

4-9-2020

Covid-19 Clinical Update 4/9/2020

George Washington University

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COVID-19 UPDATE

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4/9/2020

EPIDEMIIOLOGY

4/9/2020

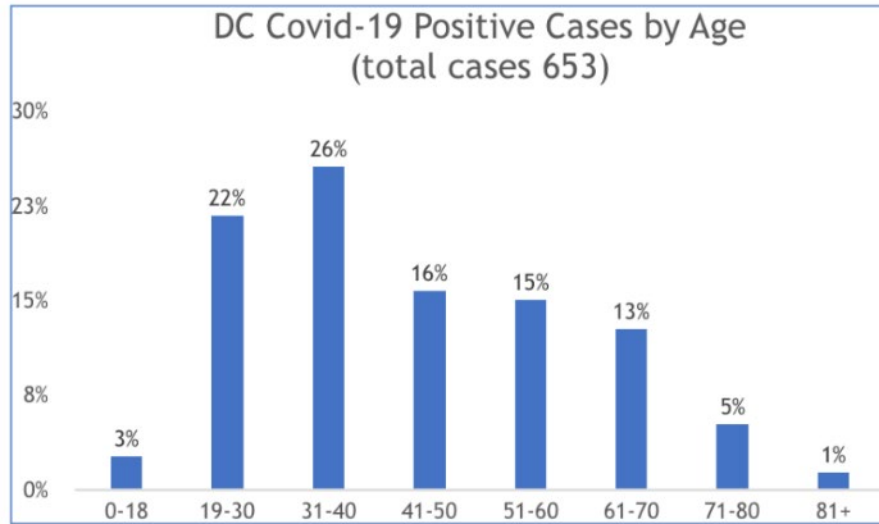


Known coronavirus cases in D.C., Maryland and Virginia

There are a total of **10,634** reported cases in the region.



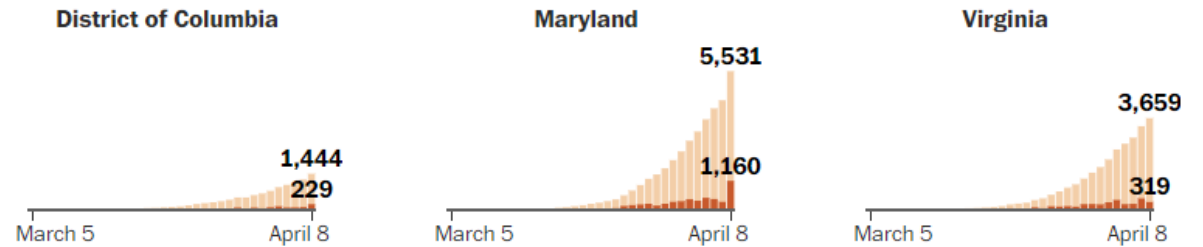
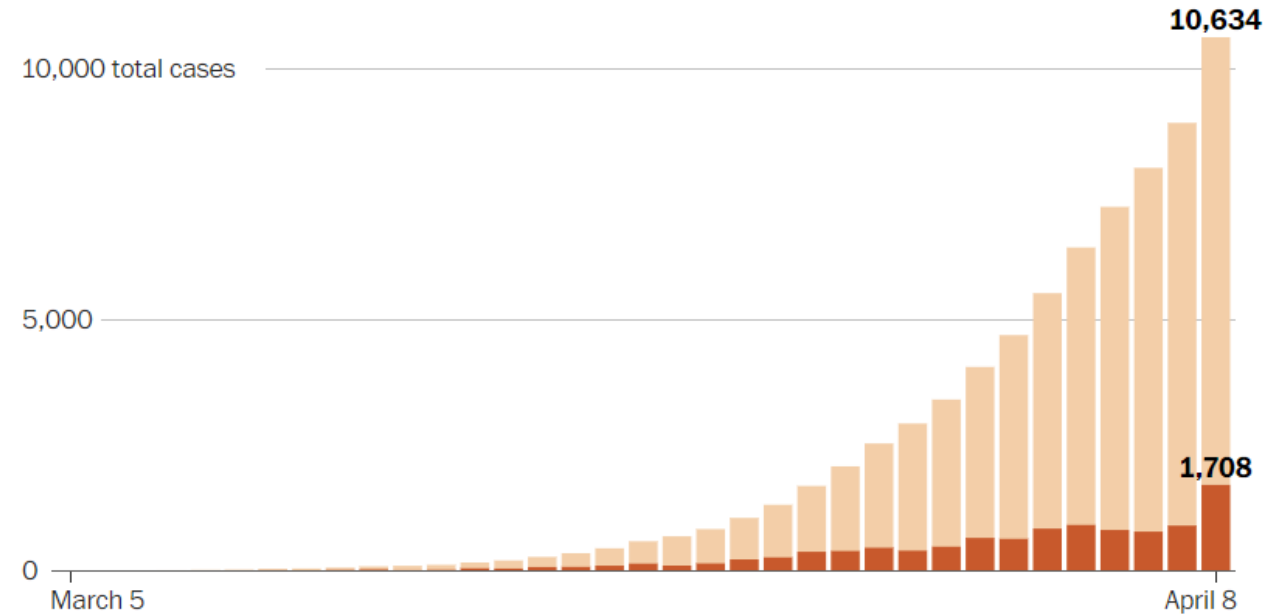
By **Rebecca Tan, Fenit Nirappil, Kevin Uhrmacher, Gabriel Florit and Danielle Rindler**
Updated April 8 at 3:08 p.m.

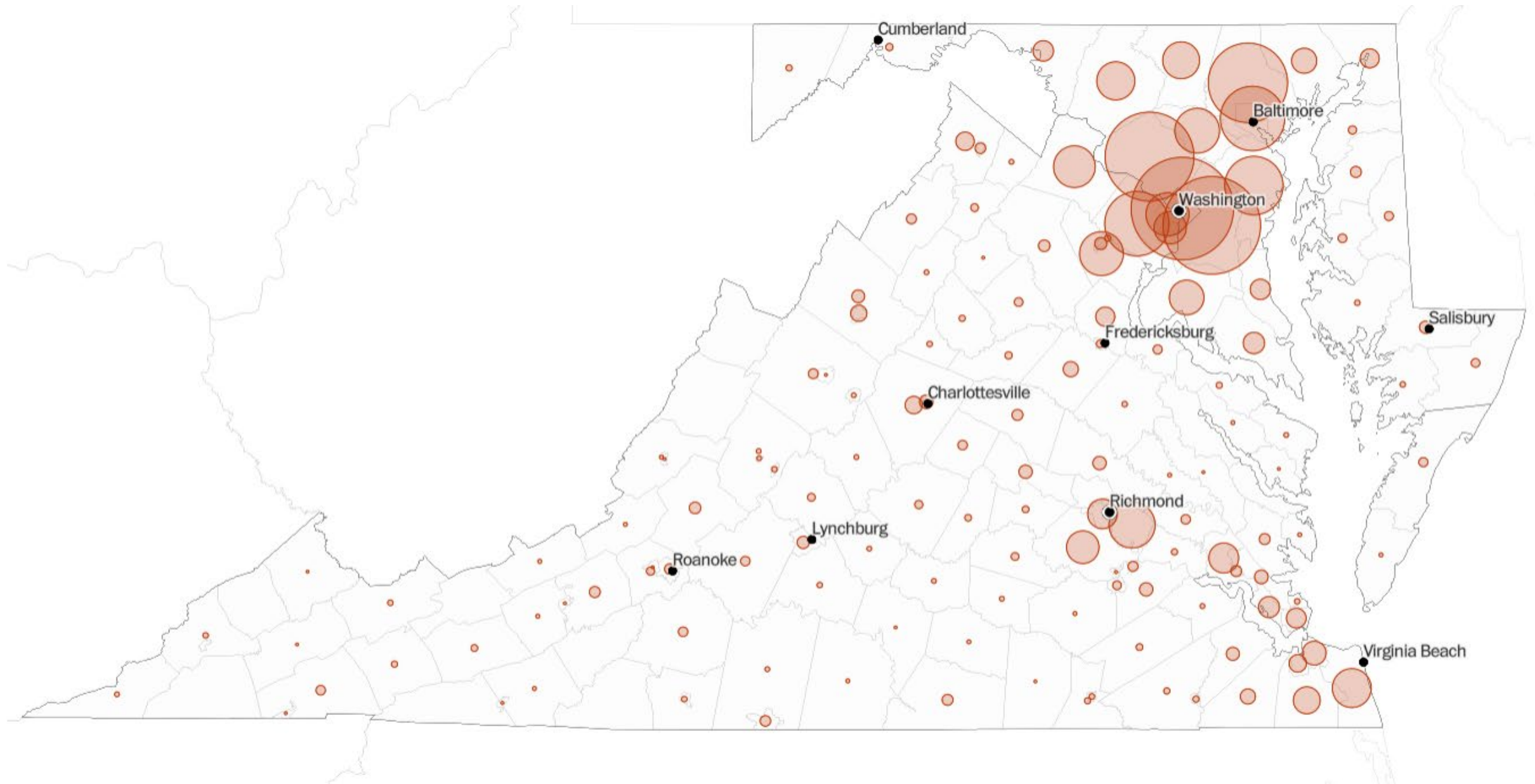


The number of Covid-19 cases in Washington, DC, as of April 1, 2020.

Total cases reported in the District, Maryland and Virginia

■ New cases each day

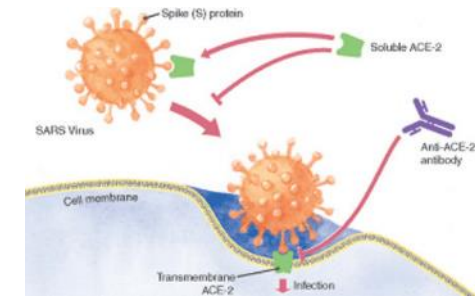




PATHOPHYSIOLOGY

4/9/2020

ACE-2 Receptors



- Does ACE2 expression underpin COVID-19 severity?
- Angiotensin-converting enzyme 2 (ACE2)
 - Co-opted by SARS-CoV-2 to enter epithelial cells
 - Expression declines with age
 - Upregulated in patients treated with ACEi/ARB
- Anti-inflammatory effects
 - angiotensin 2 → angiotensin 1-7
 - angiotensin 1 → angiotensin 1-9
- Would ACEi treatment help compensate for age-related loss of ACE2 receptor and reduce severity of illness?
 - Lower mortality observed from other ILI/PNA/ARDS?
 - Any benefit to initiating ACEi?

April 3, 2020

The Dilemma of Coronavirus Disease 2019, Aging, and Cardiovascular Disease Insights From Cardiovascular Aging Science

Majd ALGhatrif, MD, MA^{1,2}; Oscar Cingolani, MD³; Edward G. Lakatta, MD¹

[» Author Affiliations](#) | [Article Information](#)

JAMA Cardiol. Published online April 3, 2020. doi:10.1001/jamacardio.2020.1329

April 3, 2020

Coronavirus Disease 2019 (COVID-19) Infection and Renin Angiotensin System Blockers

Chirag Bavishi, MD, MPH¹; Thomas M. Maddox, MD, MSc^{2,3}; Franz H. Messerli, MD^{4,5,6}

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JAMA Cardiol. Published online April 3, 2020. doi:10.1001/jamacardio.2020.1282

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JAMA Cardiol. Published online April 03, 2020. doi:10.1001/jamacardio.2020.1329

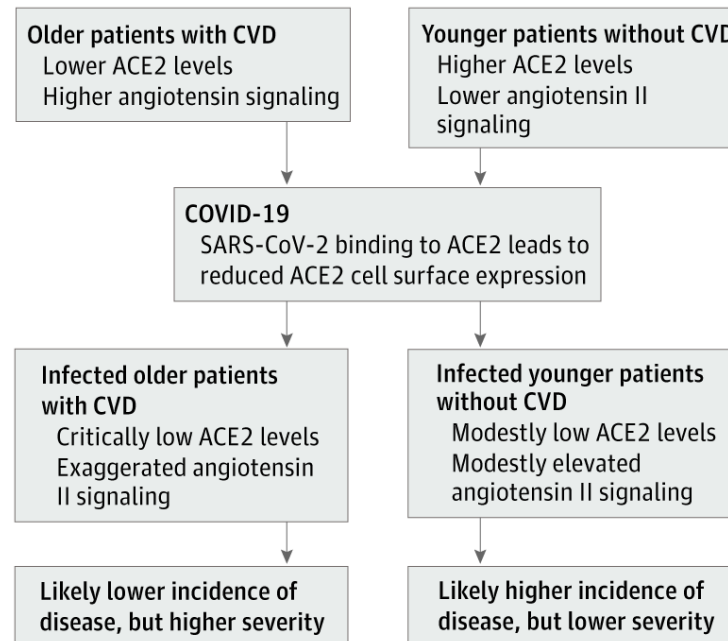


Figure Legend:

Schematic of Inflammatory Profile Before and After Coronavirus Disease 2019 (COVID-19) Infection Simplified schematic of the preinfection inflammatory profile among predisposed older individuals vs their younger counterparts. ACE2 indicates angiotensin-converting enzyme 2; CVD, cardiovascular disease; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

Can My Pet Get COVID-19?

- SARS-CoV-2 replicates poorly in dogs, pigs, chickens, and ducks, but effectively in **ferrets** and **cats**
- Symptoms: loss of appetite, fever
- Inoculated intranasally & exposed in adjacent cages
- Viral RNA recovered from tonsils, palate, trachea, lung tissue, and feces
- 3/3 inoculated cats and 1/3 exposed cats developed detectable viral RNA and later antibodies against SARS-CoV2
- “It was difficult to perform regular nasal wash collection on the subadult cats because they were aggressive.”

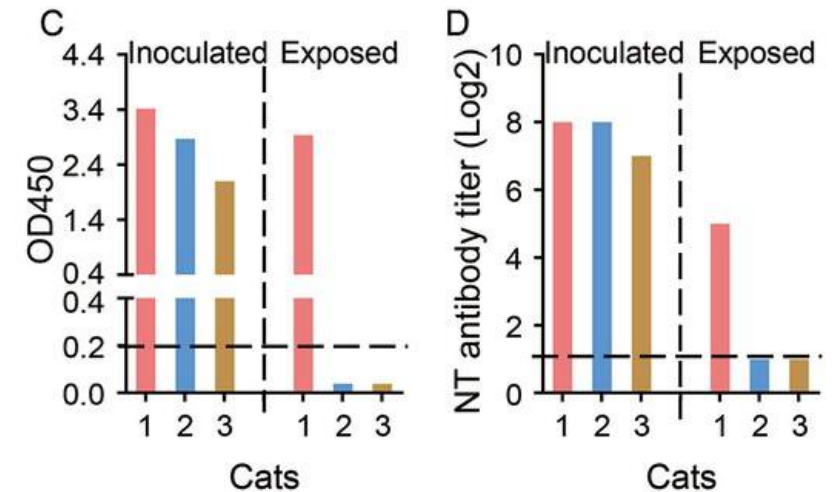
REPORT

Susceptibility of ferrets, cats, dogs, and other domesticated animals to SARS–coronavirus 2

Jianzhong Shi^{1,*}, Zhiyuan Wen^{1,*}, Gongxun Zhong^{1,*}, Huanliang Yang^{1,*}, Chong Wang^{1,*}, Baoying Huang^{2,*}, Renqiang Liu¹, Xi...

* See all authors and affiliations

Science 08 Apr 2020:
eabb7015
DOI: 10.1126/science.abb7015

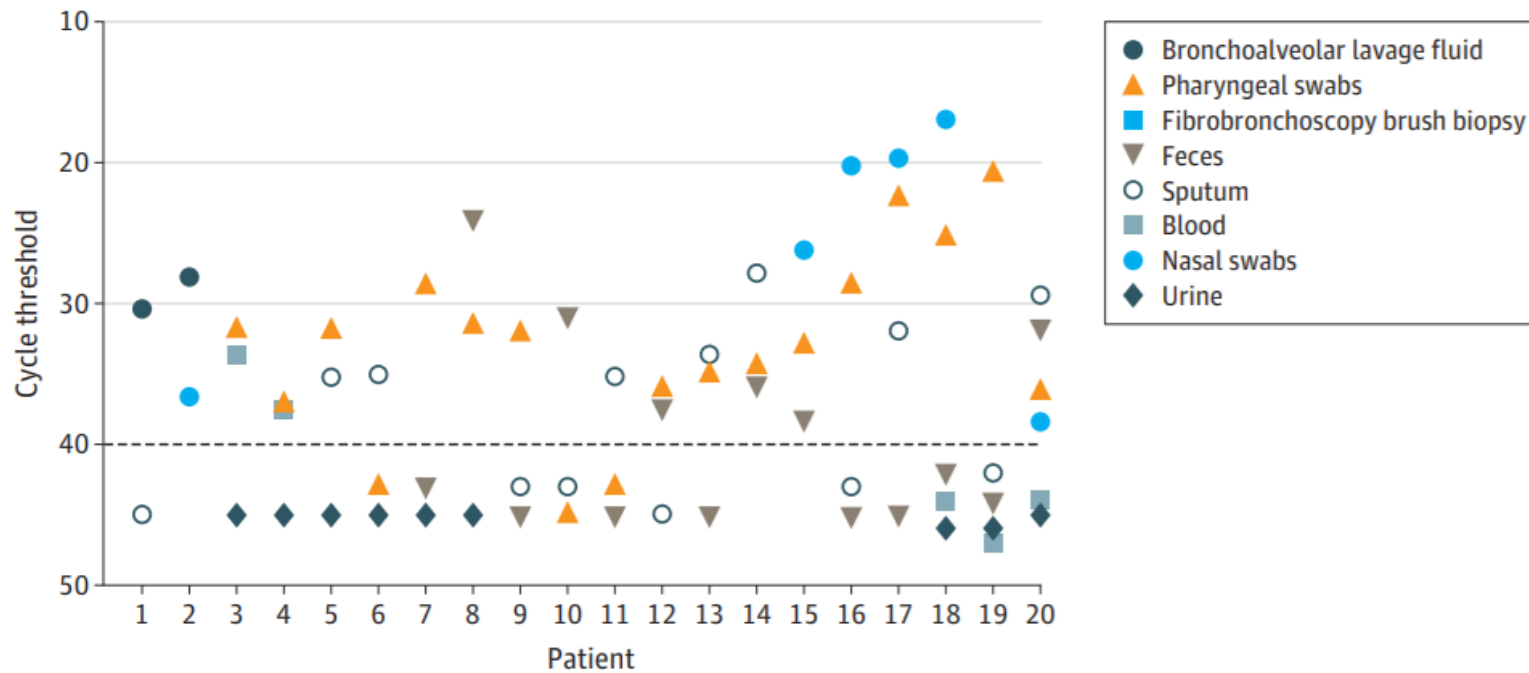


TESTING

4/9/2020

Clinical Performance of Tests

Figure. Severe Acute Respiratory Syndrome Coronavirus 2 Distribution and Shedding Patterns Among 20 Hospitalized Patients



Testing

- Rapid antibody binding tests
- “Certifying immunity”
- Wide-scale testing in UK
- Problems with false-negative and false-positive results
 - Validated against ELISA against S protein and other viral proteins
 - Compared against prior donated samples of blood by same individuals
- Cross-reactivity with antibodies against seasonal coronaviruses
- Projected timeline to reliable test: “At least a month”



Trouble in testing land

5TH APR 2020

CORONAVIRUS

DIAGNOSTIC TOOLS

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Professor Sir John Bell explores the challenges of antibody testing for Covid-19, noting that no tests to date have performed well.

TREATMENT

4/9/2020





Retraction Watch

Tracking retractions as a window into the scientific process

Hydroxychloroquine-COVID-19 study did not meet publishing standard

Hydroxychloroquine treatment of COVID-19: a label non-randomized study

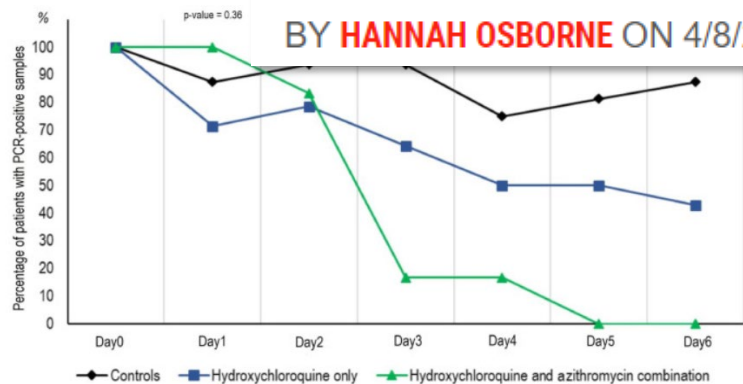
Philippe Gautret ^{a, b, *}, Jean-Christophe Meddeb ^a, Morgane Mailhe ^a, Barbara Vieira ^a, Hervé Tissot Dupont ^{a, c}, Stéphanie Scola ^{a, c}, Jean-Marc Rolain ^{a, c}, Philippe...

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HEALTH

FRENCH HOSPITAL STOPS HYDROXYCHLOROQUINE TREATMENT FOR COVID-19 PATIENT OVER MAJOR CARDIAC RISK

BY HANNAH OSBORNE ON 4/8/20 AT 9:43 AM EDT



does not meet the [International Society of Antimicrobial Chemotherapy's] expected standard, especially relating to the lack of better explanations of the inclusion criteria and the triage of patients to ensure patient safety.

AHA, ACC, HRS Caution Use of COVID-19 Therapies Hydroxychloroquine and Azithromycin in Cardiac Patients

New COVID-19 drug therapy guidance from the American Heart Association, the American College of Cardiology and the Heart Rhythm Society

- Withhold the drugs in patients with baseline QT prolongation (QTc \geq 500 msec) or known congenital long QT
- Monitor cardiac rhythm and QT interval; withdraw the drugs if QTc exceeds 500 msec
- In patients critically ill with COVID-19 infection, frequent caregiver contact may need to be minimized, so optimal electrocardiographic interval and rhythm monitoring may not be possible
 - ECG preferred
 - Continuous telemetry monitoring as alternative
- Correct hypokalemia to levels of >4 mEq/L
- Correct hypomagnesemia to levels of >2 mg/dL
- Avoid other QTc prolonging agents whenever feasible

Table. Torsade de pointes potential and post-marketing adverse events associated with possible COVID-19 repurposed pharmacotherapies.

Possible COVID-19 Treatment	CredibleMeds Classification	VT/VF/TdP/LQTS in FAERS	Cardiac Arrest in FAERS
Repurposed antimalarial agents			
Chloroquine	Known risk	72	54
Hydroxychloroquine	Known risk	222	105
Repurposed antiviral agents			
Lopinavir/ritonavir	Possible risk	27	48
Adjunct agents			
Azithromycin	Known risk	396	251

COVID-19 indicates coronavirus disease 2019; FAERS, US Food and Drug Administration Adverse Event Reporting System; LQTS, long QT syndrome; and TdP, torsade de pointes.



GW UPDATES

4/9/2020