



# Treating COVID-19+ Patients in Place: Clinical Deep Dive into the Research

This meeting will be recorded and will be available at [www.fmda.org/journalclub.php](http://www.fmda.org/journalclub.php)



# FMDA Journal Club

April 22, 2020

Diane Sanders-Cepeda, DO, CMD – Presenter

# Agenda

---

COVID 19 state of the state

---

Clinical Updates

---

COVID 19 literature review

---

Open Discussion

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

Total Confirmed

825,306

Confirmed Cases by Country/Region/Sovereignty

825,306 US
208,389 Spain
183,957 Italy
159,300 France
148,704 Germany
130,184 United Kingdom
95,591 Turkey
85,996 Iran
83,868 China
57,999 Russia
43,592 Brazil
41,889 Belgium

Admin0 | Admin1 | Admin2

Last Updated at (M/D/YYYY)  
4/22/2020, 8:39:28 AM

Cumulative Confirmed Cases

Active Cases

Incidence Rate

Case-Fatality Ratio

Testing Rate

Hospitalization Rate

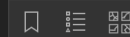
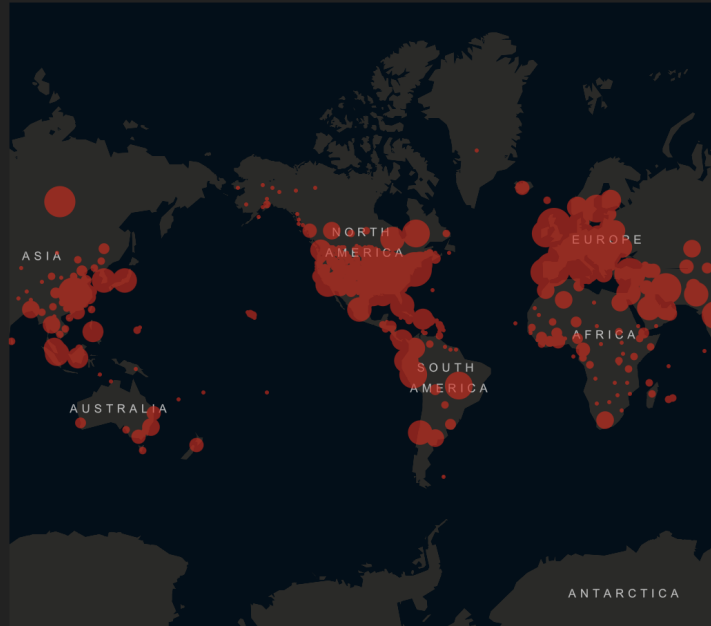
185

countries/regions

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](#)



Esri, FAO, NOAA

Total Deaths

45,075

- 14,887 deaths New York City **New York US**
- 1,390 deaths Nassau **New York US**
- 1,278 deaths Wayne **Michigan US**
- 1,002 deaths Cook **Illinois US**
- 888 deaths Suffolk **New York US**
- 809 deaths Westchester **New York US**

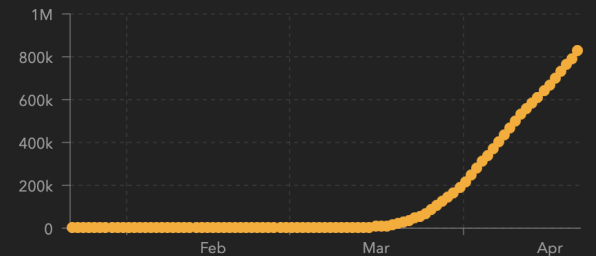
Deaths | Recovered

Total Test Conducted in U.S.

4,163,464

- 649,325 tested New York US
- 292,906 tested California US
- 282,340 tested Florida US
- 205,399 tested Texas US
- 184,826 tested New Jersey US
- 175,372 tested Massachusetts US

US Tested



Confirmed | Logarithmic | Daily Cases



# Florida's COVID-19 Data and Surveillance Dashboard

Florida Department of Health, Division of Disease Control and Health Protection



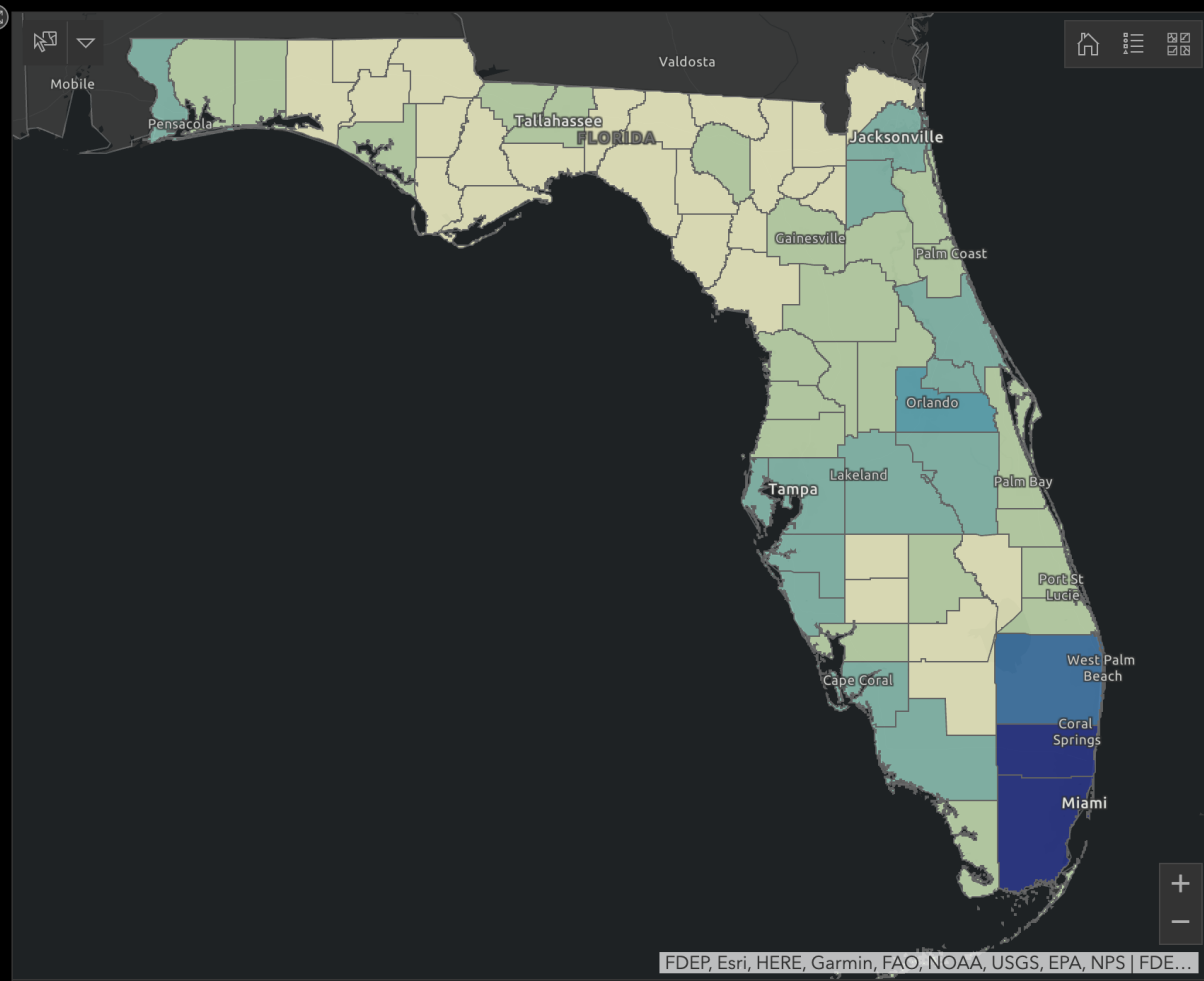
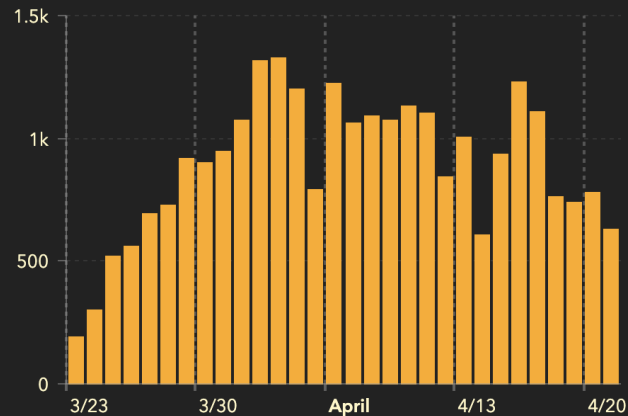
## Total Cases

# 27,869

Cumulative Data for Florida Residents:

<b>Cases</b> <b>27,127</b>	<b>Hospitalizations</b> <b>4,226</b>	<b>Deaths</b> <b>867</b>
-------------------------------	---	-----------------------------

### New Cases by Day: Last 30 Days



Click a county on the map or from the below to see more

- Alachua (224 Cases)**
- Baker (17 Cases)**
- Bay (58 Cases)**
- Bradford (42 Cases)**
- Brevard (224 Cases)**
- Broward (4,168 Cases)**
- Calhoun (6 Cases)**
- Charlotte (143 Cases)**
- Citrus (92 Cases)**
- Clay (256 Cases)**
- Collier (477 Cases)**
- Columbia (43 Cases)**
- Dade (10,056 Cases)**
- Desoto (24 Cases)**

FDEP, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS | FDE...

Florida case data is updated at approximately 11:30 a.m. and 6:30 p.m. daily.

Recent Cases | All Time | Deaths by Day | ! More Information !

Florida Cases | Florida Testing | Cases by County | Cases by Zip Code | USA and World



### Hospital resource use

5 days since peak resource use on  
**April 17, 2020**  
(April 14 - April 22)

#### Resources needed for COVID-19 patients on April 17

All beds needed  
**65,789 beds**



Bed shortage  
**5,403 beds**

ICU beds needed  
**17,818 beds**

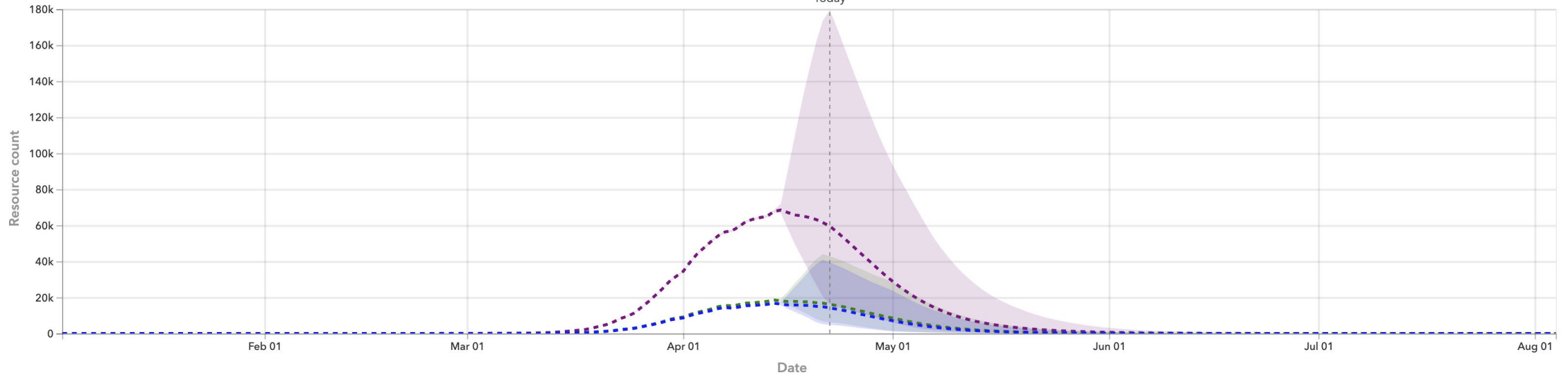


ICU bed shortage  
**8,854 beds**

Invasive ventilators needed  
**15,873 ventilators**

- All resources
- All beds
- ICU beds
- Invasive ventilators

Today



--- All beds needed (projected) --- ICU beds needed (projected) --- Invasive ventilators needed (projected)

Florida

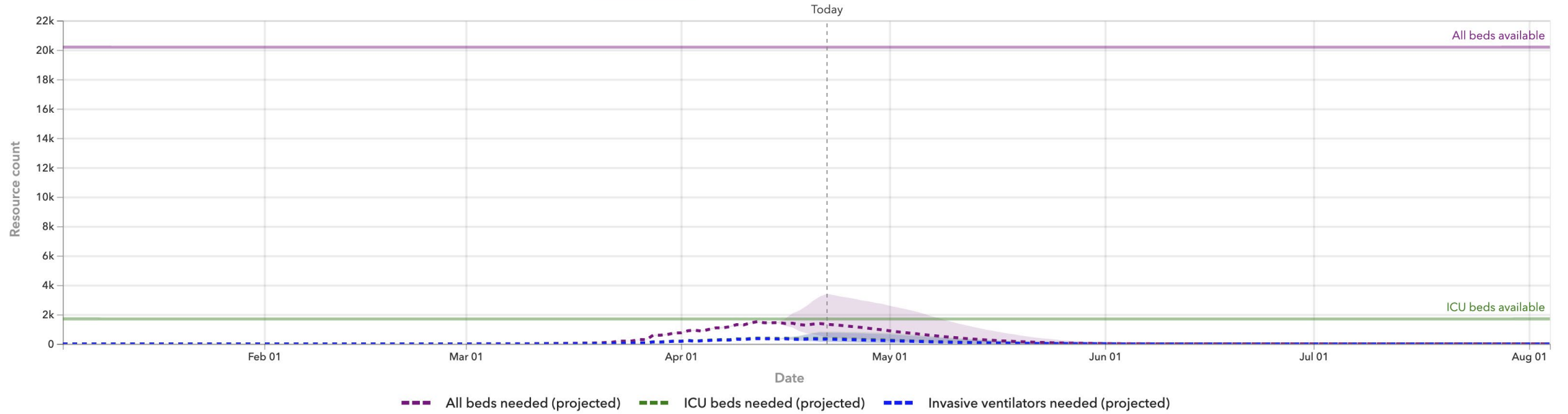
### Hospital resource use

10 days since peak resource use on  
**April 12, 2020**  
(April 12 - April 22)

#### Resources needed for COVID-19 patients on April 12

All beds needed	→	All beds available	→	Bed shortage
<b>1,512 beds</b>		<b>20,184 beds</b>		<b>0 beds</b>
ICU beds needed	→	ICU beds available	→	ICU bed shortage
<b>392 beds</b>		<b>1,696 beds</b>		<b>0 beds</b>
Invasive ventilators needed				
<b>355 ventilators</b>				

All resources | All beds | ICU beds | Invasive ventilators



DEPARTMENT OF HEALTH & HUMAN SERVICES  
Centers for Medicare & Medicaid Services  
7500 Security Boulevard, Mail Stop C2-21-16  
Baltimore, Maryland 21244-1850



**Center for Clinical Standards and Quality/Quality, Safety & Oversight Group**

**Ref: QSO-20-26-NH**

**DATE:** April 19, 2020

**TO:** State Survey Agency Directors

**FROM:** Director  
Quality, Safety & Oversight Group

**SUBJECT:** Upcoming Requirements for Notification of Confirmed COVID-19 (or COVID-19 Persons under Investigation) Among Residents and Staff in Nursing Homes



## Memorandum Summary

- ***CMS is committed*** to taking critical steps to ensure America's health care facilities are prepared to respond to the 2019 Novel Coronavirus (COVID-19) Public Health Emergency (PHE).
- ***Communicable Disease Reporting Requirements:*** To ensure appropriate tracking, response, and mitigation of COVID-19 in nursing homes, CMS is reinforcing an existing requirement that nursing homes must report communicable diseases, healthcare-associated infections, and potential outbreaks to State and Local health departments. In rulemaking that will follow, CMS is requiring facilities to report this data to the Centers for Disease Control and Prevention (CDC) in a standardized format and frequency defined by CMS and CDC. Failure to report cases of residents or staff who have confirmed COVID -19 and Persons under Investigation (PUI) could result in an enforcement action. This memorandum summarizes new requirements which will be put in place very soon.
- ***Transparency:*** CMS will also be previewing a new requirement for facilities to notify residents' and their representatives to keep them up to date on the conditions inside the facility, such as when new cases of COVID-19 occur.



## **Nebulizer Treatment for COVID-19 Infected Residents with Severe Respiratory Symptoms**

COVID-19 infections cause a range of symptoms but often impact the respiratory tract. These symptoms range from sore throat or cough to more severe pulmonary symptoms. More severe symptoms can include reactive airway disease with wheezing and shortness of breath or extreme respiratory compromise, sometimes due to acute respiratory distress syndrome (ARDS), that may require mechanical ventilation. The onset of the severe respiratory symptoms can occur at any time in the course of the disease and can often come on very quickly.

This document deals with COVID-19 positive residents with severe respiratory symptoms who need nebulizer treatments. CDC explains the risk:

CDC considers nebulizer treatments may be an aerosol generating procedure. While “aerosols generated by nebulizers are derived from medication in the nebulizer. It is uncertain whether potential associations between performing this common procedure and increased risk of infection might be due to aerosols generated by the procedure or due to increased contact between those administering the nebulized medication and infected patients” as CDC describes in the [FAQs](#) on their website.



# COVID 19 Literature Review

# Case Reports

---

The NEW ENGLAND JOURNAL of MEDICINE

## CORRESPONDENCE

### COVID-19 CASES

*To rapidly communicate information on the global clinical effort against Covid-19, the Journal has initiated a series of case reports that offer important teaching points or novel findings. The case reports should be viewed as observations rather than as recommendations for evaluation or treatment. In the interest of timeliness, these reports are evaluated by in-house editors, with peer review reserved for key points as needed.*

## **Immune Thrombocytopenic Purpura in a Patient with Covid-19**



**Figure 1.** Purpuric Lesions on the Patient's Lower Extremity.

The NEW ENGLAND JOURNAL of MEDICINE

## CORRESPONDENCE

### COVID-19 CASES

*To rapidly communicate information on the global clinical effort against Covid-19, the Journal has initiated a series of case reports that offer important teaching points or novel findings. The case reports should be viewed as observations rather than as recommendations for evaluation or treatment. In the interest of timeliness, these reports are evaluated by in-house editors, with peer review reserved for key points as needed.*

## **Coagulopathy and Antiphospholipid Antibodies in Patients with Covid-19**

**Table 1. Demographic and Clinical Characteristics and Laboratory Findings.\***

Characteristic	Patient 1	Patient 2	Patient 3
<b>Demographic characteristics</b>			
Age — yr	69	65	70
Sex	Male	Female	Male
<b>Initial findings</b>			
Medical history	Hypertension, diabetes, stroke	Hypertension, diabetes, coronary artery disease, no history of thrombosis	Hypertension, emphysema, nasopharyngeal carcinoma, stroke
Symptoms at disease onset	Fever, cough, dyspnea, diarrhea, headache	Fever, cough, dyspnea	Fever, fatigue, dyspnea, headache
Imaging features	Ground-glass opacity, bilateral pulmonary infiltrates	Ground-glass opacity, bilateral pulmonary infiltrates	Bilateral pulmonary infiltrates
Treatment before admission to ICU	Oseltamivir, intravenous immune globulin	Antibiotics	Antibiotics, ribavirin, rosuvastatin
Days from disease onset to thrombotic event	18	33	10
<b>Findings on admission to ICU</b>			
Days since disease onset	24	21	24
Disease severity	Critical	Critical	Critical



**Table 1. (Continued)**

Characteristic	Patient 1	Patient 2	Patient 3
<b>Laboratory findings</b>			
White-cell count (per mm <sup>3</sup> )	17,790	6730	8710
Differential count (per mm <sup>3</sup> )			
Total neutrophils	16,290	6230	7090
Total lymphocytes	430	290	790
Total monocytes	800	170	430
Platelet count (per mm <sup>3</sup> )	78,000	79,000	180,000
Hemoglobin (g/liter)	111	99	92
Albumin (g/liter)	26.3	32.6	24.4
Alanine aminotransferase (U/liter)	15	11	8
Aspartate aminotransferase (U/liter)	23	20	20
Lactate dehydrogenase (U/liter)	632	233	417
Creatinine (μmol/liter)	80	58	86
Creatine kinase (U/liter)	63	335	16
EGFR (ml/min/1.73 m <sup>2</sup> )	86.6	93.2	78.5
High-sensitivity cardiac troponin I (pg/ml)	3876.8	14.3	125.4
Prothrombin time (sec)	17.0	17.2	15.1
Activated partial-thromboplastin time (sec)	43.7	45.3	47.6
Fibrinogen (g/liter)	4.15	4.42	6.42
Fibrin degradation products (mg/liter)	85.5	8.1	7.3
D-dimer (mg/liter)	>21.00	2.84	3.23
Serum ferritin (μg/liter)	ND	2207.8	ND
Procalcitonin (ng/ml)	0.11	0.18	0.40
High-sensitivity C-reactive protein (mg/liter)	112.0	56.0	125.4
Antiphospholipid antibodies	Anticardiolipin IgA, anti-β <sub>2</sub> -glycoprotein I IgA and IgG	Anticardiolipin IgA, anti-β <sub>2</sub> -glycoprotein I IgA and IgG	Anticardiolipin IgA, anti-β <sub>2</sub> -glycoprotein I IgA and IgG
Imaging features	Multiple cerebral infarctions in bilateral frontal parietal occipital lobe and bilat- eral basal ganglia, brain stem, and bilateral cer- ebellar hemispheres	Multiple cerebral infarc- tions in right frontal and bilateral parietal lobe	Multiple cerebral infarctions in frontal lobe, right fron- tal parietal temporal oc- cipital lobe, and bilateral cerebellar hemispheres

\* EGFR denotes estimated glomerular filtration rate, ICU intensive care unit, and ND not determined.

# THE LANCET

CORRESPONDENCE | [ONLINE FIRST](#)

## Hospital-based use of thromboprophylaxis in patients with COVID-19

[Alex C Spyropoulos](#)  • [Walter Ageno](#) • [Elliot S Barnathan](#)

Published: April 21, 2020 • DOI: [https://doi.org/10.1016/S0140-6736\(20\)30926-0](https://doi.org/10.1016/S0140-6736(20)30926-0)

# Investigating COVID 19

---

**Research Letter**

FREE

February 27, 2020

# Positive RT-PCR Test Results in Patients Recovered From COVID-19

Lan Lan, MD<sup>1</sup>; Dan Xu, MD<sup>1</sup>; Guangming Ye, MD<sup>2</sup>; [et al](#)

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

*JAMA*. 2020;323(15):1502-1503. doi:10.1001/jama.2020.2783



**COVID-19 Resource Center**

**Research Letter**

ONLINE FIRST

FREE

April 15, 2020

# Rates of Co-infection Between SARS-CoV-2 and Other Respiratory Pathogens

David Kim, MD, PhD<sup>1</sup>; James Quinn, MD, MS<sup>1</sup>; Benjamin Pinsky, MD, PhD<sup>2</sup>; [et al](#)

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

*JAMA*. Published online April 15, 2020. doi:10.1001/jama.2020.6266

**Table 1. Patient Characteristics and Sites of Specimen Collection, by SARS-CoV-2 and Non-SARS-CoV-2 Pathogen Status**

Table 1. Patient Characteristics and Sites of Specimen Collection, by SARS-CoV-2 and Non-SARS-CoV-2 Pathogen Status

Characteristic	SARS-CoV-2 status, No. (%)			
	Negative (n = 1101)		Positive (n = 116)	
	Positive for other respiratory pathogen	Negative for other respiratory pathogen	Positive for other respiratory pathogen	Negative for other respiratory pathogen
No. of samples	294	807	24	92
No. of patients <sup>a</sup>	292	800	23	92
Age, mean (range), y <sup>b</sup>	48.8 (7-82)	43.8 (1-100)	50.8 (9-88)	43.3 (1-98)
Female, No./total (%) <sup>b</sup>	161/292 (55.1)	443/800 (55.4)	12/23 (52.2)	52/92 (56.5)
Site of specimen collection, No./total (%) <sup>c</sup>				
Outpatient clinic	115/294 (39.1)	347/807 (43.0)	11/24 (45.8)	39/92 (42.4)
Emergency department				
Discharged	122/294 (41.5)	301/807 (37.3)	12/24 (50.0)	38/92 (41.3)
Admitted <sup>d</sup>	28/294 (9.5)	109/807 (13.5)	1/24 (4.2)	15/92 (16.3)
Inpatient	29/294 (9.9)	50/807 (6.2)	0/24	0/92

Abbreviation: SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

<sup>a</sup> Row sum (1207) is greater than the total number of unique patients (1206) because 1 patient was tested twice, 11 days apart, with different results for non-SARS-CoV-2 pathogens, and so appears in the first 2 columns.

<sup>b</sup> Mean age and proportion female are calculated with respect to unique patients.

<sup>c</sup> Proportions of samples collected at different sites are calculated with respect to numbers of samples.

<sup>d</sup> Denotes patients tested in the emergency department and admitted to an inpatient ward from the emergency department.

**Table 2. Proportions of Specimens Positive for Non-SARS-CoV-2 Respiratory Pathogens and Mean Patient Ages for Each Subgroup, by SARS-CoV-2 Result<sup>a,b</sup>**

Table 2. Proportions of Specimens Positive for Non-SARS-CoV-2 Respiratory Pathogens and Mean Patient Ages for Each Subgroup, by SARS-CoV-2 Result<sup>a,b</sup>

Pathogen	SARS-CoV-2 status			
	Negative (n = 1101)		Positive (n = 116)	
	Proportion positive for other respiratory pathogen, No. (%) <sup>b</sup>	Mean age of positive patients, y	Proportion positive for other respiratory pathogen, No. (%) <sup>b</sup>	Mean age of positive patients, y
Influenza				
A	29/1101 (2.6)	45.9	1/116 (0.9)	74.0
B	8/1101 (0.7)	21.6	0/116 (0)	
RSV	32/1101 (2.9)	26.0	6/116 (5.2)	52.3
Parainfluenza				
1	1/1101 (0.1)	71.0	1/116 (0.9)	43.0
2	0/1101 (0)		0/116 (0)	
3	2/1101 (0.2)	40.0	1/116 (0.9)	45.0
4	5/1101 (0.5)	26.6	1/116 (0.9)	36.0
Metapneumovirus	47/1101 (4.3)	41.1	2/116 (1.7)	67.0
Rhinovirus/enterovirus	133/1101 (12.1)	32.6	8/116 (6.9)	42.1

Abbreviations: RSV, respiratory syncytial virus; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

<sup>a</sup> Positive results for non-SARS-CoV-2 pathogens may in some cases represent the detection of residual virus in resolved cases, rather than clinical co-infection as such.

# The Search for a Treatment

---



**JAMA | Review**

# Pharmacologic Treatments for Coronavirus Disease 2019 (COVID-19) A Review

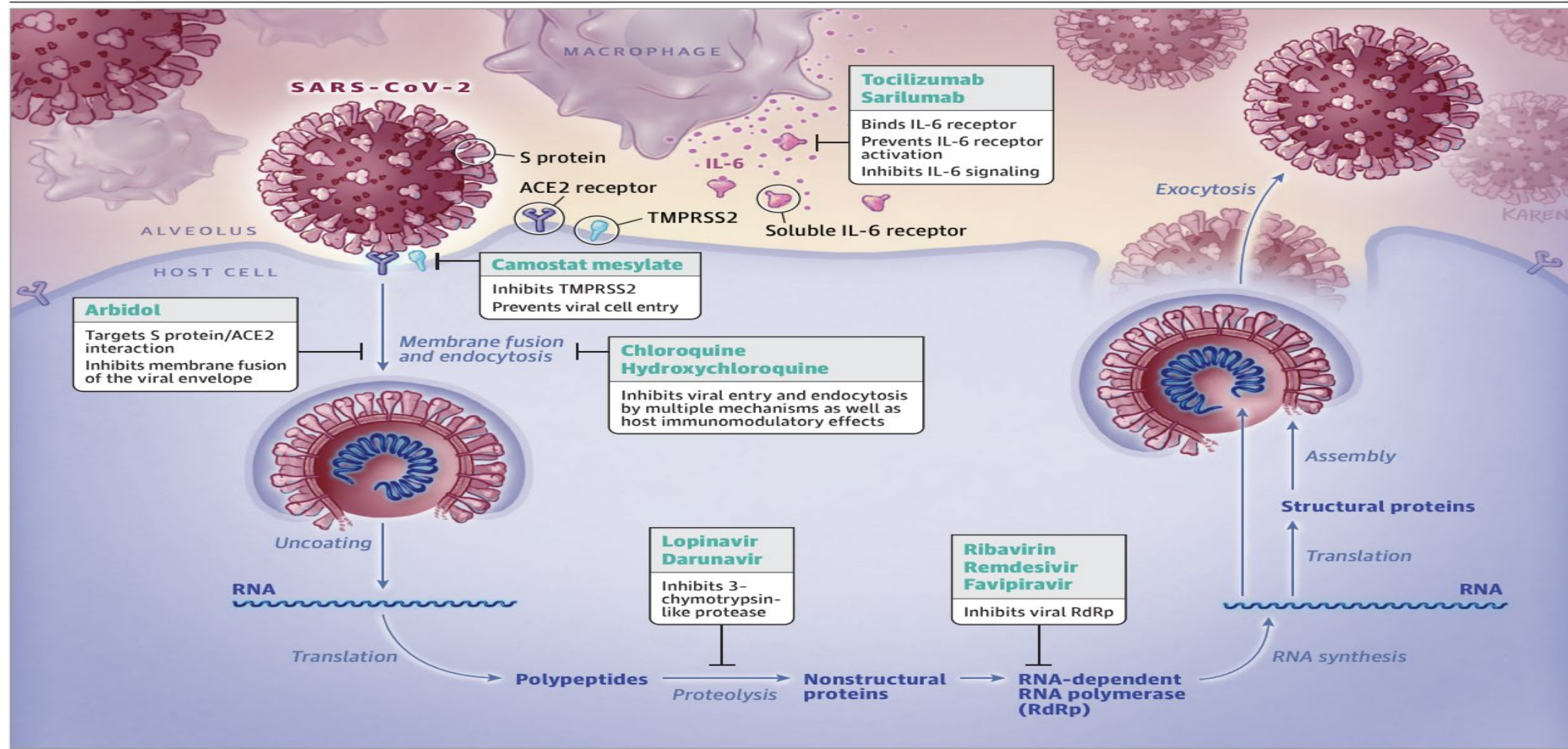
James M. Sanders, PhD, PharmD; Marguerite L. Monogue, PharmD; Tomasz Z. Jodlowski, PharmD; James B. Cutrell, MD

**IMPORTANCE** The pandemic of coronavirus disease 2019 (COVID-19) caused by the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) presents an unprecedented challenge to identify effective drugs for prevention and treatment. Given the rapid pace of scientific discovery and clinical data generated by the large number of people rapidly infected by SARS-CoV-2, clinicians need accurate evidence regarding effective medical treatments for this infection.

[+ Viewpoint](#)

[+ Related article](#)

Figure. Simplified Representation of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Viral Lifecycle and Potential Drug Targets



Schematic represents virus-induced host immune system response and viral processing within target cells. Proposed targets of select repurposed and investigational products are noted. ACE2, angiotensin-converting enzyme 2; S protein, spike protein; and TMPRSS2, type 2 transmembrane serine protease.

**Table 2. Summary of Treatment and Clinical Outcomes From Early COVID-19 Clinical Series**

Source	Huang et al, 2020 <sup>91</sup>	Chen et al, 2020 <sup>92</sup>	Wang et al, 2020 <sup>51</sup>	Yang et al, 2020 <sup>93</sup>	Young et al, 2020 <sup>94</sup>	Kujawski et al, 2020 <sup>66</sup>	Guan et al, 2020 <sup>95</sup>
Study setting and region	Wuhan Jinyintan Hospital, China (12/16/19-1/2/20)	Wuhan Jinyintan Hospital, China (1/1/20-1/20/20)	Zhongnan Hospital, Wuhan, China (1/1/20-1/28/20)	Wuhan Jinyintan Hospital, China (12/24/19-1/26/20)	4 Singapore hospitals (1/23/20-2/3/20)	US-confirmed cases (1/20/20-2/5/20)	National Chinese cases (12/19/19-1/29/20)
No. of patients	41 Hospitalized	99 Hospitalized	138 Hospitalized	52 (All ICU)	18 Hospitalized	12 (Only 7 hospitalized)	1096 Hospitalized
Age, median (IQR), y	49 (41-58)	Mean (SD), 55.5 (13.1)	56 (42-68)	Mean (SD), 59.7 (13.3)	47 (31-73)	53 (21-68)	47 (35-58)
Sex, No. (%)							
Male	30 (73)	67 (68)	75 (54)	35 (67)	9 (50)	8 (67)	637 (58)
Female	11 (27)	32 (32)	63 (46)	17 (33)	9 (50)	4 (33)	459 (42)
ICU status/ complications, No. (%)	ICU: 13 (32); ARDS: 12 (29); MI: 5 (12); AKI: 3 (7); shock: 3 (7); secondary infection: 4 (10)	ICU: 23 (23); ARDS: 17 (17); AKI: 3 (3); shock: 4 (4); VAP: 1 (1)	ICU: 36 (26); ARDS: 27 (20); MI: 10 (7.2); arrhythmia: 23 (17); AKI: 5 (3.6); shock: 12 (8.7)	ICU: 52 (100); ARDS: 35 (67); MI: 12 (23); AKI: 15 (29); bacterial infection: 8 (15)	ICU: 2 (11); ARDS: 0 (0); secondary bacterial infection: (0)	ICU: 1 (8); culture-positive secondary bacterial infection: 0 (0)	ICU: 55 (5); ARDS: 37 (3.4); AKI: 6 (0.5); shock: 12 (1.1)
Treatments, No. (%)							
Supportive care	NIV/HFNC: 10 (24); MV: 2 (5); ECMO: 2 (5); KRT: 3 (7)	NIV: 13 (13); MV: 4 (4); ECMO: 3 (3); KRT: 9 (9)	NIV: 15 (10.9); MV: 17 (12); ECMO: 4 (2.9); KRT: 2 (1.5)	NIV: 29 (56); MV: 22 (42); ECMO: 6 (12); KRT: 9 (17)	Supplemental oxygen: 6 (33); MV: 1(6)	Supplemental oxygen: 4 (33)	Oxygen: 454 (41); NIV: 56 (5); MV: 25 (2); ECMO: 5 (0.5); KRT: 9 (0.8)
Specific agents	Antivirals (oseltamivir): 38 (99); antibacterials: 41 (100); corticosteroids: 9 (22)	Antivirals (oseltamivir, ganciclovir, or lopinavir/ritonavir): 75 (76); antibacterials: 70 (71); antifungals: 15 (15); corticosteroids: 19 (19); IVIG: 27 (27)	Antivirals (oseltamivir): 124 (90); antibacterials: moxifloxacin: 89 (64), ceftriaxone: 34 (23), azithromycin: 25 (18); corticosteroids: 62 (45)	Antivirals: 23 (44); antibacterials: 49 (94); corticosteroids: 30 (58); IVIG: 28 (54)	Antivirals (lopinavir/ritonavir): 5 (42); other antivirals or antibacterials: NR	Antivirals (remdesivir): 3 (25); antibacterials: 5 (42); corticosteroids: 2 (17)	Antivirals (oseltamivir): 393 (36); antibacterials: 637 (58); antifungals: 31 (2.8); corticosteroids: 204 (19); IVIG: 144 (13)
Discharged alive, No. (%)	28 (68)	31 (31)	47 (34)	NR	8 (75)	100 (100)	55 (5)
Deaths, No. (%)	6 (15)	11 (11)	6 (4.3)	32 (62)	0	0	15 (1.4)

Abbreviations: AKI, acute kidney injury; ARDS, acute respiratory distress syndrome; COVID-19, coronavirus disease 2019; ECMO, extracorporeal membrane oxygenation; HFNC, high-flow nasal cannula; ICU, intensive care unit; IQR, interquartile range; IVIG, intravenous immunoglobulins;

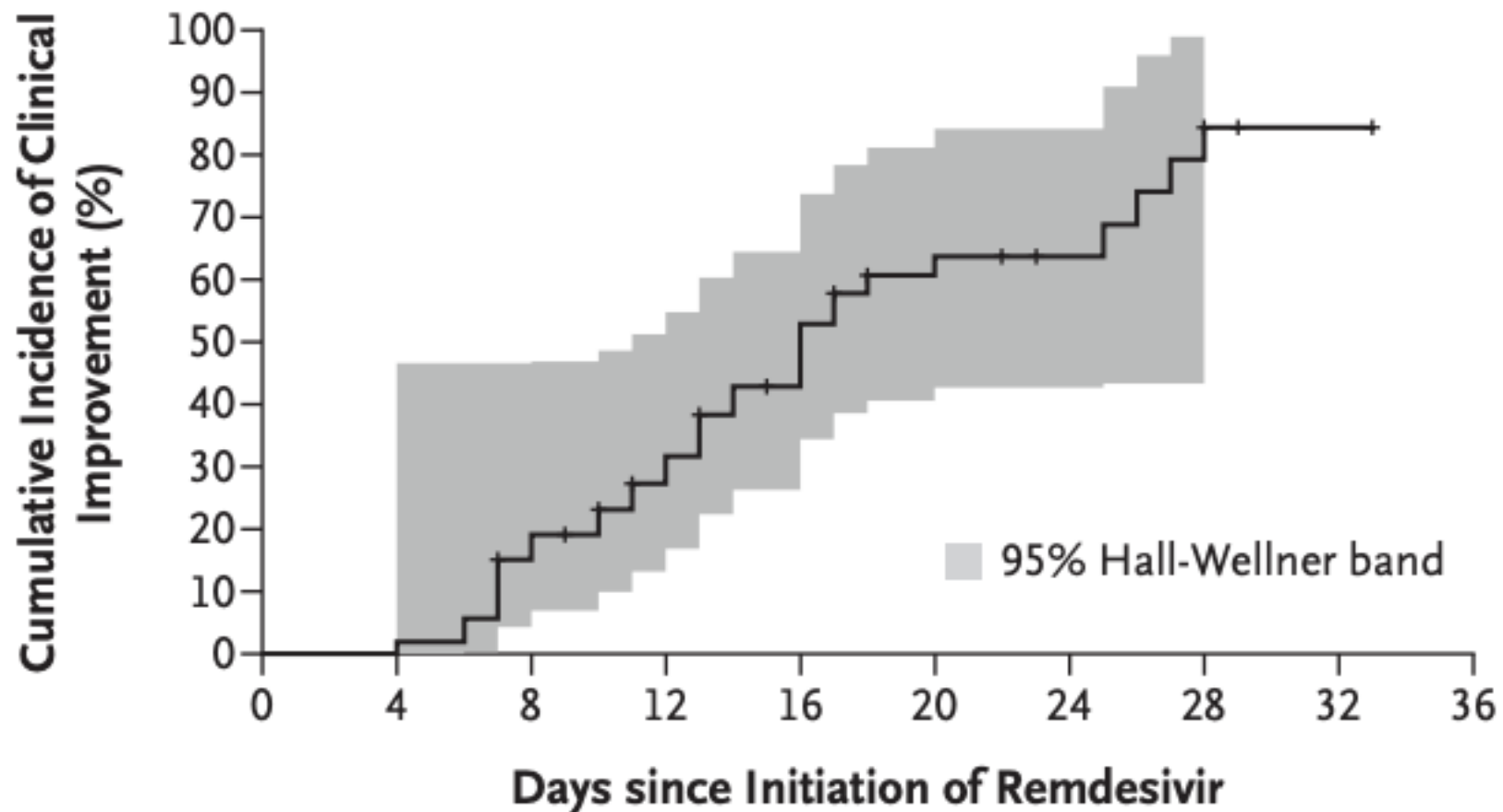
MI, myocardial infarction; MV, invasive mechanical ventilation; KRT, kidney replacement therapy; NIV, noninvasive ventilation; NR, not reported; VAP, ventilator-associated pneumonia.

ORIGINAL ARTICLE

## Compassionate Use of Remdesivir for Patients with Severe Covid-19

J. Grein, N. Ohmagari, D. Shin, G. Diaz, E. Asperges, A. Castagna, T. Feldt, G. Green, M.L. Green, F.-X. Lescure, E. Nicastri, R. Oda, K. Yo, E. Quiros-Roldan, A. Studemeister, J. Redinski, S. Ahmed, J. Bennett, D. Chelliah, D. Chen, S. Chihara, S.H. Cohen, J. Cunningham, A. D'Arminio Monforte, S. Ismail, H. Kato, G. Lapadula, E. L'Her, T. Maeno, S. Majumder, M. Massari, M. Mora-Rillo, Y. Mutoh, D. Nguyen, E. Verweij, A. Zoufaly, A.O. Osinusi, A. DeZure, Y. Zhao, L. Zhong, A. Chokkalingam, E. Elboudwarej, L. Telep, L. Timbs, I. Henne, S. Sellers, H. Cao, S.K. Tan, L. Winterbourne, P. Desai, R. Mera, A. Gaggar, R.P. Myers, D.M. Brainard, R. Childs, and T. Flanigan

### A Overall



No. at Risk

53

53

43

33

23

13

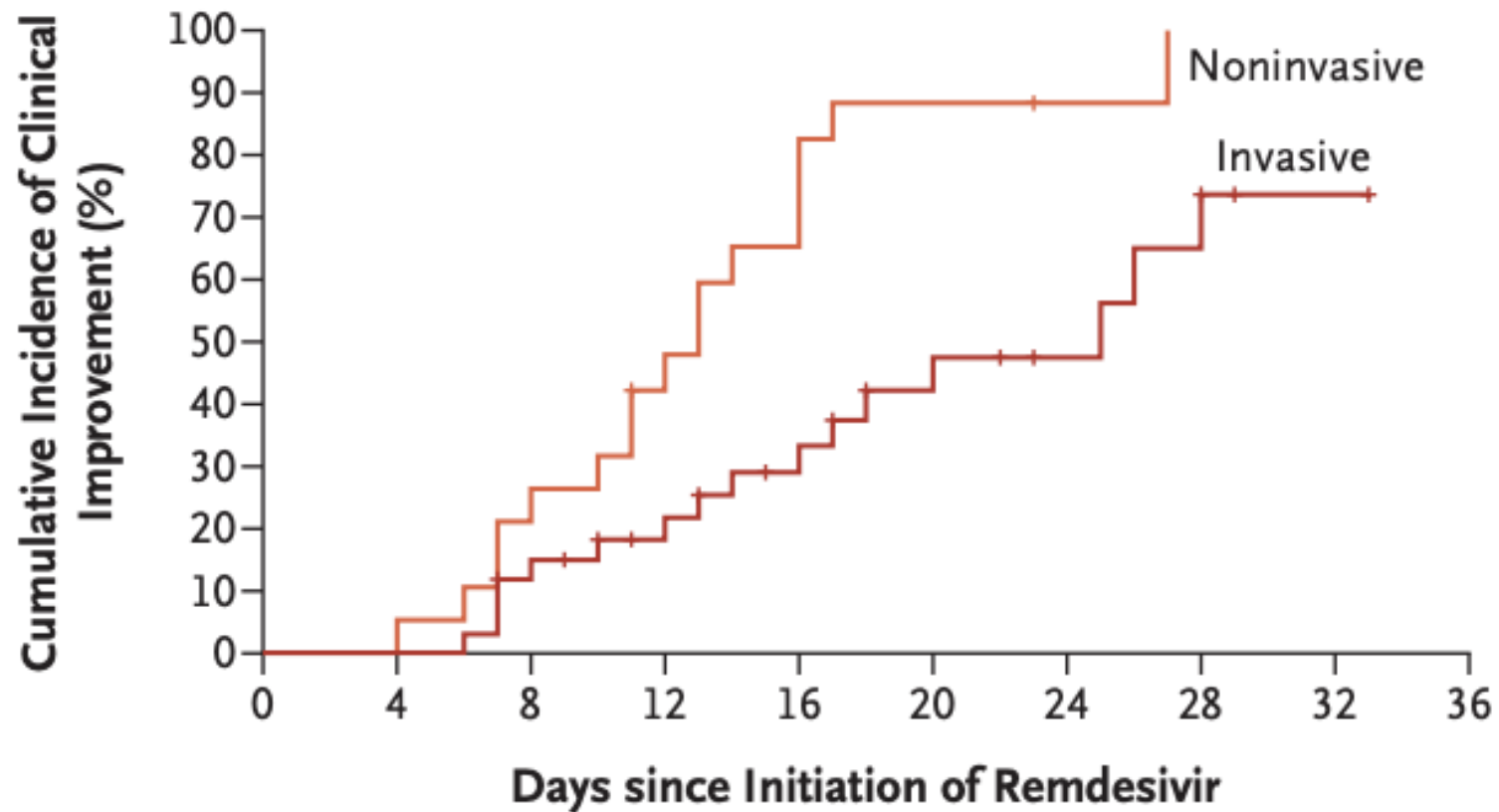
7

4

1

0

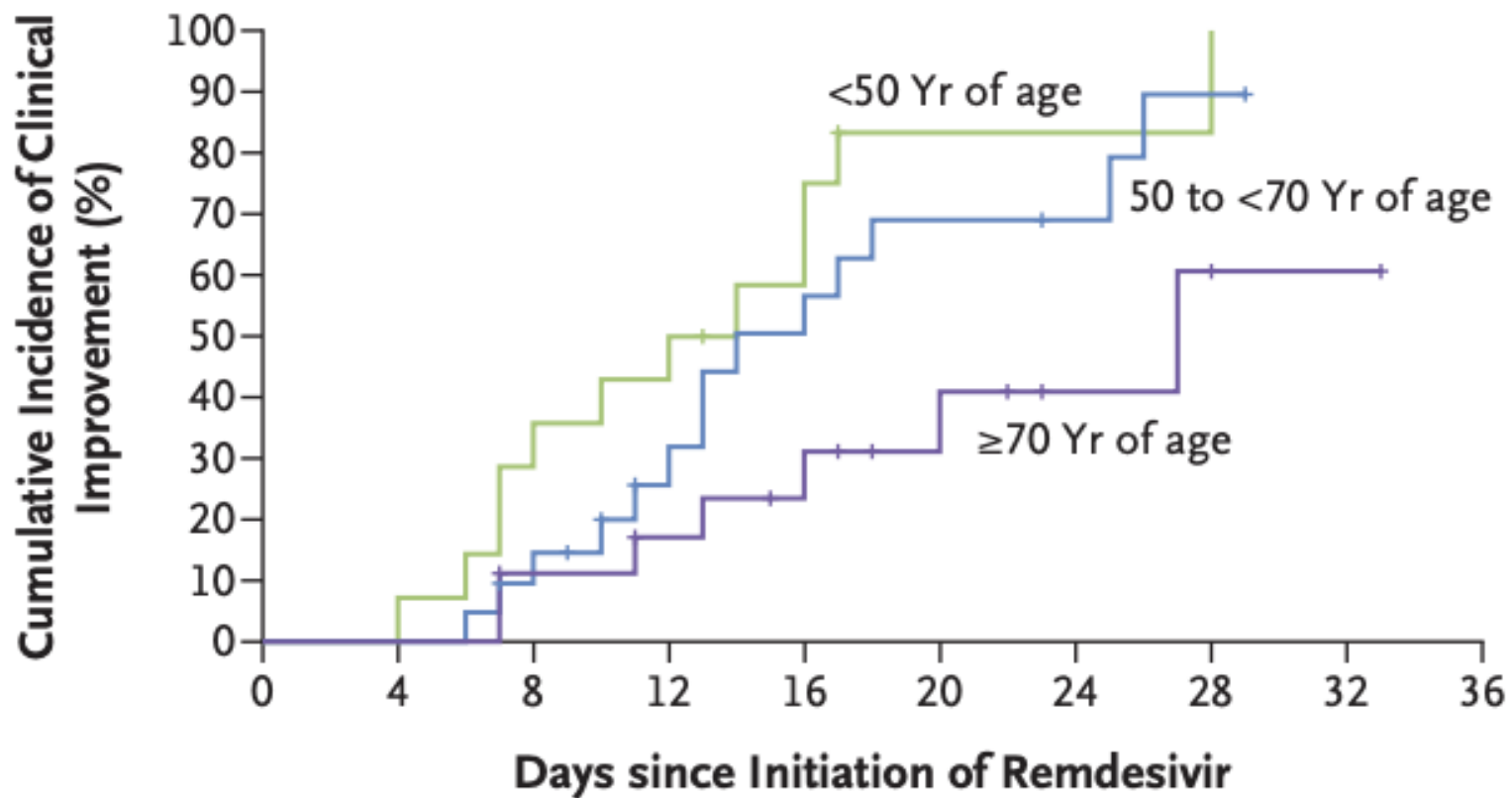
## B Baseline Oxygen Support



### No. at Risk

Noninvasive	19	19	15	10	6	2	1	0		
Invasive	34	34	28	23	17	11	6	4	1	0

### 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	0

**Table 2. Summary of Adverse Events.**

Event	Invasive Ventilation (N = 34)	Noninvasive Oxygen Support (N = 19)	Total (N = 53)
	number of patients (percent)		
Any adverse event	22 (65)	10 (53)	32 (60)
Adverse events occurring in 2 or more patients			
Hepatic enzyme increased*	8 (24)	4 (21)	12 (23)
Diarrhea	1 (3)	4 (21)	5 (9)
Rash	3 (9)	1 (5)	4 (8)
Renal impairment	4 (12)	0	4 (8)
Hypotension	3 (9)	1 (5)	4 (8)
Acute kidney injury	2 (6)	1 (5)	3 (6)
Atrial fibrillation	2 (6)	1 (5)	3 (6)
Multiple-organ-dysfunction syndrome	3 (9)	0	3 (6)
Hypernatremia	3 (9)	0	3 (6)
Deep-vein thrombosis	3 (9)	0	3 (6)
Acute respiratory distress syndrome	1 (3)	1 (5)	2 (4)
Pneumothorax	2 (6)	0	2 (4)
Hematuria	2 (6)	0	2 (4)
Delirium	1 (3)	1 (5)	2 (4)
Septic shock	2 (6)	0	2 (4)
Pyrexia	1 (3)	1 (5)	2 (4)
Any serious adverse event	9 (26)	3 (16)	12 (23)
Serious events occurring in 2 or more patients			
Multiple-organ-dysfunction syndrome	2 (6)	0	2 (4)
Septic shock	2 (6)	0	2 (4)
Acute kidney injury	2 (6)	0	2 (4)
Hypotension	2 (6)	0	2 (4)

\* Adverse-event terms are based on the *Medical Dictionary for Regulatory Activities*, version 22.1. Hepatic enzyme increased includes the following terms: hepatic enzyme increased, alanine aminotransferase increased, aspartate aminotransferase increased, and transaminases increased. Elevated hepatic enzymes resulted in discontinuation of remdesivir therapy in 2 patients.



# Management Guidelines

---



National Institutes of Health  
*Turning Discovery Into Health*

## **Expert U.S. panel develops NIH treatment guidelines for COVID-19**

*“Living document” expected to be updated often as new clinical data accrue.*

# Overview and Spectrum of COVID-19

## Summary Recommendations

- The COVID-19 Treatment Guidelines Panel (the Panel) **does not recommend** the use of any agents for pre-exposure prophylaxis (PrEP) against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) outside of the setting of a clinical trial **(AIII)**.
- The Panel **does not recommend** the use of any agents for post-exposure prophylaxis (PEP) against SARS-CoV-2 infection outside of the setting of a clinical trial **(AIII)**.
- The Panel recommends no additional laboratory testing and no specific treatment for persons with suspected or confirmed asymptomatic or presymptomatic SARS-CoV-2 infection **(AIII)**.
- At present, no drug has been proven to be safe and effective for treating COVID-19. There are insufficient data to recommend either for or against the use of any antiviral or immunomodulatory therapy in patients with COVID-19 who have mild, moderate, severe, or critical illness **(AIII)**.

# Infectious Diseases Society of America Guidelines on the Treatment and Management of Patients with COVID-19

Published by IDSA, 4/11/2020

COVID-19 Guideline, Part 2: Infection Prevention - *Coming Soon*

COVID-19 Guideline, Part 3: Diagnostics - *Coming Soon*

Adarsh Bhimraj\*, Rebecca L. Morgan\*\*, Amy Hirsch Shumaker, Valery Lavergne\*\*, Lindsey Baden, Vincent Chi-Chung Cheng, Kathryn M. Edwards, Rajesh Gandhi, William J. Muller, John C. O'Horo, Shmuel Shoham, M. Hassan Murad\*\*, Reem A. Mustafa\*\*, Shahnaz Sultan\*\*, Yngve Falck-Ytter\*\*

- **Recommendation 1.** Among patients who have been admitted to the hospital with COVID-19, the IDSA guideline panel recommends hydroxychloroquine/chloroquine in the context of a clinical trial. (Knowledge gap)
- **Recommendation 2.** Among patients who have been admitted to the hospital with COVID-19, the IDSA guideline panel recommends hydroxychloroquine/chloroquine plus azithromycin only in the context of a clinical trial. (Knowledge gap)
- **Recommendation 3.** Among patients who have been admitted to the hospital with COVID-19, the IDSA guideline panel recommends the combination of lopinavir/ritonavir only in the context of a clinical trial. (Knowledge gap)
- **Recommendation 4.** Among patients who have been admitted to the hospital with COVID-19 pneumonia, the IDSA guideline panel suggests against the use of corticosteroids. (Conditional recommendation, very low certainty of evidence)
- **Recommendation 5.** Among patients who have been admitted to the hospital with ARDS due to COVID-19, the IDSA guideline panel recommends the use of corticosteroids in the context of a clinical trial. (Knowledge gap)
- **Recommendation 6.** Among patients who have been admitted to the hospital with COVID-19, the IDSA guideline panel recommends tocilizumab only in the context of a clinical trial. (Knowledge gap)
- **Recommendation 7.** Among patients who have been admitted to the hospital with COVID-19, the IDSA guideline panel recommends COVID-19 convalescent plasma in the context of a clinical trial. (Knowledge gap)

# What will Tomorrow Bring?

---

Emerging Research



News Network

For Journalists

Podcasts & Rad

By Dana Sparks

# Convalescent Plasma: A Therapy for COVID-19?

April 6, 2020





[Health Topics](#) ▾

[Countries](#) ▾

[Newsroom](#) ▾

[Em](#)

[Home](#) / [Newsroom](#) / [Commentaries](#) / [Detail](#) / [Bacille Calmette-Guérin \(BCG\) vaccination and COVID-19](#)

# Bacille Calmette-Guérin (BCG) vaccination and COVID-19

**Scientific Brief**

12 April 2020



# Lessons Learned

---

ORIGINAL ARTICLE

## Epidemiology of Covid-19 in a Long-Term Care Facility in King County, Washington

Temet M. McMichael, Ph.D., Dustin W. Currie, Ph.D., Shauna Clark, R.N., Sargis Pogosjans, M.P.H., Meagan Kay, D.V.M., Noah G. Schwartz, M.D., James Lewis, M.D., Atar Baer, Ph.D., Vance Kawakami, D.V.M., Margaret D. Lukoff, M.D., Jessica Ferro, M.P.H., Claire Brostrom-Smith, M.S.N., Thomas D. Rea, M.D., Michael R. Sayre, M.D., Francis X. Riedo, M.D., Denny Russell, B.S., Brian Hiatt, B.S., Patricia Montgomery, M.P.H., Agam K. Rao, M.D., Eric J. Chow, M.D., Farrell Tobolowsky, D.O., Michael J. Hughes, M.P.H., Ana C. Bardossy, M.D., Lisa P. Oakley, Ph.D., Jessica R. Jacobs, Ph.D., Nimalie D. Stone, M.D., Sujan C. Reddy, M.D., John A. Jernigan, M.D., Margaret A. Honein, Ph.D., Thomas A. Clark, M.D., and Jeffrey S. Duchin, M.D., for the Public Health–Seattle and King County, EvergreenHealth, and CDC COVID-19 Investigation Team\*

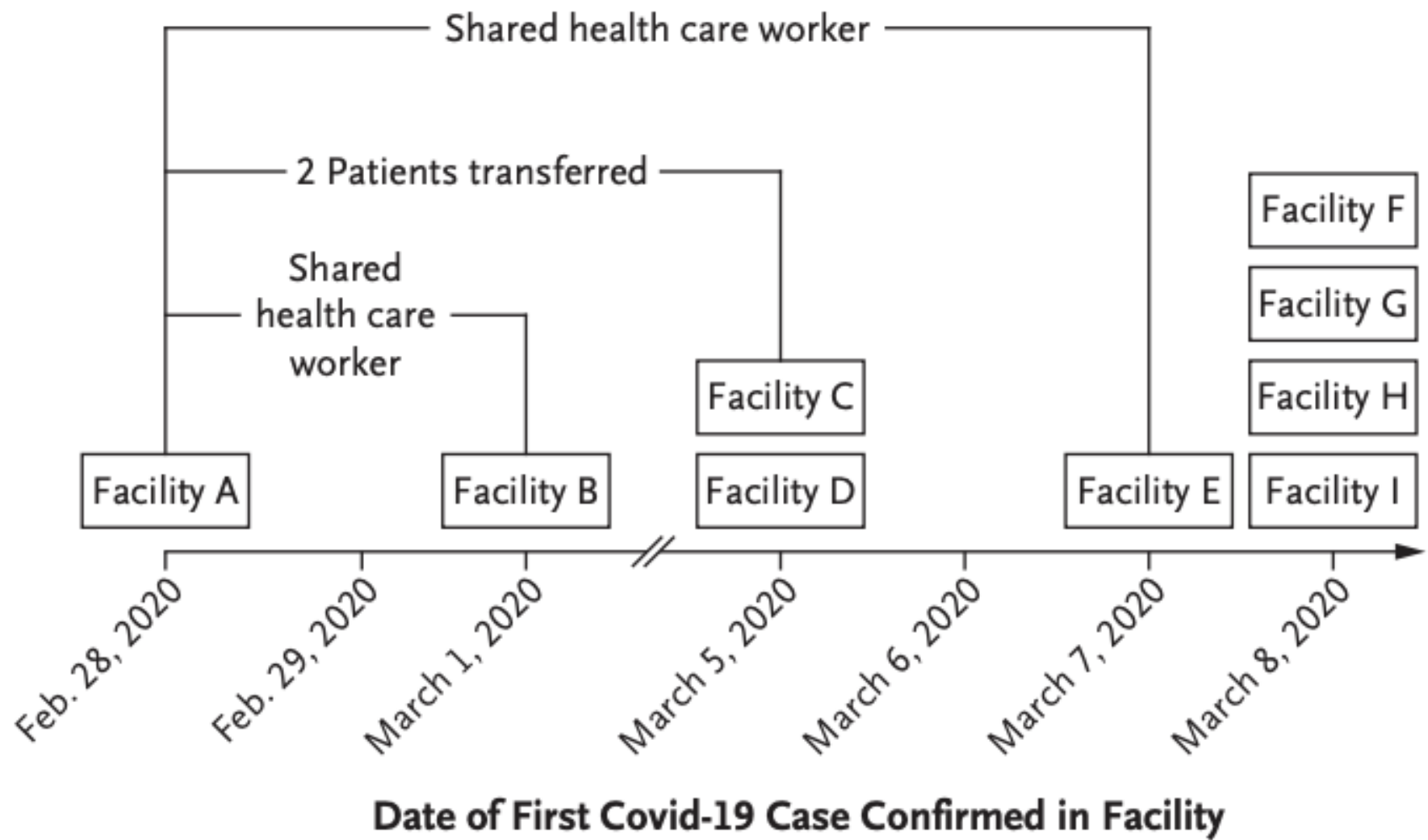
**Table 1. Demographic and Clinical Characteristics of Persons with Confirmed Covid-19 Linked to Facility A.\***

Characteristic	Residents (N=101)	Health Care Personnel (N=50)	Visitors (N=16)	Total (N=167)
Median age (range) — yr	83 (51–100)	43.5 (21–79)	62.5 (52–88)	72 (21–100)
Sex — no. (%)				
Male	32 (31.7)	12 (24.0)	11 (68.8)	55 (32.9)
Female	69 (68.3)	38 (76.0)	5 (31.2)	112 (67.1)
Hospitalized — no. (%)				
Yes	55 (54.5)	3 (6.0)	8 (50.0)	66 (39.5)
No	9 (8.9)	44 (88.0)	8 (50.0)	61 (36.5)
Unknown	37 (36.6)	3 (6.0)	0	40 (24.0)
Died — no. (%)				
Yes	34 (33.7)	0	1 (6.2)	35 (21.0)
No	67 (66.3)	50 (100.0)	15 (93.8)	132 (79.0)
Chronic underlying conditions — no. (%)†				
Hypertension‡	68 (67.3)	4 (8.0)	2 (12.5)	74 (44.3)
Cardiac disease	61 (60.4)	4 (8.0)	3 (18.8)	68 (40.7)
Renal disease	41 (40.6)	0	2 (12.5)	43 (25.7)
Diabetes mellitus	32 (31.7)	5 (10.0)	1 (6.2)	38 (22.8)
Obesity	31 (30.7)	3 (6.0)	3 (18.8)	37 (22.2)
Pulmonary disease	32 (31.7)	2 (4.0)	2 (12.5)	36 (21.6)
Cancer	15 (14.9)	0	0	15 (9.0)
Compromised immune system	9 (8.9)	0	0	9 (5.4)
Liver disease	6 (5.9)	0	0	6 (3.6)

\* Data are for persons with confirmed Covid-19 that was epidemiologically linked to Facility A, including residents of King County and Snohomish County, from February 27 through March 18, 2020.

† For chronic underlying conditions, “no” and “unknown” are combined. Percentages represent the number of cases with information on the coexisting condition, irrespective of missing data. Data on chronic underlying conditions were missing for 1 resident, 5 health care personnel, and 1 visitor.

‡ Hypertension was the only chronic underlying condition in 7 residents, 2 health care personnel, and 1 visitor.



The background features a central white diamond shape. This diamond is surrounded by four overlapping, semi-transparent geometric shapes: a blue square rotated 45 degrees, a yellow square rotated 45 degrees, and two smaller, semi-transparent squares (one blue and one yellow) positioned at the corners. The overall composition is symmetrical and modern.

Open Discussion



THE FLORIDA SOCIETY  
FOR POST-ACUTE AND  
LONG-TERM  
CARE MEDICINE

**400 Executive Center Drive, Suite 208  
West Palm Beach, FL 33401**

**[www.fmda.org](http://www.fmda.org); [www.bestcarepractices.org](http://www.bestcarepractices.org)**



This meeting has been recorded and will be available at [www.fmda.org/journalclub.php](http://www.fmda.org/journalclub.php)