

3-26-2020

Covid-19 Clinical Update 3/26/2020

George Washington University

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COVID-19: UPDATE

HANA AKSELROD, MD, MPH

GW DIVISION OF INFECTIOUS DISEASES

3/26/2020

1. EPIDEMIOLOGY

2. PATHOPHYSIOLOGY

3. TESTING

4. TREATMENT

5. GW UPDATES

EPIDEMIIOLOGY

3/26/2020





Total Confirmed

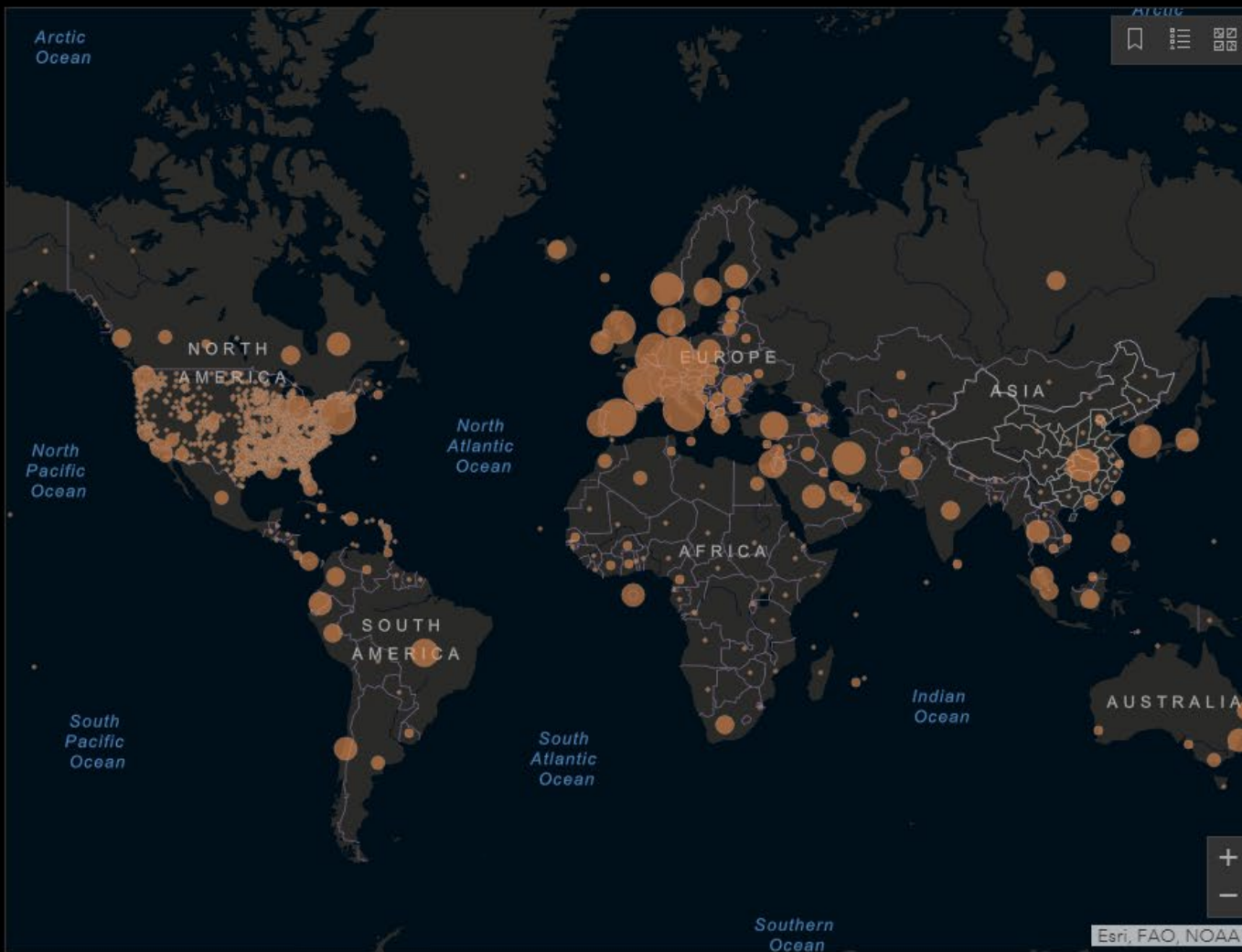
463,751

Confirmed Cases by Country/Region/Sovereignty

- 81,782 China
- 74,386 Italy
- 69,197 US
- 56,188 Spain
- 39,502 Germany
- 29,406 Iran
- 25,604 France
- 11,125 Switzerland
- 9,642 United Kingdom
- 9,241 Korea, South
- 6,440 Netherlands
- 6,235 Belgium
- 6,001 Austria
- 3,404 Canada
- 3,191 Norway
- 2,995 Portugal
- 2,810 Australia

Admin1 Admin2 Admin3

Last Updated at (M/D/YYYY)
3/25/2020, 6:02:06 PM



Cumulative Confirmed Cases Active Cases

175

countries/regions

Lancet Inf Dis Article: [Here](#). Mobile Version: [Here](#). Visualization: [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](#), state and national government health departments, and local media reports. Read more in this [blog](#).
Downloadable database: GitHub: [Here](#). Feature layer: [Here](#).

Total Deaths

21,100

7,503 deaths

Italy

3,647 deaths

Spain

3,163 deaths

Hubei China

2,077 deaths

Iran

1,331 deaths

France

465 deaths

United Kingdom

356 deaths

Netherlands

206 deaths

Germany

192 deaths

New York City, New York US

Total Recovered

113,769

60,811 recovered

Hubei China

9,625 recovered

Iran

9,362 recovered

Italy

5,367 recovered

Spain

3,900 recovered

France

3,730 recovered

Korea, South

3,547 recovered

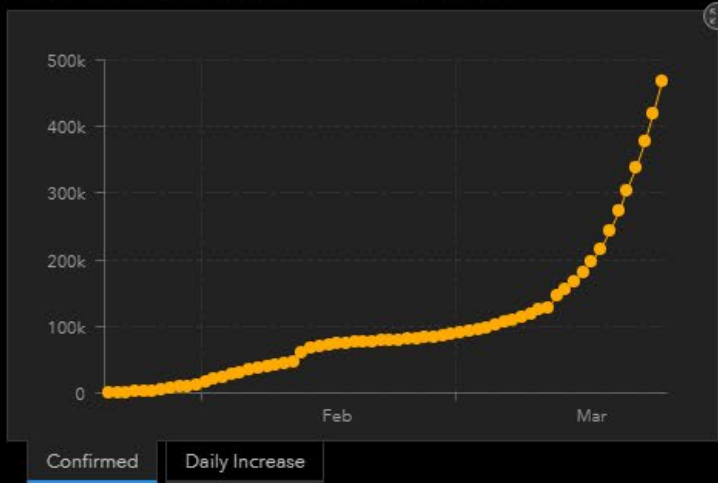
Germany

1,336 recovered

Guangdong China

1,250 recovered

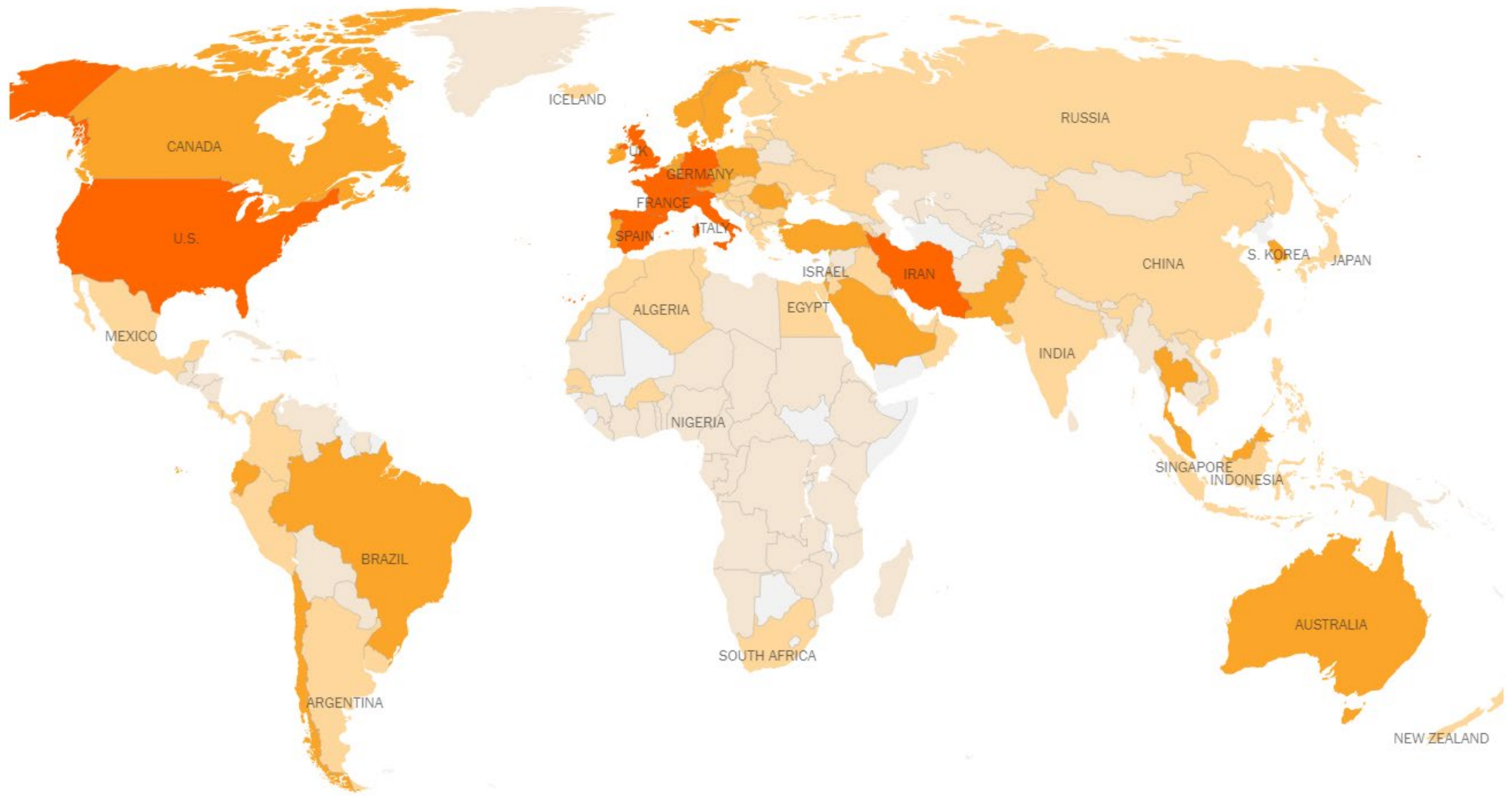
Hubei China



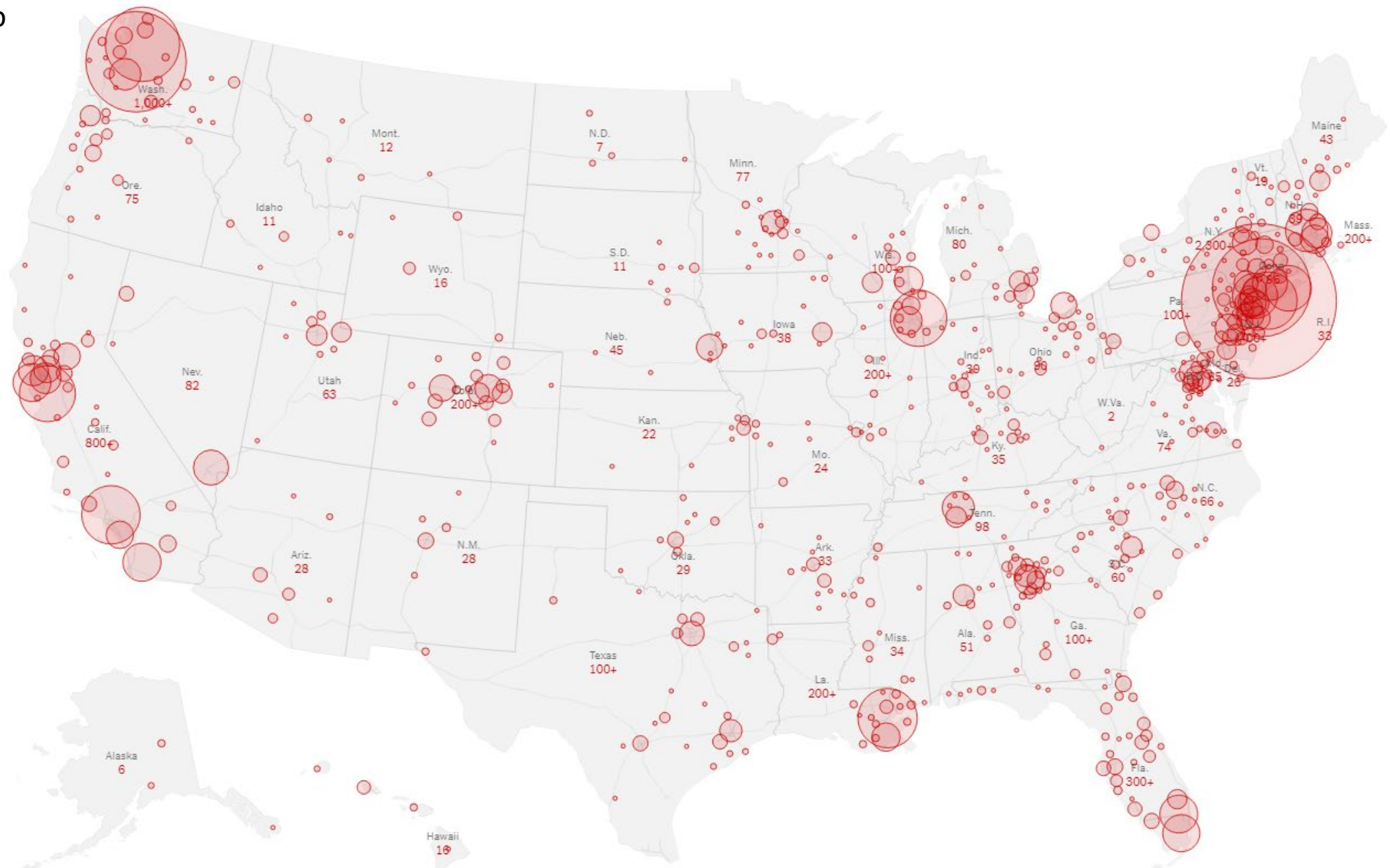
Confirmed

Daily Increase

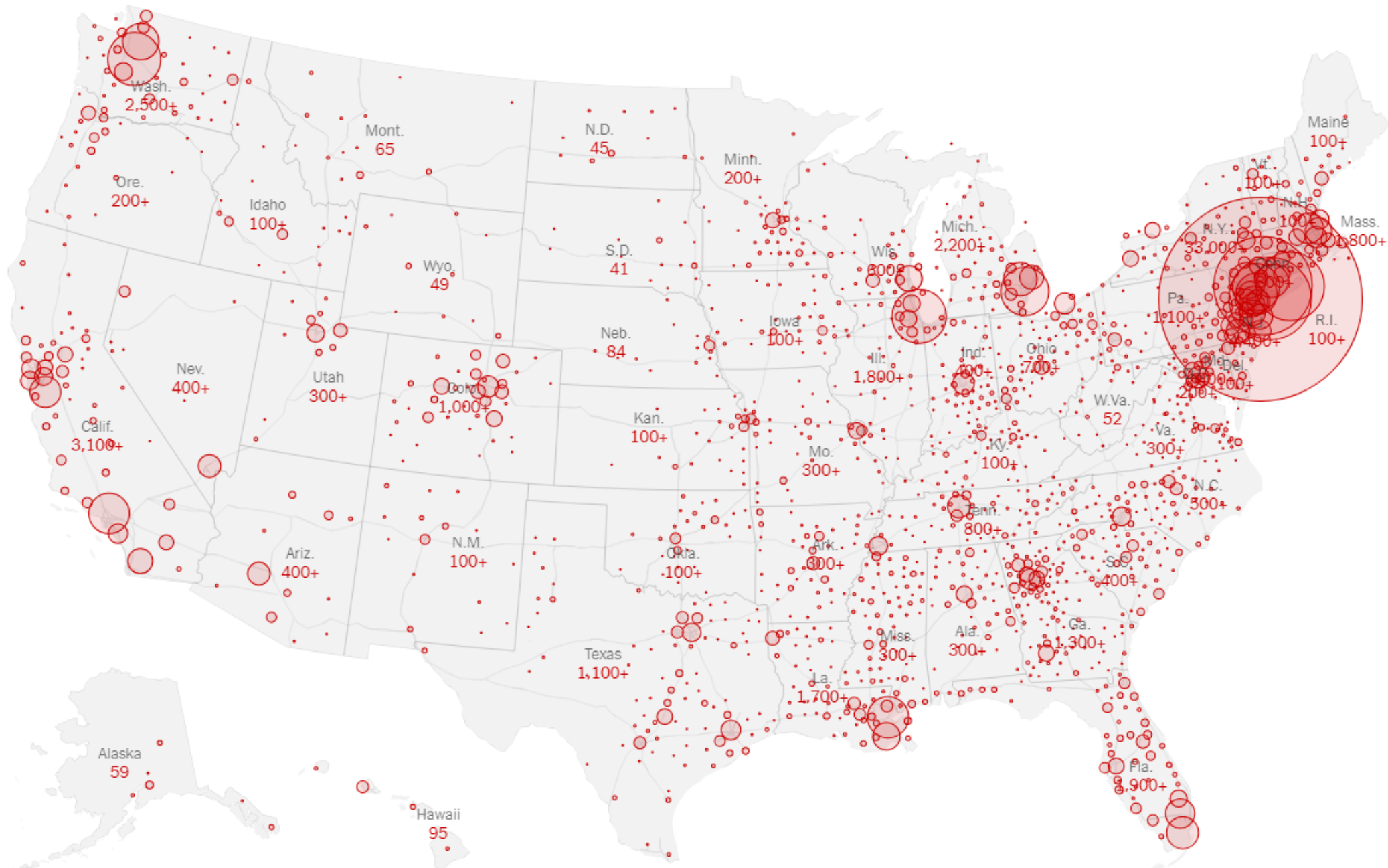
Avg. number of new cases each day (for the last 7 days)



1 week ago

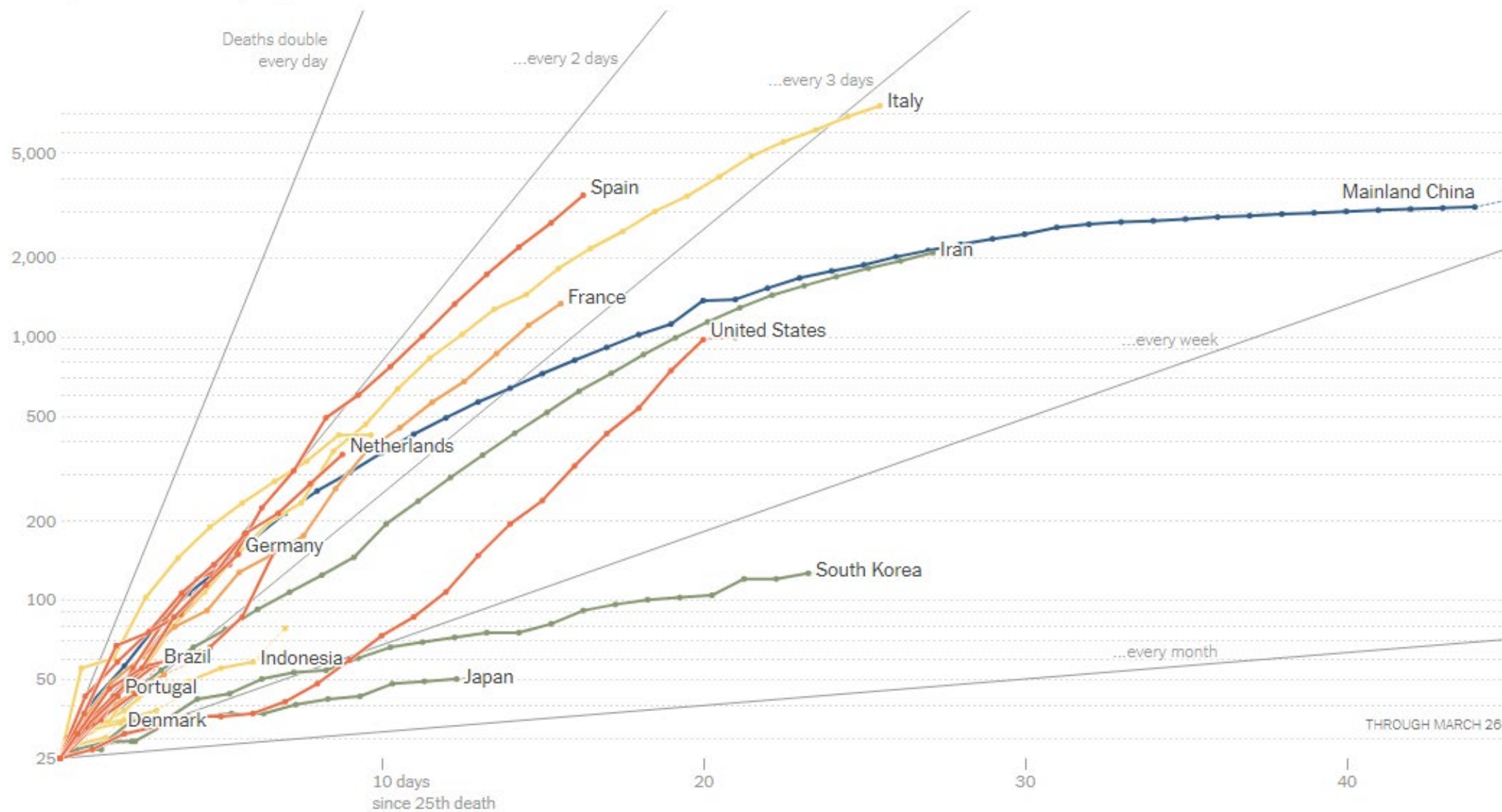


Today



Deaths by country for countries with at least 25 deaths

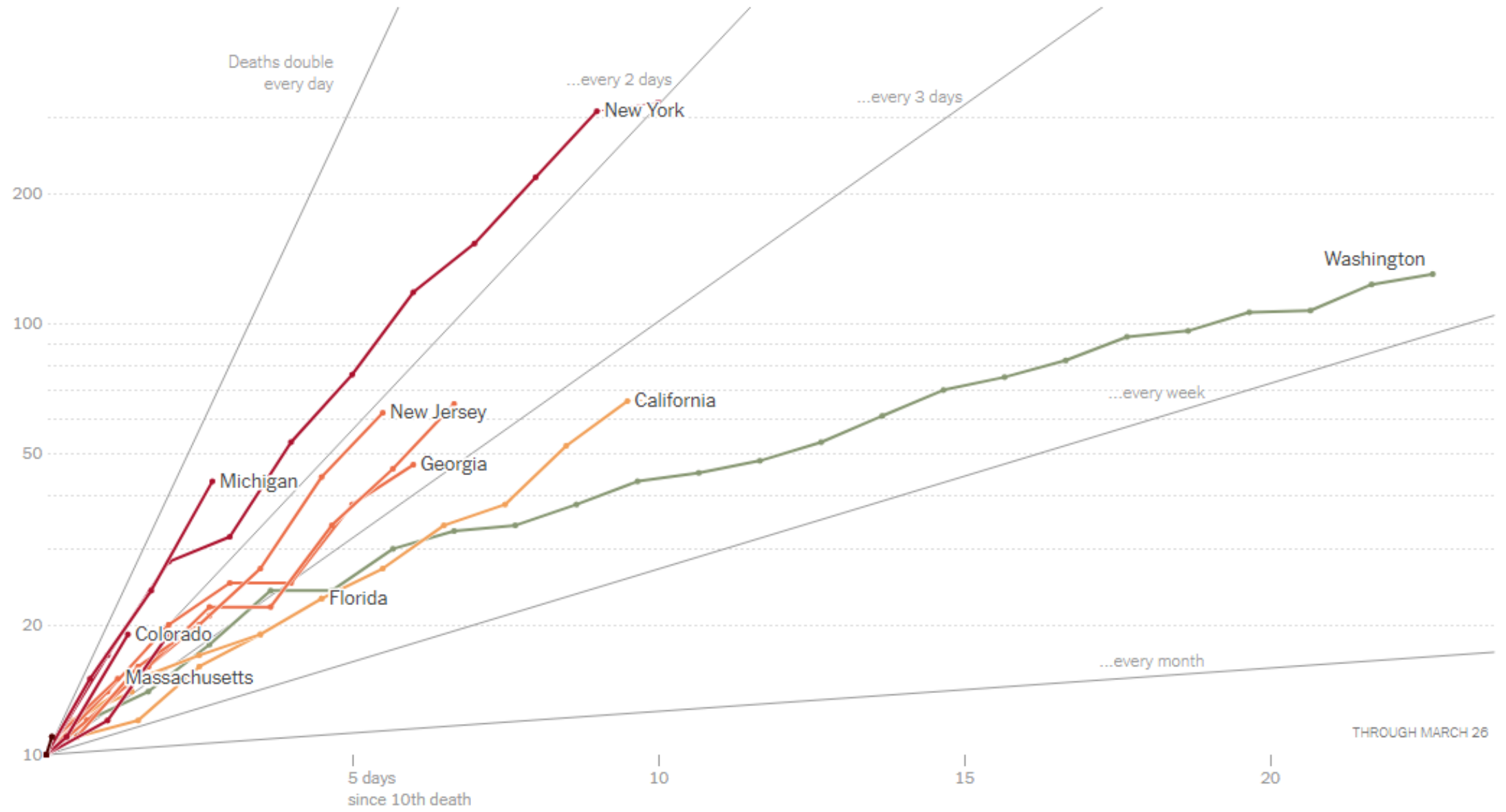
— Reported Partial (today)



THROUGH MARCH 26

Deaths by state for states with at least 10 deaths

— Reported ····· Partial (today)



Local

Known coronavirus cases in D.C., Maryland and Virginia

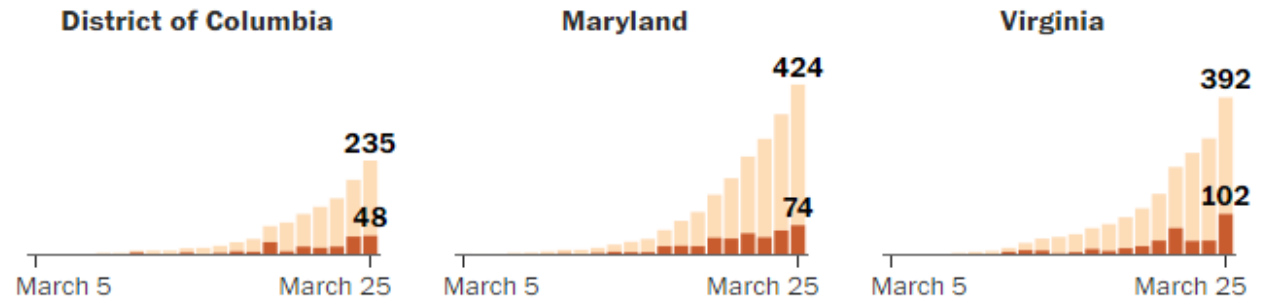
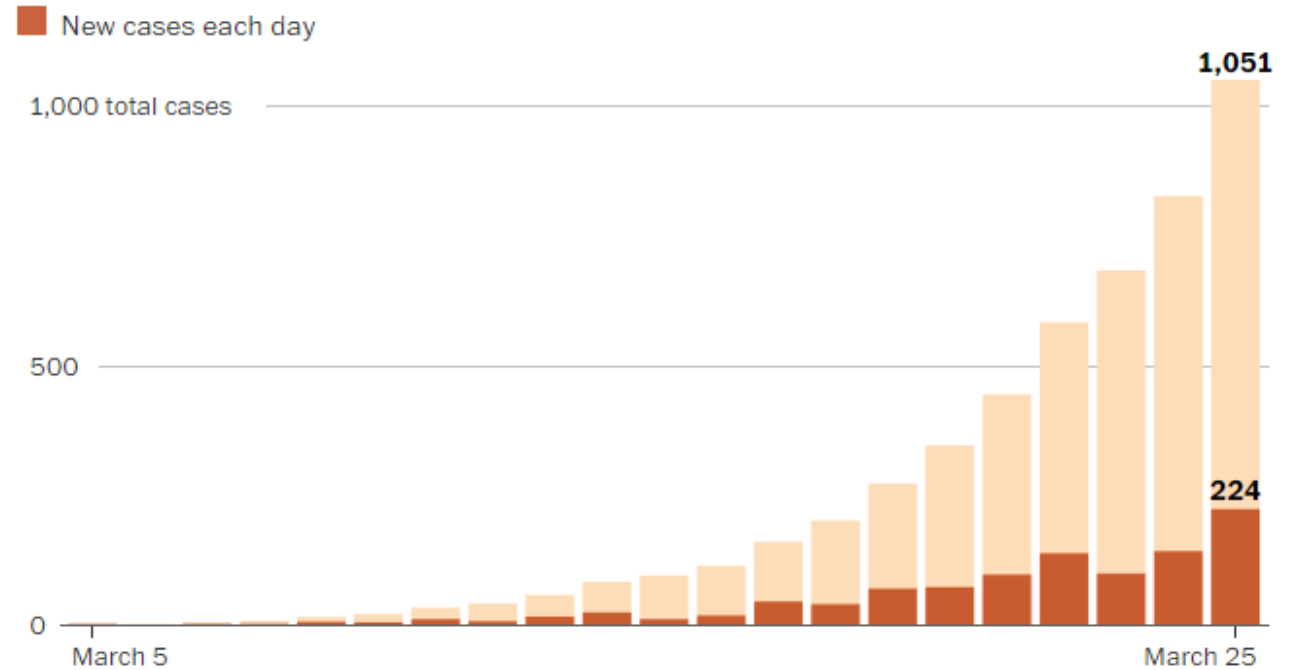
There are a total of **1,051** reported cases in the region.



By **Rebecca Tan, Fenit Nirappil, Kevin Uhrmacher, Gabriel Florit and Danielle Rindler**

Updated March 25 at 11:05 p.m.

Total cases reported in the District, Maryland and Virginia



PATHOPHYSIOLOGY

3/26/2020

Myocardial Injury

Troponin elevation or new ECG or echocardiographic abnormalities were present in 7.2% of patients overall, and 22% that required ICU care.

1) Fulminant viral myocarditis vs. Stress cardiomyopathy

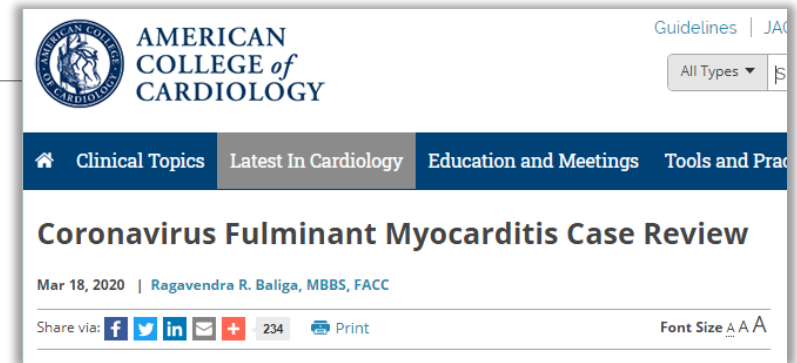
- Rare; presenting finding; younger patient?

2) Cytokine storm-mediated myocardial injury

- Later in presentation; ICU patients
- Troponin levels track with IL-6, D-dimer, ferritin, LDH
- ST elevations on ECG without coronary obstruction

3) Pre-existing cardiac disease as risk factor

- 1,099 patients (China):
 - HTN in 36% of those with intubation or death vs. 15% overall
 - DM in 27% of those with intubation or death vs. 7.4% overall
 - CAD in 9% of those with intubation or death vs. 2.5% overall
- NSTEMI Type II



AMERICAN COLLEGE of CARDIOLOGY

Guidelines | JACC

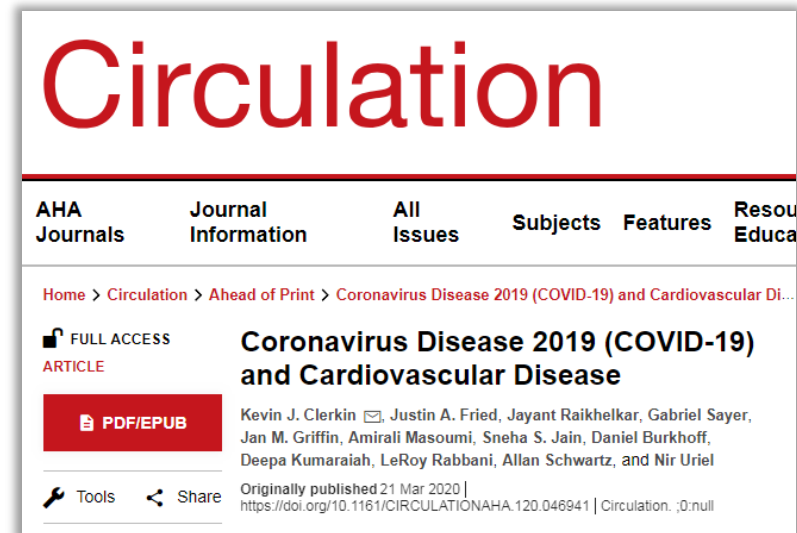
All Types ▾

Clinical Topics Latest In Cardiology Education and Meetings Tools and Prac

Coronavirus Fulminant Myocarditis Case Review

Mar 18, 2020 | Ragavendra R. Baliga, MBBS, FACC

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FULL ACCESS ARTICLE

Coronavirus Disease 2019 (COVID-19) and Cardiovascular Disease

Kevin J. Clerkin, Justin A. Fried, Jayant Raikhelkar, Gabriel Sayer, Jan M. Griffin, Amirali Masumi, Sneha S. Jain, Daniel Burkhoff, Deepa Kumaraiah, LeRoy Rabbani, Allan Schwartz, and Nir Uriel

Originally published 21 Mar 2020 | <https://doi.org/10.1161/CIRCULATIONAHA.120.046941> | Circulation. ;0:null

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Pregnant Women

Clinical features and obstetric and neonatal outcomes of pregnant patients with COVID-19 in Wuhan, China: a retrospective, single-centre, descriptive study

Nan Yu*, Wei Li*, Qingling Kang, Zhi Xiong, Shaoshuai Wang, Xingguang Lin, Yanyan Liu, Juan Xiao, Haiyi Liu, Dongrui Deng, Suhua Chen, Wanjiang Zeng, Ling Feng, Jianli Wu

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6	Patient 7
Age, years	34	30	31	33	29	34	34
Gravida (parity)	2 (0)	2 (0)	2 (1)	5 (1)	1 (0)	2 (1)	2 (1)
Gestational age at admission, weeks + days	39 + 6	38 + 5	41 + 2	37	40 + 4	38 + 2	38 + 4
Exposure to Huanan seafood market	No	No	No	No	No	No	No
Contact history of epidemic area	Yes	Yes	Yes	Yes	Yes	Yes	Yes
History of chronic basic diseases	Hypothyroidism	Polycystic ovary syndrome	No	No	No	No	No
Pregnancy complications	No	No	No	Uterine scarring	No	Uterine scarring	Uterine scarring
Clinical manifestations of obstetrics	Abdominal pain (labour)	No	Abdominal pain (premonitory labour)	Increased fetal movement	Abdominal pain (premonitory labour)	Abdominal pain (premonitory labour)	No
Pneumonia-related manifestations							
Fever (days)	Yes (3)	Yes (4)	Yes (14)	No	Yes (3)	Yes (4)	Yes (8)
Cough	No	No	No	Yes	No	No	No
Shortness of breath	No	Yes	No	No	No	No	No
Diarrhoea	No	No	Yes	No	No	No	No
Incubation period, days	5	7	4	2	9	5	3

Table 1: Maternal characteristics of seven patients with COVID-19

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6	Patient 7
Pregnancy outcome	Discharged	Discharged	Discharged	Discharged	Discharged	Discharged	Discharged
Neonatal outcome	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Birthweight, g	3250	3350	3200	3000	3500	3300	3250
Apgar score (1 min)	8–9	8–9	8–9	8–9	8–9	8–9	8–9
Apgar score (5 min)	9–10	9–10	9–10	9–10	9–10	9–10	9–10
Admission to neonatology department	Yes	No	Yes	No	No	No	Yes
Nucleic acid test of SARS-CoV-2	Positive (36 h)	Not tested	Negative	Not tested	Not tested	Not tested	Negative
Days of follow-up	40	28	28	28	28	28	28
Neonatal complications	No	No	No	No	No	No	No

None of the women were admitted to intensive care. Normal=no respiratory symptoms or fever or neonatal complications, such as neonatal respiratory distress syndrome, feeding abnormalities, or abnormal growth or development. SARS-CoV-2=severe acute respiratory syndrome coronavirus 2.

Table 2: Maternal and neonatal outcomes of seven patients with COVID-19

TESTING

3/26/2020

TESTING UPDATE

“The test has a sensitivity of 70%” – Fact or Fiction?

- 71% sensitivity of RT-PCR assay used in early phase of epidemic in Wuhan
 - Problematic comparison to CT imaging
- 70% sensitivity of IgM in early infection (days 4-10)
 - 92.3% if rechecked between days 11 and 24
 - >95% if adding IgG in later stages of disease

Sensitivity & Specificity of LabCorp RT-PCR

- Validation data: 100% agreement
 - Positive/negative controls
- NP vs. OP collection?

Clinical performance of the COVID-19 RT-PCR test with NP swabs:

	SARS-CoV-2 concentration	Number of NP swabs	N1 target % Positive (95% CIs)	N2 target % Positive (95% CIs)	N3 target % Positive (95% CIs)
COVID-19 RT-PCR test	1x LoD	10	100% (72.25 – 100)	100% (72.25 – 100)	100% (72.25 – 100)
	2x LoD	10	100% (72.25 – 100)	100% (72.25 – 100)	100% (72.25 – 100)
	4x LoD	10	100% (72.25 – 100)	100% (72.25 – 100)	100% (72.25 – 100)
	8x LoD	10	100% (72.25 – 100)	100% (72.25 – 100)	100% (72.25 – 100)
	Negative	50	0 (NA)	0 (NA)	0 (NA)

NA = Not available

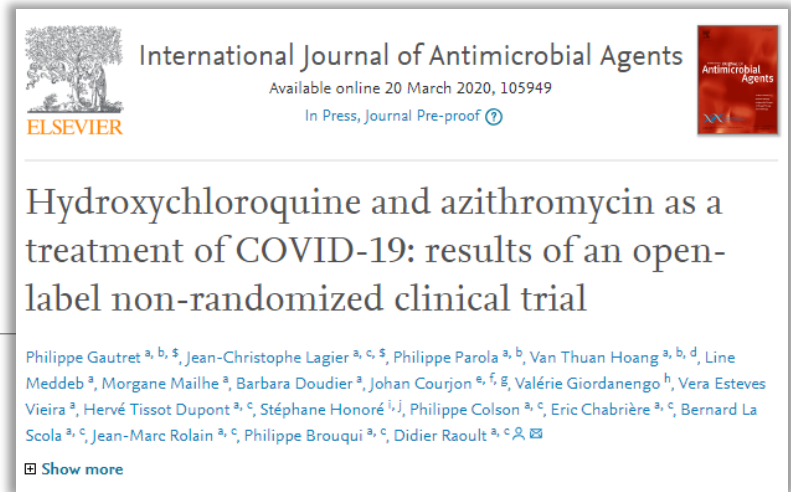
TREATMENT

3/26/2020



Hydroxychloroquine: Part I

- 26 patients received hydroxychloroquine compared to 16 who did not
- 6/26 also received azithromycin
- Virologic clearance at day 6:
 - 100% of hydroxychloroquine + azithromycin patients
 - 57% of hydroxychloroquine-only patients
 - 12.5% of comparison group
- Limitations:
 - Small N
 - NOT randomized
 - Underpowered for clinical outcomes



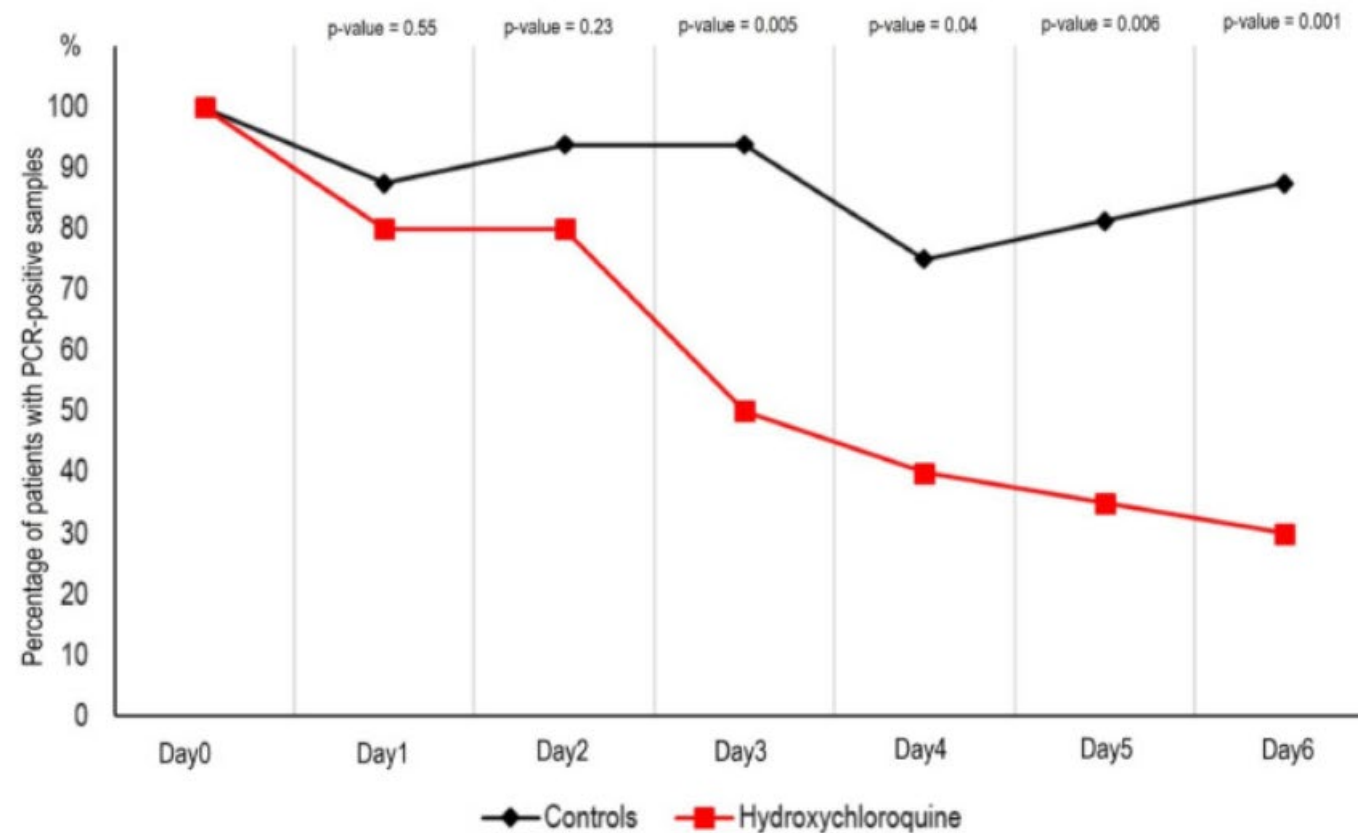


Hydroxychloroquine: Part I

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 ^{a, f, §}, 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, §}

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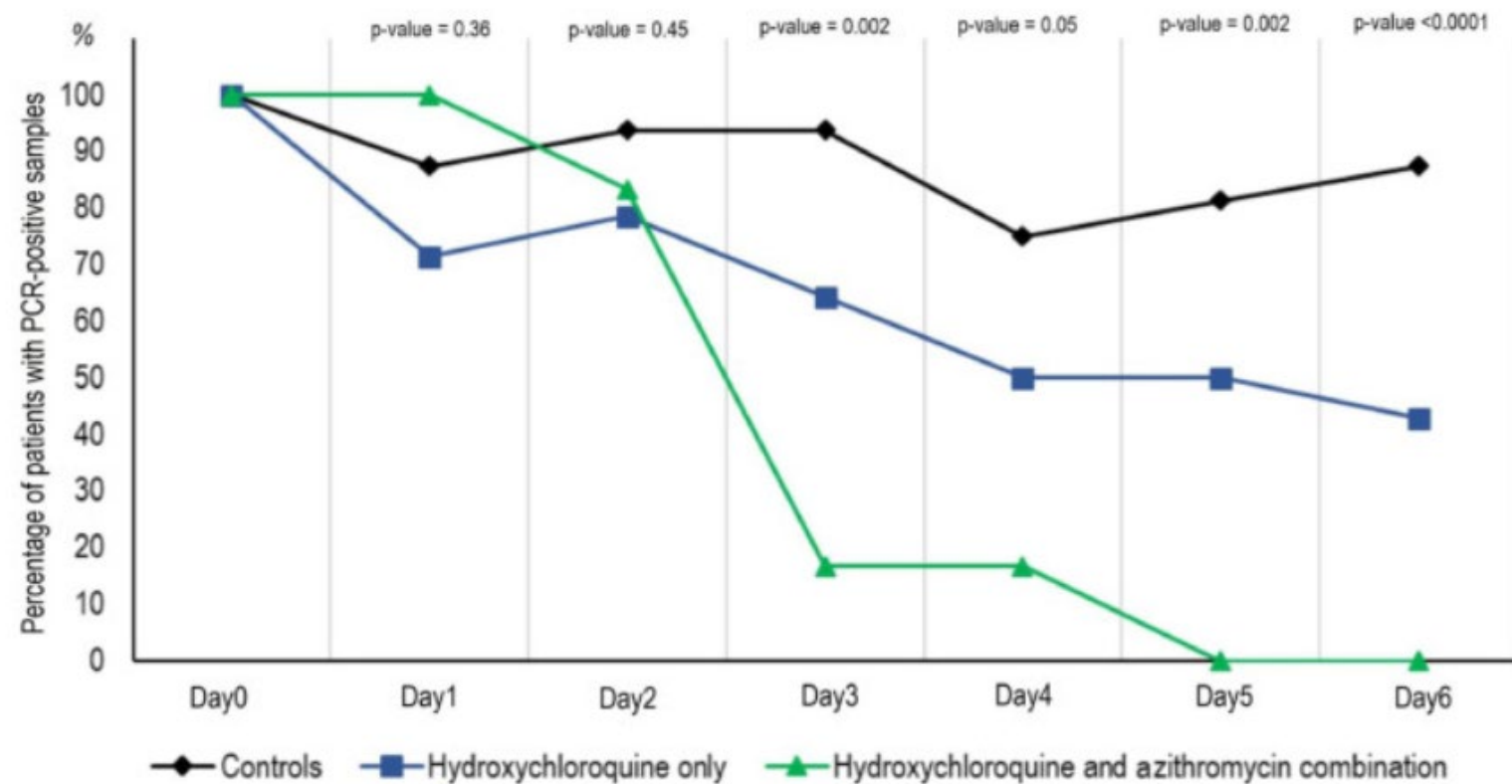


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Fearing coronavirus, Arizona man dies after taking a form of chloroquine used to treat aquariums

By Theresa Waldrop, Dave Alsup and [Eliott C. McLaughlin](#), CNN

🕒 Updated 12:50 PM ET, Wed March 25, 2020



FDA commissioner warns public against taking 'any form of chloroquine' unless prescribed

BY ARIS FOLLEY - 03/25/20 06:59 PM EDT

Hydroxychloroquine: Part II

- Open-label RCT of 30 patients in Shanghai
- Viral clearance by Day 7:
 - Hydroxychloroquine arm: 86.7%
 - Control arm: 93.3%
- Need more data on: severity of illness, clinical outcomes

硫酸羟氯喹治疗普通型 2019 冠状病毒病（COVID-19）患者 初步研究

陈军 刘丹萍 刘莉 刘萍 徐庆年 夏露 凌云 黄丹 宋树丽 张丹丹 钱志平 李涛 沈银忠
卢洪洲
上海市公共卫生临床中心感染与免疫科, 上海 201508



GW UPDATES

3/26/2020