | 54[e] | — | 25 | — | 11[d] |
| ALB, g/L | 40–55 | 39.3[d] | 34.2[d] | 39.6[d] | 32.4[d] | — | 33.4[d] | — | 33.0[d] |
| ALP, U/L | 45–125 | 47 | 47 | 46 | 60 | — | 47 | — | 26[d] |
| γ-GT, U/L | 10–60 | 17 | 19 | 29 | 87[e] | — | 15 | — | 33 |
| CRE, μmol/L | 57–97 | 88.8 | 69.2 | 63 | 72.7 | — | 51.6 | — | 47 |
| UA, μmol/L | 208–428 | 191[d] | 99[d] | 195[d] | 472[e] | — | 201 | — | 131[d] |
| CK, U/L | 50–310 | 267 | 81 | 51 | 1081[e] | — | 46 | — | 32[d] |
| LDH, U/L | 120–250 | 308[e] | 315[e] | 296[e] | 651[e] | — | 163 | — | 222 |
| D-dimer, μg/mL | 0–1.5 | 0.37 | — | — | 0.43 | — | — | — | 1.55[e] |
| PT, sec | 10.5–13.5 | 10.6 | — | 10.2[d] | 11.3 | — | — | — | — |
| PTA, % | 0.8–1.2 | 129.7[e] | — | 117.4 | 95.5 | — | — | — | — |
| FIB, g/L | 2–4 | 4.1[e] | — | 3.7 | 4.4[e] | — | — | — | — |

Abbreviations: γ-GT, γ -glutamyltransferase; ALB, albumin; ALP, alkaline phosphatase; ALT, alanine aminotransferase; AST, aspartase aminotransferase; CK, creatinekinase; CRE, creatinine; ESR, erythrocyte sedimentation rate; FIB, fibrinogen; Hb, hemoglobin; hsCRP, hypersensitive C-reactive protein; hsTn, hypersensitive troponin; IVIg, intravenous immunoglobulin; LDH, lactate dehydrogenase; LYM#, absolute lymphocyte count; Mb, myoglobin; NEUT#, absolute neutrophil count; hsTn, hypersensitive troponin; PLT, platelet count; PT, prothrombin time; PTA, prothrombin activity; RBC, red blood cell count; SF, serum ferritin; TBIL, total bilirubin; UA, urine acid; WBC, white blood cell count.

[a]IVIg was initiated on hospital day 2.



Review Article

# The use of anti-inflammatory drugs in the treatment of people with severe coronavirus disease 2019 (COVID-19): The Perspectives of clinical immunologists from China

Wen Zhang[a,1], Yan Zhao[a,1], Fengchun Zhang[a,1], Qian Wang[a], Taisheng Li[b,c,g], Zhengyin Liu[c,g], Jinglan Wang[d,g], Yan Qin[e,g], Xuan Zhang[a,b], Xiaowei Yan[f,g,*], Xiaofeng Zeng[a,*], Shuyang Zhang[f,g,*]

ARTICLE INFO

*Keywords:*
Coronavirus disease 2019 (COVID-19)
Cytokine storm
Anti-inflammation treatment

ABSTRACT

The pandemic outbreak of coronavirus disease 2019 (COVID-19) is rapidly spreading all over the world. Reports from China showed that about 20% of patients developed severe disease, resulting in a fatality of 4%. In the past two months, we clinical immunologists participated in multi-rounds of MDT (multidiscipline team) discussion on the anti-inflammation management of critical COVID-19 patients, with our colleagues dispatched from Chinese leading PUMC Hospital to Wuhan to admit and treat the most severe patients. Here, from the perspective of clinical immunologists, we will discuss the clinical and immunological characteristics of severe patients, and summarize the current evidence and share our experience in anti-inflammation treatment, including gluco-corticoids, IL-6 antagonist, JAK inhibitors and choloroquine/hydrocholoroquine, of patients with severe COVID-19 that may have an impaired immune system.

- Tocilizumab, un anticuerpo monoclonal antiinterleucina-6 se ha utilizado para modular la respuesta inmune de estos pacientes 8mg/Kg/IV ( DM 800mg)
  Vida media 7-14 dias
- Inhibidor de IL-1
- Inhibidor del JAK
- Corticoesteroides

- Interferon  Es el tratamiento coadyuvante (combinado con otras estrategias terapéuticas o medicamentos) que más se ha utilizado
  Nebulizado: 200,000 a 400,000 UI/kg en 2 ml  2 veces por día por 5 a 7 días.
- Spray: 8,000 UI (1 disparo) cada 1-2 horas en cada narina por 5 a 7 días.

The Journal of Clinical Investigation



# The convalescent sera option for containing COVID-19

**Arturo Casadevall[1] and Liise-anne Pirofski[2]**

[1]Department of Molecular Microbiology and Immunology, Johns Hopkins School of Public Health, Baltimore, Maryland, USA. [2]Division of Infectious Diseases, Department of Medicine, Albert Einstein College of Medicine, Bronx, New York, USA.

VIEWPOINT The Journal of Clinical Investigation

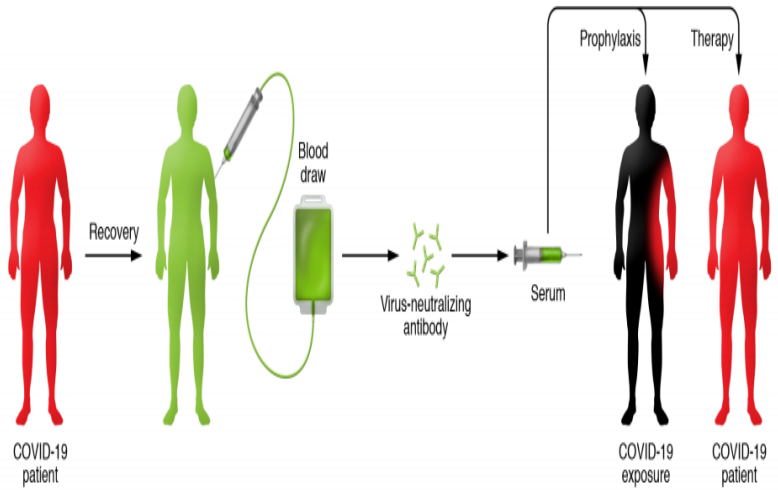



**Figure 1. Schematic of the use of convalescent sera for COVID-19.** An individual who is sick with COVID-19 and recovers has blood drawn and screened for virus-neutralizing antibodies. Following identification of those with high titers of neutralizing antibody, serum containing these virus-neutralizing antibodies can be administered in a prophylactic manner to prevent infection in high-risk cases, such as vulnerable individuals with underlying medical conditions, health care providers, and individuals with exposure to confirmed cases of COVID-19. Additionally, convalescent serum could potentially be used in individuals with clinical disease to reduce symptoms and mortality. The efficacy of these approaches is not known, but historical experience suggests that convalescent sera may be more effective in preventing disease than in the treatment of established disease.

The NEW ENGLAND JOURNAL of MEDICINE

## Disappearance of Antibodies to SARS-Associated Coronavirus after Recovery

**TO THE EDITOR:** Previous studies have demonstrated that IgG and neutralizing antibodies against coronavirus associated with the severe acute respiratory syndrome (SARS) may persist, in spite of a decline in titer, for 2 years in patients who have recovered from SARS.[1,2] For 3 years, we followed

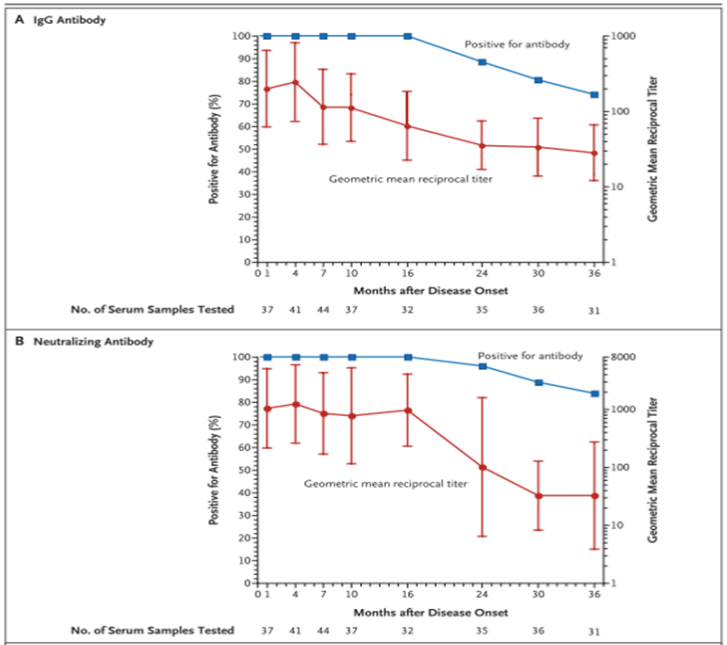



**Figure 1. Temporal Changes in IgG and Neutralizing Antibodies against SARS-Associated Coronavirus among Patients Who Recovered from SARS.**

The IgG and neutralizing antibodies against SARS-associated coronavirus were detected with an enzyme-linked immunosorbent assay and a conventional neutralization assay, respectively, of SARS-associated coronavirus BJ01 strain (GenBank accession number AY278488) from tissue cultures.[3] The percentages of serum samples that were positive for the antibody (blue line) and the geometric mean reciprocal titers (red line) are shown for the IgG antibody (Panel A) and for the neutralizing antibody (Panel B). The IgG and neutralizing antibodies were considered

# El calor mata el Virus?

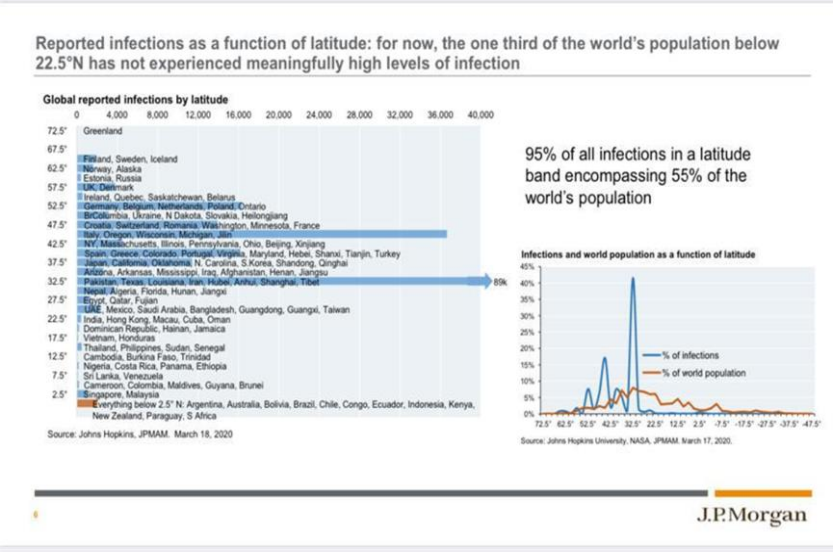
# High Temperature and High Humidity Reduce the Transmission of COVID-19

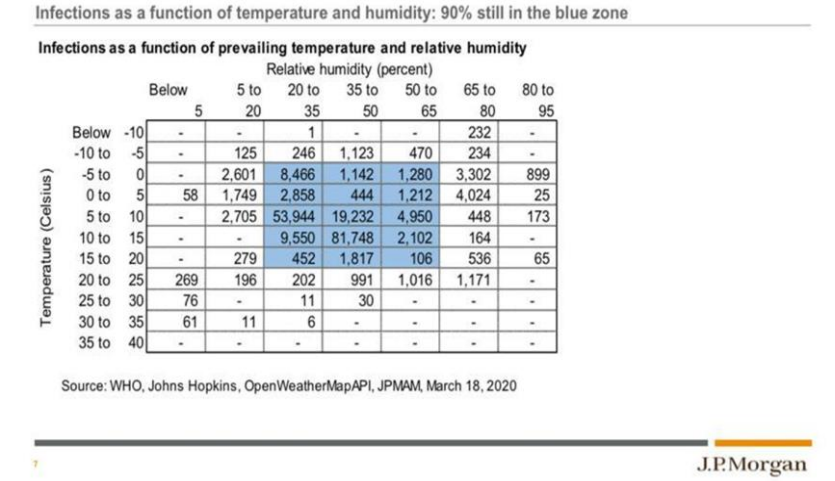
Jingyuan Wang, Ke Tang, Kai Feng and Weifeng Lv*

March 9, 2020

- ✓ Se investigo en 100 ciudades de china con mas de 40 casos
- ✓ El incremento de un grado Celsius de temperatura y 1% de humedad relativa reduce significativamente la transmisión del COVID-19

- Ej: Corea, Japón e Irán tiene brotes mas severos que Sigapur, Malasia y Tailandia
- ✓ Virus de la gripe es mas estable a temperatura fría, los virus permanecen mas tiempo suspendido en aire seco
- ✓ Clima seco debilita inmunidad local y permite paso del virus haciéndolo mas susceptibles

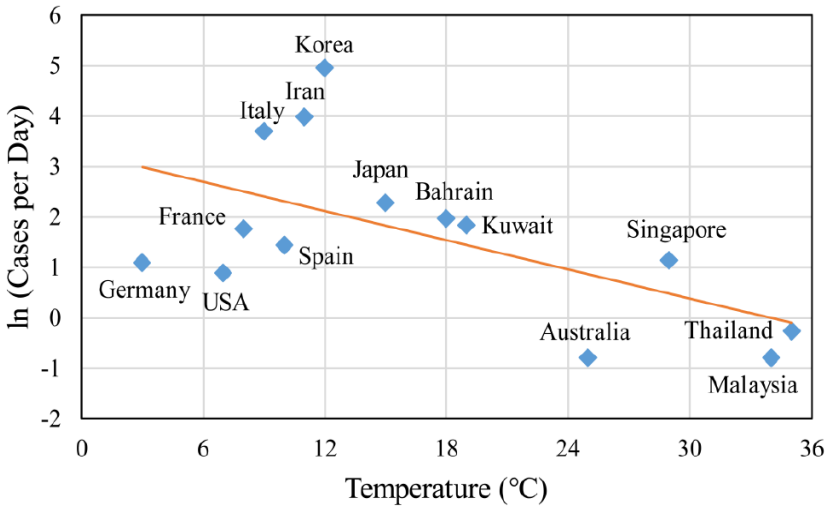


# High Temperature and High Humidity Reduce the Transmission of COVID-19

Jingyuan Wang, Ke Tang, Kai Feng and Weifeng Lv*

March 9, 2020

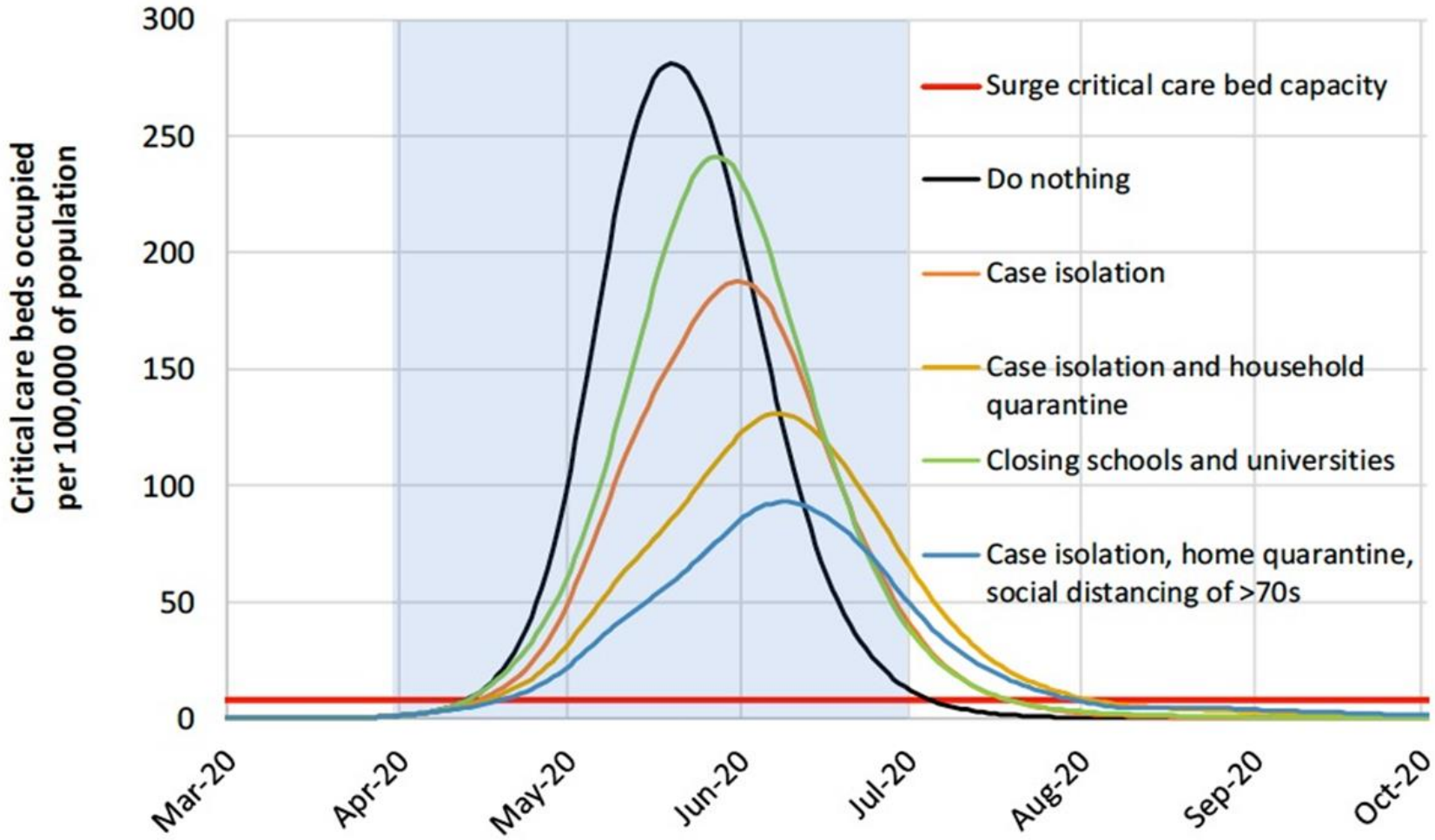



(a)

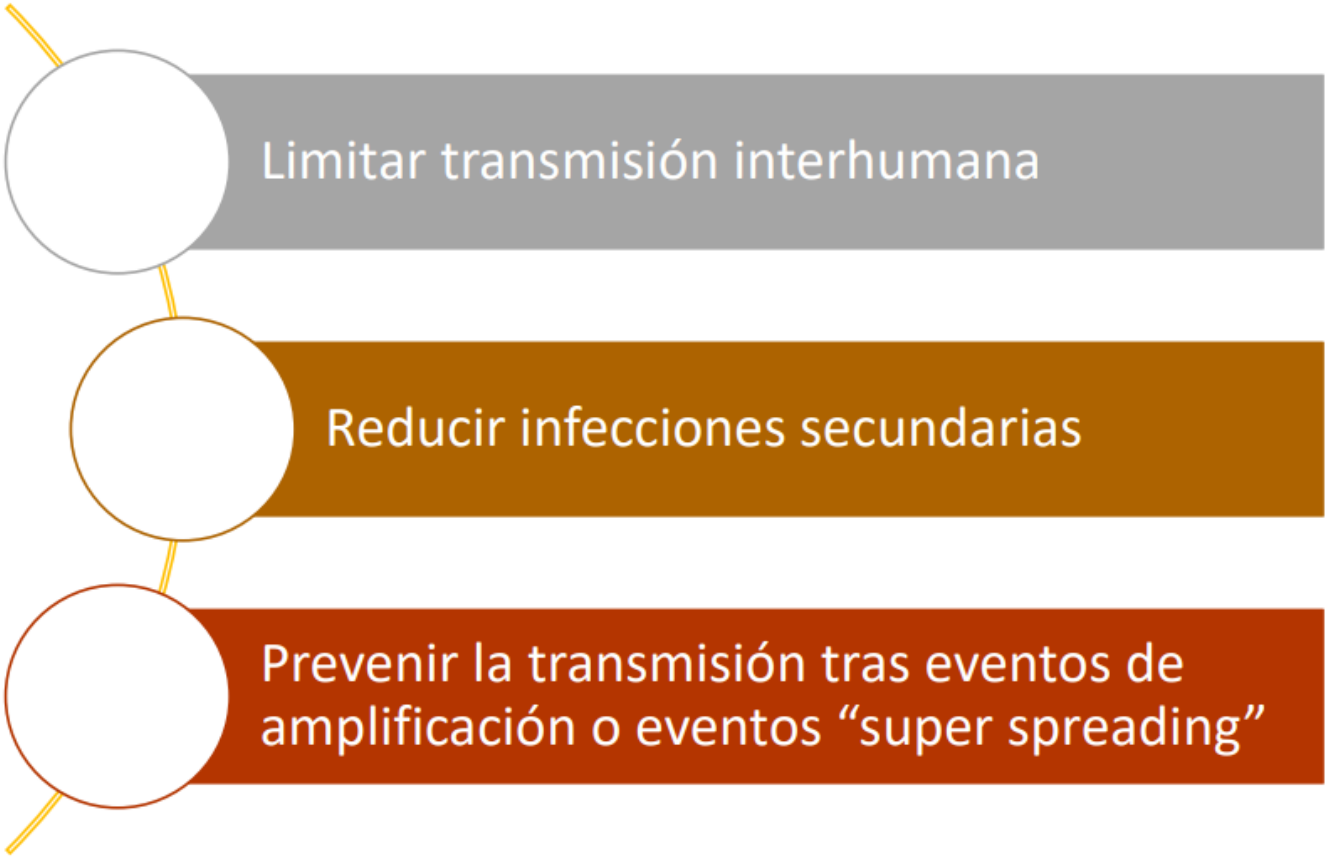
Cuales son las medidas recomendadas para la prevención?

# COVID-19: Imperial researchers model likely impact of public health measures

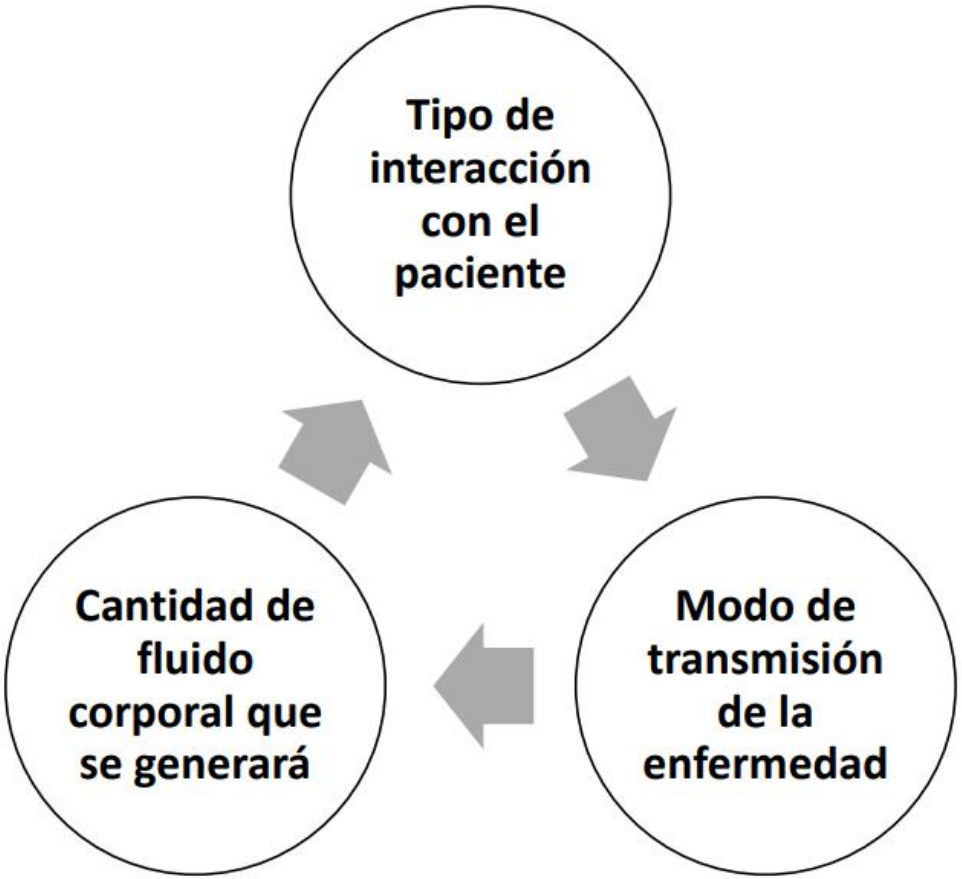
by Dr Sabine L. van Elsland, Ryan O'Hare
17 March 2020



# Prevención y control de infecciones (PCI) y COVID-19



# Evaluacion de riesgo y EPP



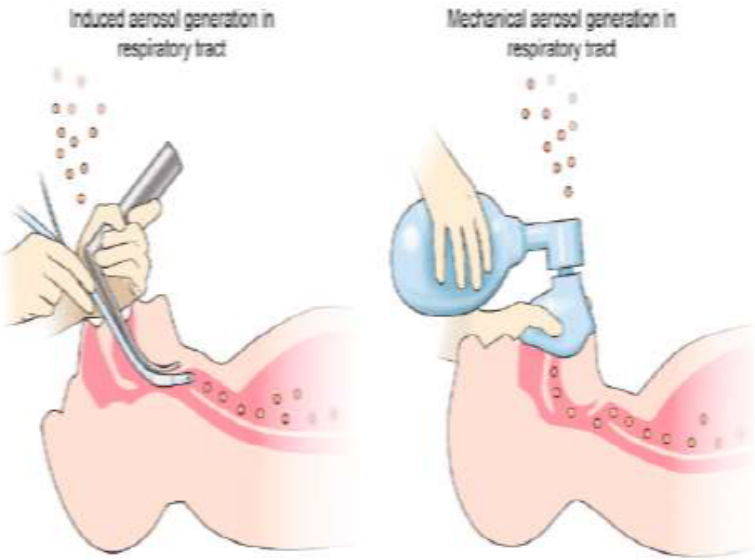

*PAHO. Prevention and Control of Healthcare associated infections – Basic Recommendations"- PAHO, 2017 (adapted)*

# Precauciones adicionales y COVID-19

| Scenario | Precaución |
|---|---|
| Para cualquier caso sospechoso o confirmado de COVID-19 | **Precauciones estándares + contacto + gotitas** |
| Para cualquier caso sospechoso o confirmado de COVID-19 y procedimientos generadores de aerosoles (PGA) | **Precauciones estándares + contacto + aerosoles** |

*Fuente:* https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance

# Procedimientos generadores de aerosoles (PGA)




| Procedimientos de generación de aerosoles (PGA) |
|---|
| Broncoscopia |
| Reanimación cardiopulmonar |
| Ventilación no invasiva (BiPAP, CPAP, HFOV) |
| Cirugía |
| Intubación traqueal |
| Ventilación manual |
| Inducción del esputo |
| Aspiración |
| Necropsias |

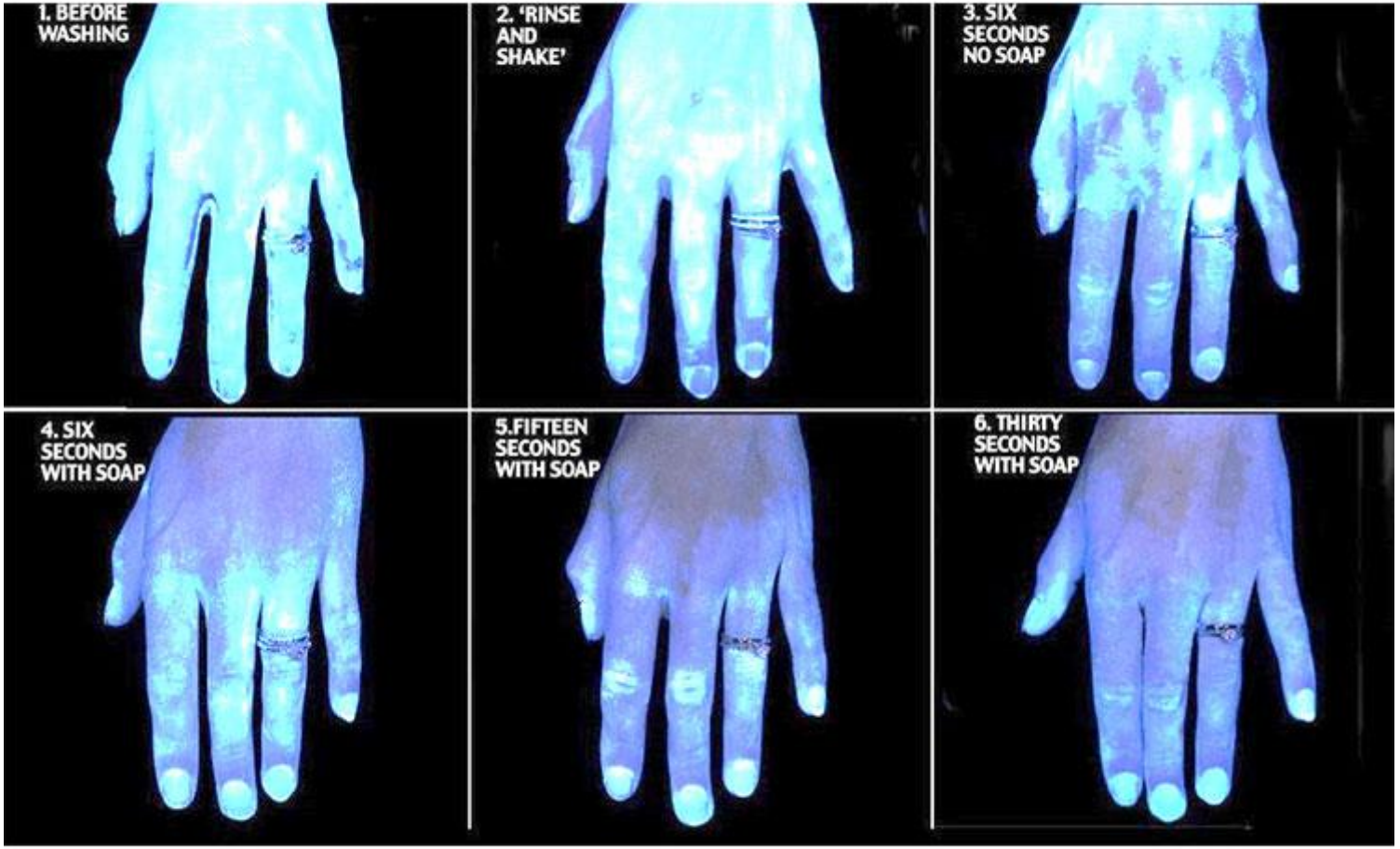
**El número de trabajadores de salud expuestos debe ser limitado**

*Judson SD et al., Viruses 2019, 11, 940; doi:10.3390/v11100940*

1. Before Washing

2. 'Rinse and Shake'

3. Six Seconds No Soap




4. Six Seconds With Soap

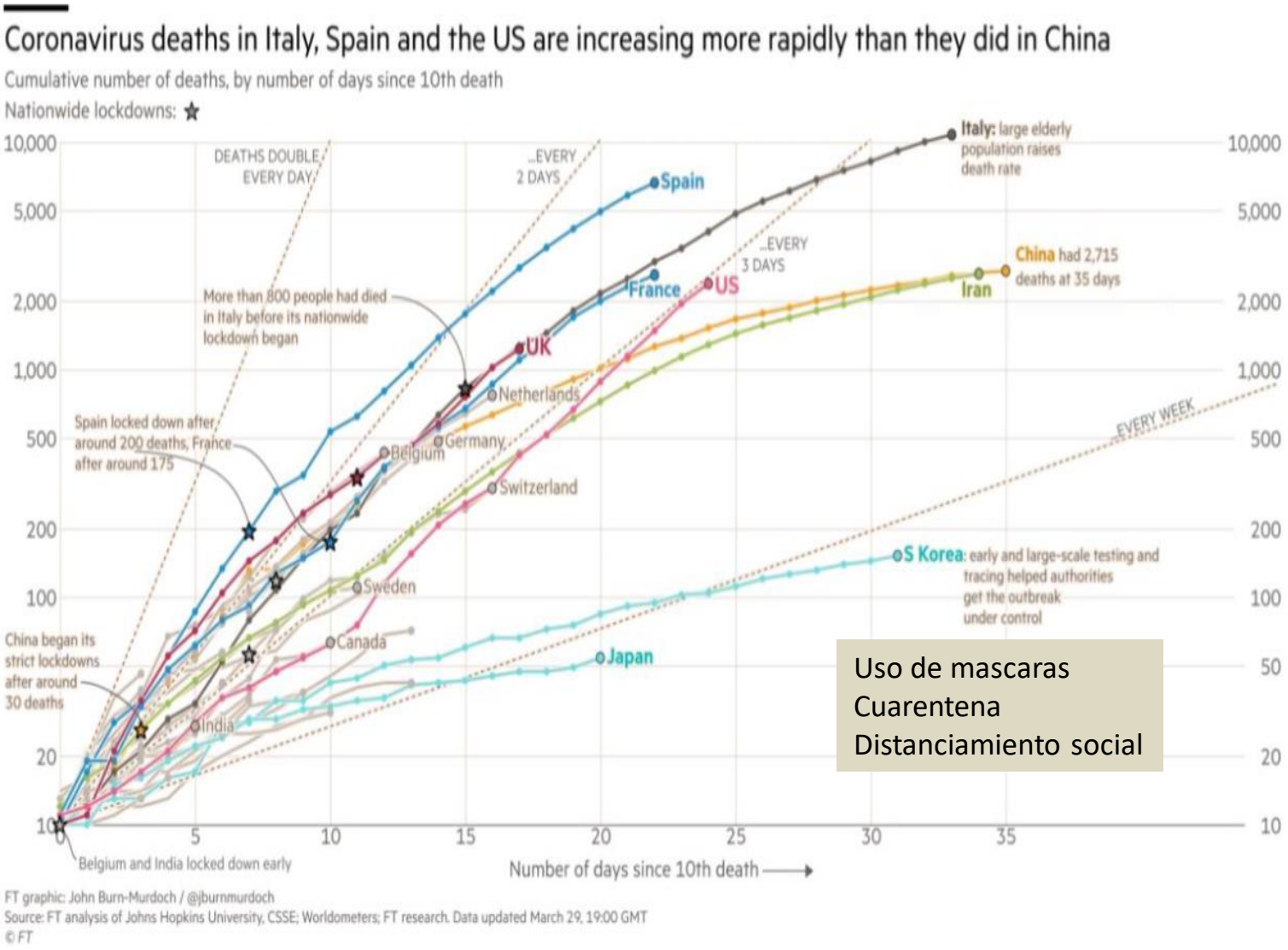
5. Fifteen Seconds With Soap

6. Thirty Seconds With Soap

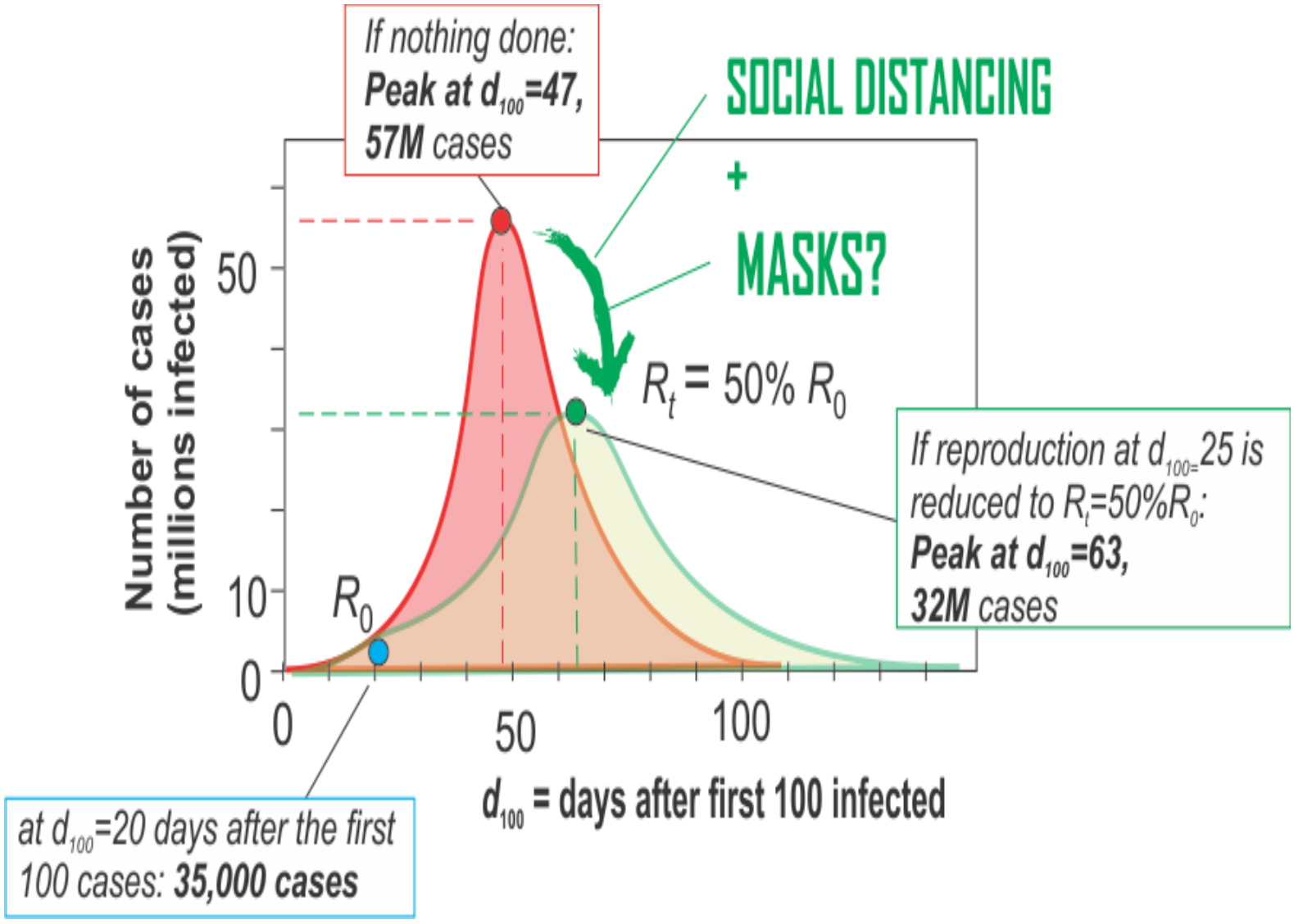
# Uso de mascarilla quirúrgica vrs Respirador?

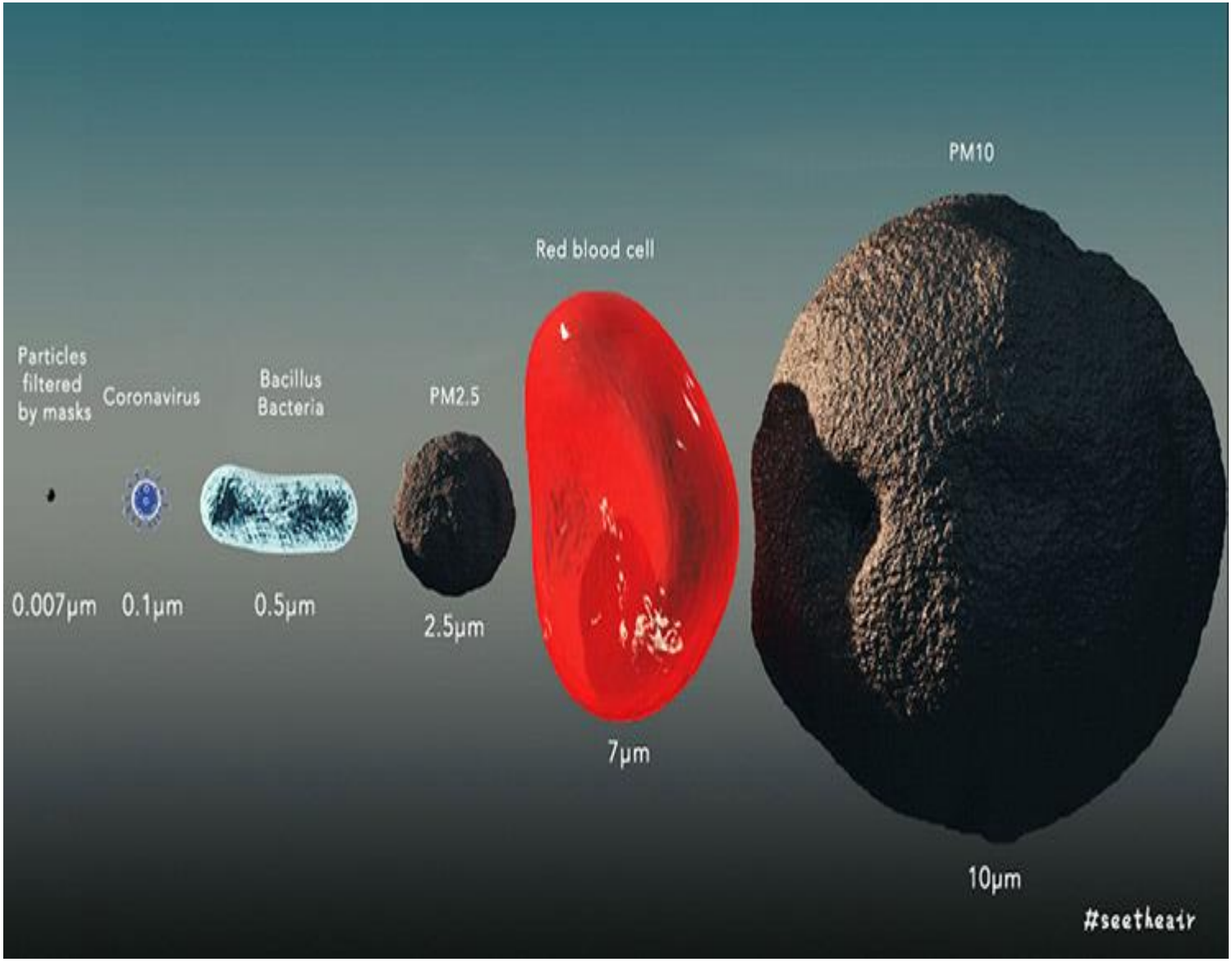
London Business School

# Patterns of contagion in different countries

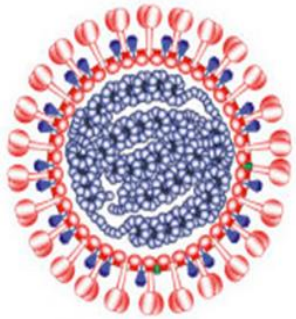



Uso de mascaras
Cuarentena
Distanciamiento social


If nothing done:
Peak at $d_{100}$=47,
57M cases
SOCIAL DISTANCING
+
MASKS?
$R_t$ = 50% $R_0$
If reproduction at $d_{100}$=25 is reduced to $R_t$=50%$R_0$:
Peak at $d_{100}$=63,
32M cases
Number of cases (millions infected)
50
10
0
$R_0$
0
50
100
$d_{100}$ = days after first 100 infected
at $d_{100}$=20 days after the first 100 cases: 35,000 cases


PM10
Red blood cell
Particles filtered by masks
Coronavirus
Bacillus Bacteria
PM2.5
0.007μm
0.1μm
0.5μm
2.5μm
7μm
10μm
#seetheair

Los respiradores con alta eficiencia a un tamaño de partícula de 0.3 micras (N95 / FFP2 o mejor) pueden filtrar las partículas hasta el tamaño del coronavirus (que es de alrededor de 0.1 micras).

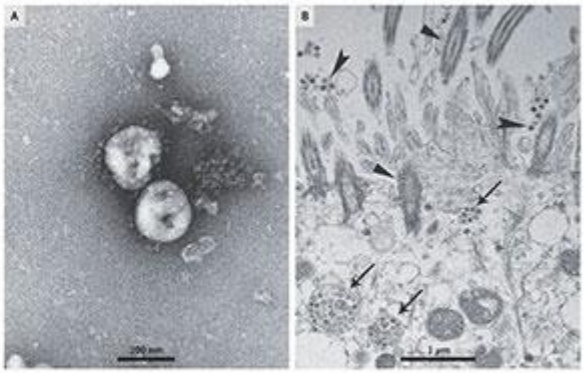


Coronavirus
0.06 - 0.14 microns
(SARS-CoV-2)

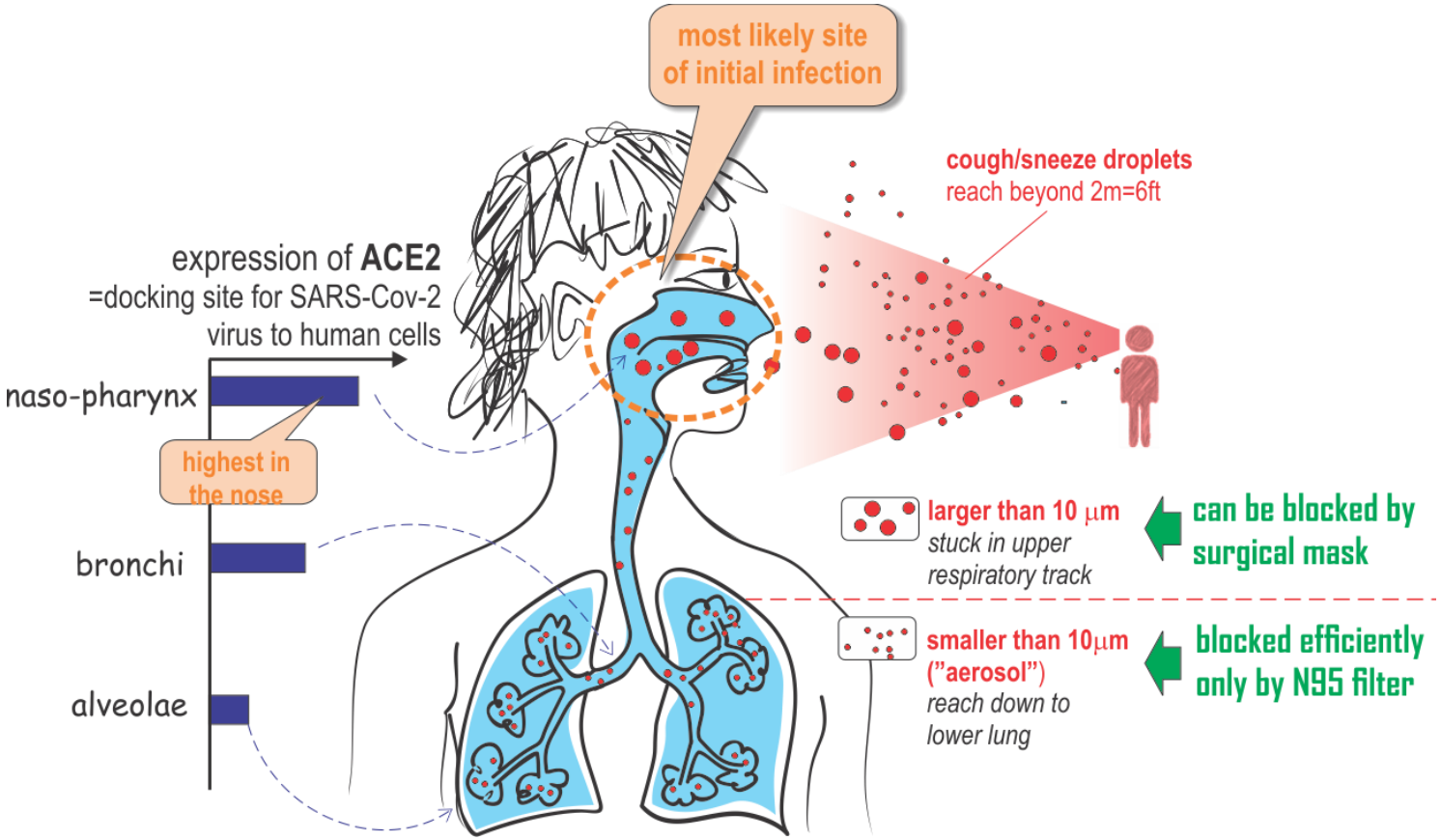
Influenza
0.08–0.12 microns

Electron micrographs of negative-stained 2019-nCoV particles were generally spherical with some pleomorphism (Figure 3). Diameter varied from about 60 to 140 nm. Virus particles had quite distinctive spikes, about 9 to 12 nm, and gave virions the appearance of a solar corona. Extracellular free virus particles and inclusion bodies filled with virus particles in membrane-bound vesicles in cytoplasm were found in the human airway epithelial ultrathin sections. This observed morphology is consistent with the Coronaviridae family.

**Figure 3.**



Visualization of 2019-nCoV with Transmission Electron Microscopy.




La ruta principal de entrada viral es probable a través de gotas grandes que aterrizan en la nariz, donde la expresión del receptor de entrada viral, ACE2 es más alta.
Esta es la ruta de transmisión que podría ser bloqueada efectivamente por máscaras simples que proporcionan una barrera física.

nature medicine

BRIEF COMMUNICATION

https://doi.org/10.1038/s41591-020-0843-2

Check for updates

# Respiratory virus shedding in exhaled breath and efficacy of face masks

Nancy H. L. Leung[1], Daniel K. W. Chu[1], Eunice Y. C. Shiu[1], Kwok-Hung Chan[2], James J. McDevitt[3], Benien J. P. Hau[1,4], Hui-Ling Yen[1], Yuguo Li[5], Dennis K. M. Ip[1], J. S. Malik Peiris[1], Wing-Hong Seto[1,6], Gabriel M. Leung[1], Donald K. Milton[7,8] and Benjamin J. Cowling[1,8] ✉

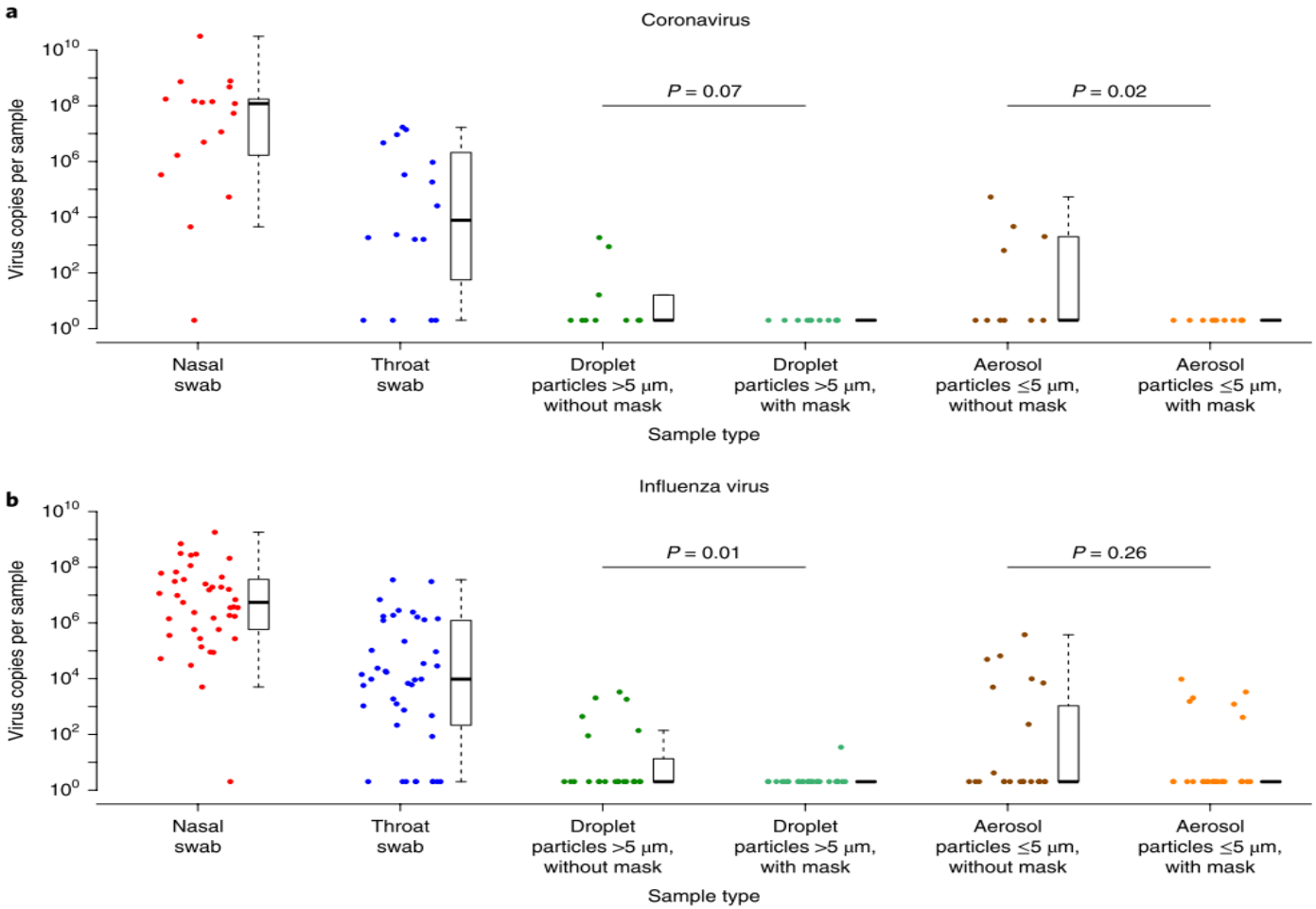


**Table 1b | Efficacy of surgical face masks in reducing respiratory virus frequency of detection and viral shedding in respiratory droplets and aerosols of symptomatic individuals with coronavirus, influenza virus or rhinovirus infection**

| | Droplet particles >5 µm | | | Aerosol particles ≤5 µm | | |
|---|---|---|---|---|---|---|
| Virus type | Without surgical face mask | With surgical face mask | *P* | Without surgical face mask | With surgical face mask | *P* |
| | Detection of virus | | | | | |
| | No. positive/no. total (%) | No. positive/no. total (%) | | No. positive/no. total (%) | No. positive/no. total (%) | |
| Coronavirus | 3 of 10 (30) | 0 of 11 (0) | 0.09 | **4 of 10 (40)** | **0 of 11 (0)** | **0.04** |
| Influenza virus | **6 of 23 (26)** | **1 of 27 (4)** | **0.04** | 8 of 23 (35) | 6 of 27 (22) | 0.36 |
| Rhinovirus | 9 of 32 (28) | 6 of 27 (22) | 0.77 | 19 of 34 (56) | 12 of 32 (38) | 0.15 |
| | Viral load ($log_{10}$ virus copies per sample) | | | | | |
| | Median (IQR) | Median (IQR) | | Median (IQR) | Median (IQR) | |
| Coronavirus | 0.3 (0.3, 1.2) | 0.3 (0.3, 0.3) | 0.07 | **0.3 (0.3, 3.3)** | **0.3 (0.3, 0.3)** | **0.02** |
| Influenza virus | **0.3 (0.3, 1.1)** | **0.3 (0.3, 0.3)** | **0.01** | 0.3 (0.3, 3.0) | 0.3 (0.3, 0.3) | 0.26 |
| Rhinovirus | 0.3 (0.3, 1.3) | 0.3 (0.3, 0.3) | 0.44 | 1.8 (0.3, 2.8) | 0.3 (0.3, 2.4) | 0.12 |

*P* values for comparing the frequency of respiratory virus detection between the mask intervention were obtained by two-sided Fisher's exact test and (two-sided) *P* values for mask intervention as predictor of $log_{10}$ virus copies per sample were obtained by an unadjusted univariate Tobit regression model, which allowed for censoring at the lower limit of detection of the RT-PCR assay, with significant differences in bold. Undetectable values were imputed as 0.3 $log_{10}$ virus copies per sample. IQR, interquartile range.

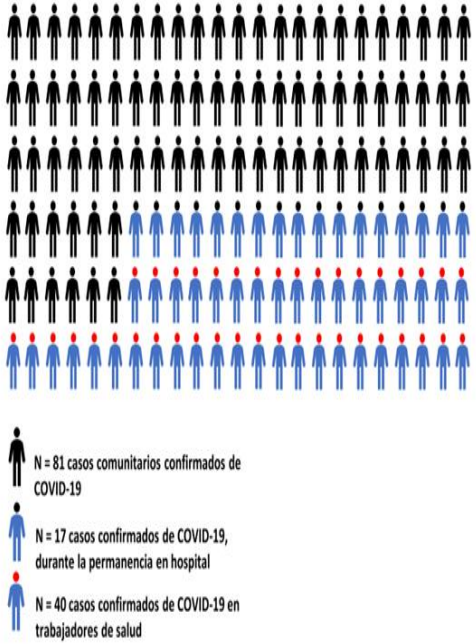

**Table 1.** COVID outbreack in a long-term care facility

| | Residents (N = 101) | Healthcare personnel (N = 50) | Visitors (N = 16) |
|---|---|---|---|
| Median age (range) | 83 (51-100) | 43.5 (21-79) | 62.5 (52-88) |
| Female (%) | 68.3 | 76 | 31.2 |
| Hospitalized (%) | 54.5 | 6.0 | 50.0 |
| Died (%) | 33.7 | 0 | 6.2 |
| Chronique underlying conditions (%) | | | |
| Hypertension | 67.3 | 8.0 | 12.5 |
| Cardiac disease | 60.4 | 8.0 | 18.8 |
| Renal disease | 40.6 | 0 | 12.5 |
| Diabetes mellitus | 31.7 | 10.0 | 6.2 |
| Obesity | 30.7 | 6.0 | 18.8 |
| Pulmonary disease | 31.7 | 4.0 | 12.5 |

# Trabajadores de salud y COVID-19

JAMA | Original Investigation | CARING FOR THE CRITICALLY ILL PATIENT

Clinical Characteristics of 138 Hospitalized Patients With 2019 Novel Coronavirus-Infected Pneumonia in Wuhan, China




*Wang D. et al, JAMA.2020. doi:10.1001/jama.2020.1585, adaptado*

ORIGINAL ARTICLE

# The efficacy of medical masks and respirators against respiratory infection in healthcare workers

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**TABLE 3** Multivariable cluster adjusted log binomial model of laboratory-confirmed influenza A or B

| Variables in the model | Relative risk (95% CI) | *P*-value |
|---|---|---|
| Continuous N95 arm | 0.34 (0.10-1.11) | .074 |
| Targeted N95 arm | 0.46 (0.06-3.40) | .445 |
| Medical mask arm | 0.55 (0.16-1.91) | .350 |
| Control arm | Ref | Ref |
| Sex (Male) | 0.27 (0.03-2.01) | .220 |
| Hand washing | 0.70 (0.29-1.73) | .446 |
| Influenza vaccine | 0.78 (0.26-2.34) | .660 |
| Trial | 0.64 (0.19-2.18) | .477 |

Con que sustancias se debe desinfectar las superficies?

Journal of Hospital Infection

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Review

# Persistence of coronaviruses on inanimate surfaces and their inactivation with biocidal agents

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SUMMARY

Currently, the emergence of a novel human coronavirus, SARS-CoV-2, has become a global health concern causing severe respiratory tract infections in humans. Human-to-human transmissions have been described with incubation times between 2-10 days, facilitating its spread via droplets, contaminated hands or surfaces. We therefore reviewed the literature on all available information about the persistence of human and veterinary coronaviruses on inanimate surfaces as well as inactivation strategies with biocidal agents used for chemical disinfection, e.g. in healthcare facilities. The analysis of 22 studies reveals that human coronaviruses such as Severe Acute Respiratory Syndrome (SARS) coronavirus, Middle East Respiratory Syndrome (MERS) coronavirus or endemic human coronaviruses (HCoV) can persist on inanimate surfaces like metal, glass or plastic for up to 9 days, but can be efficiently inactivated by surface disinfection procedures with 62–71% ethanol, 0.5% hydrogen peroxide or 0.1% sodium hypochlorite within 1 minute. Other biocidal agents such as 0.05–0.2% benzalkonium chloride or 0.02% chlorhexidine digluconate are less effective. As no specific therapies are available for SARS-CoV-2, early containment and prevention of further spread will be crucial to stop the ongoing outbreak and to control this novel infectious thread.



Puede persistir en superficie inanimada 9 días

- Inactivado por .
  Etanol 63-70%
- Peróxido de Hidrogeno al 0.5%
- Hipoclorito de Sodio 0.1%
- Menos efectivos: Cloruro de Benzalconio 0.05%-.2%
- Clorexhidina 0.02%

# Desinfecta tu teléfono

- Usar toallitas antibacterianas o hisopos con alcohol (típicamente 70% de alcohol) para limpiar su teléfono
- Una vez que termine de limpiar, deje secar al aire.

Tenga en cuenta otros elementos que toca regularmente, incluidos:

Teclado y mouse de computadora
Llaves de casa y auto
Botellas de agua reutilizables.
Volante del carro
Manijas de puerta

Habrá pronto una vacuna y la vacuna de Influenza sirve para COVID 19?

# Tipos de vacunas COVID 19

- Virus completo
- Virus atenuado
- Vacuas de subunidad
- Vacunas de ácidos nucleicos

The NEW ENGLAND JOURNAL of MEDICINE

Perspective

**Developing Covid-19 Vaccines at Pandemic Speed**

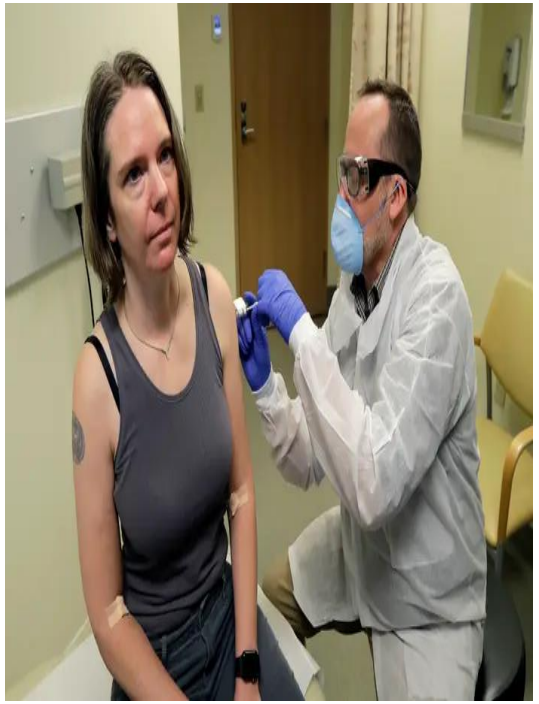
Nicole Lurie, M.D., M.S.P.H., Melanie Saville, M.D., Richard Hatchett, M.D., and Jane Halton, A.O., P.S.M.

Características de las vacunas:

1- Que no active le sistema inmune de forma que se potencie la inmunopatologia asociada a gravedad
2- Que se pueda administra en adultos
3- que se pueda administrar en mayores de 60 años con comorbilidades
4-Produccion y almacenaje facil

- ***Vacunas en proceso:***

- Vacuna recombinante (vector virus de sarampión)
- Vacuna recombinante basada en virus de la gripe
- Vacuna recombinante (vector adenovirus del chimpancé)
- Vacuna de proteína recombinante (nano partículas)
- Vacuna de ARN
- Al 20 de marzo hay 44 productos candidatos, pero 5 estudios en fase 1-2



Un farmacéutico le da a Jennifer Haller la primera inyección en el ensayo clínico de la primera etapa del estudio de seguridad de una vacuna para COVID-19.

Un farmacéutica llamado Michael Witte le dio a Rebecca Sirull una inyección en el ensayo clínico de la primera etapa del estudio de seguridad de una vacuna para COVID-19.

- ✓ COVID_19 Moderna Therapeutics (NIAID Bethesda) Seattle Un ensayo clínico de fase 1 El ensayo abierto inscribirá a 45 voluntarios adultos sanos de entre 18 y 55 años durante aproximadamente 6 semanas.

- ✓ Israel: Vacuna oral ( 4 meses)
- Ministro de Ciencia y Tecnología
- de ese país, Ofir Akunis.

- ✓ EU: 1 año 6 meses (CDC –Instituto
- de salud)
- ✓ Pfizer Inc. (NYSE: PFE, "Pfizer") y BioNTech SE
- (Nasdaq: BNTX, "BioNTech") Pruebas clincias Abril 2020
- (BNT162)