

COVID-19

Consideraciones para la Atención Perinatal

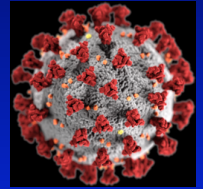
Dr. Javier Cifuentes
Neonatólogo
Indisa-Neored

- El agente
- Datos epidemiológicos
- COVID-19 embarazo
- COVID-19 recién nacido
- Modelo de atención del parto y el recién nacido

Objetivos

- Modo de atención Perinatal en Pandemia
- Ambiente de Incertidumbre

SARS-CoV-2



- Coronavirus: Familia de virus RNA algunos de los cuales pueden causar enfermedad en humanos.
- Conocidos desde los años 60
- 4 tipos: alfa, beta, gama y delta
- 7 coronavirus pueden producir enfermedades en humanos
- 4 de ellos comunes:
 - 229E (alpha coronavirus)
 - NL63 (alpha coronavirus)
 - OC43 (beta coronavirus)
 - HKU1 (beta coronavirus)
- 3 nuevos:
 - SARS-CoV (beta coronavirus: Severe acute respiratory syndrome, or SARS)
 - MERS-CoV (beta coronavirus: Middle East Respiratory Syndrome, or MERS)
 - **SARS-CoV-2 (beta coronavirus: Coronavirus disease 2019, or COVID-19)**

Datos epidemiológicos

- 31 Dic-2019: Wuhan: 27 casos de neumonía de origen desconocido reportado a la OMS
- 7 Ene-2020: Agente identificado
- 10 Ene-2020: genoma secuenciado
- 30 Ene 2020: Brote es declarado por la OMS como Emergencia Sanitaria de Preocupación Internacional.
 - 7711 casos / 170 muertes
 - 83 casos en 18 países
- 13 Feb 2020: 46.997 casos (46.550 China – 447 en otros países). 1339 muertes
- 11 Mar 2020: OMS declara Pandemia por SARS-Cov-2 (COVID-19). 118.000 casos en 114 países. 4291 muertes

Severe Acute Respiratory Syndrome (SARS-CoV)

First reported in 2002



Total cases: 8,098 from 17 countries

Total deaths: 744

Middle East Respiratory Syndrome (MERS-CoV)

First reported in 2012



Total cases: more than 2,500 from 21 countries

Total deaths: approximately 860

COVID-19 (SARS-CoV-2)

First reported in 2019



New cases reported daily

On March 11, 2020, the World Health Organization declared COVID-19 a global pandemic. The last pandemic reported was the H1N1 flu pandemic in 2009, which killed hundreds of thousands globally.

Estimated case fatality rate (CFR)

SARS-CoV	10% Venkatesh and Memish (2004) Munster et al. (2020)
MERS-CoV	34% Munster et al. (2020)
Seasonal flu (US)	0.1-0.2% US CDC

Problemas

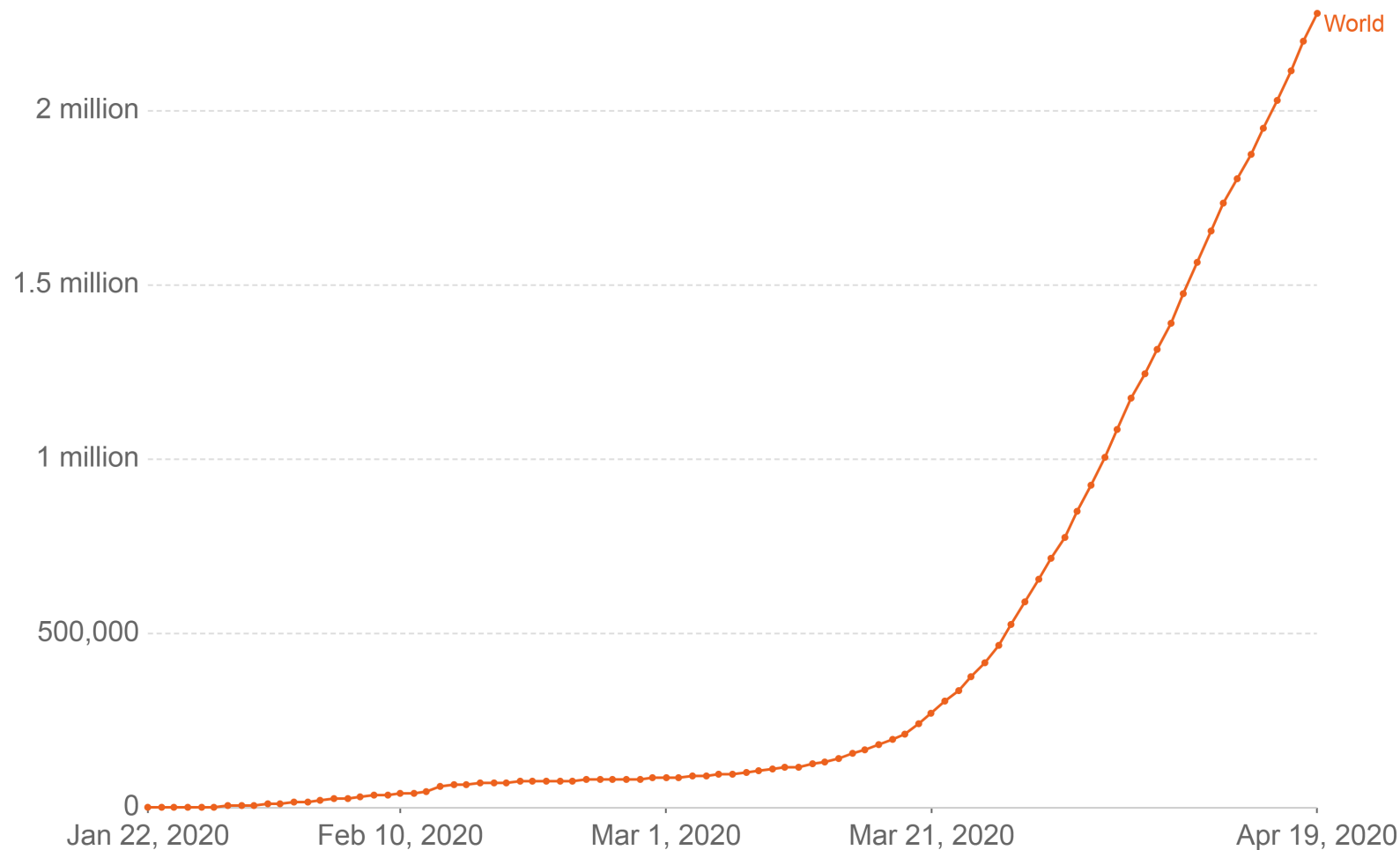
- Altamente contagioso
- Información:
 - Letalidad: ¿?
 - Número de caso
 - Fallecidos
 - Test realizados – Protocolo de testeo
 - Relación asintomáticos / sintomáticos = ¿?

- <https://coronavirus.jhu.edu/map.html>
- <https://covidtracking.com/>
- <https://www.ft.com/coronavirus-latest>
- <https://ourworldindata.org/coronavirus>
- https://public.tableau.com/profile/covid.19.data.resource.hub#!/vizhome/COVID-19Cases_15840488375320/COVID-19Cases
- <https://www.worldometers.info/coronavirus/country/us/>
- <https://www.wolframcloud.com/obj/examples/COVID19US>
- <https://andrecalerovaldez.shinyapps.io/CovidTimeSeries/>
- <http://www.bcloud.org/e/>

Confirmed COVID-19 cases

The number of confirmed cases is lower than the number of total cases. The main reason for this is limited testing.

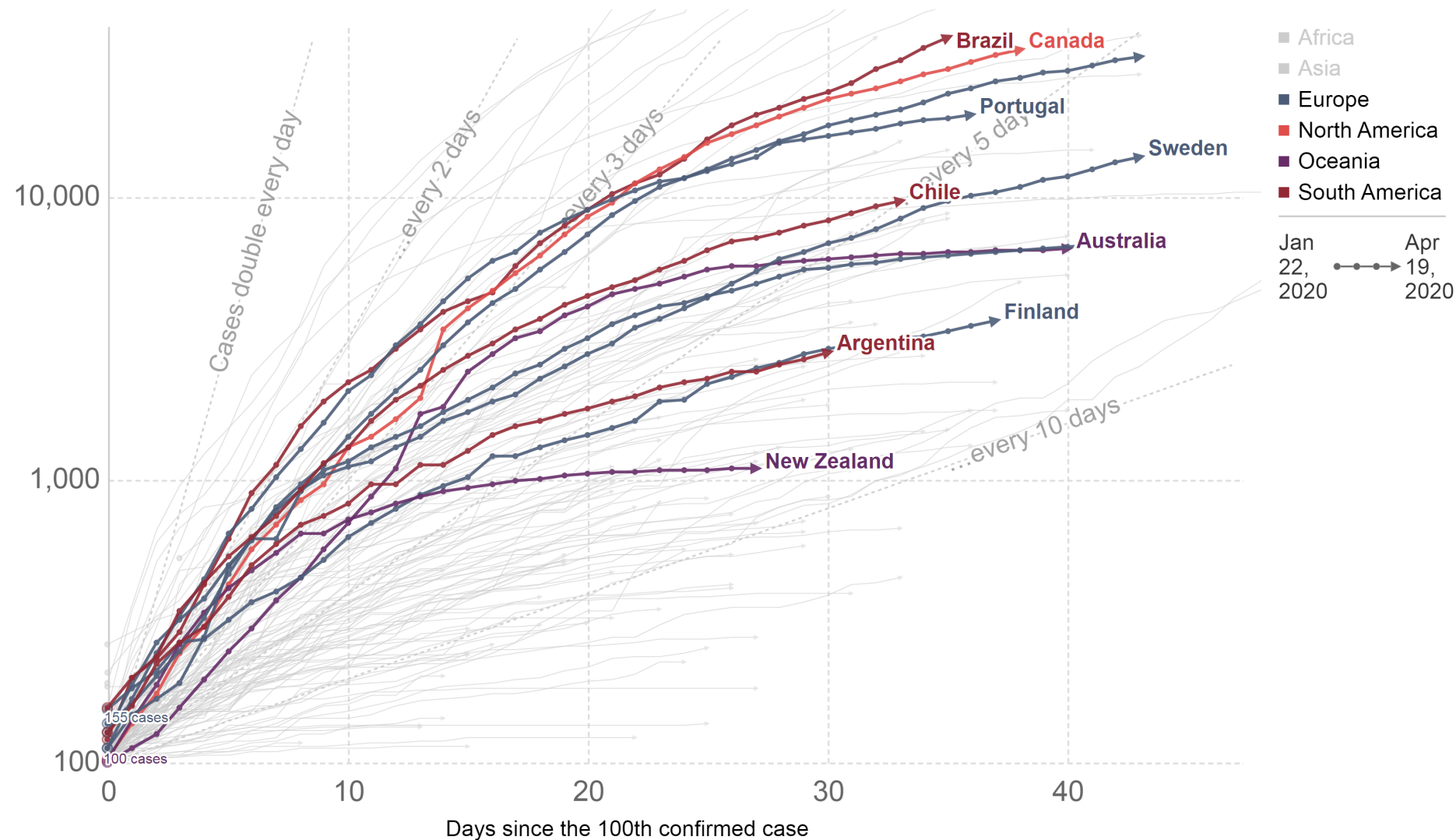
Our World
in Data



Source: European CDC – Situation Update Worldwide – Last updated 19th April, 11:00 (London time) OurWorldInData.org/coronavirus • CC BY

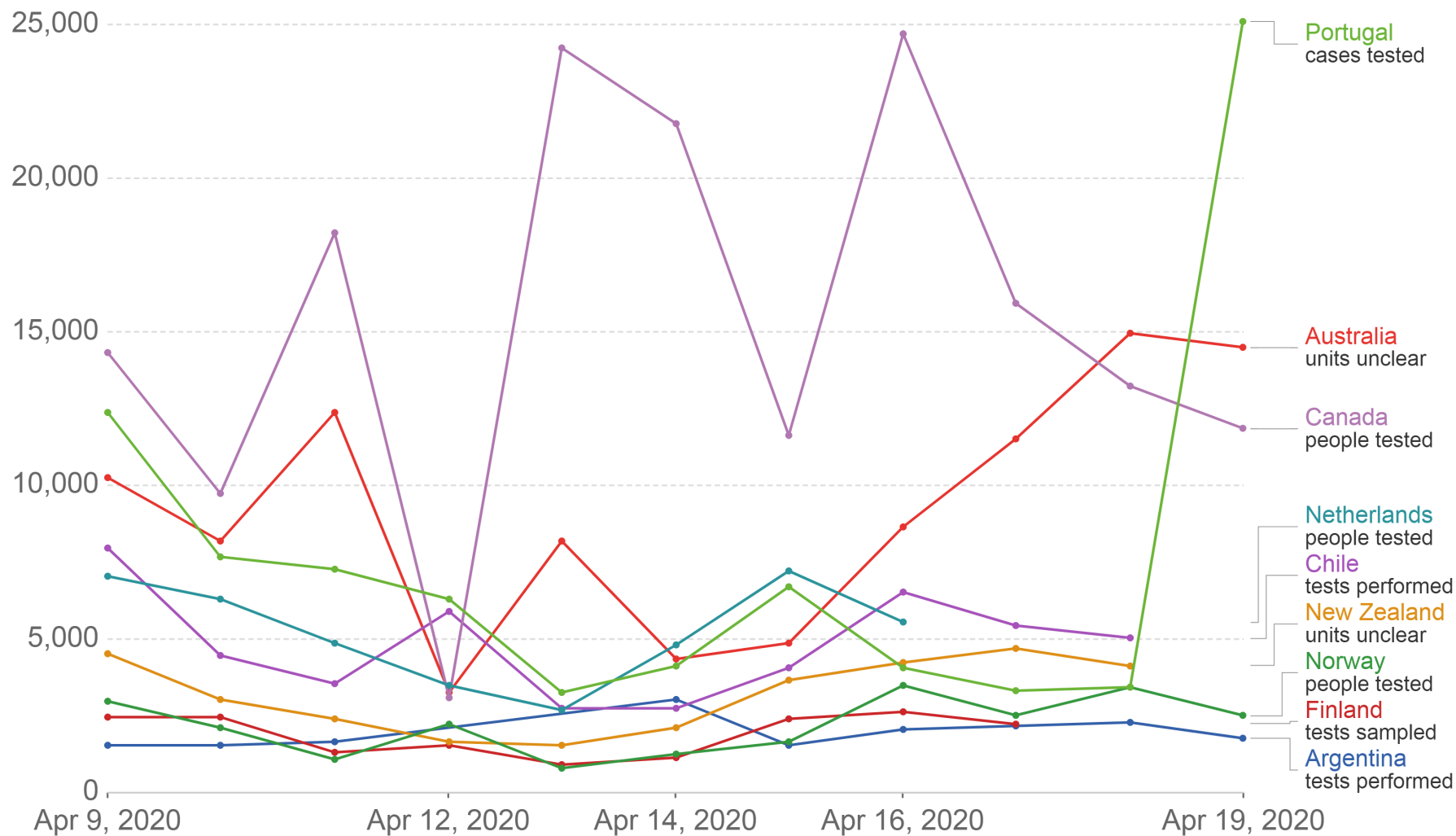
Total confirmed cases: how rapidly are they increasing?

The number of confirmed COVID-19 cases is lower than the number of total cases. The main reason for this is limited testing.



COVID-19: Tests per day

Our World
in Data



Source: Official sources collated by Our World in Data

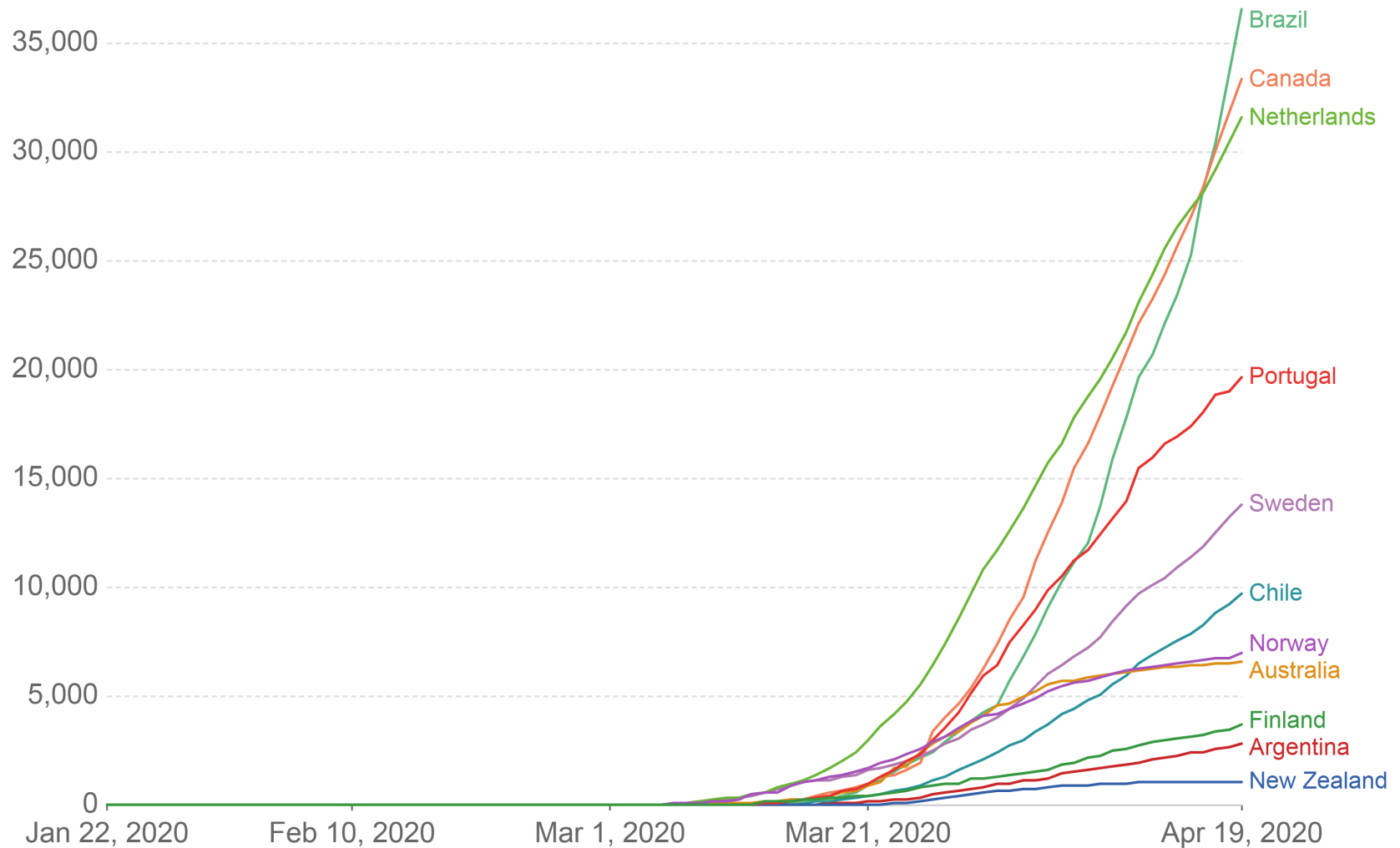
OurWorldInData.org/coronavirus • CC BY

Note: There are substantial differences across countries in terms of the units, whether or not all labs are included, the extent to which negative and pending tests are included and other aspects. Details for each country can be found at ourworldindata.org/covid-testing.

Confirmed COVID-19 cases

The number of confirmed cases is lower than the number of total cases. The main reason for this is limited testing.

Our World
in Data



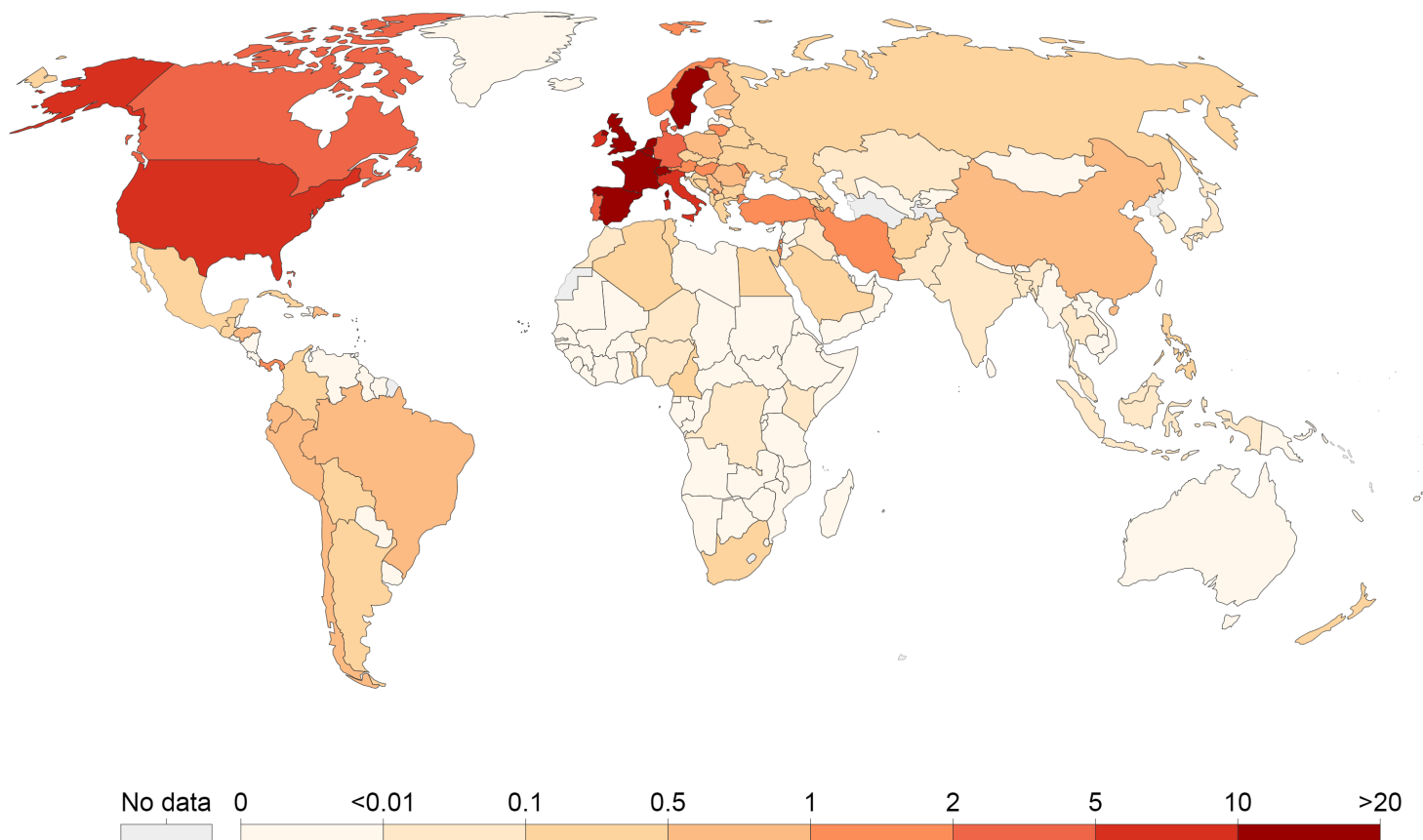
Source: European CDC – Situation Update Worldwide – Last updated 19th April, 11:00 (London time)

OurWorldInData.org/coronavirus • CC BY

Daily new confirmed COVID-19 deaths per million, Apr 17, 2020

Limited testing and challenges in the attribution of the cause of death means that the number of confirmed deaths may not be an accurate count of the true number of deaths from COVID-19.

Our World
in Data



Source: European CDC – Situation Update Worldwide – Last updated 17th April, 11:30 (London time)

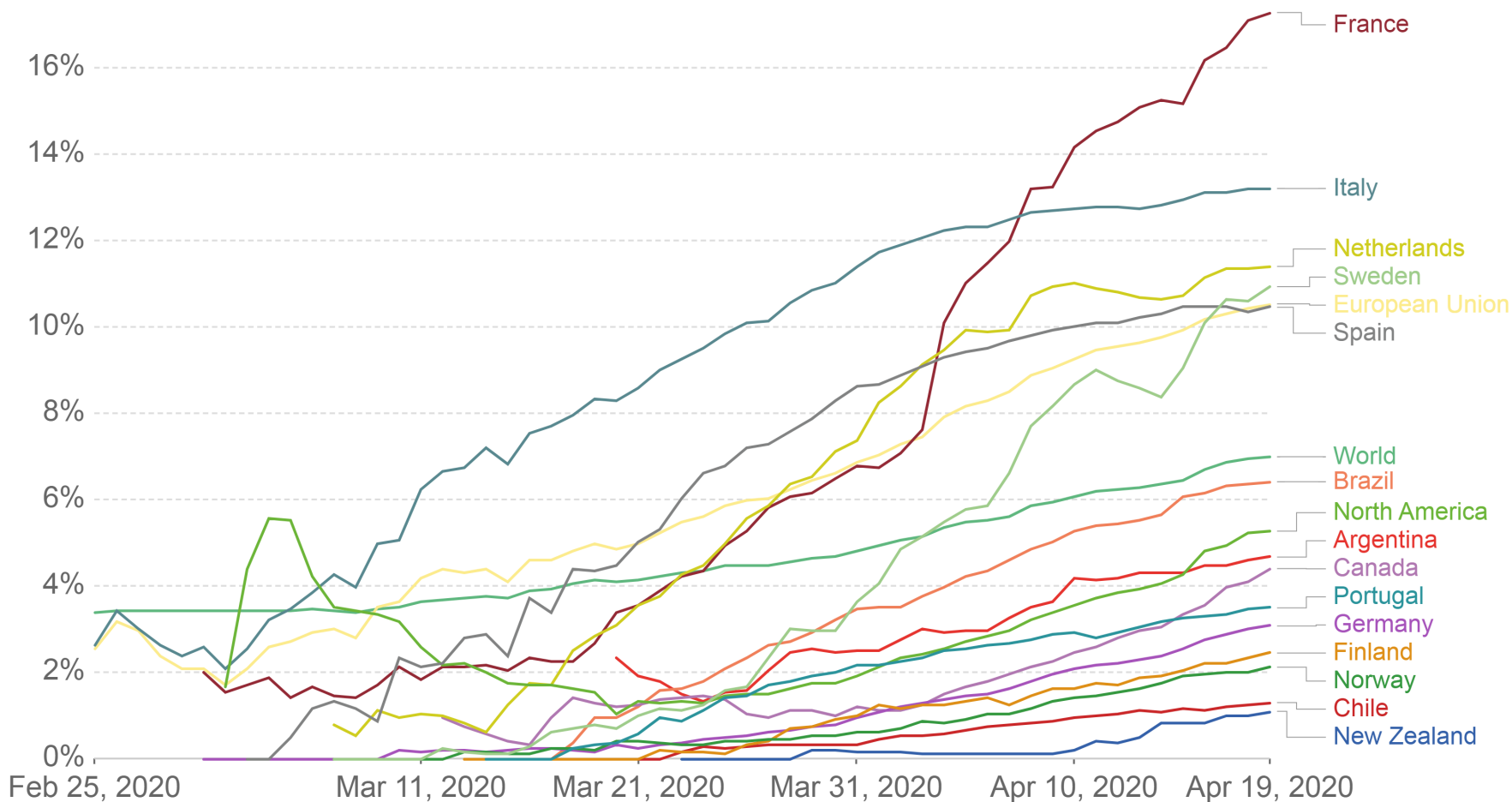
OurWorldInData.org/coronavirus • CC BY

Case fatality rate of the ongoing COVID-19 pandemic

Our World
in Data

The Case Fatality Rate (CFR) is the ratio between confirmed deaths and confirmed cases.

During an outbreak of a pandemic the CFR is a poor measure of the mortality risk of the disease. We explain this in detail at OurWorldInData.org/Coronavirus



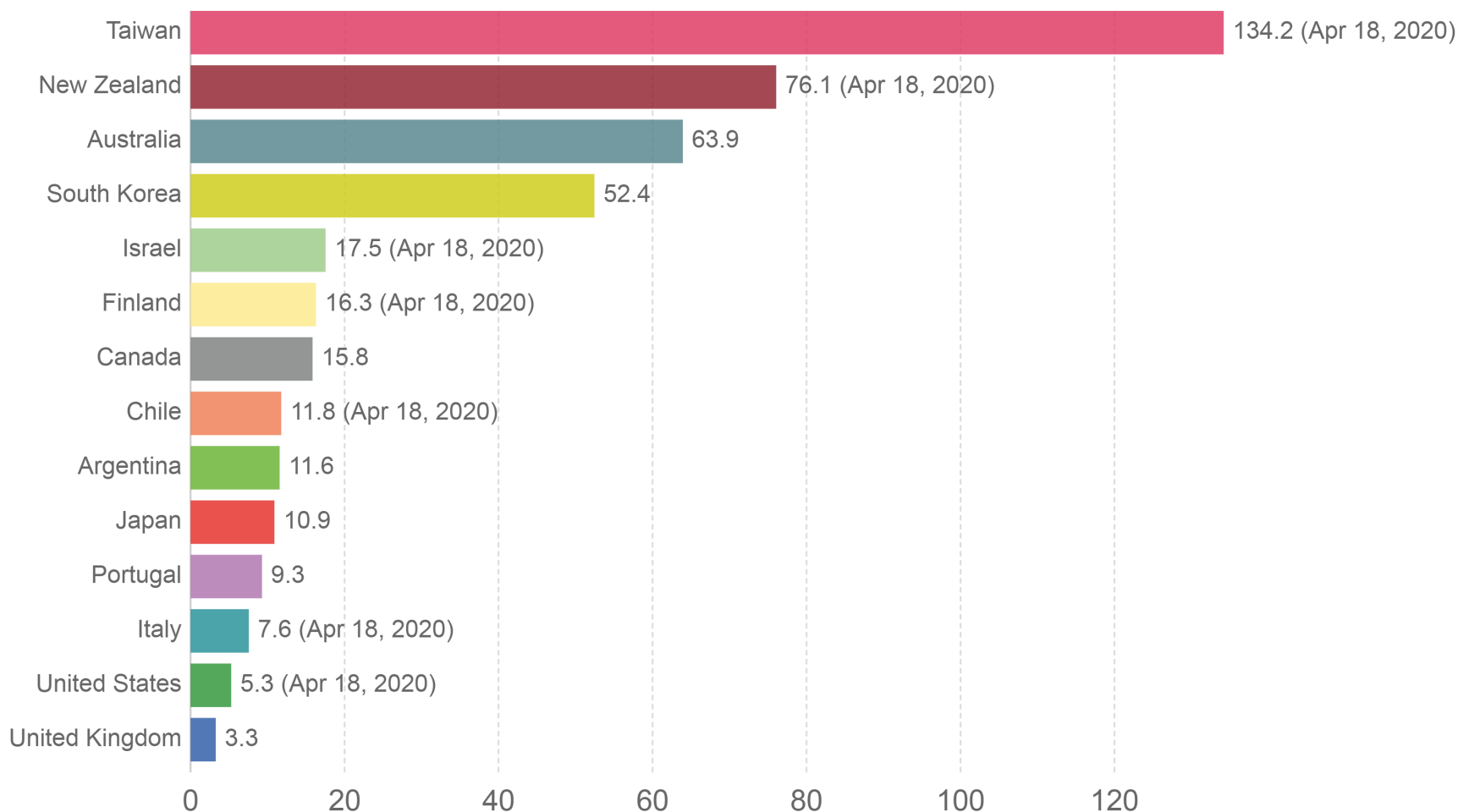
Source: European CDC – Situation Update Worldwide – Last updated 19th April, 11:00 (London time)

OurWorldInData.org/coronavirus • CC BY

Note: Only countries with more than 100 confirmed cases are included.

Number of COVID-19 tests per confirmed case, Apr 19, 2020

Our World
in Data



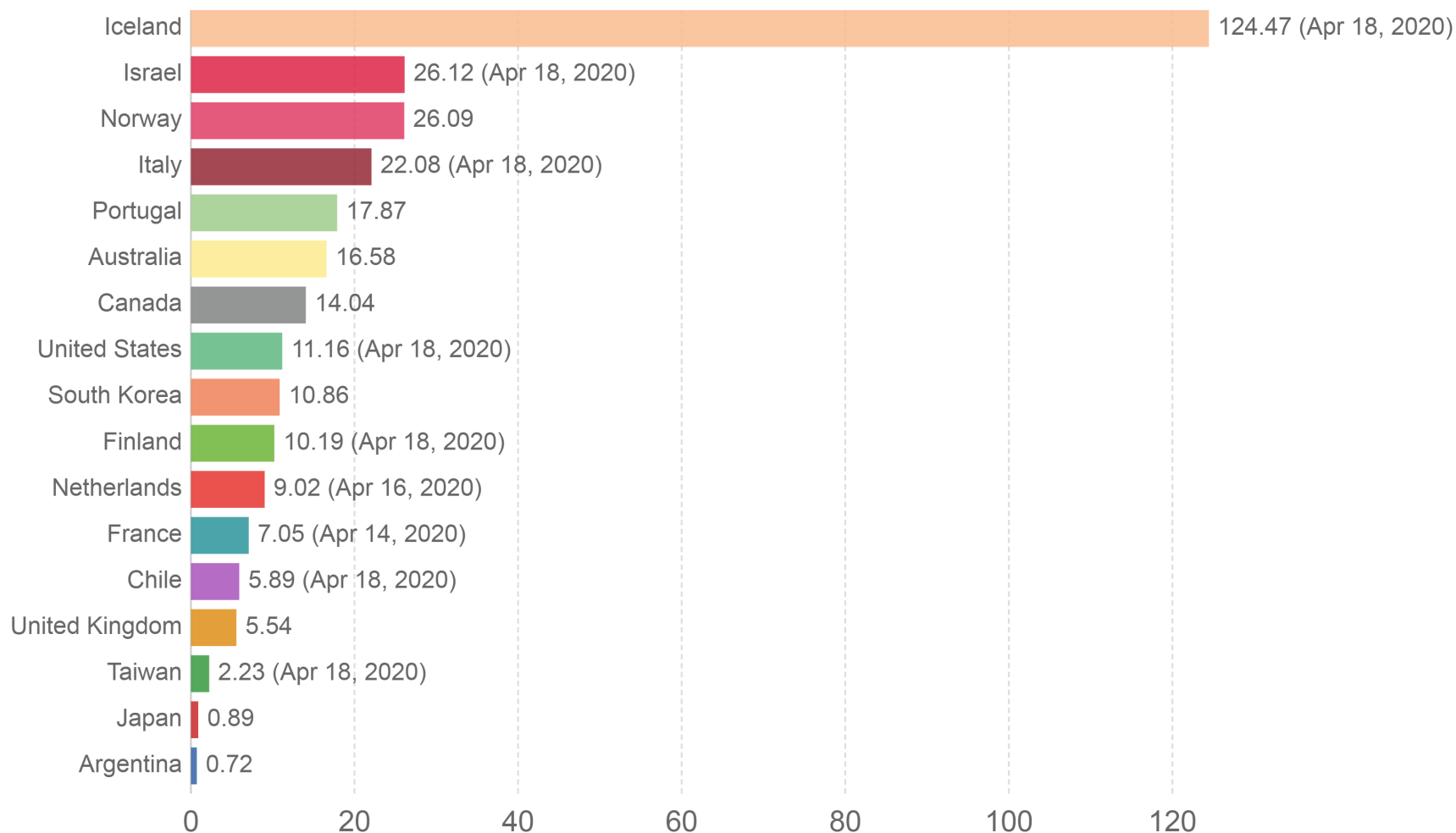
Source: Tests: official data collated by Our World in Data. Confirmed cases: European CDC – Situation Update Worldwide

Note: For testing figures, there are substantial differences across countries in terms of the units, whether or not all labs are included, the extent to which negative and pending tests are included and other aspects. Details for each country can be found at the linked page.

OurWorldInData.org/coronavirus • CC BY

Total tests for COVID-19 per 1,000 people, Apr 19, 2020

Our World
in Data



Source: Official sources collated by Our World in Data

OurWorldInData.org/coronavirus • CC BY

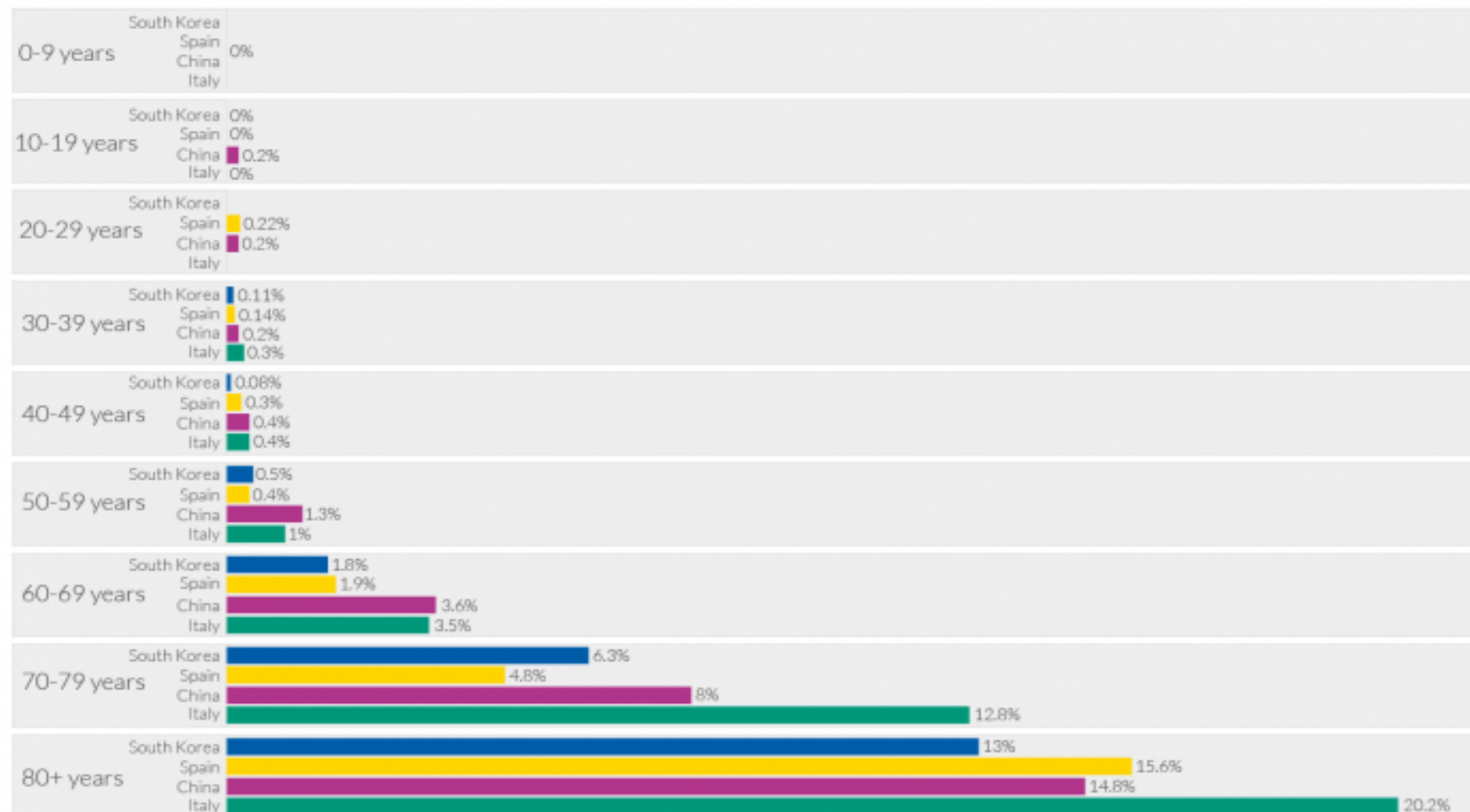
Note: There are substantial differences across countries in terms of the units, whether or not all labs are included, the extent to which negative and pending tests are included and other aspects. Details for each country can be found at ourworldindata.org/covid-testing.

Coronavirus: case fatality rates by age

Case fatality rate (CFR) is calculated by dividing the total number of confirmed deaths due to COVID-19 by the number of confirmed cases.

Two of the main limitations to keep in mind when interpreting the CFR:

- (1) many cases within the population are unconfirmed due to a lack of testing,
- (2) some individuals who are infected will eventually die from the disease, but are still alive at time of recording.



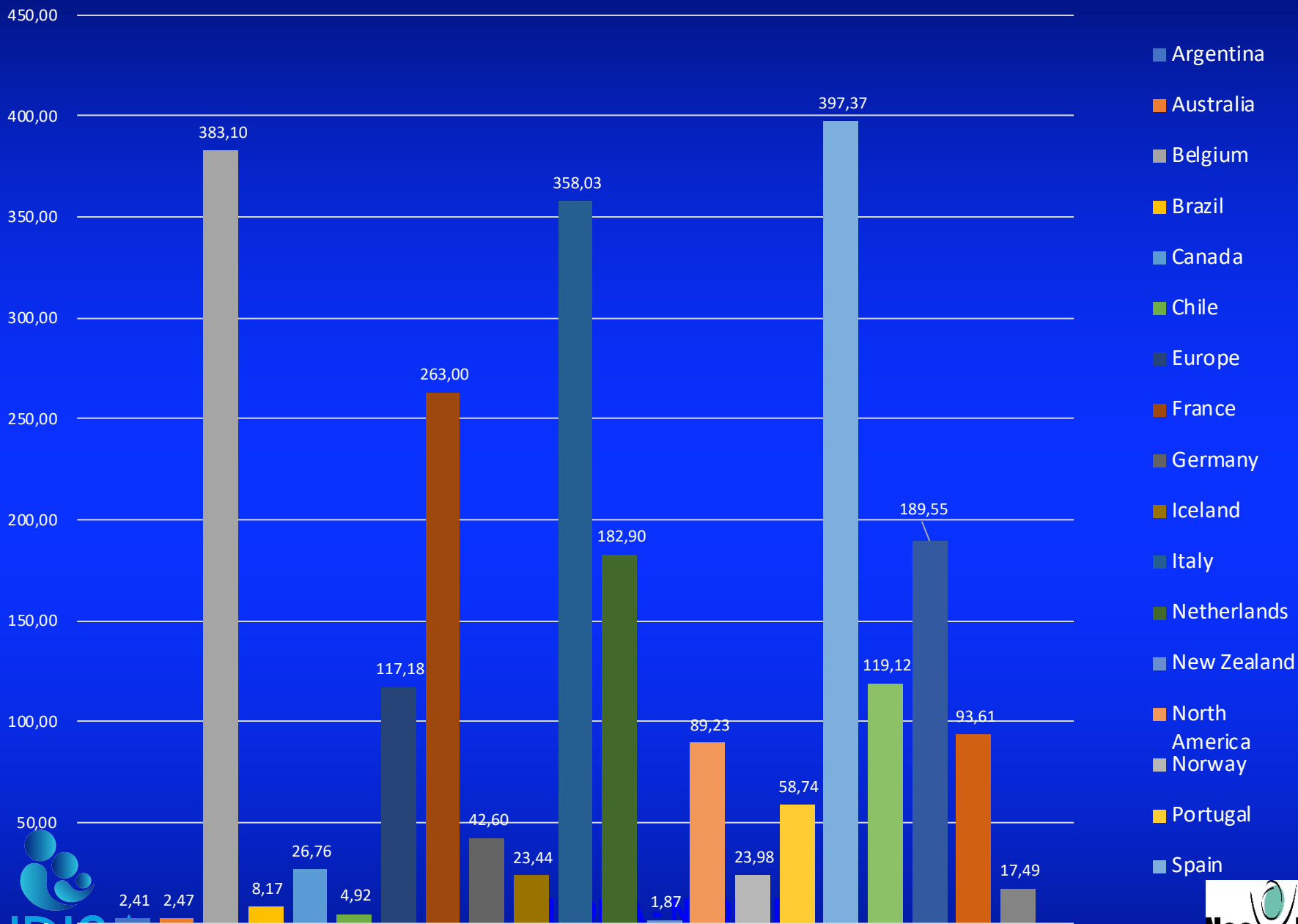
Note: Case fatality rates are based on confirmed cases and deaths from COVID-19 as of: 17th February (China); 24th March (Spain); 24th March (South Korea); 17th March (Italy).

Data sources: Chinese Center for Disease Control and Prevention (CDC); Spanish Ministry of Health; Korea Centers for Disease Control and Prevention (KCDC).

Onder G, Rezza G, Brusaferro S. Case-Fatality Rate and Characteristics of Patients Dying in Relation to COVID-19 in Italy. JAMA.

OurWorldinData.org - Research and data to make progress against the world's largest problems.

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Apr 16, 2020	muertes/millón
Spain	397.4
Belgium	383.1
Italy	358.0
France	263.0
United Kingdom	189.6
Netherlands	182.9
Sweden	119.1
Europe	117.2
United States	93.6
North America	89.2
Portugal	58.7
Germany	42.6
Canada	26.8
Norway	24.0
Iceland	23.4
World	17.5
Brazil	8.2
Chile	4.9
Australia	2.5
Argentina	2.4
New Zealand	1.9

COVID -19

Embarazo

- Riesgos para
 - La embarazada
 - El feto
 - El Recién Nacido
 - Equipo de Salud
- Riesgos derivados de:
 - La enfermedad
 - El modelo de atención

- Problemas con la evidencia:

- Cantidad Calidad

- **Editorial Concern—Possible Reporting of the Same Patients With COVID-19 in Different Reports.** Howard Bauchner, MD et al.
JAMA. 2020;323(13):1256. doi:10.1001/jama.2020.3980. Marzo 2020
 - **Editorial. Critical Illness in Patients With COVID-19. Mounting an Effective Clinical and Research Response.** Deborah J. Cook, MD et al
JAMA Published online April 6, 2020
 - **Pharmacologic Treatments for Coronavirus Disease 2019 (COVID-19). A Review.** James M Sanders, PhD, et al.
JAMA Published online April 13, 2020

Sin evidencia de Clinical Trial

(291 Estudios. 109 estudios farmacológicos)

- **Coronavirus disease 2019: The harms of exaggerated information and non-evidence-based measures.** John P. A. Ioannidis. Eur J Clin Invest. 2020;50:e13222. 12 March 2020

RESEARCH LETTER

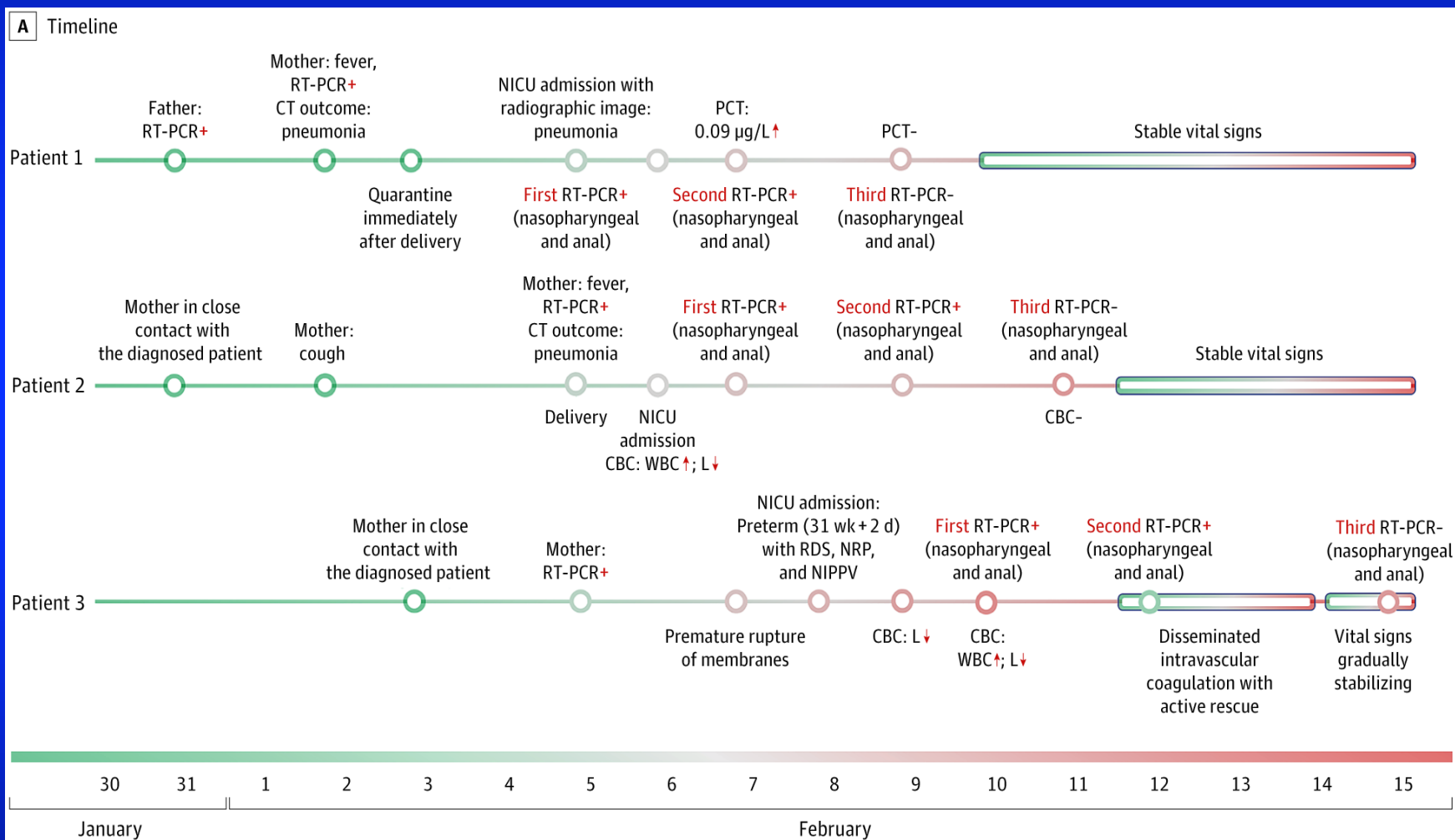
Neonatal Early-Onset Infection With SARS-CoV-2 in 33 Neonates Born to Mothers With COVID-19 in Wuhan, China

Variable	Neonates with SARS-CoV-2, No. (%)	
	No (n = 30)	Yes (n = 3)
Maternal features		
Fever on admission	7 (23)	1 (33)
Postpartum fever	4 (13)	1 (33)
Cough	9 (30)	1 (33)
Intensive care unit admission	0	0
Pneumonia per computed tomography diagnosis	30 (100)	3 (100)
Nasopharyngeal swab	30 (100)	3 (100)
Delivered by cesarean delivery	23 (77)	3 (100)
Premature rupture of membranes	2 (7)	1 (33)

Variable	Neonates with SARS-CoV-2, No. (%)	
	No (n = 30)	Yes (n = 3)
Male	16 (53)	3 (100)
Preterm	3 (10)	1 (33)
Small for gestational age	2 (7)	1 (33)
Asphyxia	1 (3)	1 (33)
Symptoms and complications		
Fever	0	2 (67)
Pneumonia	0	3 (100)
Respiratory distress syndrome	3 (10)	1 (33)
Shortness of breath	3 (10)	1 (33)
Cyanosis	2 (7)	1 (33)
Feeding intolerance	2 (7)	1 (33)

JAMA Pediatrics Published online March 26, 2020

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



Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records.

Huijun Chen, Juanjuan Guo, Chen Wang, et al. *Lancet* 2020; 395: 809–15

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6	Patient 7	Patient 8	Patient 9	n (%)
Clinical characteristics										
Date of admission	Jan 20	Jan 25	Jan 27	Jan 26	Jan 27	Jan 27	Jan 28	Jan 29	Jan 30	..
Age (years)	33	27	40	26	26	26	29	28	34	..
Gestational age on admission	37 weeks, 2 days	38 weeks, 2 day	36 weeks	36 weeks, 2 days	38 weeks, 1 day	36 weeks, 3 days	36 weeks, 2 days	38 weeks	39 weeks, 4 days	..
Epidemiological history	Yes (exposure to relevant environment)*	Yes (contact with infected person)	Yes (contact with infected person)	Yes (exposure to relevant environment)*	Yes (exposure to relevant environment)*	Yes (contact with infected person)	Yes (contact with infected person)	Yes (contact with infected person)	Yes (exposure to relevant environment)†	9 (100%)
Other family members affected	No	Yes	Yes	No	No	Yes	No	Yes	No	4 (44%)
Onset to delivery (days)	1	6	4	3	1	4	2	2	7	..
Complications	Influenza	None	Gestational hypertension	Pre-eclampsia	Fetal distress	None	PROM	Fetal distress	PROM	..
Signs and symptoms										
Fever on admission	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	7 (78%)
Post-partum fever	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	6 (67%)
Myalgia	No	Yes	No	No	Yes	Yes	No	No	No	3 (33%)
Malaise	No	No	No	No	Yes	Yes	No	No	No	2 (22%)
Rigor	No	No	No	No	No	No	No	No	No	0
Cough	Yes	Yes	Yes	No	No	Yes	No	No	No	4 (44%)
Dyspnoea	No	No	No	Yes	No	No	No	No	No	1 (11%)
Sore throat	No	No	No	No	No	Yes	Yes	No	No	2 (22%)
Diarrhoea	No	No	No	Yes	No	No	No	No	No	1 (11%)
Chest pain	No	No	No	No	No	No	No	No	No	0

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6	Patient 7	Patient 8	Patient 9	n (%)
(Continued from previous page)										
CT evidence of pneumonia										
Typical signs of viral infection	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	8 (89%)
Delivery										
Method of delivery	C-section	C-section	C-section	C-section	C-section	C-section	C-section	C-section	C-section	..
Indication for C-section	Severely elevated ALT or AST; COVID-19 pneumonia	Mature; COVID-19 pneumonia	History of C-section (x 2); COVID-19 pneumonia	Pre-eclampsia; COVID-19 pneumonia	Fetal distress; COVID-19 pneumonia	History of stillbirth (x 2); COVID-19 pneumonia	PROM; COVID-19 pneumonia	Fetal distress; COVID-19 pneumonia	PROM; COVID-19 pneumonia	..
Treatment after delivery										
Oxygen support (nasal cannula)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	9 (100%)
Antiviral therapy	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	6 (67%)
Antibiotic therapy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	9 (100%)
Use of corticosteroid	No	No	No	No	No	No	No	No	No	0

	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

RESEARCH LETTER

Possible Vertical Transmission of SARS-CoV-2 From an Infected Mother to Her Newborn

JAMA Published online March 26, 2020

Table 1. Laboratory Results for the Mother

Time	Laboratory test	Value	Reference range
Feb 2	White blood cell count, $\times 10^9/L$	8.03	3.5-9.5
	Neutrophil count, $\times 10^9/L$	6.57	1.8-6.3
	Neutrophil ratio, %	81.9	40-75
	Lymphocyte count, $\times 10^9/L$	1.08	1.1-3.2
	Lymphocyte ratio, %	13.4	20-50
	C-reactive protein, mg/L	57	0-10
	PCT, ng/mL	0.086	0.1
	ALT, U/L	40	7-40
	AST, U/L	38	13-35
Feb 10	PCR of nasopharyngeal swab	+	-
Feb 19	PCT of nasopharyngeal swab	+	-
	PCR of vaginal secretion	-	-
Feb 21	SARS-CoV-2 IgG, AU/mL	107.89	<10
	SARS-CoV-2 IgM, AU/mL	279.72	<10
Feb 26	PCR of nasopharyngeal swab	+	-
Feb 28	Breast milk	-	-
Feb 29	SARS-CoV-2 IgG, AU/mL	116.30	<10
	SARS-CoV-2 IgM, AU/mL	112.66	<10
Mar 1	PCR of nasopharyngeal swab	+	-

Table 2. Laboratory Results for the Neonate

Time	Laboratory test	Value	Reference range
Feb 22	White blood cell count, $\times 10^9/L$	18.08	3.5-9.5
	Neutrophil count, $\times 10^9/L$	13.46	1.8-6.3
	Neutrophil ratio, %	74.5	40-75
	Lymphocyte count, $\times 10^9/L$	2.89	1.1-3.2
	Lymphocyte ratio, %	16.00	20-50
	C-reactive protein, mg/L	<5.0	0-10
	PCT, ng/mL	0.137	<0.1
	ALT, U/L	11	7-40
	AST, U/L	65	13-35
	Total bilirubin, $\mu\text{mol/L}$	44.2	0-23
	Direct bilirubin, $\mu\text{mol/L}$	7.5	0-8.0
	Creatine kinase, U/L	937	40-200
	Lactate dehydrogenase, U/L	629	120-250
	Glucose, mmol/L	2.91	3.9-6.1
	Potassium, mmol/L	4.88	3.5-5.3
	IL-6, pg/mL	28.26	≤ 20.0
	IL-10, pg/mL	153.60	≤ 5.9
	SARS-CoV-2 IgG, AU/mL	140.32	<10
	SARS-CoV-2 IgM, AU/mL	45.83	<10
Feb 24	PCR of nasopharyngeal swab	-	-
Feb 27	PCR of nasopharyngeal swab	-	-
Mar 1	PCR of nasopharyngeal swab	-	-
Mar 6	PCR of nasopharyngeal swab	-	-
Mar 7	SARS-CoV-2 IgG, AU/mL	69.94	<10
	SARS-CoV-2 IgM, AU/mL	11.75	<10
Mar 9	PCR of nasopharyngeal swab	-	-

Antibodies in Infants Born to Mothers With COVID-19 Pneumonia

RESEARCH LETTER. Hui Zeng, MD et al.

March 26, 2020. doi:10.1001/jama.2020.4861

Table 1. Antibody and IL-6 Levels in Infant Sera Samples

Clinical value	Reference range	Infant ^a					
		1	2	3	4	5	6
IgM, AU/mL	<10	39.6	16.25	3.79	1.9	0.96	0.16
IgG, AU/mL	<10	125.5	113.91	75.49	73.19	51.38	7.25
IL-6, pg/mL	0.1-2.9	15.07	33.65	19.16	18.15	32.75	19.62

^a Infants and mothers correspond by number between tables.

Table 2. Antibody Levels in Mother Sera Samples

Clinical value	Reference range	Mother ^a					
		1	2	3	4	5	6
IgM, AU/mL	<10	83.97	236.6	5.58	33.26	15.61	1.39
IgG, AU/mL	<10	136.72	117.37	120.63	103.46	70.05	8.12

^a Mothers and infants correspond by number between tables.

Covid-19

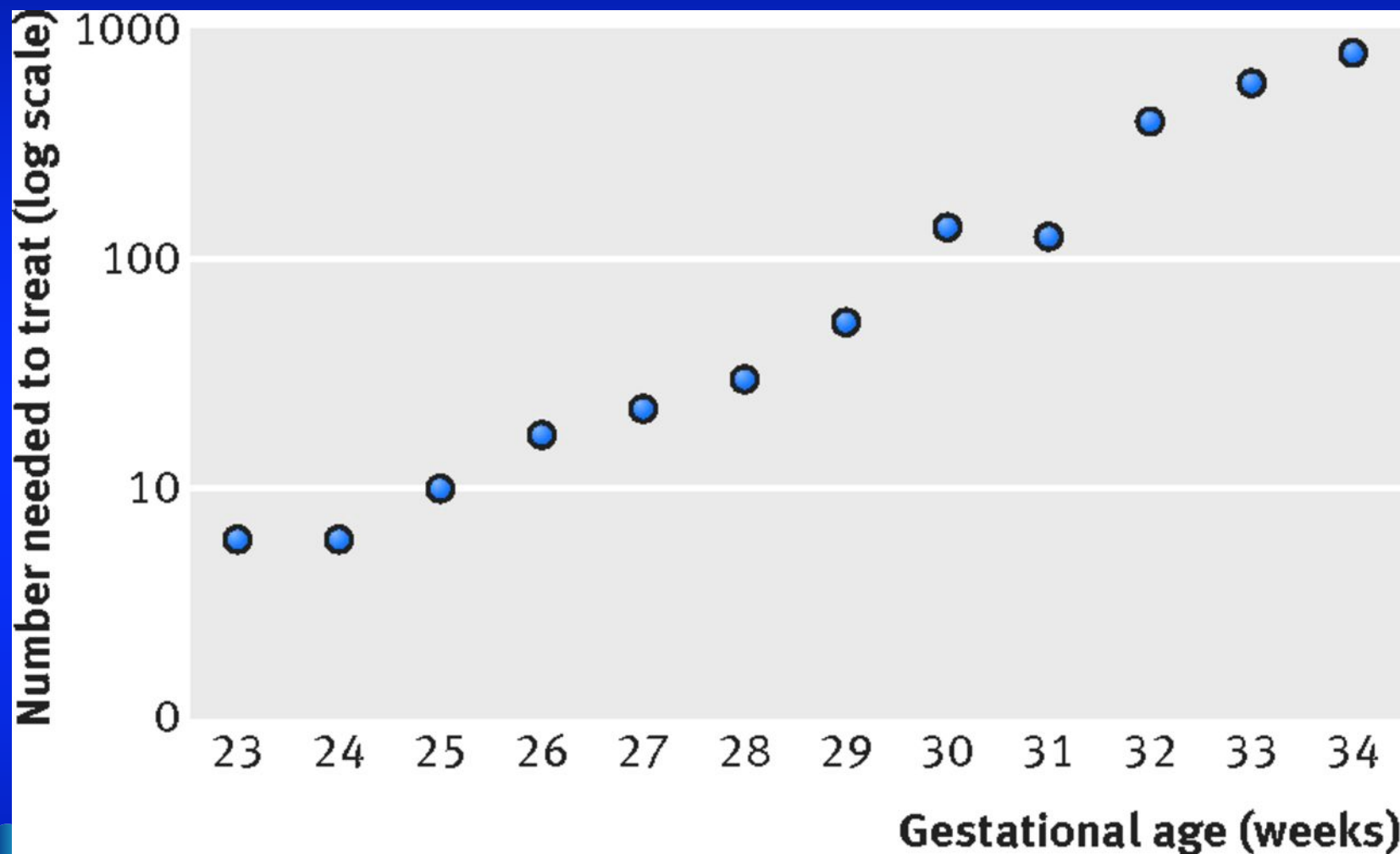
Consideraciones perinatales

- Madre
- Feto
- Recién nacido
- Equipo de Salud

Covid-19 y Embarazo

- Aparentemente riesgo igual que no embarazada
 - Controles: habituales
 - Parto: Tiempo y vía habitual
 - Intervenciones Obstétricas:
 - Prevención sepsis precoz por SGB
 - Corticoides en amenaza de parto prematuro
 - Sulfato de magnesio (< 30 semanas)
 - Regionalización: atención en centros de alta complejidad

Fig 2 Number needed to treat with antenatal corticosteroids to prevent one death before discharge in infants with gestational age 23 0/7 to 34 6/7 (logarithmic scale).



Colm P Travers et al. BMJ 2017;356:bmj.j1039

©2017 by British Medical Journal Publishing Group

INDISA - NEORED

Un Nuevo Concepto en Medicina Perinatal

Covid-19 y Embarazo

- Vía de parto: Según indicado.
 - No parto en agua (contaminación con deposiciones)
- Monitorización estricta horaria (CSV + Sat O2 (> 94%) durante trabajo de parto, parto y post-parto: 14% clínica grave o crítica
- Screening:
 - ¿? New York: 15% + (33/215)
 - 1,9% sintomáticas (4/215)

Universal Screening for SARS-CoV-2 in Women Admitted for Delivery

New York
215 embarazadas
22 marzo – 4 abril
4 sintomáticas
29 asintomáticas
3 se volvieron Sintomáticas

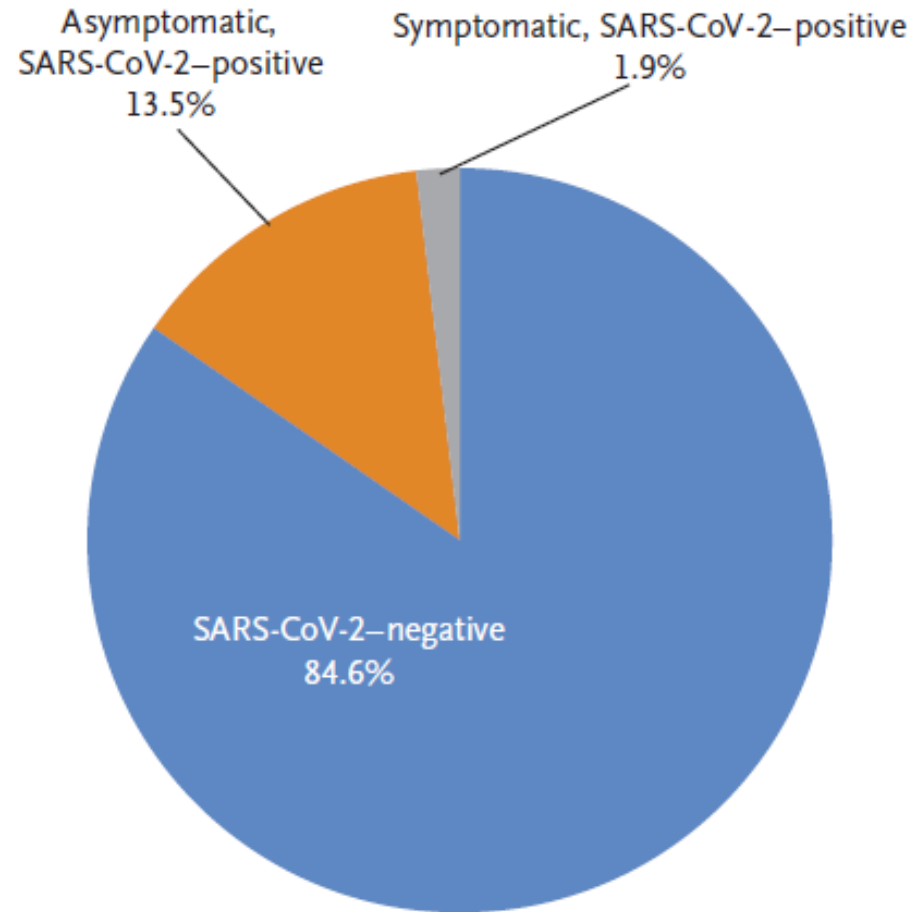


Figure 1. Symptom Status and SARS-CoV-2 Test Results among 215 Obstetrical Patients Presenting for Delivery.

COVID-19

- Compromiso Fetal:
 - Aborto
 - Parto prematuro: ¿iatrogénico?
 - Efecto teratogénico. Transmisión Vertical
 - Monitoreo Fetal continuo: 8/18 con compromiso fetal

Recién Nacido

- Transmisión vertical: IgM +
- Muestras: Negativo
 - L. amniótico
 - Secreción Vaginal
 - Leche

Atención del RN

- Ligadura tardía del cordón: ¿?
- Contacto piel – piel post parto inmediato
- Leche materna: Pecho v/s LM extraída
- Monitorización
- Seguimiento

Otros Aspectos

- Acompañante al parto
- Visitas
- Reanimación: Aerosolización

Recomendaciones

- OMS
- CDC
- ACOG
- Royal College Obstetrician and Gynaecologists. V 8. 17-4-20
- Sociedad Italiana de Neonatología
- Sociedad Española de Neonatología. V6. 13-4-2020
- Sociedad Francesa de Neonatología
- AAP
- Sociedad Canadiense de Pediatría

Tabla 1. Manejo de Madre y RN frente a sospecha o confirmación COVID-19

Madre COVID-19 (+) o Sospechosa (1) RN Término asintomático					Madre COVID-19 (+) o Sospechosa (1) RN pretérmino o sintomático	
Madre	Asintomática o Sintomática Leve		Sintomática moderada o grave		Todas	
PCR RN	Negativa o pendiente	Positiva	Negativa o pendiente	Positiva	Negativa o pendiente	Positiva
Contacto entre Madre y RN	Protegido (2) Restringido a alimentación.	Ilimitado.	No hasta resultado negativo de madre.	Ilimitado.	No hasta resultado negativo de madre.	No hasta alta o recuperación de la madre.
Repetir PCR 24-48h	No	No	Si (3)	No	Si (3)	No
Puerperio conjunto	Si (2), Junto a la madre en puerperio (4).		Después de 2da PCR (-) en RN (2 y 4)	Después de periodo de observación.	No	No
Aislamiento UCIN	No		Si, hasta 2da PCR (-)	Si, 72h. (5)	Si, 72h. (5) Hasta 2da PCR (-)	Si, al menos 72h. (5)
Monitorización RN	CVS c/ 4h y visita diaria.		Continua en UCIN y c/4 h en puerperio.		Continua.	
Alimentación puerperio o Neo	Pecho materno protegido (6)		LM extraída.	Pecho materno.	LM extraída.	LM extraída hasta recuperación de madre
Alimentación sugerida al alta	Pecho materno protegido (6) si madre es (+)	Pecho materno sin elementos de protección.	LM extraída.	Pecho materno sin elementos de protección.	LM extraída o Pecho (6) según condición materna	Pecho materno sin elementos de protección.
Alta	Según protocolos locales.	A las 72h si asintomático.	A las 72 h si asintomático.		Según indicación de neonatología.	
Todas las medidas de aislamiento entre madre y RN se deben mantener cuando la madre es positiva y el RN es negativo hasta completar la cuarentena materna. En caso de descartar la enfermedad, se suspenden todas las medidas previamente establecida.						

1: Mientras no llegue el resultado de la madre sospechosa, se manejará como caso positivo. Si el resultado de la madre es negativo se tomarán las medidas que correspondan según estado clínico de la madre y enfermedad infecciosa sospechada.

2: Contacto Protegido: con mascarilla quirúrgica e higiene de manos

3: Con dos resultados negativos se libera aislamiento.

4: Separación recomendada entre cuna y cama de la madre de 1.8m. (esto se logra al colocar cuna a los pies de la ama de la madre).

5: Cupo individual (aislamiento) o en incubadora, separada de otros cupos por al menos 2 mt. En caso de que la unidad disponga de cupos de aislamiento con presión negativa, se recomienda dejarlos disponibles para RN COVID-19 (+) o sospechosos que requieran ventilación mecánica.

6: Pecho Materno Protegido: madre con mascarilla quirúrgica, lavado de manos estricto antes y después de amamantar.

