

6-25-2020

Covid-19 Clinical Update 6/25/2020

George Washington University

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George Washington University, "Covid-19 Clinical Update 6/25/2020" (2020). *GW Infectious Disease Updates*. Paper 16.

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1. EPIDEMIOLOGY

2. TRANSMISSION

3. PATHOPHYSIOLOGY

4. TREATMENT

5. GW UPDATES

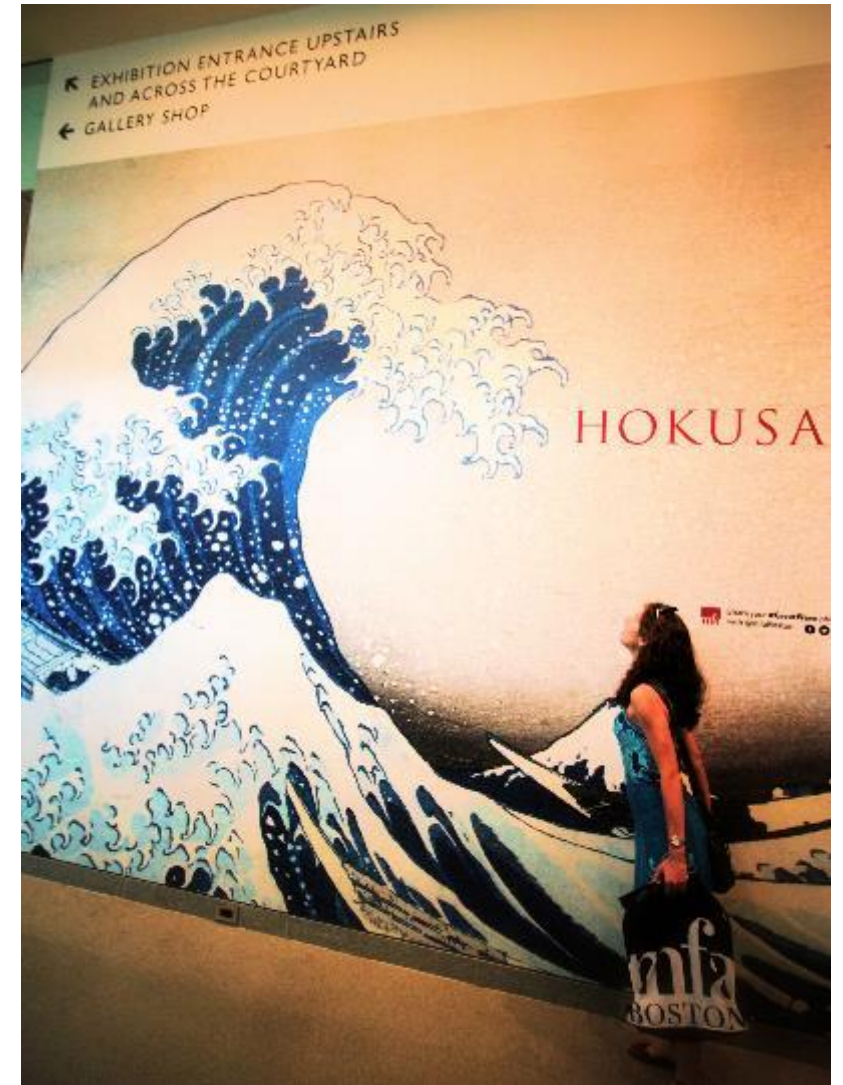


COVID-19 UPDATE

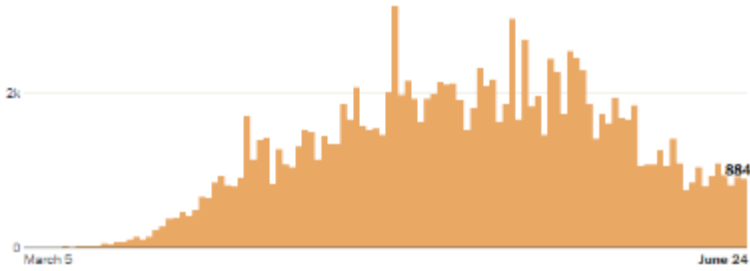
HANA AKSELROD, MD, MPH

GW DIVISION OF INFECTIOUS DISEASES

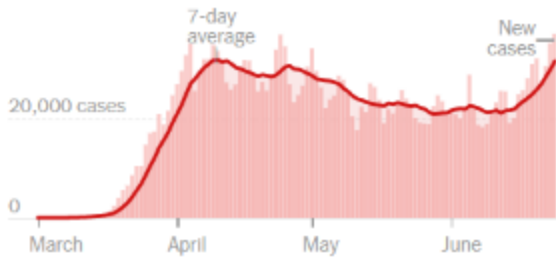
6/25/2020



New daily cases reported in D.C., Maryland and Virginia



By The New York Times Updated June 25, 2020, 4:07 A.M. E.T.



TOTAL CASES

2.3 million+

DEATHS

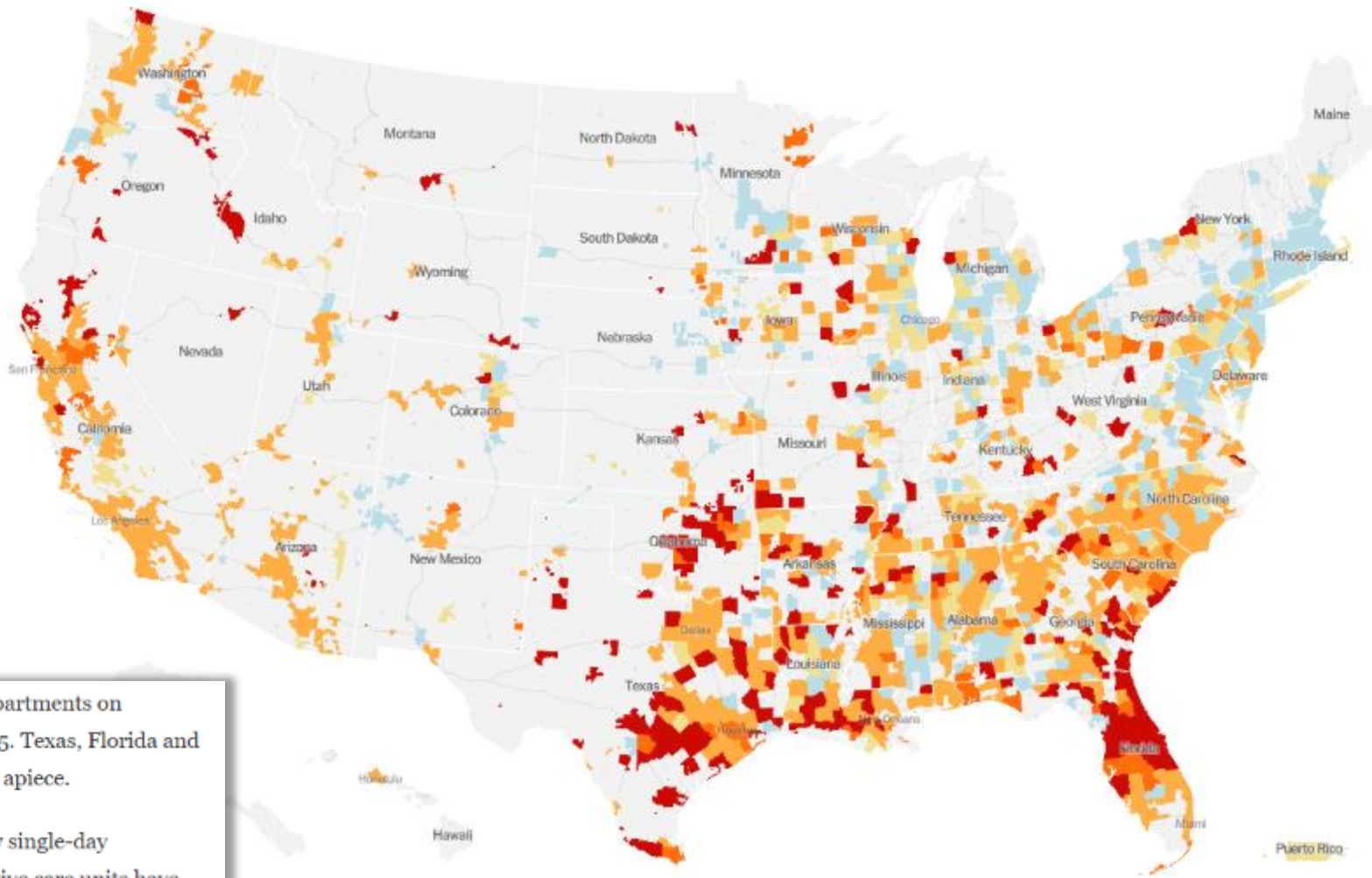
121,926

Includes confirmed and probable cases where available

Across the United States, **38,115** new infections were reported by state health departments on Wednesday — surpassing the previous single-day record of 34,203 set on April 25. Texas, Florida and California led the way, with all three states reporting more than 5,000 new cases apiece.

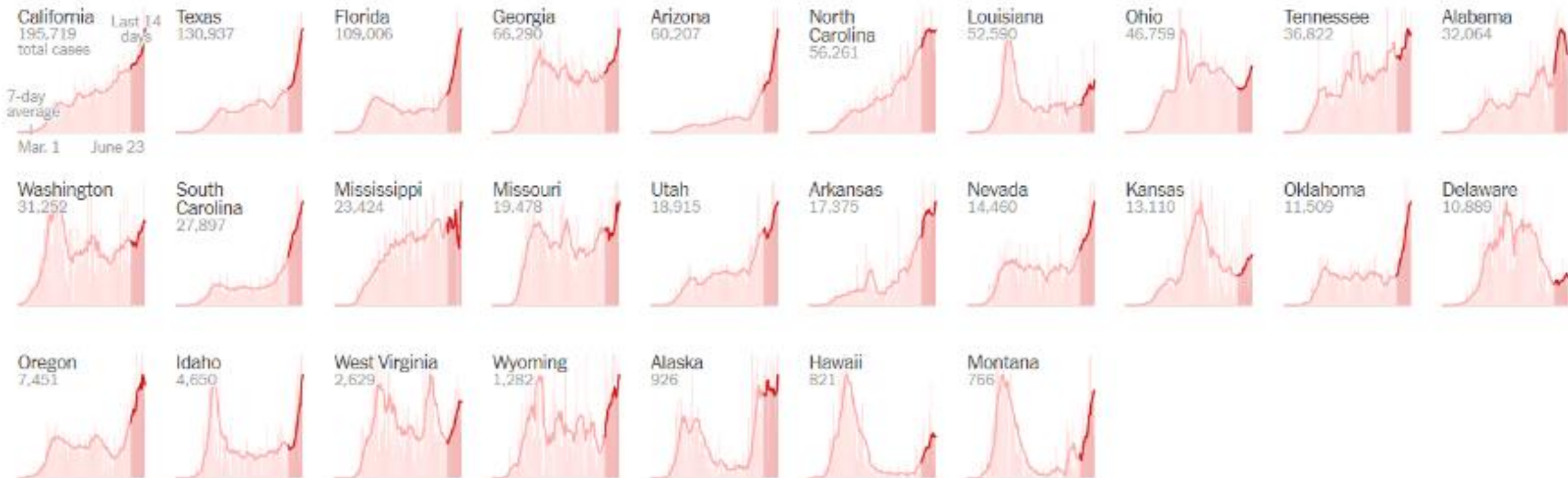
Three states — California, Florida and Oklahoma — reported record highs in new single-day coronavirus cases, while hospitalizations hit a new peak in Arizona, where intensive care units have quickly filled.

Even as case numbers climb, reports circulated that the federal government is poised to stop providing federal aid to testing sites in some hard-hit states, including Texas, prompting a top federal official to respond that testing was on the rise.



Where new cases are increasing

Click a state to see detailed map page.



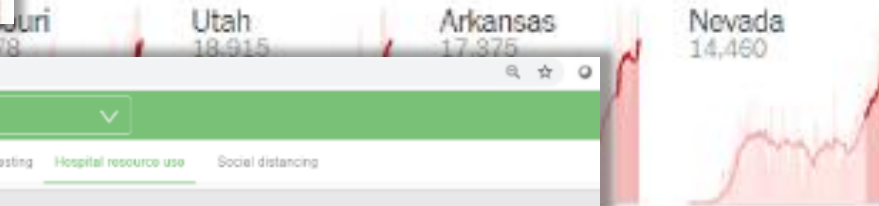
California sees 69% Covid-19 rise in two days as LA county has most cases in US

According to public health data, there were a record number of hospitalizations over the weekend due to the virus



cases are increasing

tailed map page.



Texas Covid-19 cases hit all-time daily high as Houston hospitals near capacity

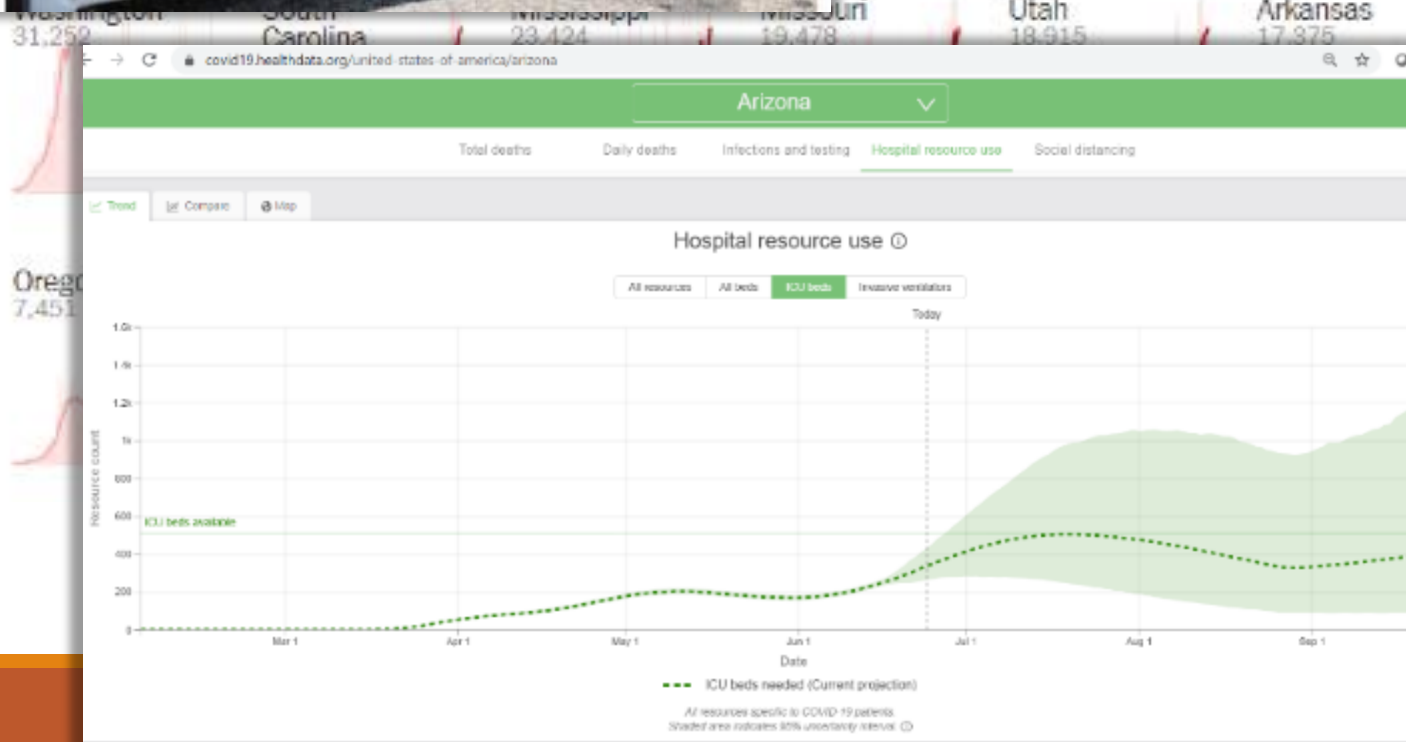
Increase in coronavirus infections prompted governor to tighten public health restrictions after resisting calls to slow reopening



▲ The Texas governor, Greg Abbott, in Austin on 27 June. He tightened localities and unions on Tuesday, one day after declaring the state would remain 'wide open for business'. Photograph: Ruardo B Braccio/UAP

Texas recorded an all-time daily high of 5,489 new Covid-19 cases on Tuesday as hospitals neared capacity in Houston.

The dramatic increase in cases prompted the governor, Greg Abbott, to tighten public health restrictions after resisting calls to slow the state's



California sees 69% Covid-19 rise in two days as LA county has most cases in US

According to public health data, there were a record number of hospitalizations over the weekend due to the virus



Miami Herald

CORONAVIRUS

'Exponential growth.' Despite testing slowdown, Florida COVID cases hit all-time high

BY BEN CONARCK AND DANIEL CHANG

JUNE 24, 2020 09:09 PM, UPDATED 1 HOUR 11 MINUTES AGO



DeSantis fires back at Miami Herald reporter on question regarding possible data manipulation

Texas Covid-19 cases hit all-time daily high as Houston hospitals near capacity

Increase in coronavirus infections prompted governor to tighten public health restrictions after resisting calls to slow reopening



The Texas governor, Greg Abbott, in Austin on 22 June. He tightened localities and unions on Tuesday, one day after declaring the state would remain 'wide open for business'. Photograph: Ricardo B. Bracco/UAP

Texas recorded an all-time daily high of 5,489 new Covid-19 cases on Tuesday as hospitals neared capacity in Houston.

Arizona Hospitals Told To Activate 'Emergency Plans' Amid Coronavirus Spike



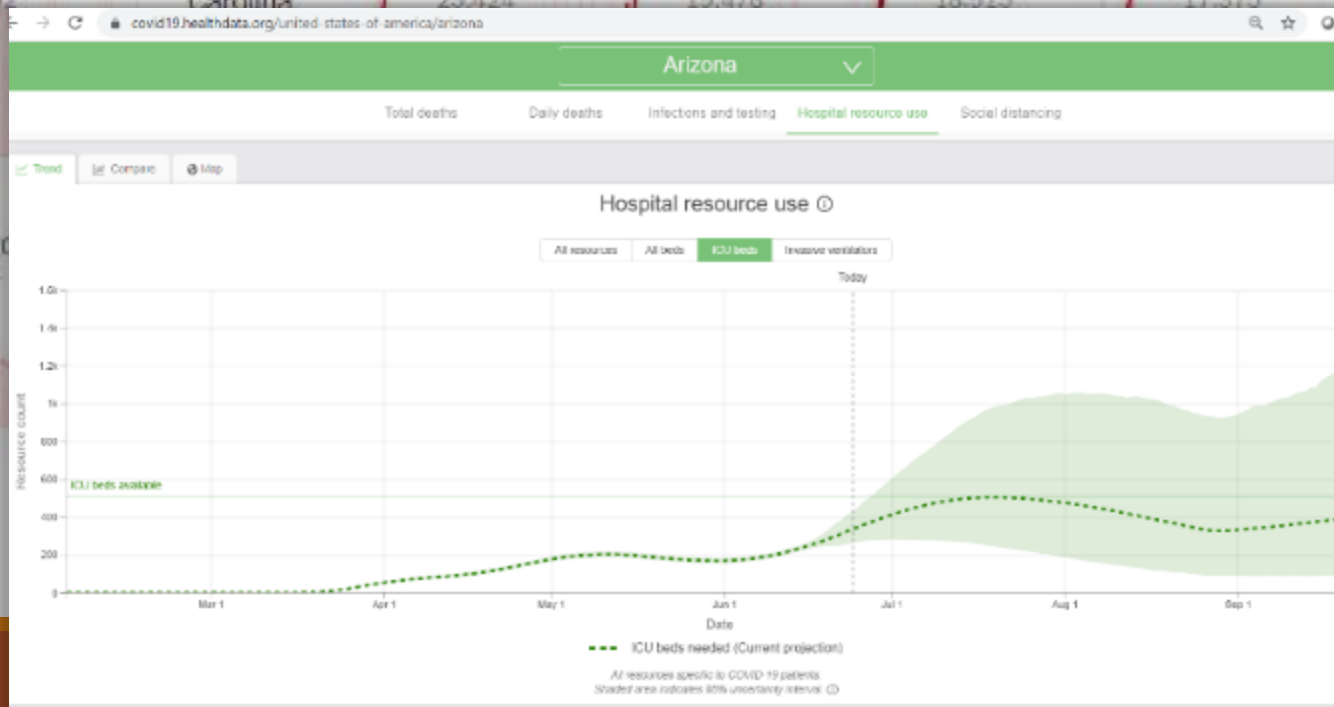
Alexandra Sternlicht Forbes Staff

Business

I cover breaking news

Updated Jun 10, 2020, 12:25pm EDT

TOPLINE Since Arizona lifted its stay-at-home order on May 15, coronavirus cases have increased 115%, reaching record highs and leading officials to call on hospitals to "fully activate" their emergency plans as intensive care units reach capacity.



California sees 69% Covid-19 rise in two days as LA county has most cases in US

According to public health data, there were a record number of hospitalizations over the weekend due to the virus



Washington 31,252 South Carolina 23,424 Virginia 19,478

CORONAVIRUS

'Exponential growth.' Despite testing

slowdown

BY BEN CONARCK
JUNE 24, 2020 09:01



NEWS INVESTIGATE WEATHER TRAFFIC SPORTS LOWCOUNTRY

TRI-COUNTY

1,291 new cases of COVID-19, and 10 additional deaths in South Carolina



Texas Covid-19 cases hit all-time daily high as Houston hospitals near capacity

Increase in coronavirus infections prompted governor to tighten public health restrictions after resisting calls to slow reopening



with localities and unions on Tuesday, one day ago. Report: Ricardo B. Bracco/UAP
10 new Covid-19 cases on ton.

To plans' ke



NYTIMES.COM
E.U. May Bar American Travelers as It Reopens Borders, Citing Failures on Virus



Updated Jun 10, 2020, 12:25pm EDT

TOPLINE Since Arizona lifted its stay-at-home order on May 15, coronavirus cases have increased 115%, reaching record highs and leading officials to call on hospitals to "fully activate" their emergency plans as intensive care units reach capacity.


WHAT IS A TSUNAMI?



Tsunami

A series of waves caused by an earthquake, underwater volcanic eruption, landslide or other abrupt disturbance.



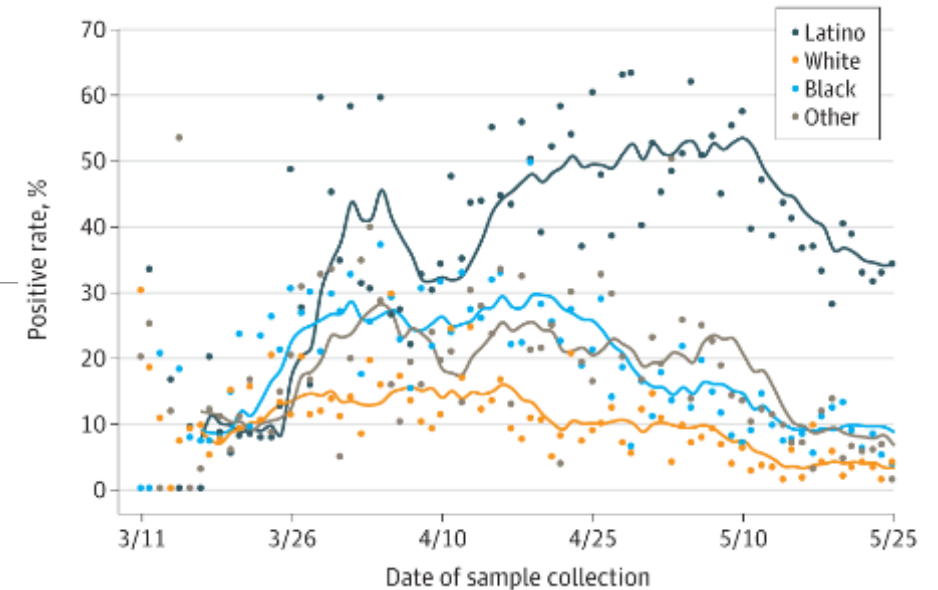
 Study.com

emergency plans as intensive care units reach capacity.

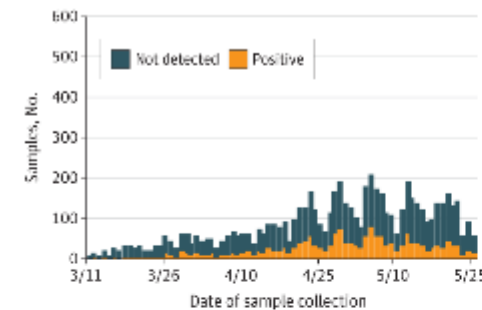
Demographics Update

- JAMA Research Letter; Johns Hopkins system, March-May 2020.
- 6,162 patients (+) for SARS-CoV-2. Compared demographics, comorbidities, hospitalization rate, outcomes.
- Self-reported race/ethnicity, Latino category exclusive of others
- Admission rate was lower for Latino patients (29.1%) than for white (40.1%) or Black (41.7%) patients.
- Hospitalized Latino patients were more likely to be younger, male, with lower rates of hypertension, congestive heart failure, pulmonary disease, and chronic obstructive pulmonary disease than white or black patients ($P < .001$).
- Study cannot determine whether these differences represented higher disease prevalence, differences in access (e.g. reluctance to seek care), or both.

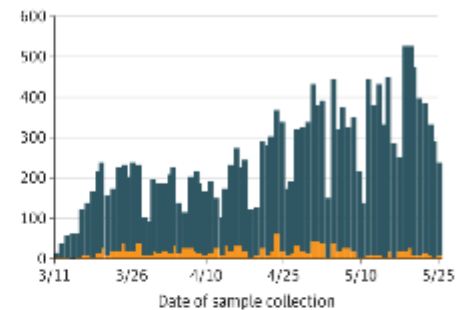
A SARS-CoV-2 positivity over time, all race/ethnicity groups



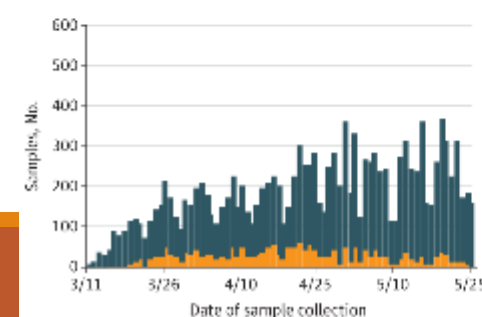
B Latino



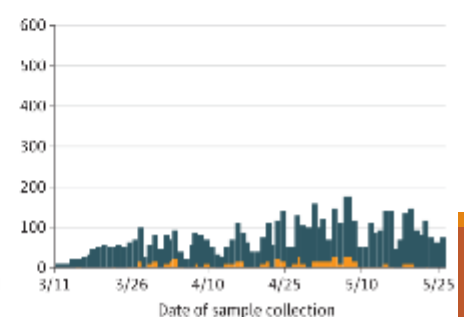
C White



D Black



E Other



Reviews

Prevalence of Asymptomatic SARS-CoV-2 Infection

Asymptomatic Transmission

Table. Summary of SARS-CoV-2 Testing Studies

Cohort	Tested, n	SARS-CoV-2 Positive, n (%)	Positive but Asymptomatic, n (%)	Notes*
Iceland residents (6)	13 080	100 (0.8)	43 (43.0)	R
Vo', Italy, residents (7)	5155	102 (2.0)	43 (42.2)	R, L
<i>Diamond Princess</i> cruise ship passengers and crew (8)	3711	712 (19.2)	331 (46.5)	–
Boston homeless shelter occupants (9)	408	147 (36.0)	129 (87.8)	–
New York City obstetric patients (11)	214	33 (15.4)	29 (87.9)	L
U.S.S. <i>Theodore Roosevelt</i> aircraft carrier crew (12)	4954	856 (17.3)	~500 (58.4)	E
Japanese citizens evacuated from Wuhan, China (2)	565	13 (2.3)	4 (30.8)	L
Greek citizens evacuated from the United Kingdom, Spain, and Turkey (14)†	783	40 (5.1)	35 (87.5)	L
<i>Charles de Gaulle</i> aircraft carrier crew (13)	1760	1046 (59.4)	~500 (47.8)	E
Los Angeles homeless shelter occupants (10)	178	43 (24.2)	27 (62.8)	–
King County, Washington, nursing facility residents (15)	76	48 (63.2)	3 (6.3)	L
Arkansas, North Carolina, Ohio, and Virginia inmates (16)	4693	3277 (69.8)	3146 (96.0)	–
New Jersey university and hospital employees (17)	829	41 (4.9)	27 (65.9)	–
Indiana residents (18)	4611	78 (1.7)	35 (44.8)	R
Argentine cruise ship passengers and crew (19)	217	128 (59.0)	104 (81.3)	–
San Francisco residents (29)	4160	74 (1.8)	39 (52.7)	–

E = estimated from incomplete source data; L = longitudinal data collected; R = representative sample.

* A dash indicates that the study did not have a representative sample, collected no longitudinal data, and did not require estimation of missing data.

† Clarified via e-mail communication with coauthor.

Asymptomatic persons seem to account for approximately 40% to 45% of SARS-CoV-2 infections, and they can transmit the virus to others for an extended period

Asymptomatic Infection: Pathophysiology

- Wanzhou, China, February 2020
- 37 people identified by contact tracing, PCR+
- 37 matched controls with mild symptoms, PCR+
- Of the 37 asymptomatic individuals
 - 3 had lymphopenia and 1 had thrombocytopenia
 - 6 had elevated ALT, 11 had increased C-reactive protein
 - 67% had abnormal CT chest findings
- In the acute phase of illness, virus-specific IgG levels in the asymptomatic group (median S/CO, 3.4; IQR, 1.6–10.7) were significantly lower ($P=0.005$) relative to the symptomatic group (median S/CO, 20.5; IQR, 5.8–38.2)
- In the early convalescent phase (2-3 months from onset), 40% of asymptomatic individuals and 12.9% of the symptomatic group became negative for IgG
- These data together suggest that a weaker immune response to SARS-CoV-2 occurs in asymptomatic infection

LETTERS

NATURE MEDICINE

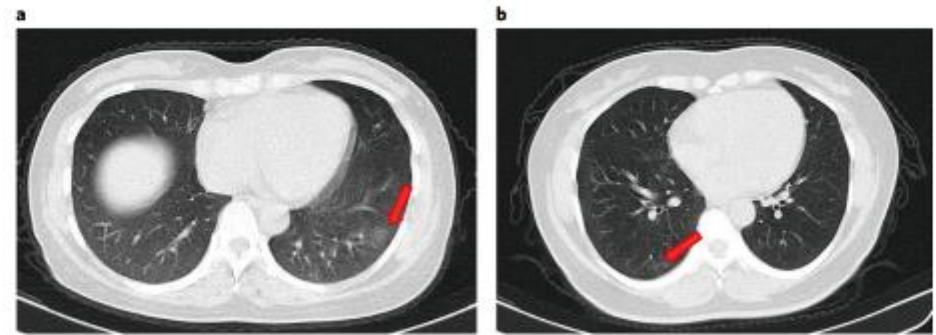
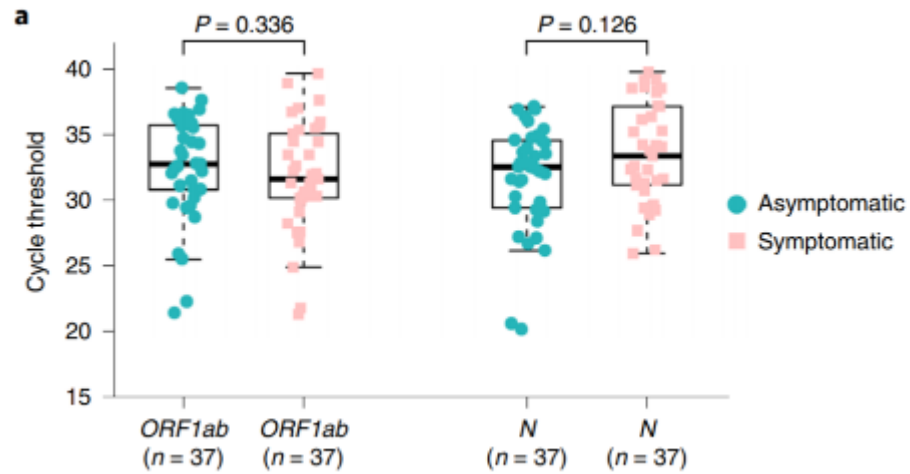
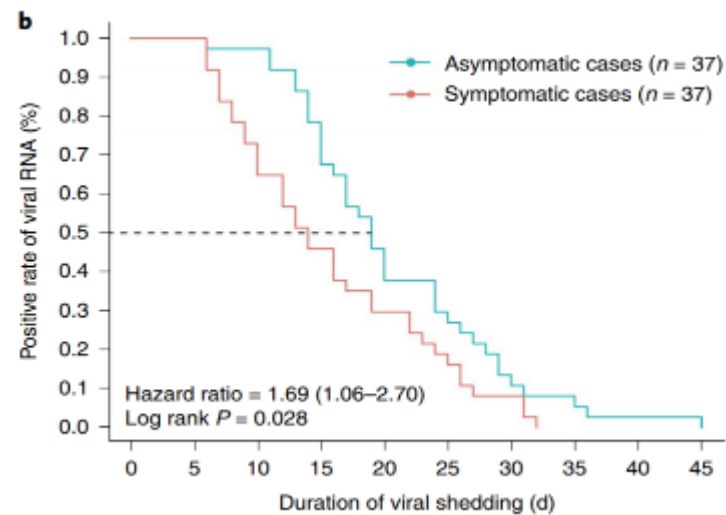


Fig. 1 | Chest CT scans from two asymptomatic patients. **a.** CT scan of a 45-year-old female showing focal ground-glass opacities in the lower lobe of the left lung (arrow). **b.** CT scan of a 50-year-old female showing ground-glass opacities and stripes coexisting in the lower lobe of the right lung (arrows).

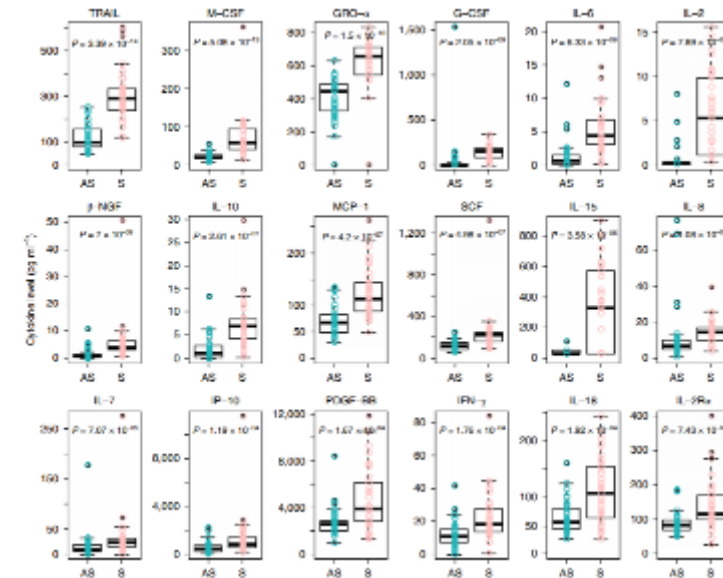
1. Does PCR detect virus?



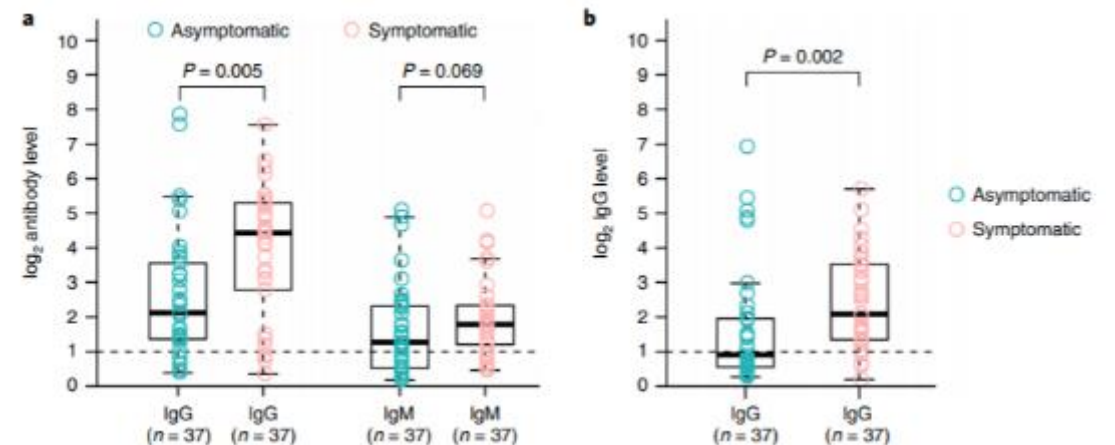
2. How long is virus detected?



3. Does the inflammatory response differ?



4. Does the antibody response differ?

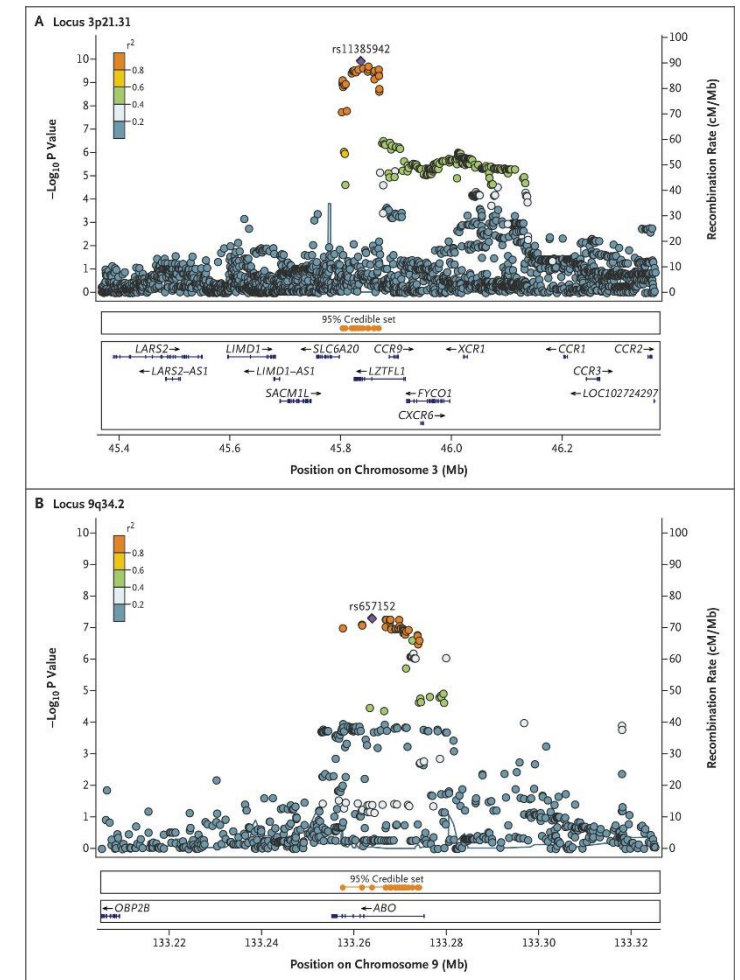


Genomewide Association Study of Severe Covid-19 with Respiratory Failure

David Ellinghaus, Ph.D., Frauke Degenhardt, M.Sc., Luis Bujanda, M.D., Ph.D., Maria Buti, M.D., Ph.D., Agustín Albillos, M.D., Ph.D., Pietro Invernizzi, M.D., Ph.D., Javier Fernández, M.D., Ph.D., Daniele Prati, M.D., Guido Baselli, Ph.D., Rosanna Asselta, Ph.D., Marit M. Grimsrud, M.D., Chiara Milani, Ph.D., et al., for The Severe Covid-19 GWAS

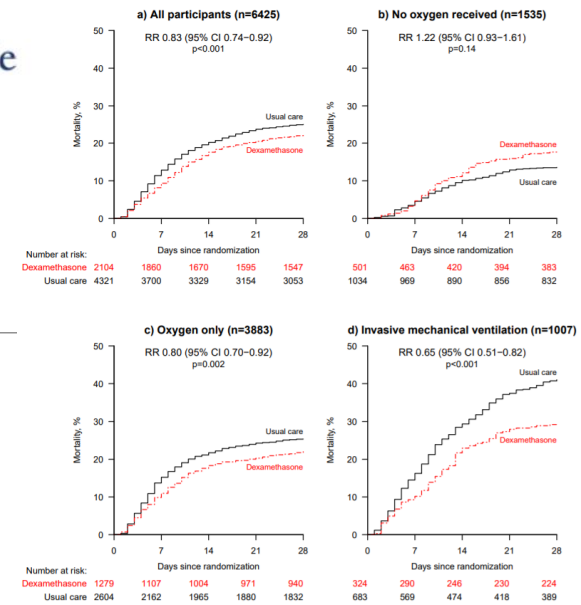
Group*

- GWAS of patients at 7 hospitals in Italy and Spain epicenters
- Included 1610 patients with COVID-19 and 1,205 control participants
- Analyzed 8,582,968 single-nucleotide polymorphisms; meta-analysis of case-control panels
- At locus 3p21.31, the association signal spanned the genes *SLC6A20*, *LZTFL1*, *CCR9*, *FYCO1*, *XCR1*, and *CXCR6*. *SLC6A20* encodes sodium transporter 1 (SIT1) which **functionally interacts with ACE-2**.
- Other genes at this locus **chemokine receptors CCR9 and CXCR6**. The latter regulates the specific location of lung-resident memory CD8 T cells throughout the sustained immune response to airway pathogens, including influenza viruses
- The association signal at locus 9q34.2 coincided with the *ABO* blood group locus. Analysis showed **higher risk in blood group A** (OR 1.45; 95% CI, 1.20 to 1.75; $P=1.48 \times 10^{-4}$) and a **protective effect in group O** (OR 0.65; 95% CI, 0.53 to 0.79; $P=1.06 \times 10^{-5}$)
- Why *ABO*? Development of neutralizing antibodies? Stabilization of von Willebrand factor?
- Further studies needed to delineate the functional consequences of detected associations
- Limitations: selection bias (Type O blood donors), no data on disease severity or comorbidities



Dexamethasone

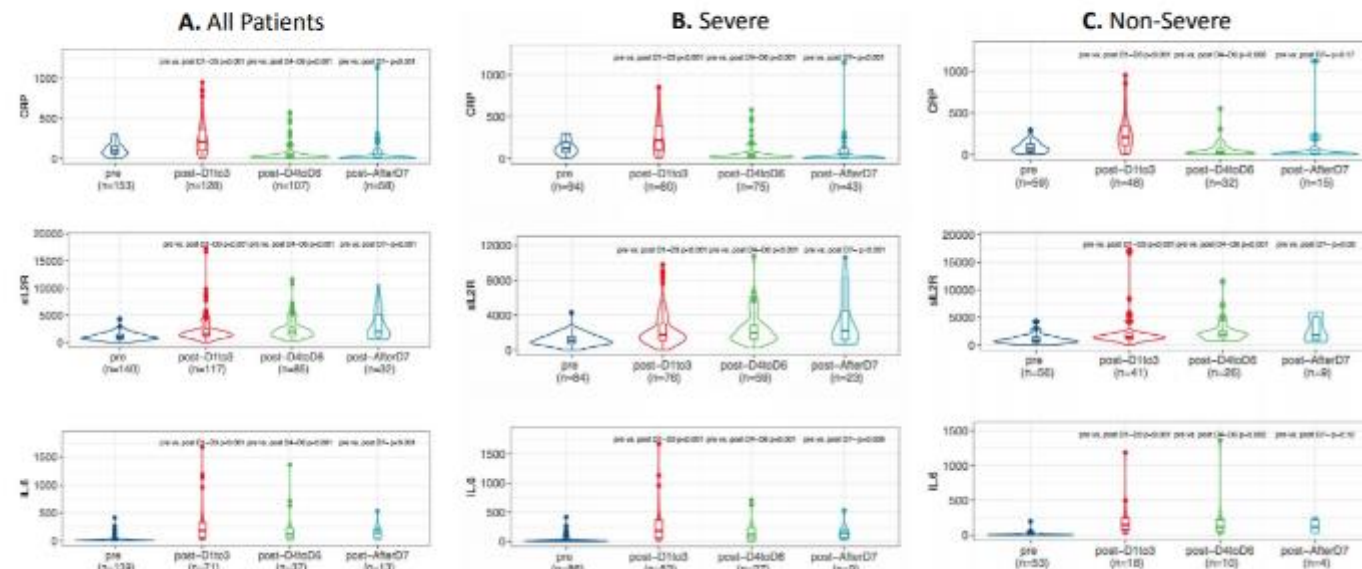
- RECOVERY clinical trials group, United Kingdom
- 2,104 patients randomized to receive steroids vs. 4,321 standard care
- Dexamethasone 6 mg PO or IV daily, for 10 days or less if discharged sooner
- Mortality at 28 days was lower in the dexamethasone group, 21.6% vs. 24.6% (RR 0.83, 95% CI: 0.74-0.92; $p < 0.001$)
- This difference varied significantly depending on the level of respiratory support at randomization:
 - In patients on vent (16% of sample): 29.0% vs. 40.7%, RR 0.65, $p < 0.001$
 - In patients on non-invasive O₂ (60% of sample): 21.5% vs. 25.0%, RR 0.80, $p = 0.002$
 - Not in patients on room air (24% of sample): 17.0% vs. 13.0%, RR 1.22, $p = 0.14$
- Azithromycin use was common (23% vs. 24%); rare HCQ, LPV/r, remdesivir or IL-6 inhibitors



Tocilizumab

- Post-hoc analysis of 239 patients, avg 64 yo
- 36% were Black and 19% Hispanic
- Outcomes: survival and ventilation at 14 days
- Tocilizumab given to N=153 (64% of total); given to 90% of severe patients and 44% of non-severe patients for evolving CRS
- For tocilizumab-treated patients, survival was 91% if non-severe, 83% if severe, 75% if vented
- After toci, hsCRP and IL-6 decreased but sIL-2R and D-Dimer levels increased significantly
- Oxygenation improved after toci but slowly
- Survival was higher in Black and Hispanic patients compared to white (log-rank p=0.002)
- Controlled studies needed

Figure 3B: Inflammatory biomarker status relative to pre-tocilizumab administration over 14 days*



* hsCRP and IL-6 levels significantly decreased over 14 days, initially with an increase in IL-6 levels during the first 72 hours after administration. sIL2R levels, however, significantly increased over time for both severe and non-severe patients. D-dimer levels (not depicted here), significantly increased for non-severe (+0.67, 95%CI 0.31, 1.3; p<0.001) and severe patients (+1.09, 0.62, 1.9; p<0.001). Temperature also significantly decreased a similar amount in both non-severe and non-severe (-1.35, 95%CI -1.65, -1; p<0.001).

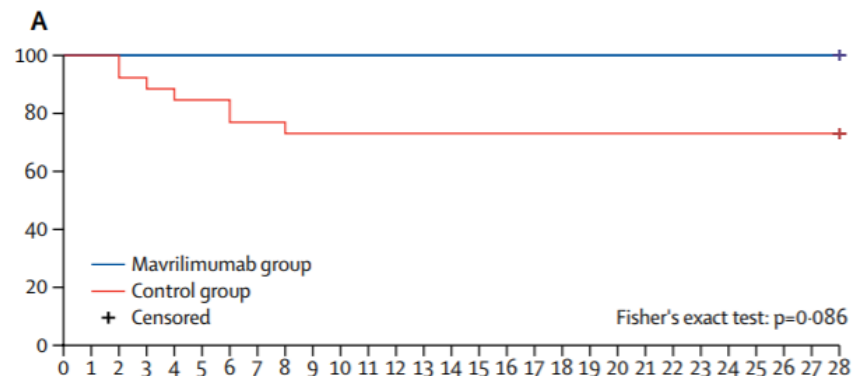
Other Immunomodulators

GM-CSF blockade with mavrilimumab in severe COVID-19 pneumonia and systemic hyperinflammation: a single-centre, prospective cohort study

Giuseppe De Liso, Giulio Cavalli, Corrado Campochiaro, Emanuel Della-Torre, Piero Angelillo, Alessandro Tamelleri, Nicola Roffini, Stefano Testori, Francesca Mette, Nicola Farina, Patrizia Rovani-Querini, Annalisa Ruggeri, Tessa D'Aliberti, Paolo Scarpellini, Giovanni Landoni, Francesco De Cobelli, John F Paolini, Alberto Zangrillo, Moreno Tresoldi, Bruce C Trapnell, Fabio Ciceri, Lorenzo Dagna

Milan, Italy; 13 patients receive mAb; 28 standard care

At 28 days, mAb group had lower mortality (0% vs. 27%), fewer on vent (8% vs. 35%), and earlier clinical improvement (8 vs. 19 days)



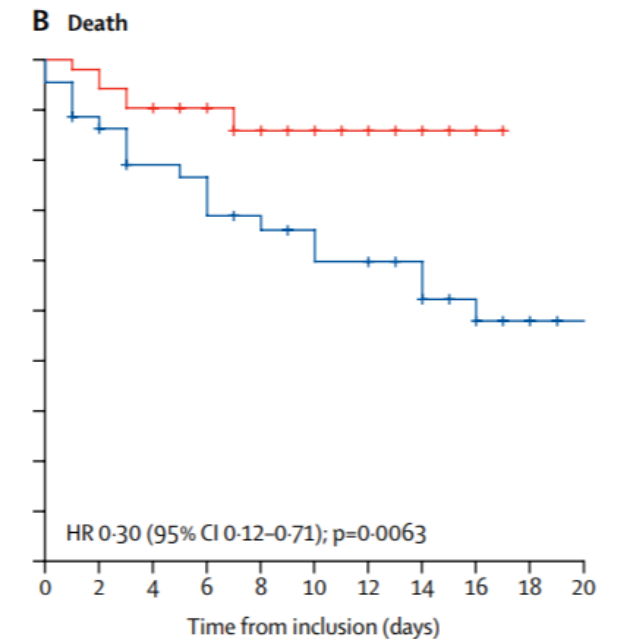
Anakinra for severe forms of COVID-19: a cohort study

Thomas Huet, Hélène Beaussier, Olivier Voisin, Stéphane Jouveshomme, Gaëlle Dauriat, Isabelle Lazareth, Emmanuelle Sacco, Jean-Marc Naccache, Yvonnick Bézie, Sophie Laplanche, Alice Le Berre, Jérôme Le Pavet, Sergio Salmeron, Joseph Emmerich, Jean-Jacques Mourad, Gilles Chatellier, Gilles Hayem

Paris, France; retrospective analysis; 52 received anakinra; 44 pts historic comparison

Composite outcome of need for mechanical ventilation or death was lower in anakinra group (25% vs. 73%)

Pattern similar across sexes, symptom duration, BMI, number of comorbidities, and treatment with HCQ or azithromycin



GW Updates



WELCOME NEW INTERN CLASS!!!