

4-23-2020

Covid-19 Clinical Update 4/23/2020

George Washington University

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COVID-19 UPDATE

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GW DIVISION OF INFECTIOUS DISEASES

4/23/2020



EPIDEMIIOLOGY

4/23/2020

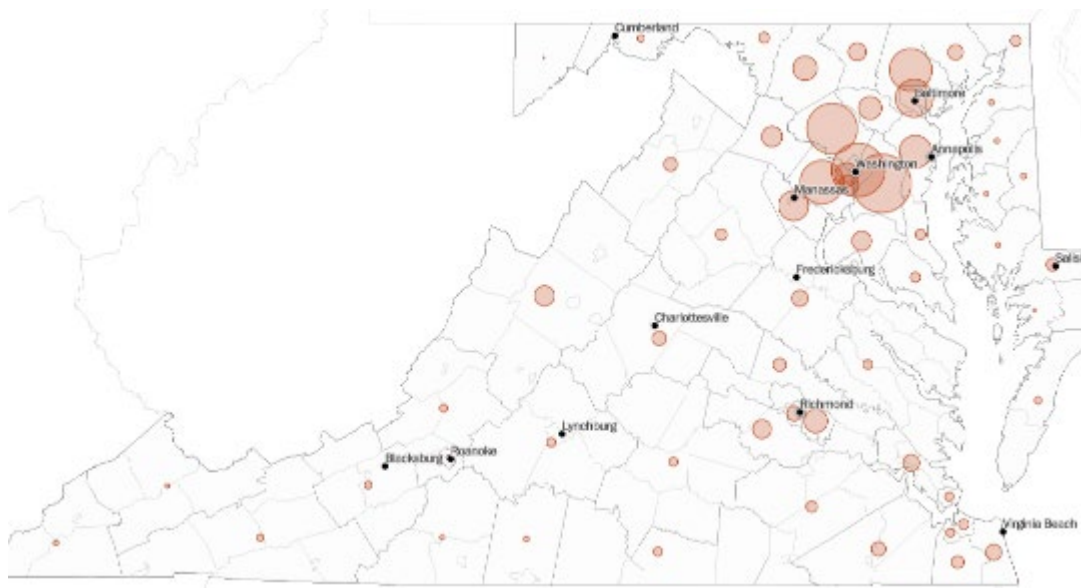


Known coronavirus deaths and cases in D.C., Maryland and Virginia

There are a total of **1,185 deaths** and **28,295 cases** confirmed in the region.

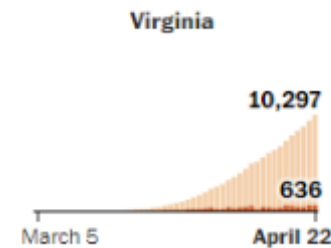
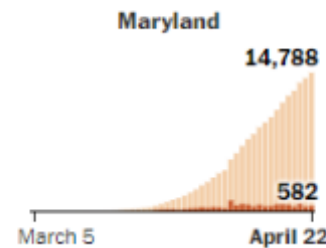
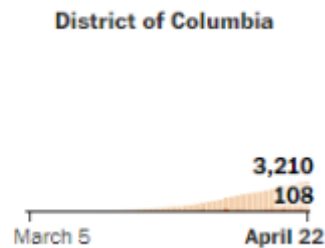
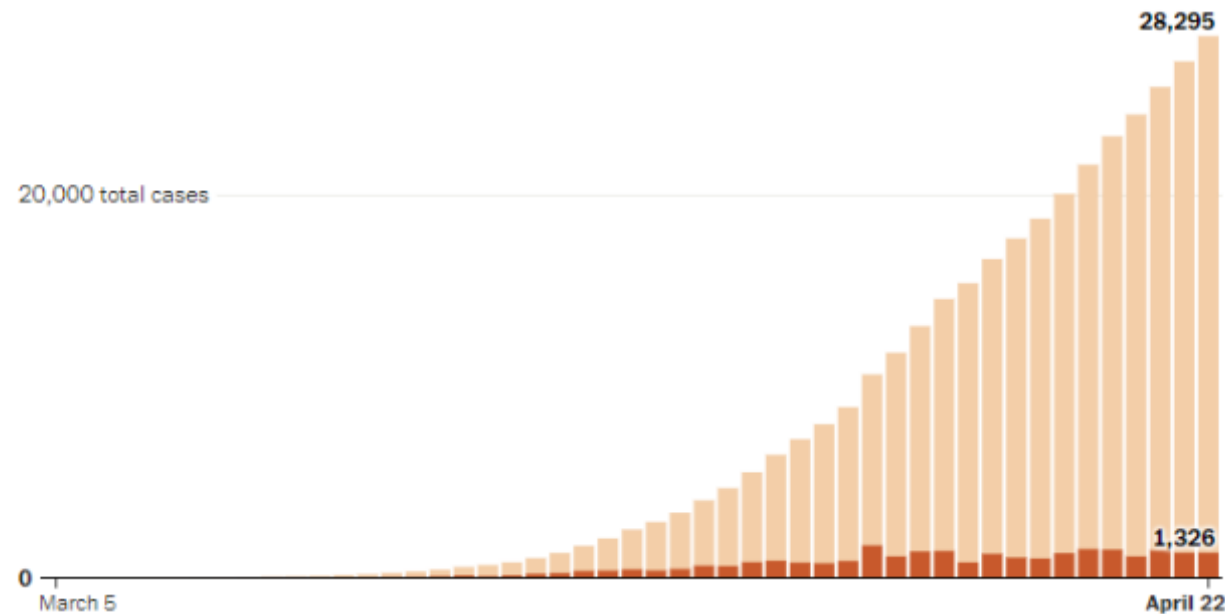


By **Rebecca Tan, Fenit Nirappil, Kevin Uhrmacher, Gabriel Florit and Danielle Rindler**
Updated April 22 at 5:08 p.m.

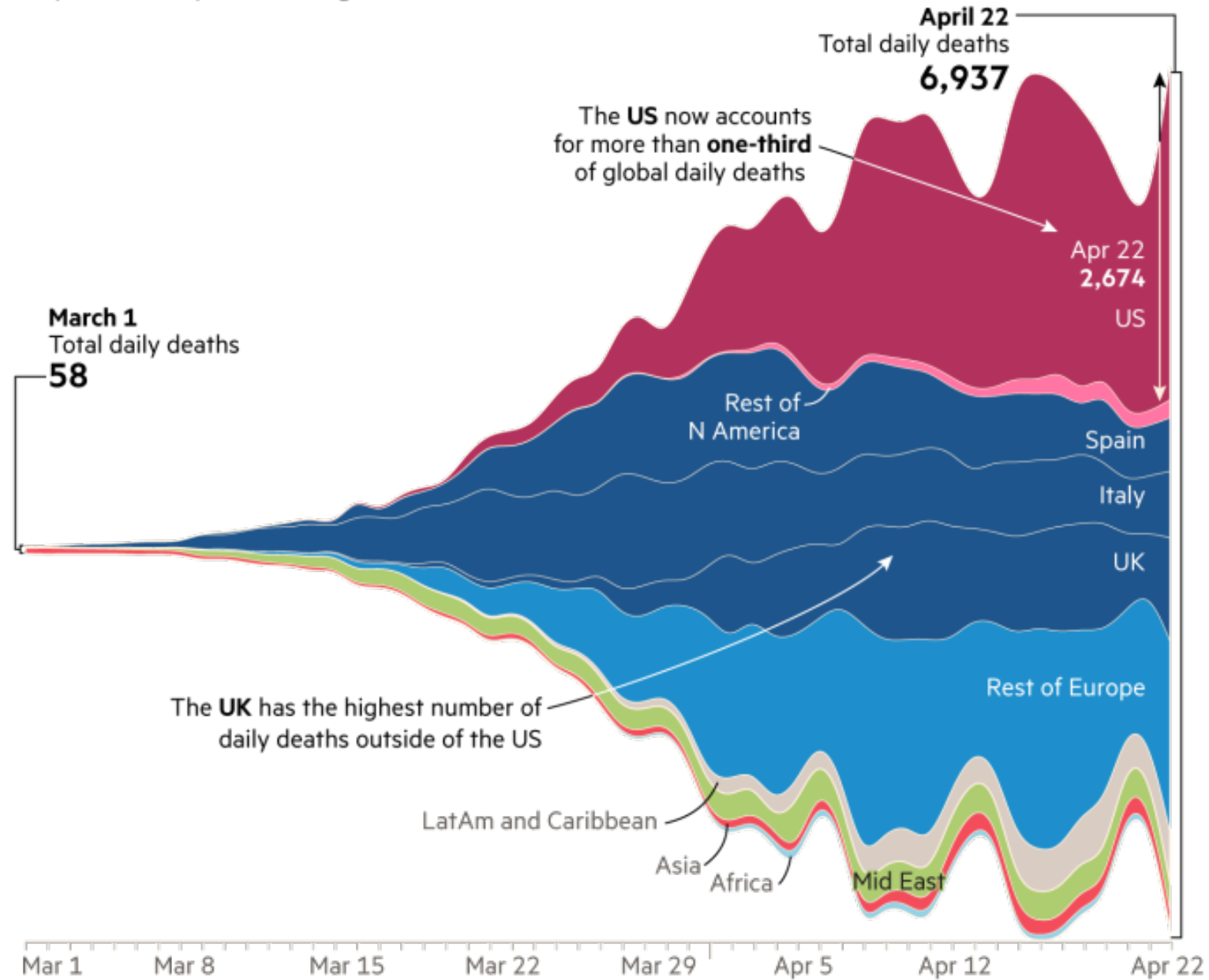


Total cases reported in the District, Maryland and Virginia

■ New cases each day

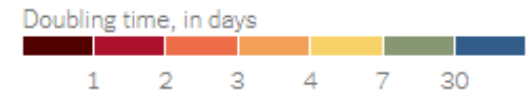


Daily deaths of patients diagnosed with coronavirus

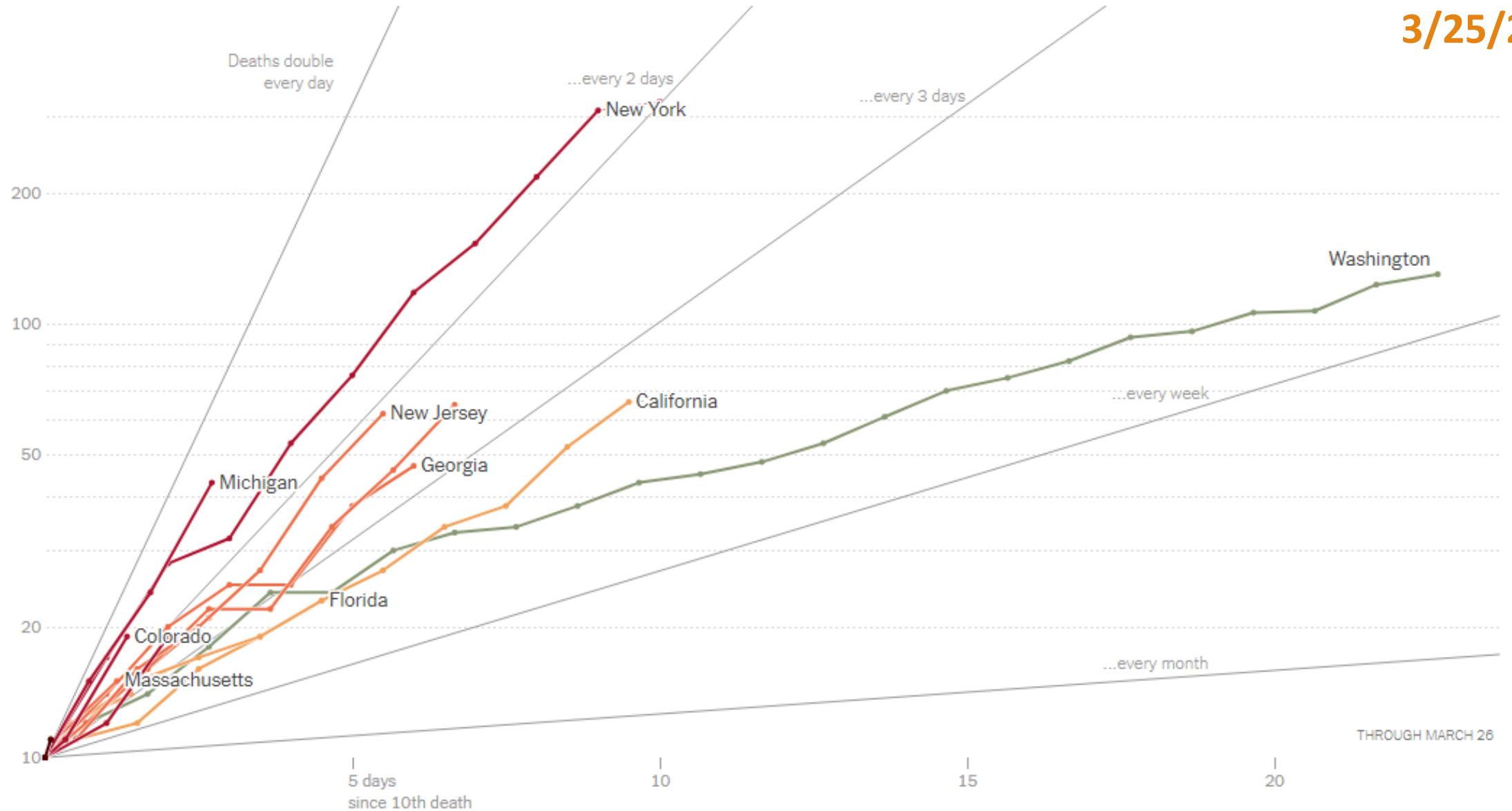


Deaths by state for states with at least 10 deaths

— Reported Partial (today)



3/25/2020



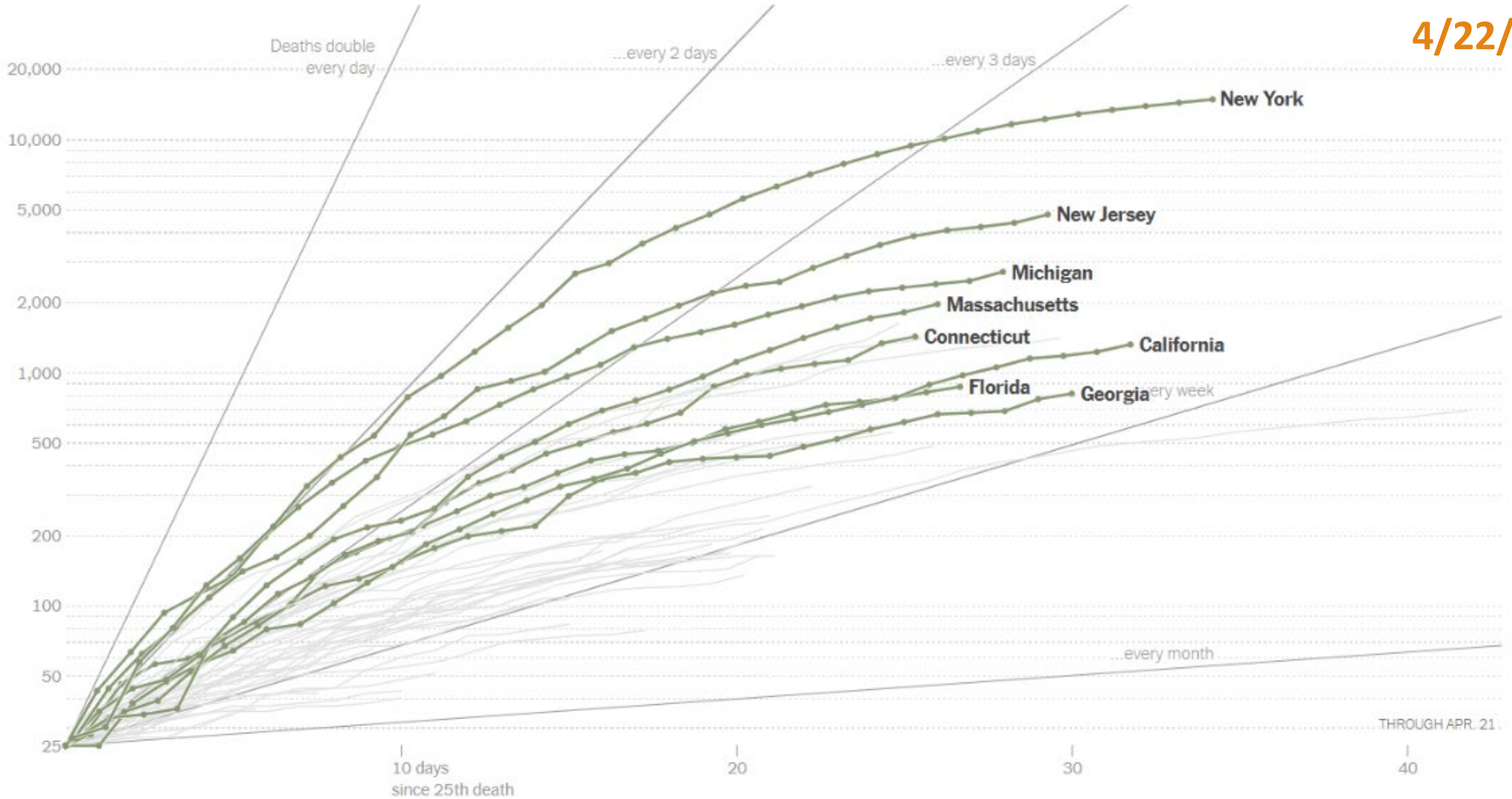
THROUGH MARCH 26

Total coronavirus deaths for places with at least 25 deaths



— Reported Partial (today)

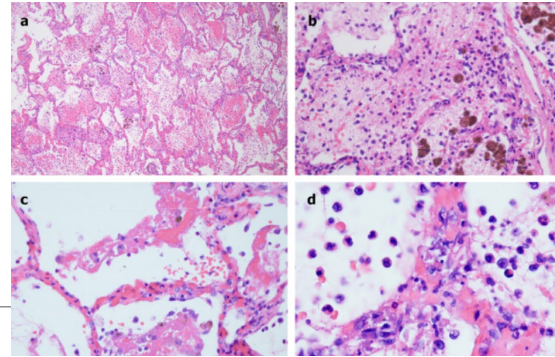
4/22/2020



PATHOPHYSIOLOGY

4/23/2020

Coagulopathy



> *Transl Res.* 2020 Apr 15;S1931-5244(20)30070-0. doi: 10.1016/j.trsl.2020.04.007.
Online ahead of print.

Complement Associated Microvascular Injury and Thrombosis in the Pathogenesis of Severe COVID-19 Infection: A Report of Five Cases

Cynthia Magro ¹, J Justin Mulvey ², David Berlin ³, Gerard Nuovo ⁴, Steven Salvatore ¹, Joanna Harp ⁵, Amelia Baxter-Stoltzfus ¹, Jeffrey Laurence ⁶

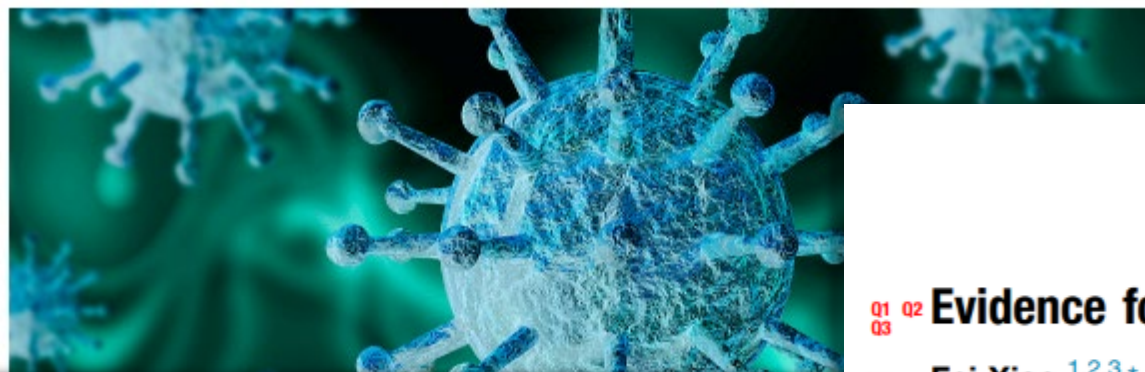
Affiliations + expand

PMID: 32299776 PMID: PMC7158248 DOI: 10.1016/j.trsl.2020.04.007

- Skin (n=3) and lung (n=5) tissues
- Pneumonitis pattern was predominantly a pauci-inflammatory septal capillary injury with significant septal capillary mural and luminal fibrin deposition and permeation of the inter-alveolar septa by neutrophils.
- No viral cytopathic changes were observed and the diffuse alveolar damage (DAD) with hyaline membranes, inflammation, and type II pneumocyte hyperplasia, hallmarks of classic ARDS, were not prominent
- These pulmonary findings were accompanied by significant deposits of terminal complement components C5b-9 (membrane attack complex), C4d, and mannose binding lectin (MBL)-associated serine protease (MASP)2, in the microvasculature, consistent with sustained, systemic activation of the alternative and lectin-based complement pathways
- The purpuric skin lesions similarly showed a pauci-inflammatory thrombogenic vasculopathy, with deposition of C5b-9 and C4d in both grossly involved and normally-appearing skin.
- Severe COVID-19 may define a type of catastrophic microvascular injury syndrome mediated by activation of complement pathways and an associated procoagulant state

Other Manifestations

COVID-19 DERMATOLOGY REGISTRY



CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

EMERGING INFECTIOUS DISEASES®

EID Journal > Volume 26 > Early Release > Main Article

Disclaimer: Early release articles are not considered as final versions. Any changes will be reflected in the online version in the month of publication.

Volume 26, Number 7—July 2020

Research Letter

Rhabdomyolysis as Potential Late Complication Associated with COVID-19

> Biol Reprod. 2020 Apr 16;ioaa050. doi: 10.1093/biolre/ioaa050. Online ahead of print.

Absence of 2019 Novel Coronavirus in Semen and Testes of COVID-19 Patients

Ci Song^{1,2}, Yan Wang³, Weiqin Li⁴, Bicheng Hu⁵, Guohua Chen⁵, Ping Xia⁵, Wei Wang⁵, Chaojun Li¹, Feiyang Diao^{1,6}, Zhibin Hu^{1,2}, Xiaoyu Yang^{1,6}, Bing Yao⁷, Yun Liu⁸

Affiliations + expand

PMID: 32297920 DOI: 10.1093/biolre/ioaa050

Gastroenterology 2020;■:1–3

Q1 Q2 Q3 Evidence for Gastrointestinal Infection of SARS-CoV-2

Q24 Fei Xiao,^{1,2,3,*} Meiwen Tang,^{4,*} Xiaobin Zheng,^{5,*} Ye Liu,⁶ Xiaofeng Li,⁷ and Hong Shan^{2,3,8}

¹Department of Infectious Diseases, the Fifth Affiliated Hospital, Sun Yat-sen University, Zhuhai, Guangdong Province, China; ²Guangdong Provincial Engineering Research Center of Molecular Imaging, the Fifth Affiliated Hospital, Sun Yat-sen University, Zhuhai, Guangdong Province, China; ³Guangdong Provincial Key Laboratory of Biomedical Imaging, the Fifth Affiliated Hospital, Sun Yat-sen University, Zhuhai, Guangdong Province, China; ⁴Department of Infectious Diseases, the Fifth Affiliated Hospital, Sun Yat-sen University, Zhuhai, Guangdong Province, China; ⁵Department of Infectious Diseases, the Fifth Affiliated Hospital, Sun Yat-sen University, Zhuhai, Guangdong Province, China; ⁶Department of Infectious Diseases, the Fifth Affiliated Hospital, Sun Yat-sen University, Zhuhai, Guangdong Province, China; ⁷Department of Infectious Diseases, the Fifth Affiliated Hospital, Sun Yat-sen University, Zhuhai, Guangdong Province, China; ⁸Department of Infectious Diseases, the Fifth Affiliated Hospital, Sun Yat-sen University, Zhuhai, Guangdong Province, China

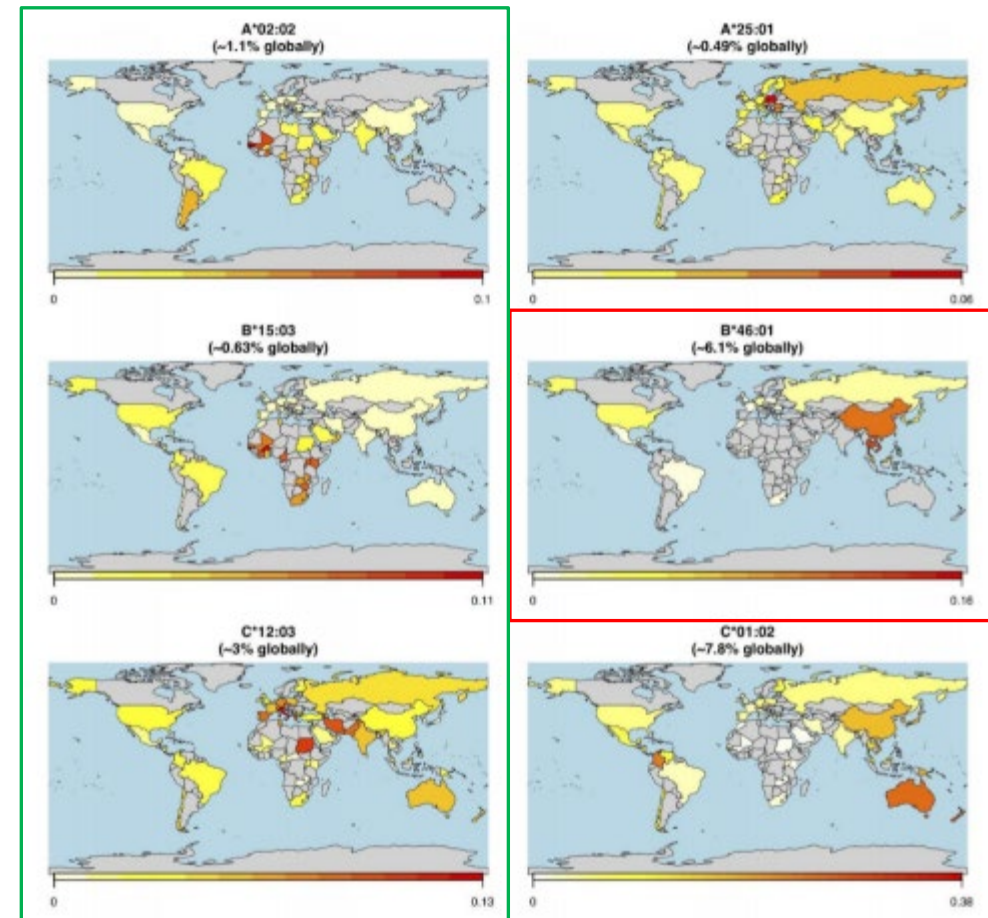
The NEW ENGLAND JOURNAL of MEDICINE

CORRESPONDENCE

Guillain–Barré Syndrome Associated with SARS-CoV-2

HLA-associated variation in susceptibility?

- The SARS-CoV-2 proteome is successfully sampled and presented by a diversity of HLA alleles
- However, different alleles are associated with presentation of different (variable vs. conserved) viral peptides, potentially resulting in different levels of cross-protection
- **HLA-B*46:01** had the fewest predicted binding peptides for SARS-CoV-2, suggesting individuals with this allele may be particularly vulnerable to COVID-19
- Alleles **HLA -A*02:02**, **HLA -B*15:03**, and **HLA -C*12:03** were the top presenters of conserved peptides
- Pairing HLA typing with COVID -19 testing where feasible could improve assessment of viral severity



TESTING

4/23/2020

PCR Testing News



THE CORONAVIRUS CRISIS

Study Raises Questions About False Negatives From Quick COVID-19 Test

April 21, 2020 · 6:07 AM ET
Heard on [Morning Edition](#)

Researchers at the Cleveland Clinic tested 239 specimens known to contain the coronavirus using five of the most commonly used coronavirus tests, including the Abbott ID NOW. The ID NOW has generated widespread excitement because it can produce results in less than 15 minutes.

But the **ID NOW** only detected the virus in 85.2% of the samples, meaning it had a false-negative rate of 14.8 percent, according to [Dr. Gary Procop](#), who heads COVID-19 testing at the Cleveland Clinic and led the study.

HEALTH

FDA greenlights first Covid-19 test with at-home sample collection

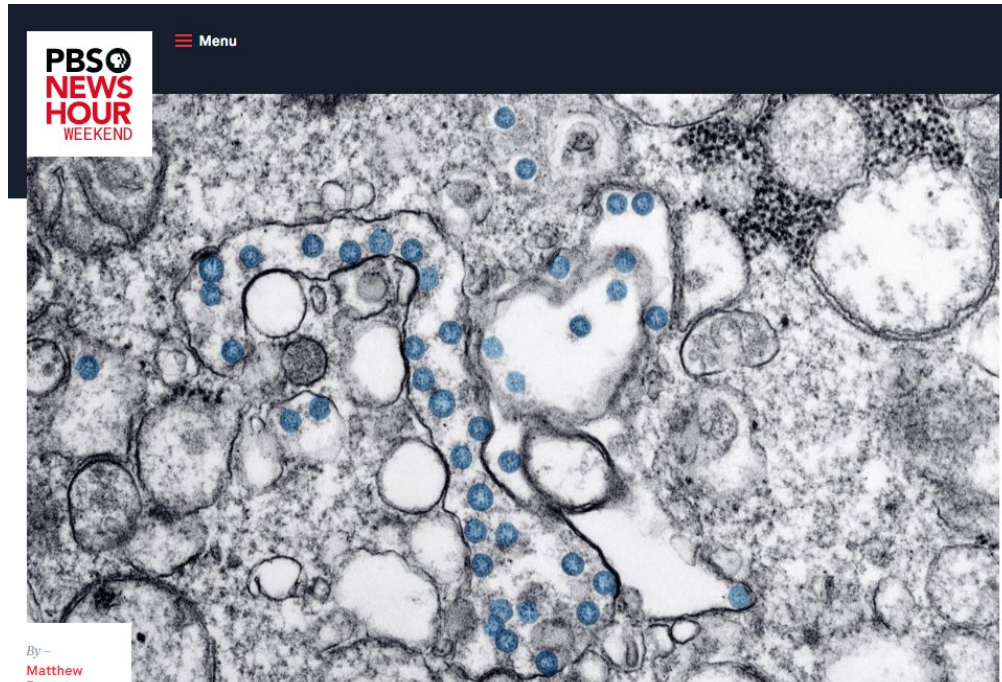
By ERIN BRODWIN [@erbrod](#) / APRIL 21, 2020



President Donald Trump holds swabs that can be used in Covid-19 testing. The FDA has authorized the first diagnostic that has an option to collect samples at home using a nasal swab.

PATRICK SEMANSKY/AP

Antibody Testing News



PBSO NEWS HOUR WEEKEND Menu

By - Matthew Perrone, Associated Press

58 comments

Share

Fears of 'Wild West' as COVID-19 blood tests hit the market

News & Analysis

Medical News & Perspectives

The Promise and Peril of Antibody Testing for COVID-19

Jennifer Abbasi

As coronavirus disease 2019 (COVID-19) raged around the globe in late March, hundreds of San Miguel County, Colorado, residents turned out for a blood test. Standing 6 feet apart outside a

+ JAMA Patient Page

+ Video

Telluride school gym, they waited for the blood draw that would tell them whether they had mounted an

immune response to the disease-causing virus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)—a sign that they'd been infected.

In the first such community-wide campaign in the US, the San Miguel County Department of Health offered the voluntary screening to most of the area's 8000 residents over 2 weeks. Just 8 of the 986 indi-



Health

Early antibody testing suggests COVID-19 infections in L.A. County greatly exceed documented cases

USC and L.A. County Department of Public Health officials have released the preliminary results of their antibody tests, which show a surprising number of residents have been infected with the coronavirus.

BY Leigh Hopper • APRIL 20, 2020

- 4.1% (95% CI: 2.8-5.6%) of the county's adult population has IgM or IgG to SARS-CoV-2
- Estimate of 221,000 to 442,000 adults in the county infected by early April – 28 to 55 times higher than the 7,994 lab-confirmed cases
- With 600 deaths attributed to COVID-19 in the same population and time, CFR would be 0.1-0.2%
- Assessments from other cities: even higher
- Interpret “hotspot” results with caution



Stanford University researchers conducted blood tests in Santa Clara county to reveal the prevalence of antibodies to the pandemic coronavirus. RAY CHAVEZ/MEDIA NEWS GROUP/ THE MERCURY NEWS VIA GETTY IMAGES

Antibody surveys suggesting vast undercount of coronavirus infections may be unreliable

By Gretchen Vogel | Apr. 21, 2020, 6:30 PM

- Discrepancies between maker-reported Sn/Sp and results of use in the field
- Especially error-prone when using in a low-prevalence settings

TREATMENT

4/23/2020



Coronavirus Disease 2019 (COVID-19) Treatment Guidelines

[VIEW GUIDELINES](#)

Credit NIAID-RML

Summary Recommendations

At present, no drug has been proven to be safe and effective for treating COVID-19. There are no Food and Drug Administration (FDA)-approved drugs specifically to treat patients with COVID-19. Although reports have appeared in the medical literature and the lay press claiming successful treatment of patients with COVID-19 with a variety of agents, definitive clinical trial data are needed to identify optimal treatments for this disease. Recommended clinical management of patients with COVID-19 includes infection prevention and control measures and supportive care, including supplemental oxygen and mechanical ventilatory support when indicated. As in the management of any disease, treatment decisions ultimately reside with the patient and their health care provider.

Insufficient clinical data to recommend **either for or against** (AIII):

- Chloroquine or hydroxychloroquine
- Remdesivir
- IL-6 or IL-1 inhibitors
- Convalescent plasma or hyperimmune immunoglobulin

Except in the context of a clinical trial, recommend **against** (AIII):

- **Hydroxychloroquine + azithromycin** in combination
- HIV protease inhibitors, interferon α or β , or JAK inhibitors

Summary of NIAID Treatment Recommendations

ACE inhibitors or ARBs:

- **Continue** if already prescribed for cardiovascular disease or other indications (AIII)
- **Do not start** for treatment of COVID-19 specifically, unless as part of a clinical trial (AIII)

HMG-CoA Reductase Inhibitors (Statins):

- Continue if already prescribed for treatment or prevention of CVD (AIII)
- **Do not start** for treatment of COVID-19 specifically, unless as part of a clinical trial (AIII)

Corticosteroids:

- For mechanically ventilated patients without ARDS: **do not use** (AIII)
- For mechanically ventilated patients with ARDS: insufficient evidence to recommend for or against (CI)
- For patients in refractory shock: **recommend using** low-dose corticosteroid therapy (BII)
- For hospitalized, non-critically-ill patients: **do not use** unless already on chronic corticosteroids (AIII)
- Continue inhaled corticosteroids if prescribed for treatment of asthma or COPD (AIII)

NSAIDs:

- Continue if already taking for management of a chronic condition (AIII)
- No difference in the use of antipyretic strategies (e.g., with acetaminophen or NSAIDs) (AIII)

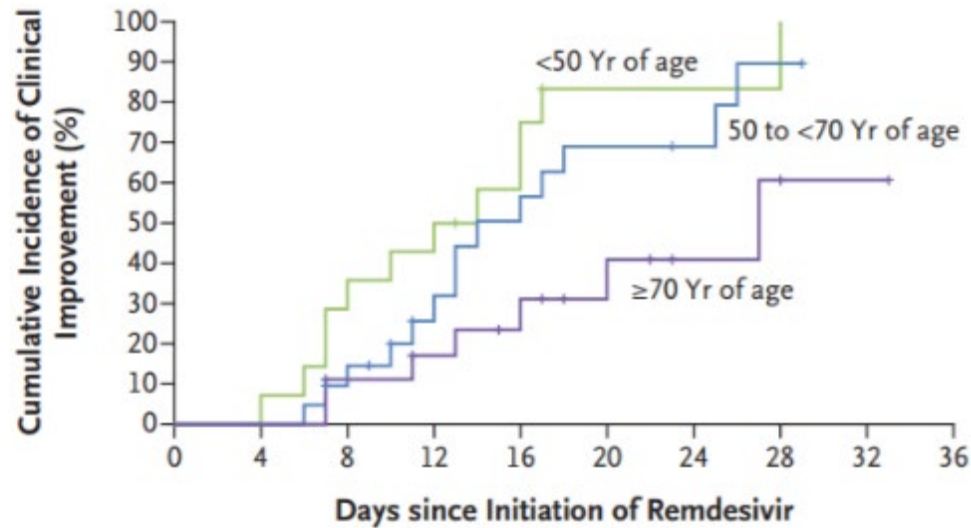
NEXT WEEK:
Critical Care
Recommendations

ORIGINAL ARTICLE

Remdesivir

Compassionate Use of Remdesivir for Patients with Severe Covid-19

C Age



No. at Risk

<50 Yr of age	14	14	10	8	5	1	1	1	
50 to <70 Yr of age	21	21	18	12	8	5	3	1	0
≥70 Yr of age	18	18	15	13	10	7	3	2	1

		No. of Patients in Oxygen-Support Group at Baseline (%)			
		Invasive (N=34)	Noninvasive (N=7)	Low-flow oxygen (N=10)	Ambient air (N=2)
Category on ordinal scale →		5	4	3	2
Death	6	6 (18)	1 (14)	0	0
Invasive	5	9 (26)	1 (14)	0	0
Noninvasive	4	3 (9)	0	0	0
Low-flow oxygen	3	0	0	0	0
Ambient air	2	8 (24)	0	0	0
Discharged	1	8 (24)	5 (71)	10 (100)	2 (100)
Improvement		19 (56)	5 (71)	10 (100)	2 (100)
	Category on ordinal scale ↑				

Figure 1. Oxygen-Support Status at Baseline and after Treatment.

For each oxygen-support category, percentages were calculated with the number of patients at baseline as the denominator. Improvement (blue cells), no change (beige) and worsening (gray) in oxygen-support status are shown. Invasive ventilation includes invasive mechanical ventilation, extracorporeal membrane oxygenation (ECMO), or both. Noninvasive ventilation includes nasal high-flow oxygen therapy, noninvasive positive pressure ventilation (NIPPV), or both.

Race and Disparities

- 33% of people who've been hospitalized with COVID-19 are African American, vs. 13% of US population
- No evidence of biologically inherent difference in severity
- However multiple epidemiologic and social factors:
 - Urban epicenters, redlining
 - Economic hardship
 - Ability to self-isolate
 - Working essential or caregiver jobs
 - Discrimination and structural barriers
- Higher prevalence of CVD, DM2, CKD, asthma, COPD
- Access to testing
- Access to timely care
- Stress, resilience, and community



A Pew Research Center survey conducted this month among 4,917 U.S. adults found that 27% of black people personally knew someone who was hospitalized with or died from COVID-19, compared to just 1 in 10 white and Hispanic people.

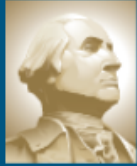
The results highlight how coronavirus is disproportionately affecting lower-income people of color.

The survey asked people how concerned they were about contracting coronavirus; of those polled 24% say they are very concerned about getting the virus. Of that group, one-third had lower incomes, versus just 17% classified as upper-income. Of that very concerned population, 43% were Hispanic, 31% black and 18% white.



GW Updates

4/23/2020



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COVID-19 Research Fund

GW scholars and researchers are stepping forward to dedicate their efforts and expertise to understanding COVID-19 and mitigating the impacts of the current pandemic. These new projects have the potential to prevent suffering, inform policy and responses to future outbreaks, and strengthen the resiliency of individuals and communities. Discovering and disseminating new knowledge for the public good is at the heart of GW's mission. In support of that mission and our innovative research community, the Office of the Vice President for Research in collaboration with the Milken Institute School of Public Health and the School of Medicine and Health Sciences announces a new special funding opportunity, the COVID-19 Research Fund.

The goal of the COVID-19 Research Fund is to support as many high-impact projects as possible with the allocated funding. In anticipation of a high volume of proposals, we ask that applicants only request funding that cannot be secured elsewhere and that is critical to achieve the project's objectives.

Important Documents - COVID-19 Research Fund

Relevant Documents

[COVID-19 Research Fund FY21 Call for
Proposals \(PDF\)](#)

[Budget Template \(XLS\)](#)

Department Chair Support Form

- [PDF](#)
- [Word](#)