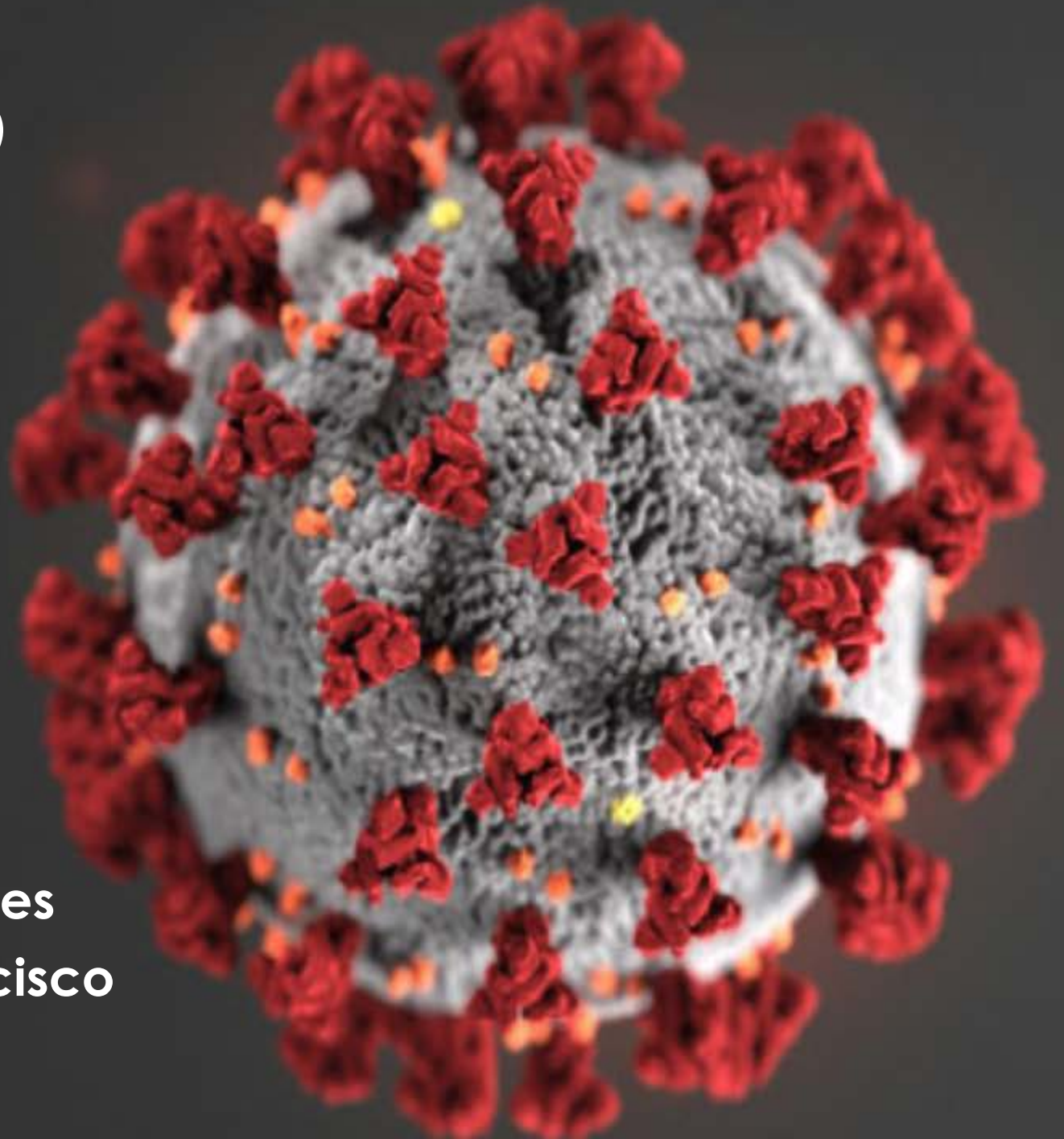


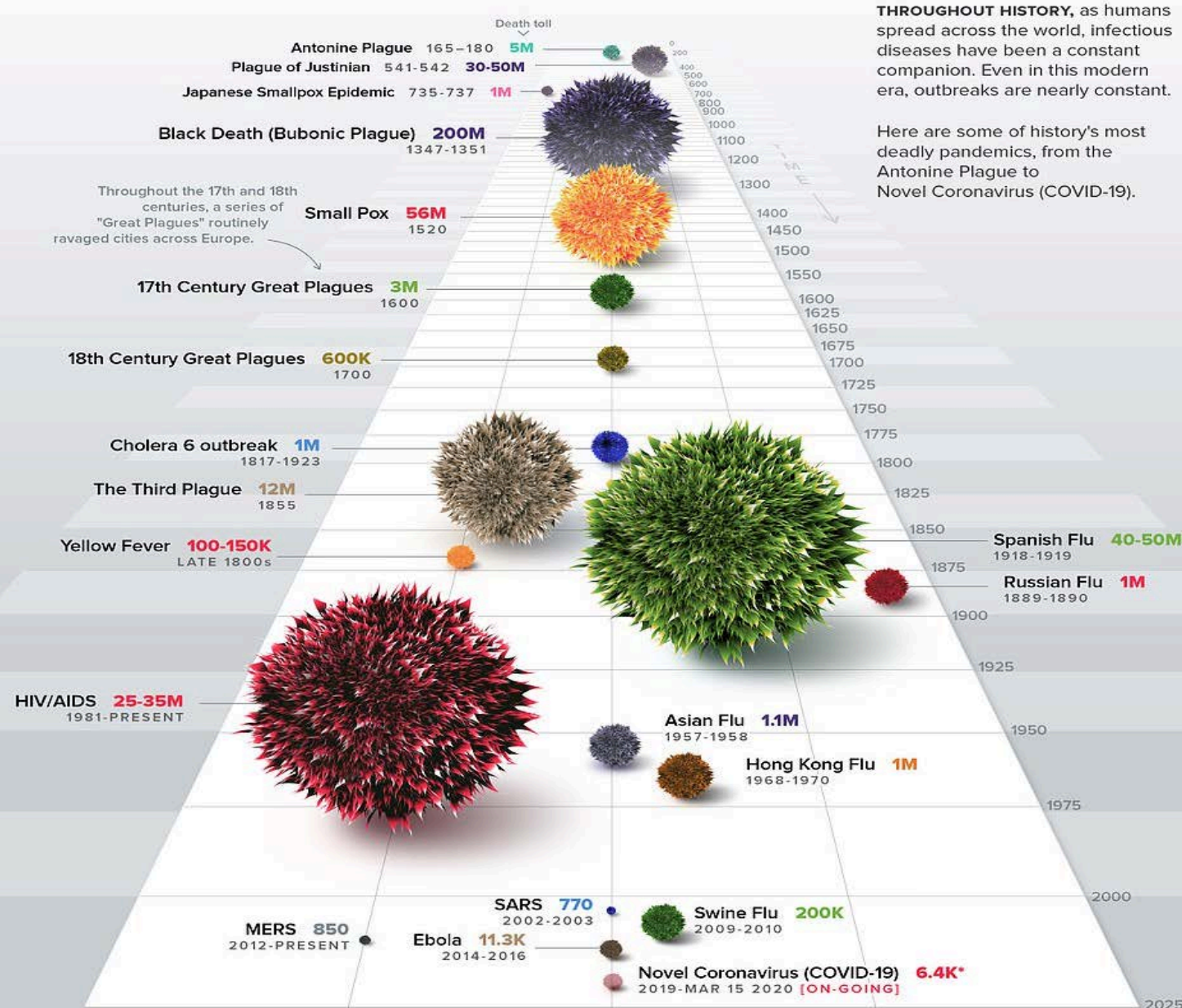
# COVID-19

Jaime Sepulveda  
Institute for Global Health Sciences  
University of California, San Francisco  
April 23, 2020



# HISTORY OF PANDEMICS

PAN-DEM-IC (of a disease) prevalent over a whole country or the world.



# Timeline of CoViD-19 Global Pandemic

**Dec 31**

- China alerts WHO to several “pneumonia” cases in Wuhan

Dec  
2019

**Jan 7**

- New virus identified and named it 2019-nCoV
- France confirms Europe’s first case

**Jan 11**

- WHO declares outbreak a Public Health Emergency of Int’l Concern

**Jan 19**

- First case in the U.S. in Washington state

Jan  
2020

**Feb 2**

- First death outside China in the Philippines

**Feb 11**

- WHO names virus SARS-CoV2 and the disease CoViD-19

**Feb 14**

- Egypt confirms Africa’s first case

**Feb 26**

- Latin America reports first case

Feb  
2020

**Mar 11**

- WHO declare the outbreak a pandemic

**March 23**

- New York City confirms over 21,000 cases, making it the epicenter of the pandemic in the U.S.

**March 26**

- The U.S. reaches the highest number of confirmed cases in the world with 82,404 infections

Mar  
2020

**April 2**

- The world reaches 1 million infections

**April 7**

- The U.S. reports the highest single-day death toll for any country: more than 1,900

**April 10**

- Globally, authorities report 1.67 million cases and 101,700 fatalities

April  
2020



## Bad combo:

Respiratory spread; contagious; lethal

- Data suggest similar transmission as seasonal influenza
  - **Droplet** - primary, large virus-laden nuclei, <6 feet (OSHA) don't stay long in the air
  - Hands
  - Fomites (surfaces)
  - Possible: gastrointestinal?



## COVID-19 Dashboard by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU)

Total Confirmed

2,564,190

Confirmed Cases by Country/Region/Sovereignty

825,041	US
204,178	Spain
183,957	Italy
159,299	France
148,453	Germany
130,184	United Kingdom
95,591	Turkey
84,802	Iran
83,862	China
52,763	Russia
43,079	Brazil
40,956	Belgium
39,405	Canada
34,318	Netherlands
28,063	Switzerland
21,379	Portugal
20,080	India
17,837	Peru
16,040	Ireland
15,322	Sweden
14,873	Austria

Admin0 Admin1 Admin2

Last Updated at (M/D/YYYY)

185

Lancet Inf Dis Article: [Here](#). Mobile Version: [Here](#).  
Lead by JHU CSSE. Automation Support: [Esri Living Atlas team](#) and [JHU APL](#). [Contact US](#). [FAQ](#).

Data sources: [WHO](#), [CDC](#), [ECDC](#), [NHC](#), [DXY](#), [1point3acres](#), [Worldometers.info](#), [BNO](#), the [COVID Tracking Project](#) (testing and hospitalizations), state and national government health departments, and local media reports. [Read more in this blog](#).



Cumulative Confirmed Cases Active Cases Incidence Rate Case-Fatality Ratio Testing Rate Hospitalization Rate

Total Deaths  
177,445

24,648	deaths	Italy
21,282	deaths	Spain
20,796	deaths	France
17,337	deaths	United Kingdom
14,887	deaths	New York City New York US
5,998	deaths	Belgium
5,297	deaths	Iran
5,086	deaths	Germany
4,512	deaths	Hubei China

Deaths

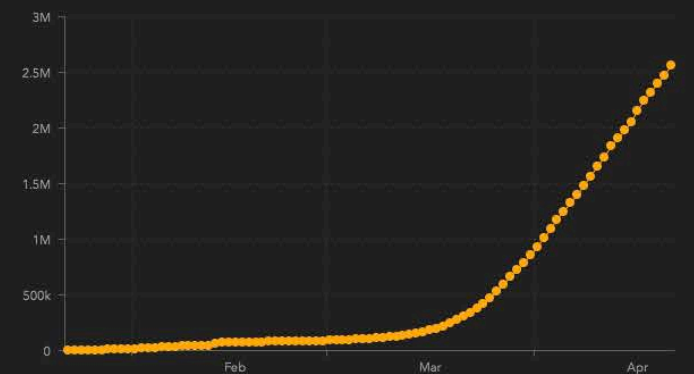
Recovered

Total Test Conducted in U.S.  
4,155,178

649,325	tested	New York US
300,100	tested	California US
277,059	tested	Florida US
205,399	tested	Texas US
184,826	tested	New Jersey US
175,372	tested	Massachusetts US
166,851	tested	Pennsylvania US
154,997	tested	Illinois US
142,430	tested	Louisiana US
141,011	tested	

US Tested

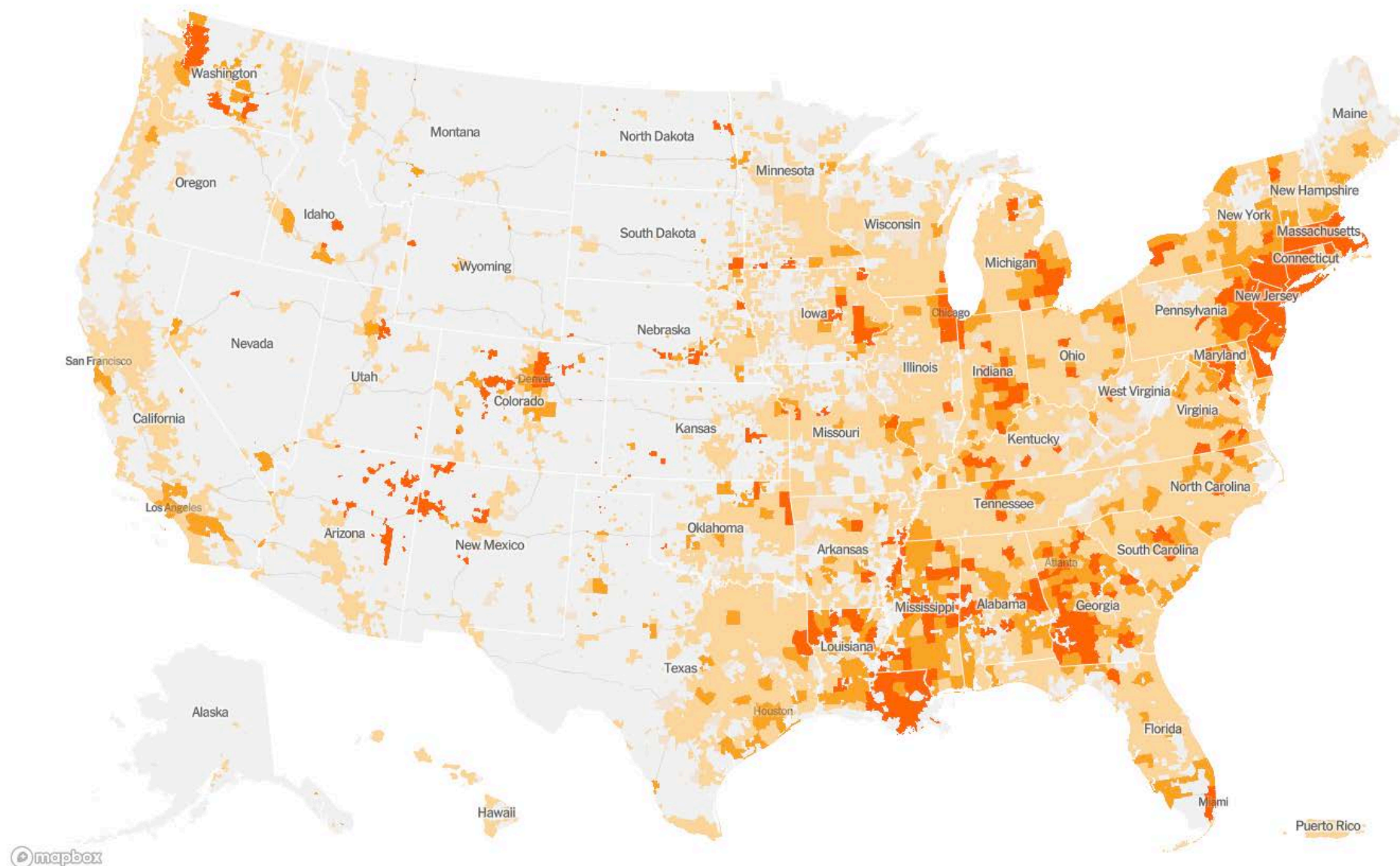
US Hospitalization



### Confirmed cases in the United States



Double-click to zoom into the map.





# Empirical evidence that social distancing works

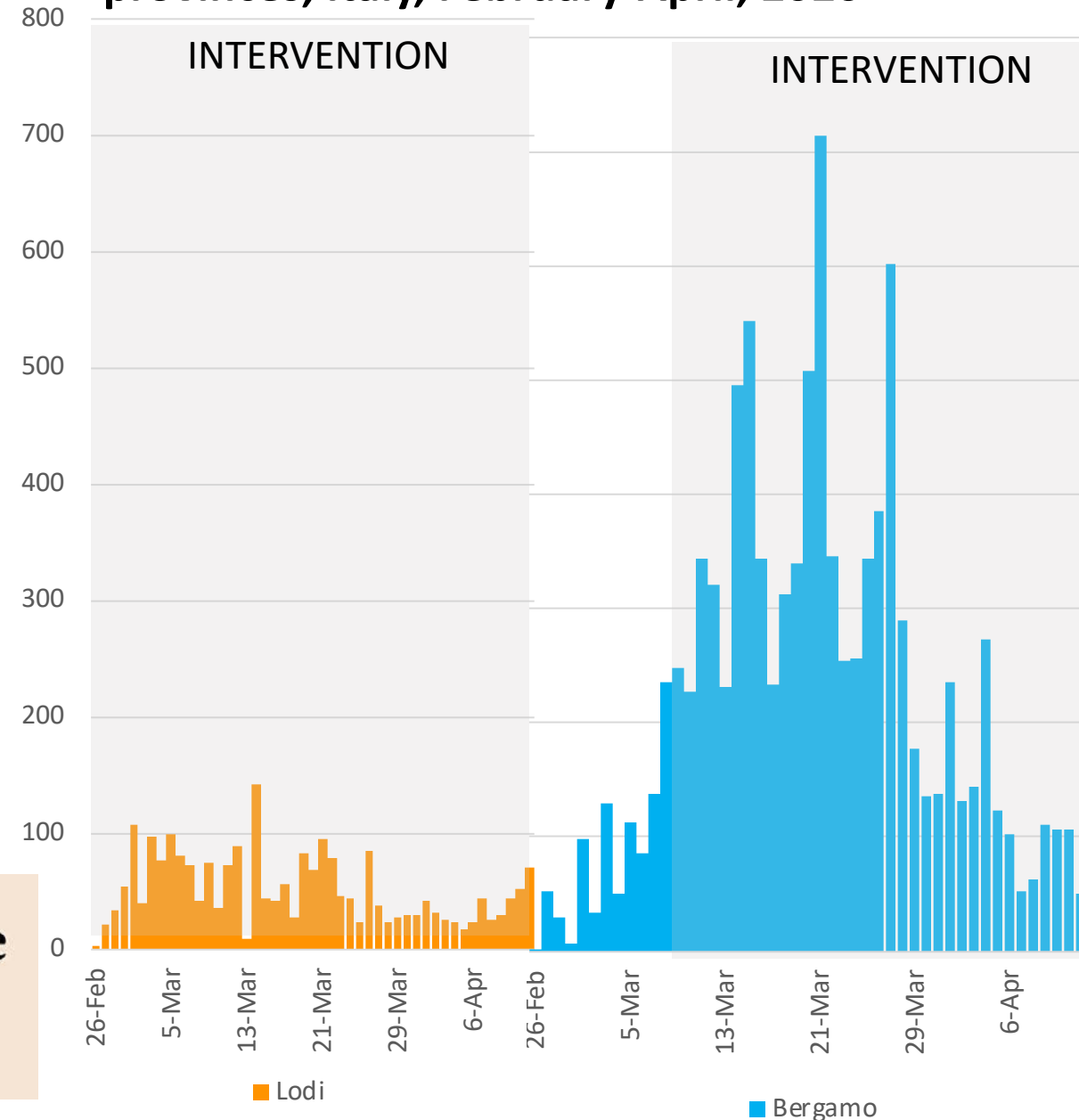
- Two adjacent Italian provinces in Lombardy region
- One (Lodi) began shelter-in-place on 26 February
- Other (Bergamo) began shelter-in-place on 9 March
- Empirical evidence that shelter in place orders can blunt transmission and new disease

STATISTICHE SUL CORONAVIRUS

## Coronavirus, i dati di Lodi lo dimostrano: le misure di «lockdown» rallentano il contagio

Negli ultimi tre giorni, in particolare dal 6 al 9 marzo, in provincia di Lodi il tasso di diffusione del contagio ha rallentato la sua corsa rispetto alle settimane precedenti

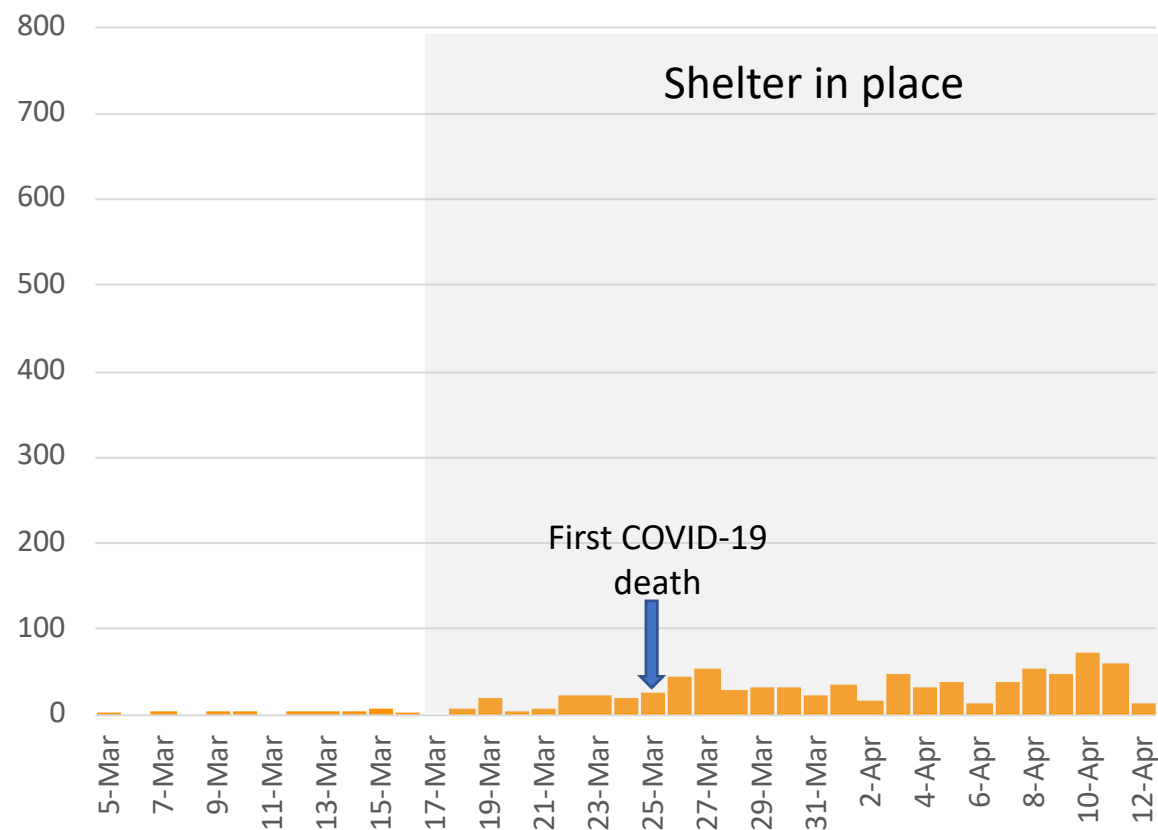
COVID-19 cases by day, Lodi and Bergamo provinces, Italy, February-April, 2020



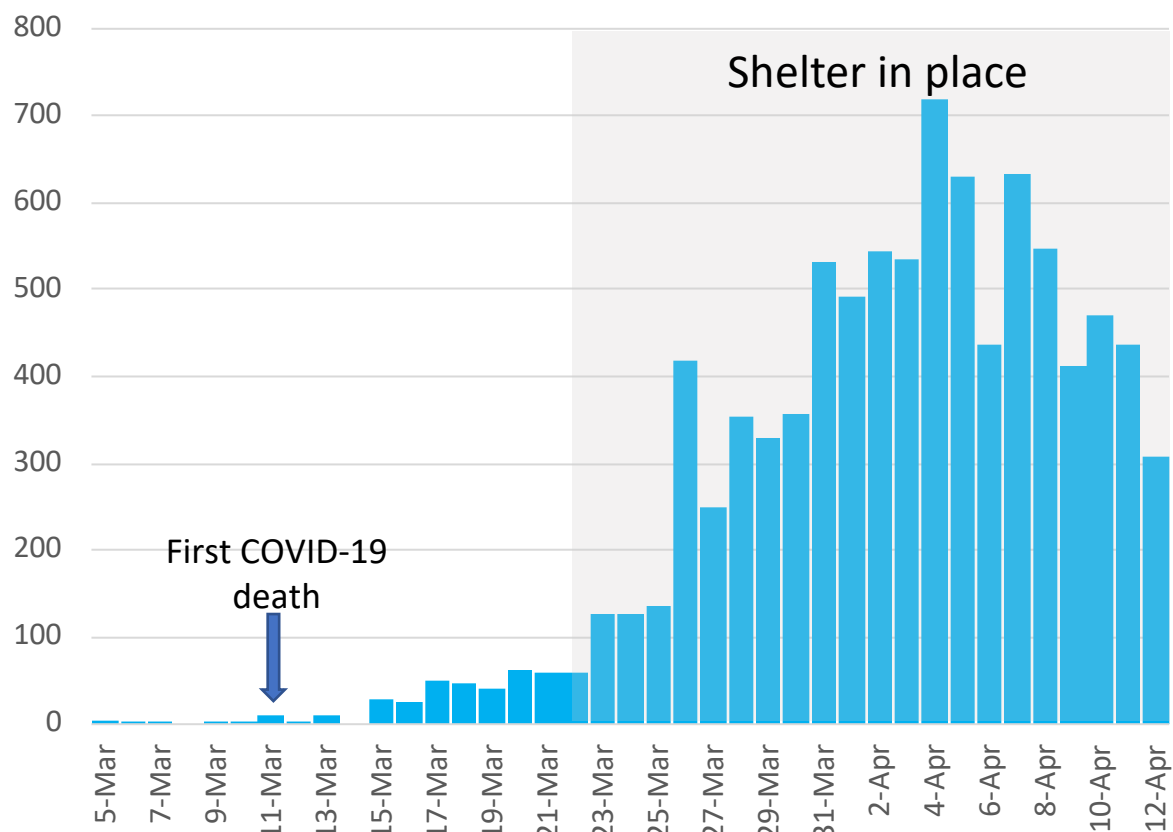
# Is social distancing working in San Francisco?

COVID-19 cases by day, San Francisco and Los Angeles, March-April, 2020

## San Francisco



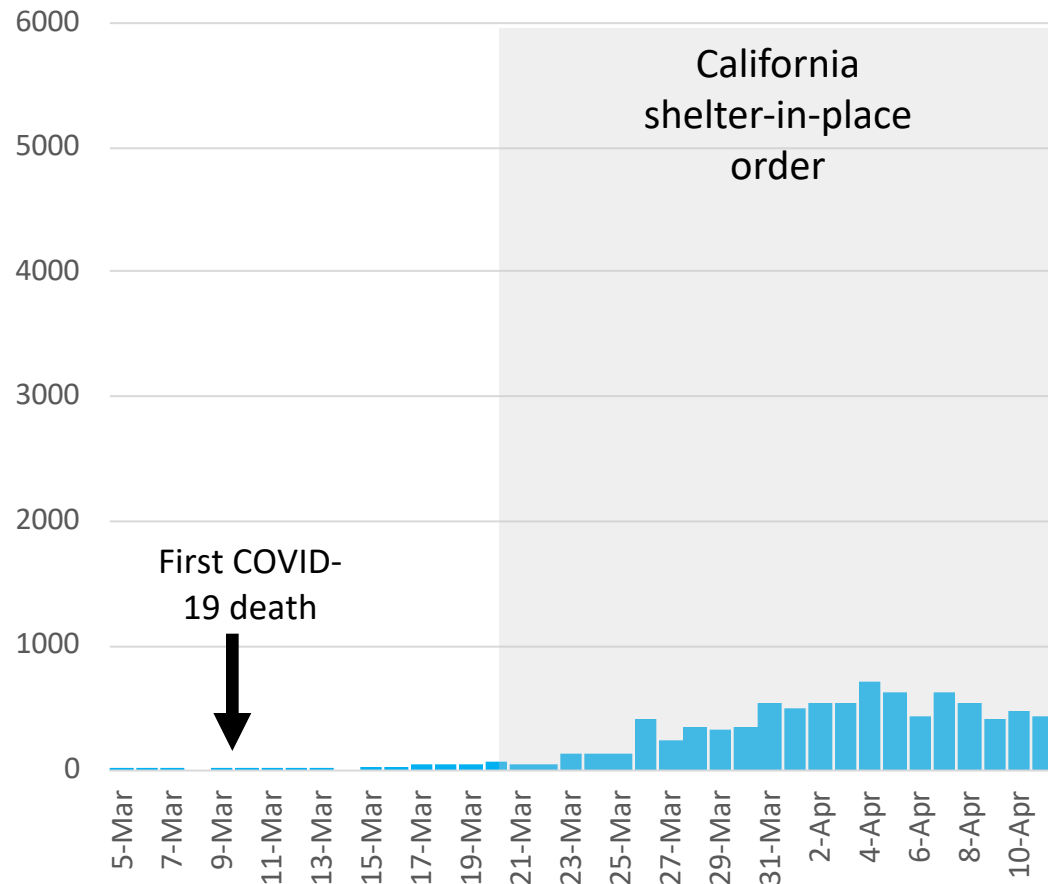
## Los Angeles



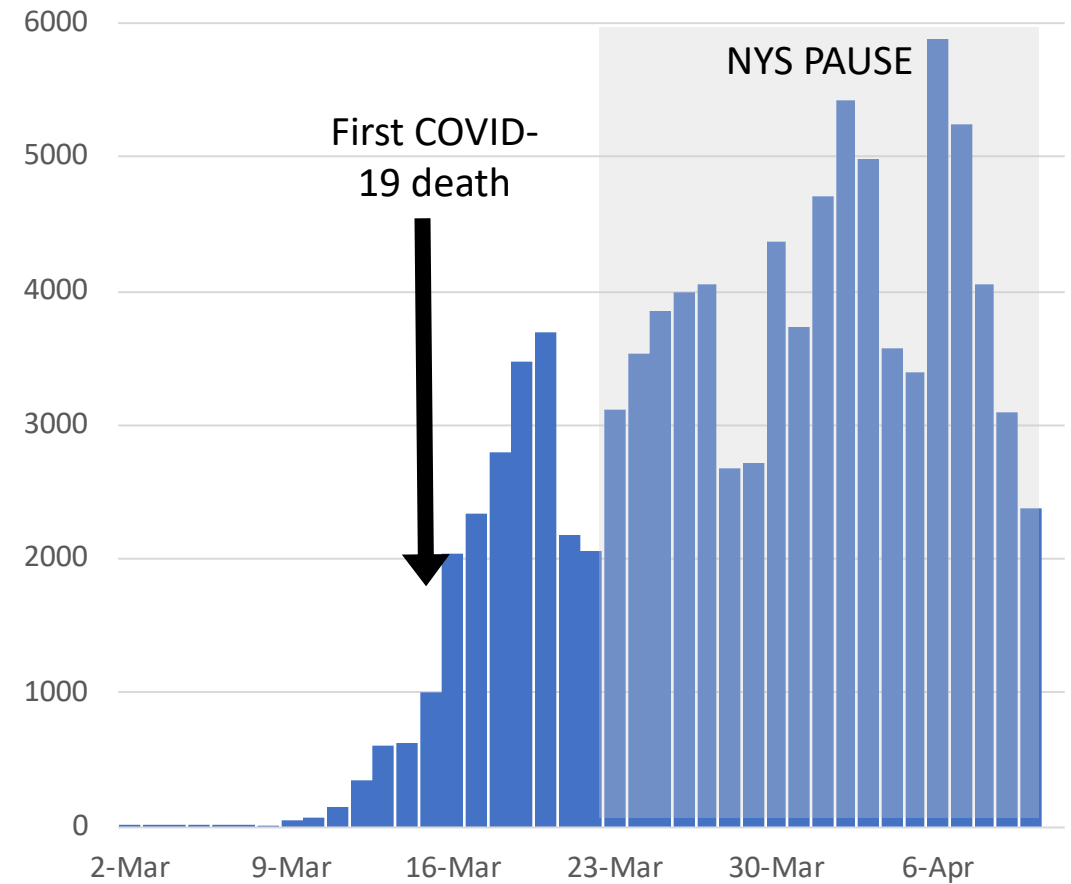


# COVID-19 cases, Los Angeles and New York City, March-April 2020

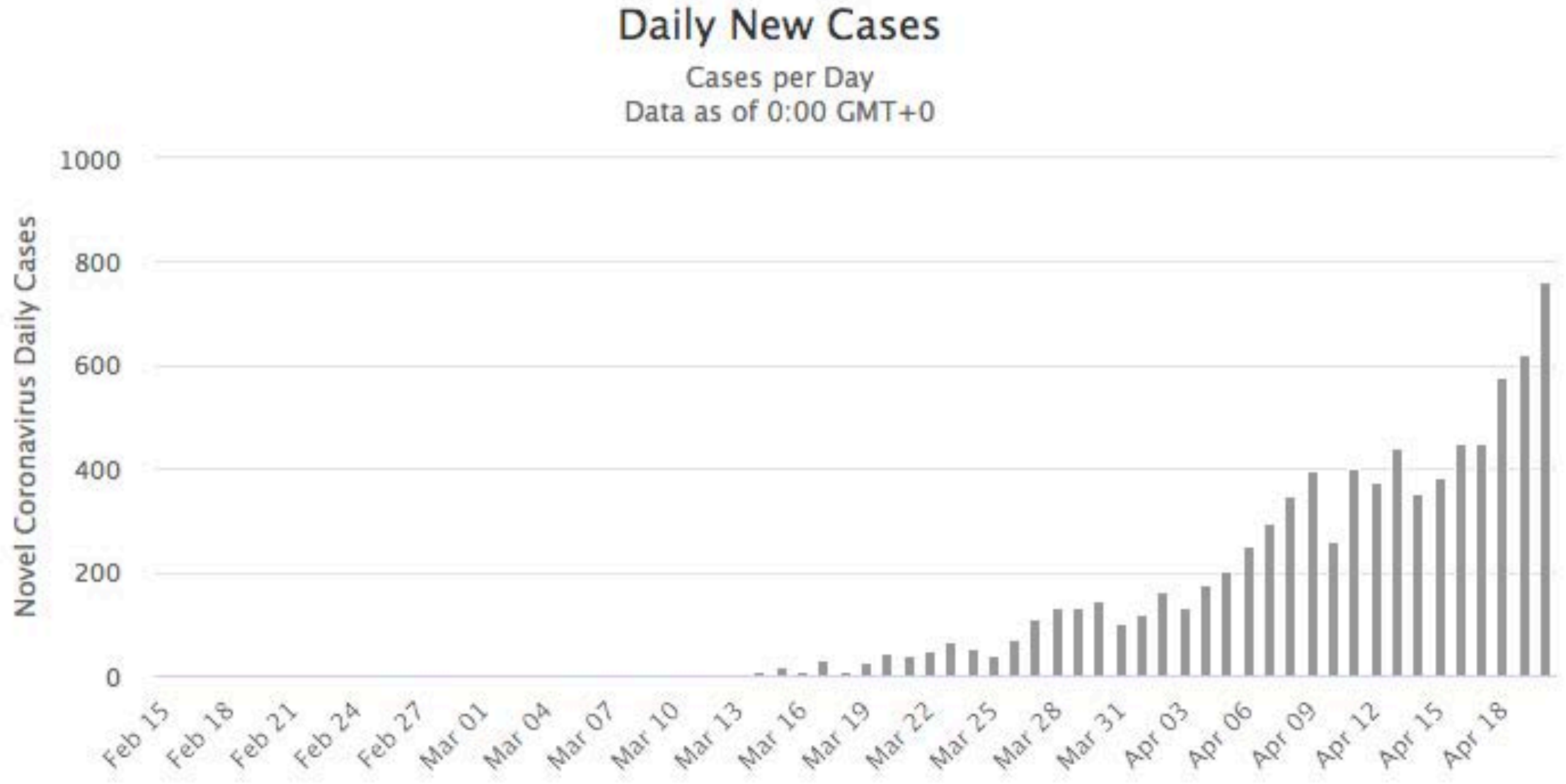
COVID-19 cases by date of report, Los Angeles, 2020



COVID-19 cases by date of report, New York City, 2020



# New cases reported in Mexico



## Información General

Nacional

CONFIRMADOS  
9,501

NEGATIVOS  
33,871

SOSPECHOSOS  
8,262

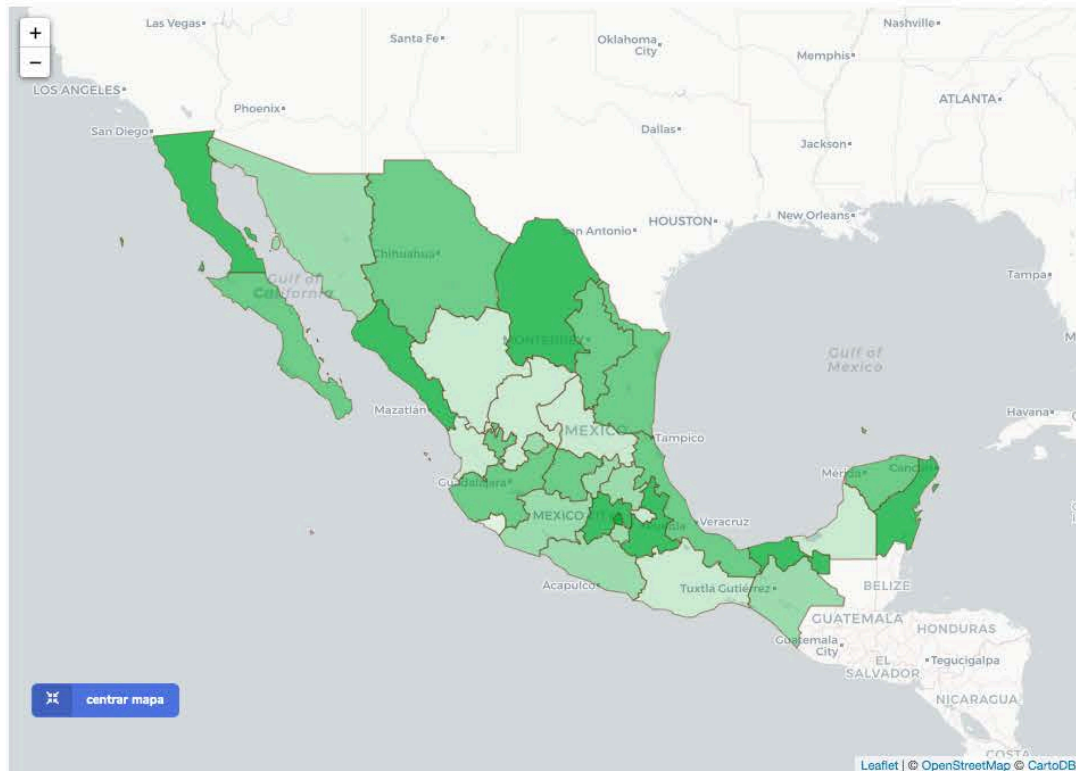
DEFUNCIONES  
857

HOMBRES / MUJERES  
57.66 % 42.34 %

HOSPITALIZADOS / AMBULATORIOS  
37.24 % 62.76 %

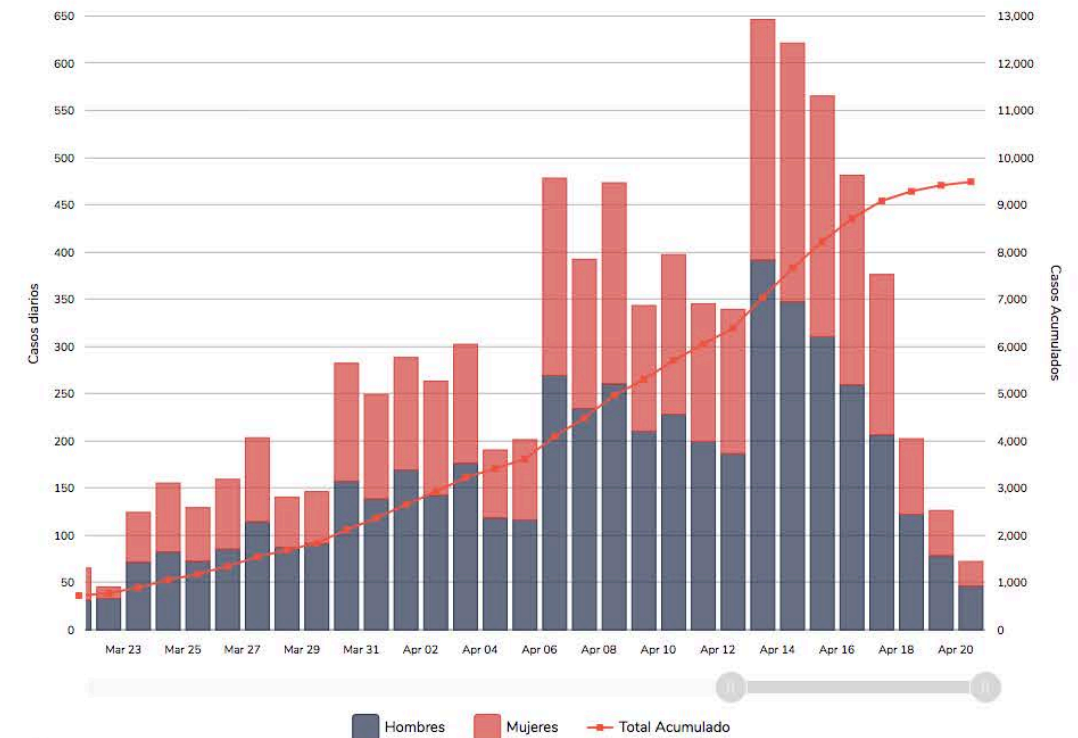
### Mapa de Casos Confirmados

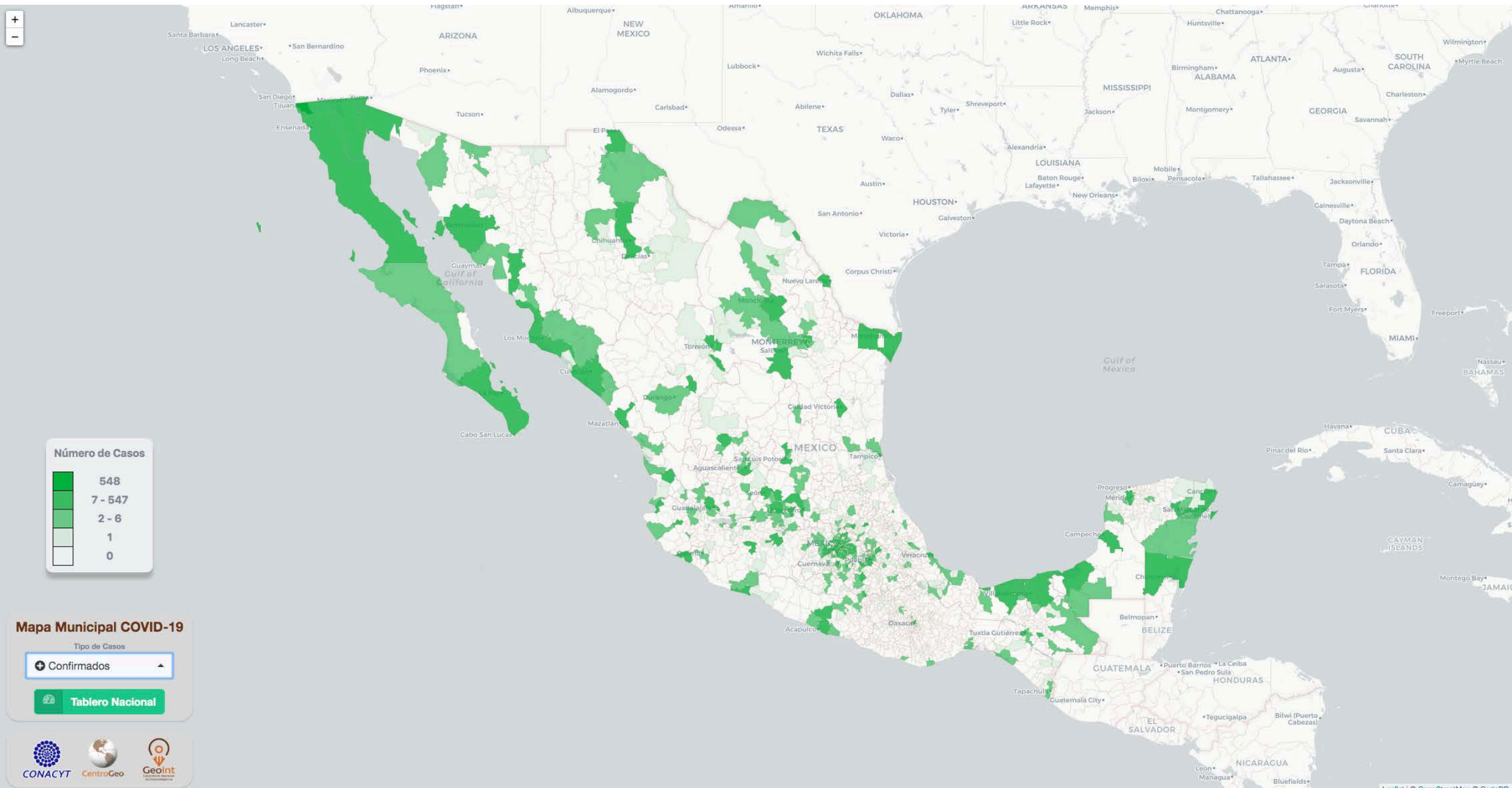
(Seleccione una unidad ↓ o una vista →)



### Gráfica de Casos Confirmados

(Casos diarios por género y acumulados)

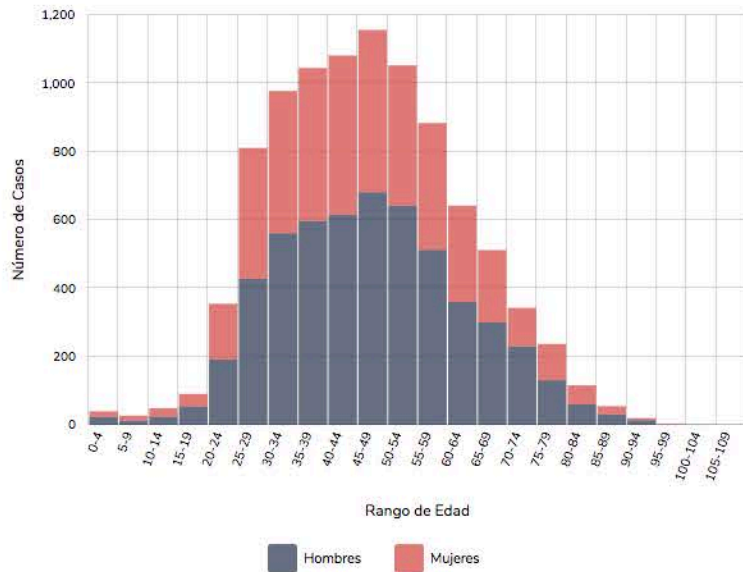




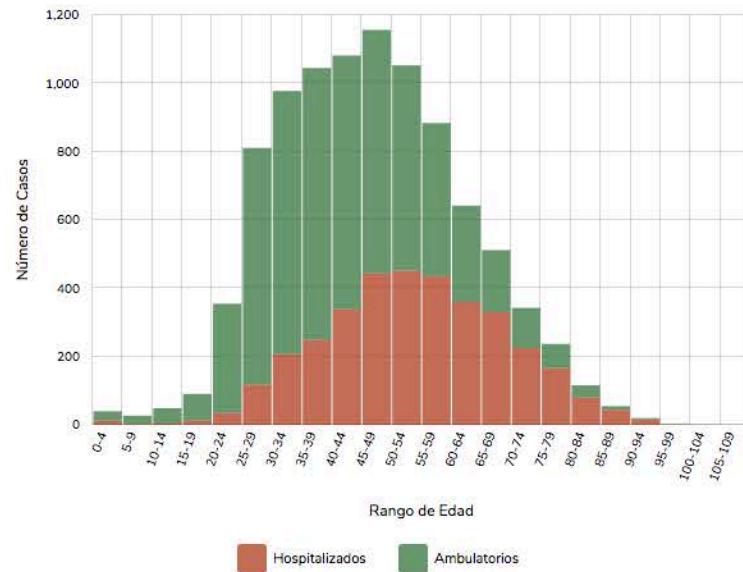


# Charts of cases and deaths

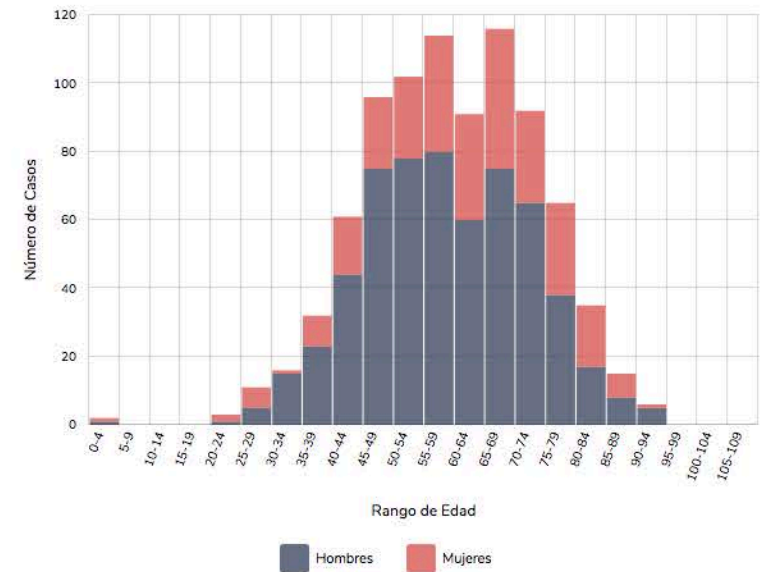
Rangos de Edad y Sexo  
(Histograma de Casos Confirmados)



Rangos de Edad y Tipo Paciente  
(Histograma de Casos Confirmados)



Rangos de Edad y Sexo  
(Histograma de Defunciones)



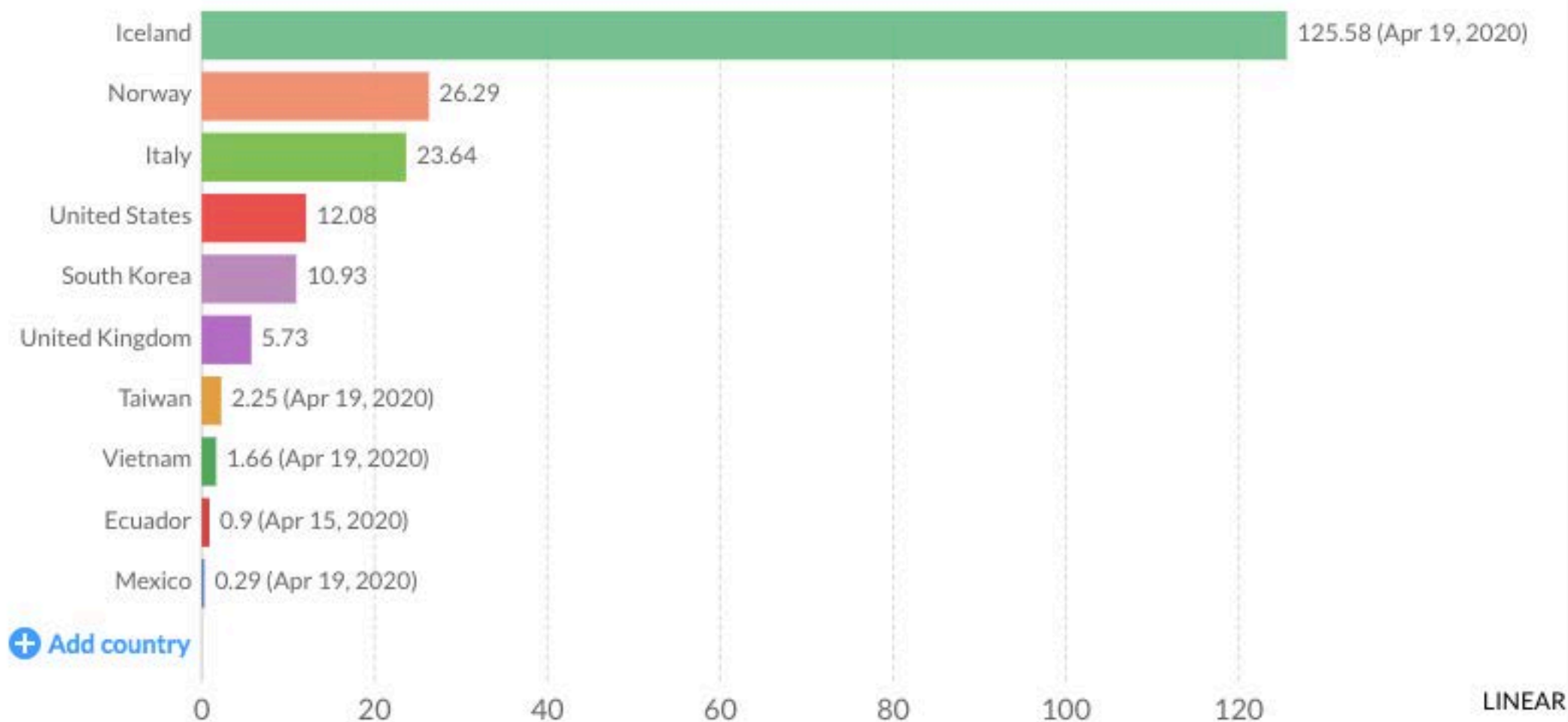
# Very low number of tests/ million pop.

Country, Other	Total Cases	New Cases	Total Deaths	New Deaths	Total Recovered	Active Cases	Serious, Critical	Tot Cases/ 1M pop	Deaths/ 1M pop	Total Tests	Tests/ 1M pop
	↕↕	↕↕	↕↕	↕↕	↕↕	↕↕	↕↕	↕↕	↕↕	↕↕	↕↕
<a href="#">Guatemala</a>	294	+5	7		24	263	3	16	0.4	7,200	402
<a href="#">Mexico</a>	8,772	+511	712	+26	2,627	5,433	207	68	6	49,570	384
<a href="#">Honduras</a>	494	+17	46		25	423	10	50	5	2,535	256
<a href="#">Haiti</a>	57		3			54		5	0.3	618	54

Al 20 de Abril de 2020

# Total tests for COVID-19 per 1,000 people, Apr 20, 2020

Our World  
in Data



Source: Official sources collated by Our World in Data

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](https://ourworldindata.org/covid-testing).

CC BY

▶ Jan 21, 2020

■ Apr 20, 2020

# Total tests for COVID-19 per 1,000 people

Our World  
in Data

LINEAR

+ Add country

Italy  
tests performed

United States  
inconsistent units (COVID  
Tracking Project)

South Korea  
cases tested

Mexico  
cases tested

Feb 20, 2020 Mar 1, 2020 Mar 11, 2020 Mar 21, 2020 Mar 31, 2020 Apr 10, 2020 Apr 20, 2020

Source: Official sources collated by Our World in Data

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](https://ourworldindata.org/covid-testing).

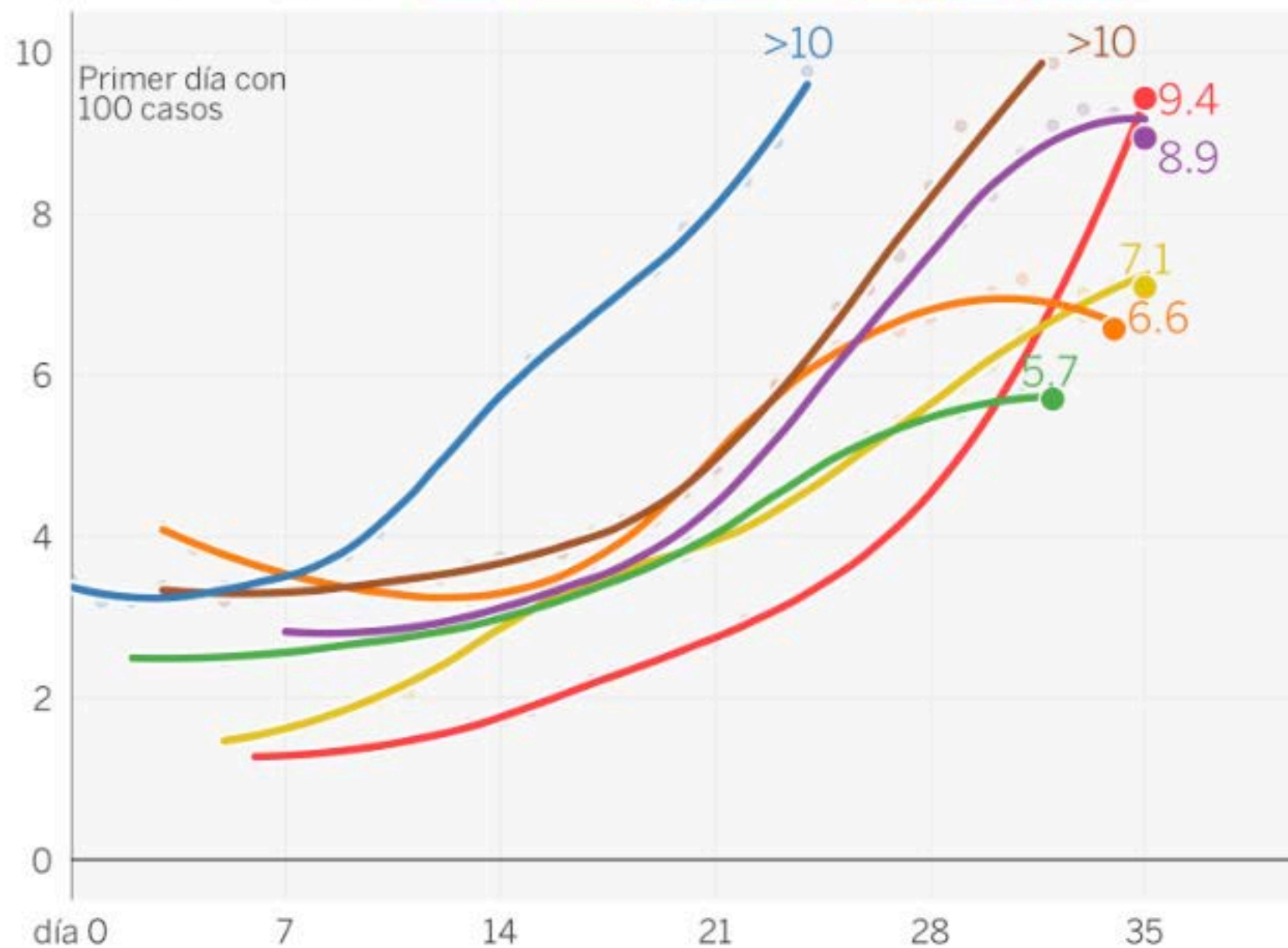
CC BY

▶ Jan 21, 2020

Apr 20, 2020



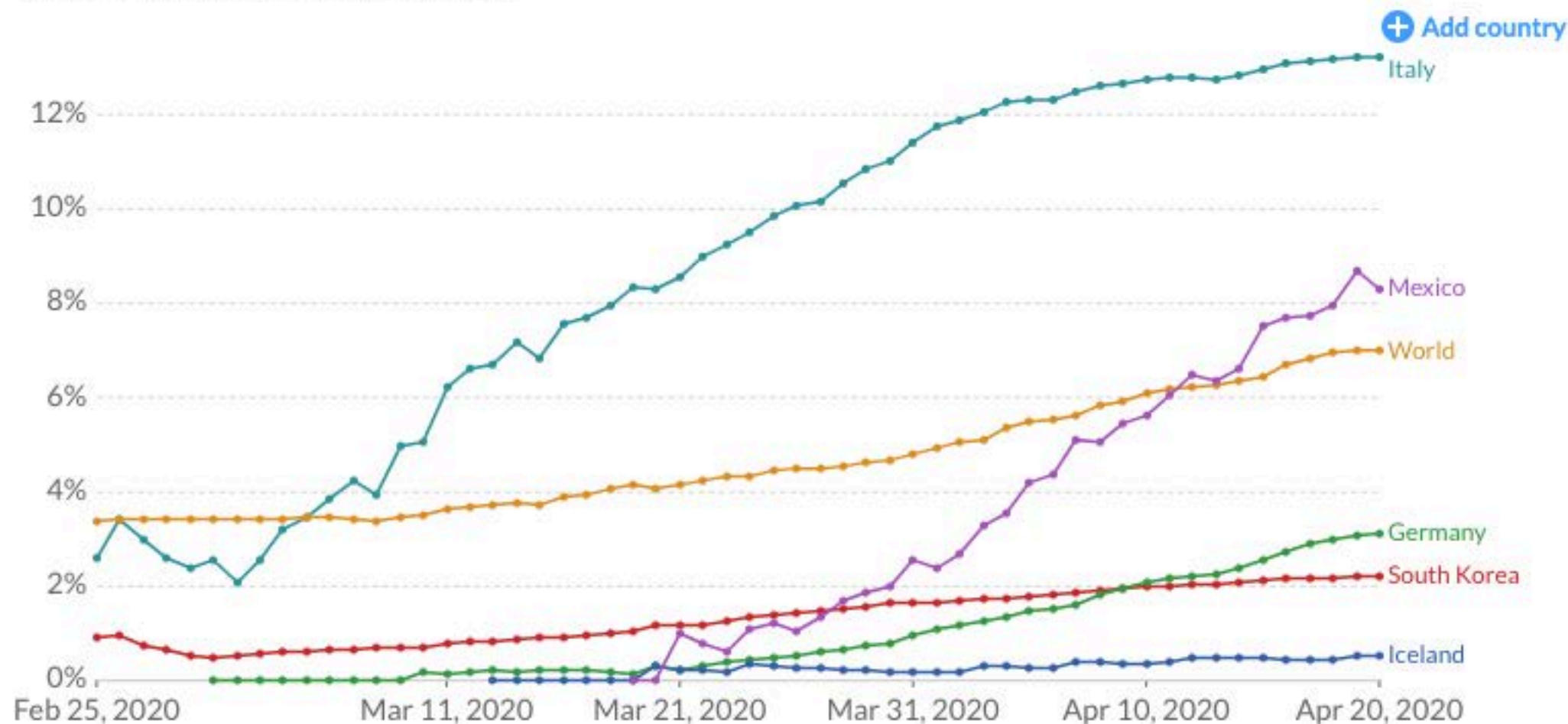
**Tiempo de duplicación** (días) en México, Colombia, Argentina, Chile, Perú, Brasil y España.



# Case fatality rate of the ongoing COVID-19 pandemic

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](https://OurWorldInData.org/Coronavirus)



Source: European CDC – Situation Update Worldwide – Last updated 20th April, 11:30 (London time)

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

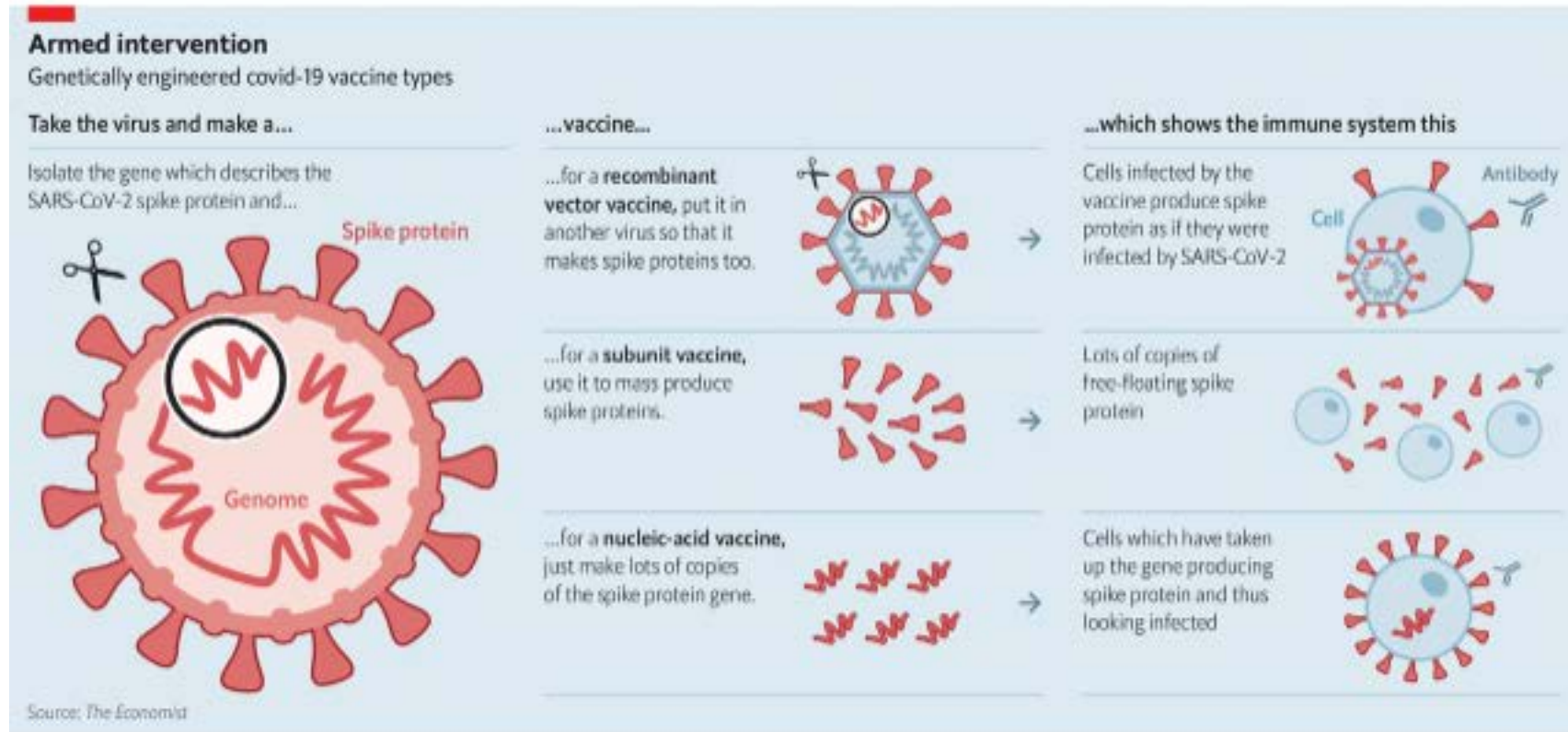
CC BY

▶ Jan 19, 2020

Apr 20, 2020

# Vaccines on development

- 86 vaccines in trials—China, EUA, Europe



# Editorial New York Times

Opinion

## How to Save Black and Hispanic Lives in a Pandemic

Minorities are dying of Covid-19 at alarming rates. Here's what to do about it right now.

**By The Editorial Board**

The editorial board is a group of opinion journalists whose views are informed by expertise, research, debate and certain longstanding values. It is separate from the newsroom.

April 11, 2020



397



# What do we need to do to return to the “life we aspire to”

1. Transmission needs to be low
  - Low numbers of new cases
  - Low number of hospital admissions
  - Low incidence as measured in cohort studies
  - Low seroprevalance consistent with models of <1% (or so)
  - Low incidence suggested by sentinel surveillance
    - Remnant specimens
    - Fever surveillance (Kinsa)
    - Cough and fever surveillance (Citizen Scientist)
    - Remnant influenza/RSV swabs
2. Testing must be available essentially on demand
3. Vigorous contact tracing/supervised isolation/supervised quarantine apparatus needs to be in place and functioning – this also means space for people who need to be isolated and quarantined and can't do so at home
4. Adequate hospital/ICU/ventilator capacity
5. Agreement to continue some community interventions, e.g.,
  - Continued restrictions on mass gatherings
  - Sheltering in place for older adults
  - Options for schools
  - Masks worn outdoors
  - Staggered return to work



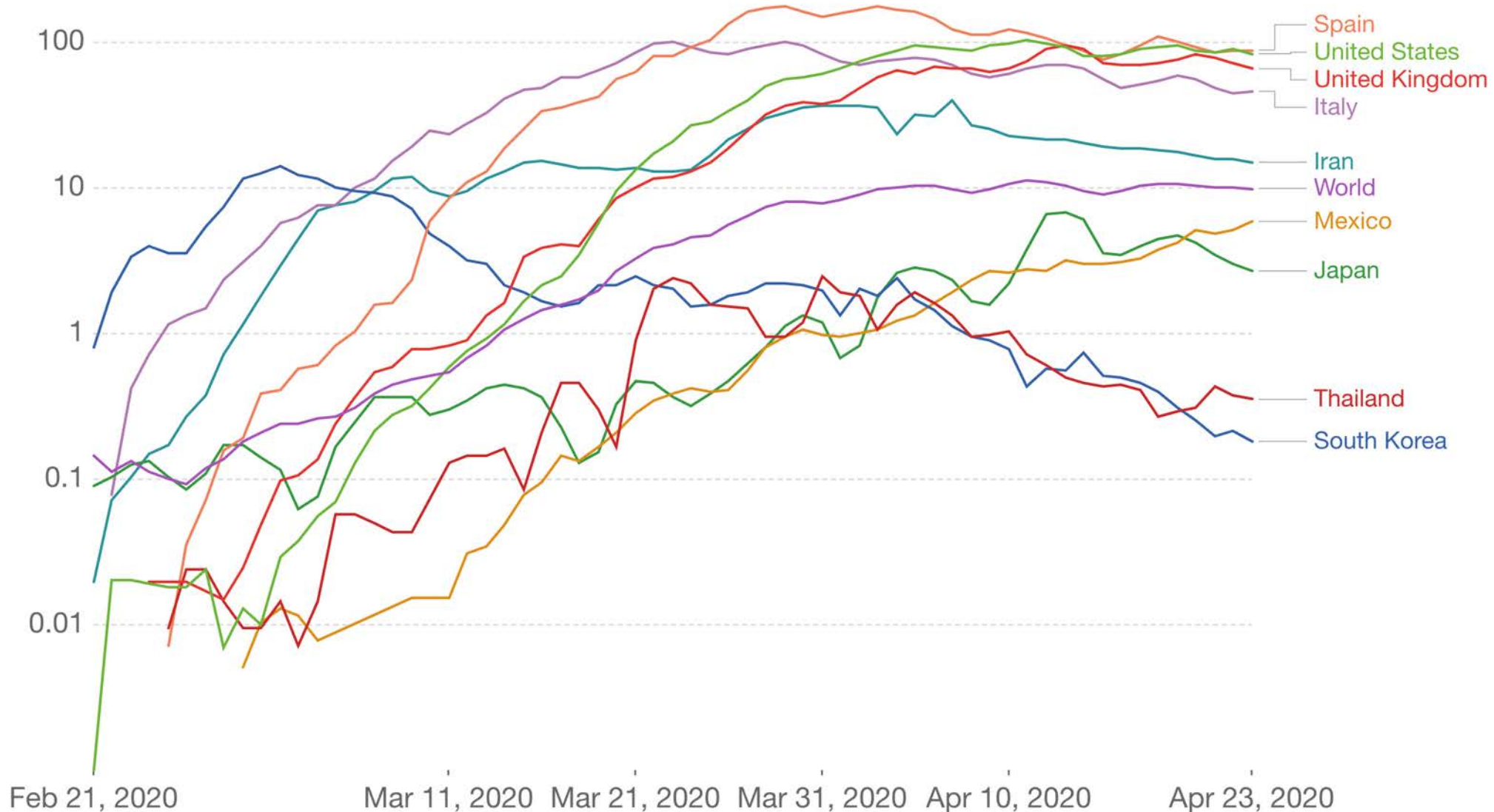
# GRAND LAKE

DOUBLE FEATURE COMING SOON:  
DEATH OF THE CORONAVIRUS  
PLUS, END OF DONALD TRUMP



# Daily confirmed COVID-19 cases per million, 3-day rolling average

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

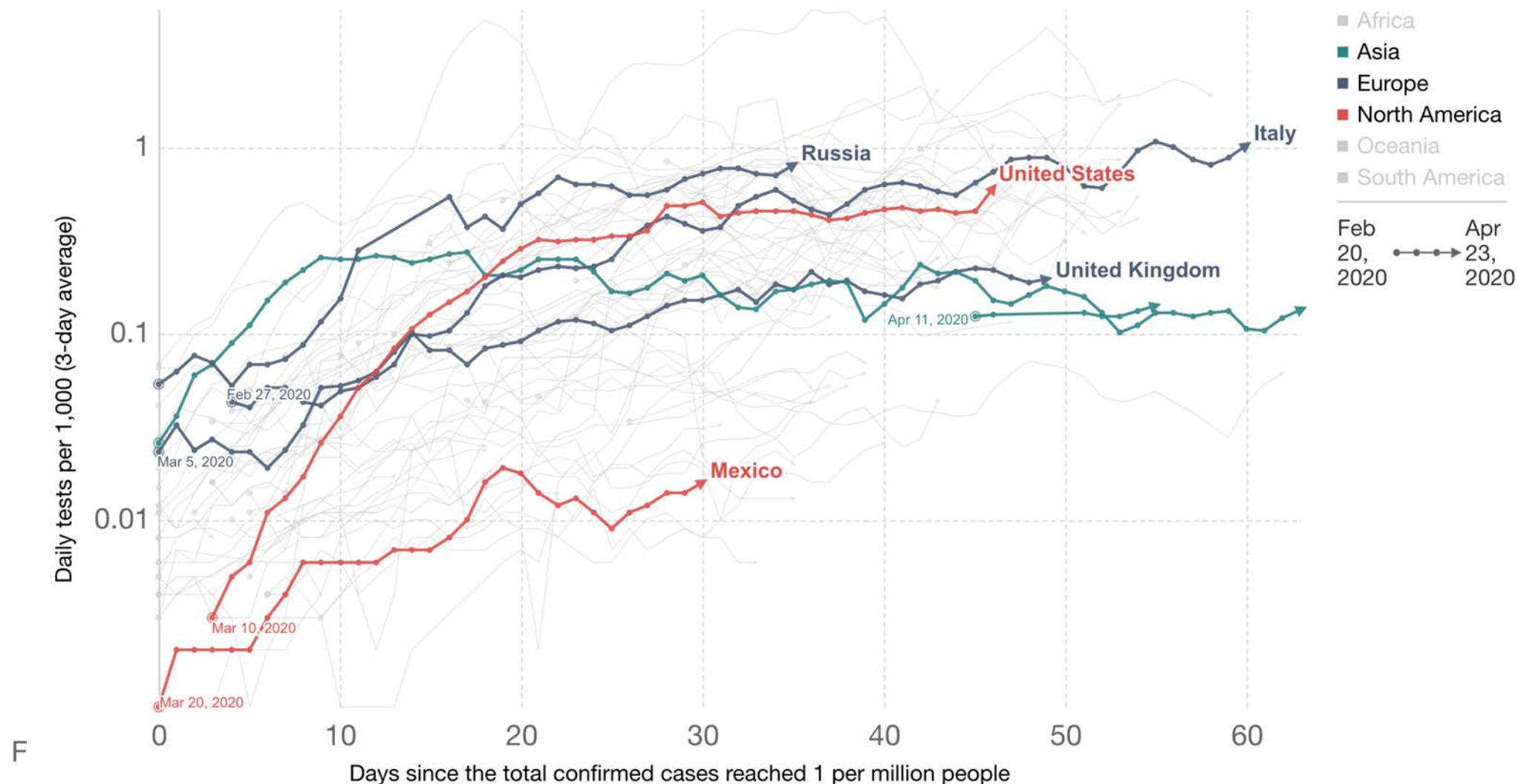


Source: European CDC – Situation Update Worldwide – Last updated 23rd April, 13:45 (London time) OurWorldInData.org/coronavirus • CC BY

Note: The rolling average is the average across three days – the confirmed cases on the particular date, and the two previous days. For example, the value for 27th March is the average over the 25th, 26th and 27th March.

# Daily tests per thousand people

The 3-day rolling average of the daily number of tests for COVID-19 per thousand people of the country's population. Given in terms of the number of days since the total confirmed cases reached 1 per million.



Source: Official data collated by Our World in Data, European CDC – Situation Update Worldwide

OurWorldInData.org/coronavirus • CC BY

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.