

# COVID-19

## RESEARCH UPDATE

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Dr. Michael Parkins  
May 4, 2020



# RESEARCH UPDATE

## DR. MICHAEL PARKINS



## Keeping up with COVID-19 related science

NCBI Resources How To Sign in to NCBI

PubMed.gov Covid Search

The new PubMed site will become the default in mid-May. [Click here to try it now!](#) [Frequently asked questions](#)

Article types: Clinical Trial, Review, Customize ...

Text availability: Abstract, Free full text, Full text

Publication dates: 5 years, 10 years, Custom range...

Species: Humans, Other Animals

Format: Summary Sort by: Most Recent Per page: 200 Send to Filters: Manage Filters

**Best matches for Covid:**

- [Understanding of COVID-19 based on current evidence.](#)  
Sun P et al. J Med Virol. (2020)
- [Epidemiology and Clinical Characteristics of COVID-19.](#)  
Huang X et al. Arch Iran Med. (2020)
- [Genotype and phenotype of COVID-19: Their roles in pathogenesis.](#)  
Mousavizadeh L et al. J Microbiol Immunol Infect. (2020)

[Switch to our new best match sort order](#)

**Search results**

Items: 1 to 200 of 8362

1. [Occupational skin conditions on the frontline: A survey among 484 Chinese healthcare professionals caring for Covid-19 patients.](#)  
Pei S, Xue Y, Zhao S, Alexander N, Mohamad G, Chen X, Yin M.  
J Eur Acad Dermatol Venereol. 2020 May 3. doi: 10.1111/jdv.16570. [Epub ahead of print]  
PMID: 32362062  
[Similar articles](#)

2. [Dupilumab and COVID-19: what should we expect?](#)  
Patrino C, Stingeni L, Fabbrocini G, Hansel K, Napolitano M.  
Dermatol Ther. 2020 May 2. doi: 10.1111/dth.13502. [Epub ahead of print]  
PMID: 32362061  
[Similar articles](#)

3. [Drug reaction with eosinophilia and systemic symptoms syndrome to hydroxychloroquine, an old drug in the spotlight.](#)  
Grimaldi M, Romita P, Bonamonte D, Cazzato G, Hansel K, Stingeni L, Conforti C, Giuffrida P, Foti C

Sort by: Best match Most recent

Results by year

Download CSV

PMC Images search for Covid

See more (81)...

Find related data

Database: Select

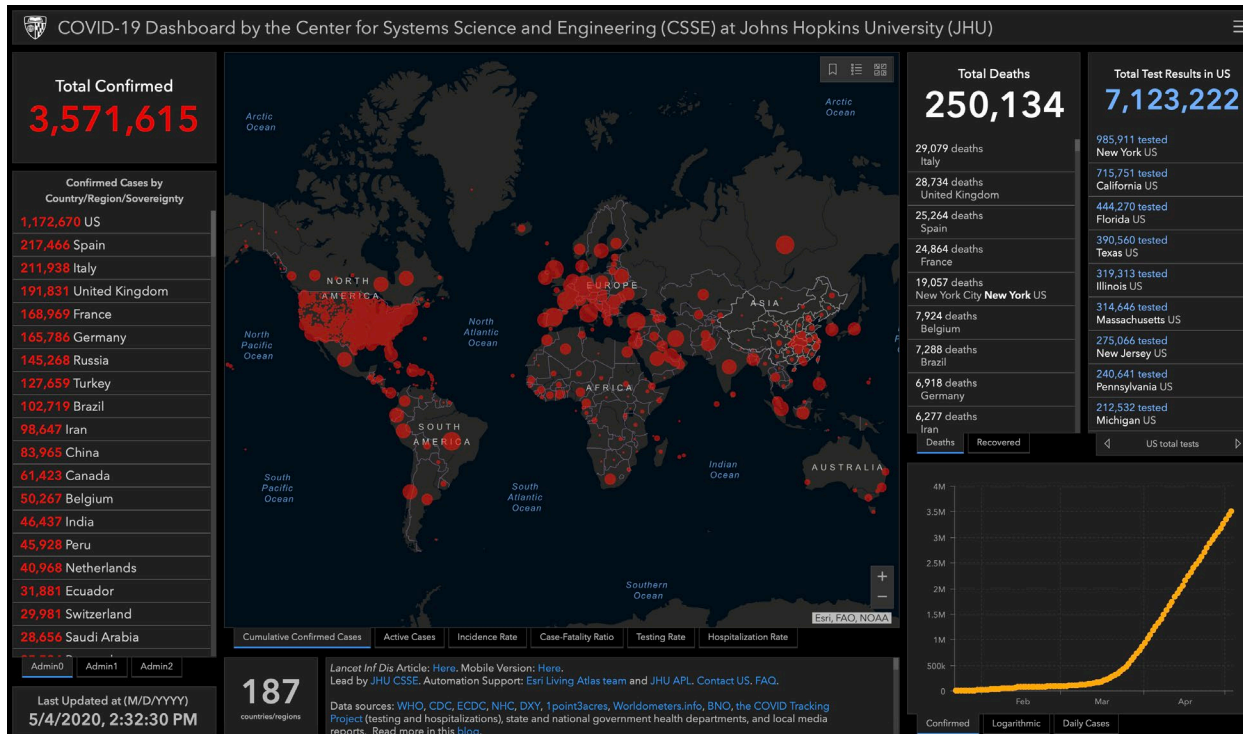


# RESEARCH UPDATE

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## Excellent surveillance data



- Global case fatality rate
  - 7%
- Canadian case fatality rate
  - 6.4% (vs US 5.8%)
- Local case fatality rate
  - AB 1.65%

## Nucleic acid shedding ≠ virus shedding

- Primary means of diagnosis remains direct detection of viral RNA
- ~1 billion virions/swab
- Virus no longer recoverable after 8 days
- Seroconversion between 7-14 days.

### **Virological assessment of hospitalized patients with COVID-2019**

Roman Wölfel, Victor M. Corman, Wolfgang Guggemos, Michael Seilmaier, Sabine Zange, Marcel A. Müller, Daniela Niemeyer, Terry C. Jones, Patrick Vollmar, Camilla Rothe, Michael Hoelscher, Tobias Bleicker, Sebastian Brünink, Julia Schneider, Rosina Ehmann, Katrin Zwirgmaier, Christian Drosten ✉ & Clemens Wendtner ✉

Nature, April 1 2020

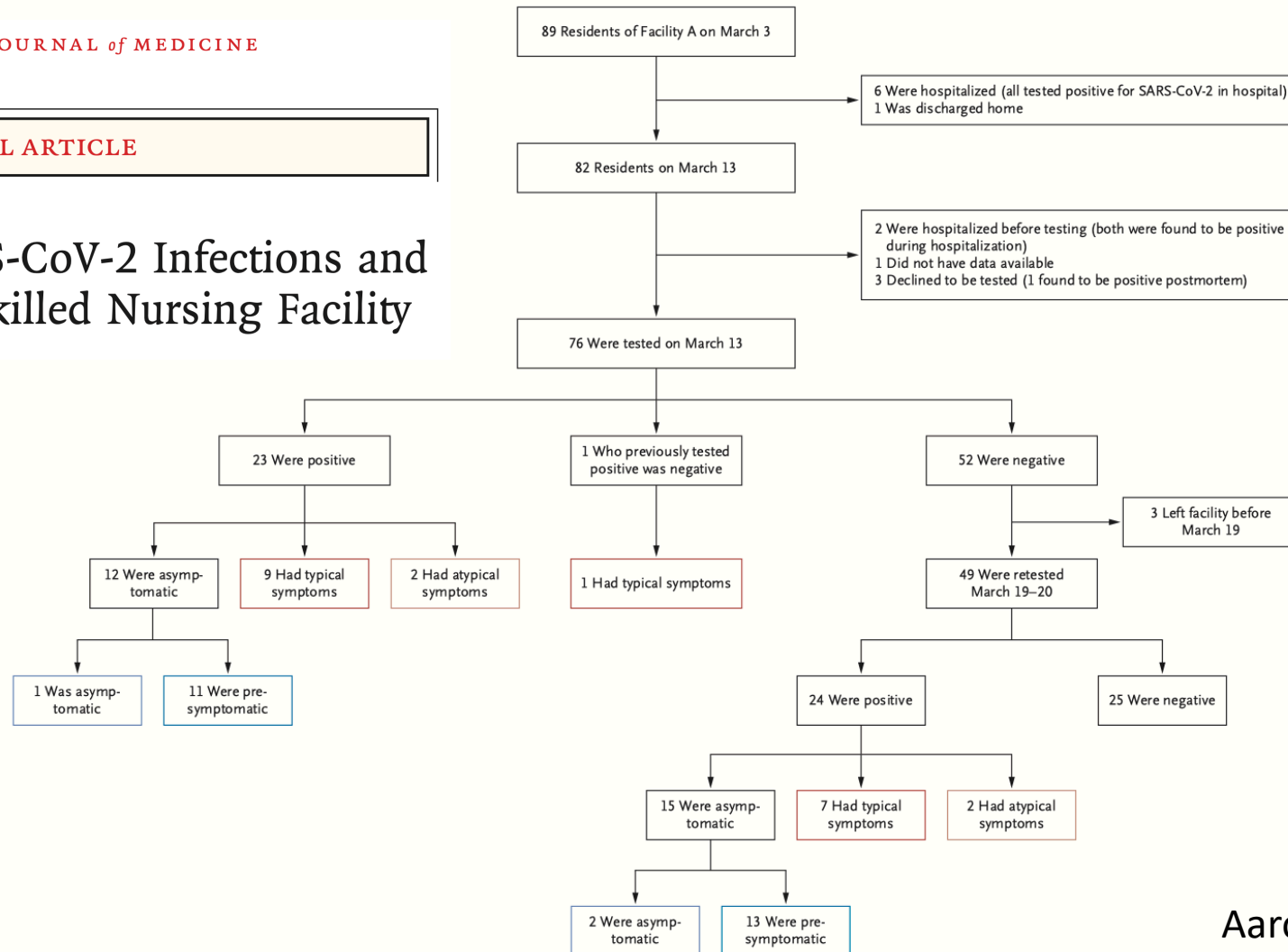
# RESEARCH UPDATE

## DR. MICHAEL PARKINS

*The NEW ENGLAND JOURNAL of MEDICINE*

### ORIGINAL ARTICLE

## Presymptomatic SARS-CoV-2 Infections and Transmission in a Skilled Nursing Facility



Aarons, NEJM 2020

# RESEARCH UPDATE

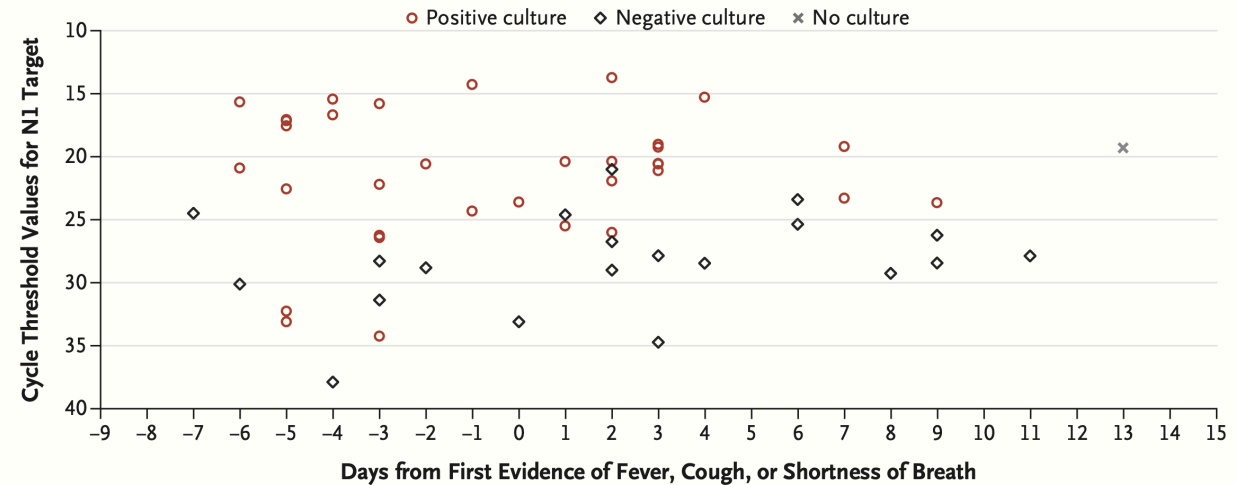
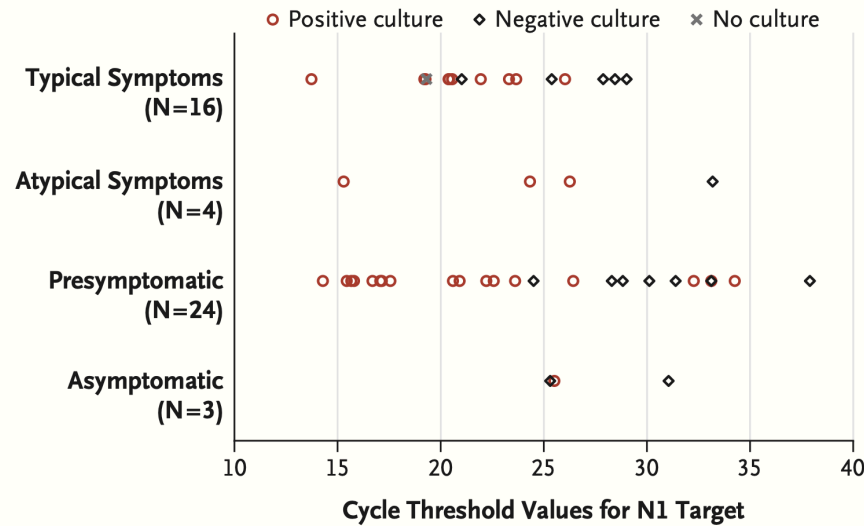
## DR. MICHAEL PARKINS



The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

### Presymptomatic SARS-CoV-2 Infections and Transmission in a Skilled Nursing Facility



Aarons, NEJM 2020



## Nosocomial transmission risks

ACCEPTED MANUSCRIPT

### **First reported nosocomial outbreak of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in a pediatric dialysis unit**

Vera Schwierzeck, Jens Christian König, Joachim Kühn, Alexander Mellmann, Carlos Luis Correa-Martínez, Heymut Omran, Martin Konrad, Thomas Kaiser, Stefanie Kampmeier ✉ [Author Notes](#)

*Clinical Infectious Diseases*, ciaa491, <https://doi.org/10.1093/cid/ciaa491>

**Published:** 27 April 2020 **Article history** ▼

- Index patient in a dialysis unit with 11 subsequent infected individuals
- HCW transmissions only occurred if;
  - <2 M and >15 minutes of face-face exposure without PPE

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Renin–Angiotensin–Aldosterone System  
Inhibitors and Risk of Covid-19

**Table 2.** Likelihood of Positive Test for Covid-19, According to Treatment with Various Antihypertensive Agents, among Propensity-Score–Matched Patients, with Hypertension and Overall.\*

Medication	Matched Patients with Hypertension			All Matched Patients		
	Covid-19 in Patients Treated with Medication	Covid-19 in Patients Not Treated with Medication	Median Difference (95% CI)	Covid-19 in Patients Treated with Medication	Covid-19 in Patients Not Treated with Medication	Median Difference (95% CI)
	no./total no. (%)	no./total no. (%)	percentage points	no./total no. (%)	no./total no. (%)	percentage points
ACE inhibitor	584/954 (61.2)	583/954 (61.1)	0.1 (–4.3 to 4.5)	627/1044 (60.1)	653/1044 (62.5)	–2.5 (–6.7 to 1.6)
ARB	629/1057 (59.5)	612/1057 (57.9)	1.6 (–2.6 to 5.8)	664/1137 (58.4)	639/1137 (56.2)	2.2 (–1.9 to 6.3)
ACE inhibitor or ARB	1019/1692 (60.2)	986/1692 (58.3)	2.0 (–1.4 to 5.3)	1110/1909 (58.1)	1101/1909 (57.7)	–0.5 (–2.6 to 3.6)
Beta-blocker	792/1381 (57.3)	829/1381 (60.0)	–2.7 (–6.3 to 1.0)	912/1686 (54.1)	976/1686 (57.9)	–3.8 (–7.1 to –0.4)
Calcium-channel blocker	950/1577 (60.2)	930/1577 (59.0)	1.3 (–2.2 to 4.7)	992/1672 (59.3)	976/1672 (58.4)	0.9 (–2.3 to 4.3)
Thiazide diuretic	515/903 (57.0)	520/903 (57.6)	–0.6 (–5.1 to 3.9)	549/986 (55.7)	590/986 (59.8)	–4.2 (–8.5 to 0.2)



The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Renin–Angiotensin–Aldosterone System Inhibitors and Risk of Covid-19

Table 3. Likelihood of Severe Covid-19, According to Treatment with Various Antihypertensive Agents, in Propensity-Score–Matched Patients with a Positive Test for Covid-19, with Hypertension and Overall.\*

Medication	Matched Patients with Hypertension			All Matched Patients		
	Severe Covid-19 in Patients Treated with Medication	Severe Covid-19 in Patients Not Treated with Medication	Median Difference (95% CI)	Severe Covid-19 in Patients Treated with Medication	Severe Covid-19 in Patients Not Treated with Medication	Median Difference (95% CI)
	no./total no. (%)	no./total no. (%)	percentage points	no./total no. (%)	no./total no. (%)	percentage points
ACE inhibitor	139/584 (23.8)	158/583 (27.1)	−3.3 (−8.2 to 1.7)	150/627 (23.9)	169/653 (25.9)	1.9 (−6.6 to 2.8)
ARB	161/629 (25.6)	156/612 (25.5)	−0.1 (−4.8 to 4.9)	162/664 (24.4)	165/639 (25.8)	−1.4 (−6.1 to 3.3)
ACE inhibitor or ARB	252/1019 (24.7)	249/986 (25.3)	−0.5 (−4.3 to 3.2)	275/1110 (24.8)	274/1101 (24.9)	−0.1 (−3.7 to 3.5)
Beta-blocker	210/792 (26.5)	231/829 (27.9)	−1.4 (−5.7 to 3.0)	230/912 (25.2)	250/976 (25.6)	−0.4 (−4.3 to 3.6)
Calcium-channel blocker	253/950 (26.6)	207/930 (22.3)	4.4 (0.5 to 8.2)	263/992 (26.5)	235/976 (24.1)	2.4 (−1.4 to 6.2)
Thiazide diuretic	116/515 (22.5)	114/520 (21.9)	0.6 (−4.5 to 5.7)	120/549 (21.9)	149/590 (25.3)	−3.4 (−8.3 to 1.6)

# RESEARCH UPDATE

## DR. MICHAEL PARKINS



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## FDA cautions against use of hydroxychloroquine or chloroquine for COVID-19 outside of the hospital setting or a clinical trial due to risk of heart rhythm problems

*Does not affect FDA-approved uses for malaria, lupus, and rheumatoid arthritis*

**“Hydroxychloroquine and chloroquine have not been shown to be safe and effective for treating or preventing COVID-19.”**

# Glimmers of hope for treatment

## Remdesivir in adults with severe COVID-19: a randomised, double-blind, placebo-controlled, multicentre trial

Yeming Wang\*, Dingyu Zhang\*, Guanhua Du\*, Ronghui Du\*, Jianping Zhao\*, Yang Jin\*, Shouzhi Fu\*, Ling Gao\*, Zhenshun Cheng\*, Qiaofa Lu\*, Yi Hu\*, Guangwei Luo\*, Ke Wang, Yang Lu, Huadong Li, Shuzhen Wang, Shunan Ruan, Chengqing Yang, Chunlin Mei, Yi Wang, Dan Ding, Feng Wu, Xin Tang, Xianzhi Ye, Yingchun Ye, Bing Liu, Jie Yang, Wen Yin, Aili Wang, Guohui Fan, Fei Zhou, Zhibo Liu, Xiaoying Gu, Jiuyang Xu, Lianhan Shang, Yi Zhang, Lianjun Cao, Tingting Guo, Yan Wan, Hong Qin, Yushen Jiang, Thomas Jaki, Frederick G Hayden, Peter W Horby, Bin Cao, Chen Wang

Lancet, April 30 2020

Six-category scale at day 1		
2—hospital admission, not requiring supplemental oxygen	0	3 (4%)
3—hospital admission, requiring supplemental oxygen	129 (82%)	65 (83%)
4—hospital admission, requiring high-flow nasal cannula or non-invasive mechanical ventilation	28 (18%)	9 (12%)
5—hospital admission, requiring extracorporeal membrane oxygenation or invasive mechanical ventilation	0	1 (1%)

# RESEARCH UPDATE

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	Remdesivir group (n=158)	Placebo group (n=78)	Difference*
Time to clinical improvement	21.0 (13.0 to 28.0)	23.0 (15.0 to 28.0)	1.23 (0.87 to 1.75)†
Day 28 mortality	22 (14%)	10 (13%)	1.1% (-8.1 to 10.3)
Early (≤10 days of symptom onset)	8/71 (11%)	7/47 (15%)	-3.6% (-16.2 to 8.9)
Late (>10 days of symptom onset)	12/84 (14%)	3/31 (10%)	4.6% (-8.2 to 17.4)
Clinical improvement rates			
Day 7	4 (3%)	2 (3%)	0.0% (-4.3 to 4.2)
Day 14	42 (27%)	18 (23%)	3.5% (-8.1 to 15.1)
Day 28	103 (65%)	45 (58%)	7.5% (-5.7 to 20.7)
Duration of invasive mechanical ventilation, days	7.0 (4.0 to 16.0)	15.5 (6.0 to 21.0)	-4.0 (-14.0 to 2.0)
Duration of invasive mechanical ventilation in survivors, days‡	19.0 (5.0 to 42.0)	42.0 (17.0 to 46.0)	-12.0 (-41.0 to 25.0)
Duration of invasive mechanical ventilation in non-survivors, days‡	7.0 (2.0 to 11.0)	8.0 (5.0 to 16.0)	-2.5 (-11.0 to 3.0)
Duration of oxygen support, days	19.0 (11.0 to 30.0)	21.0 (14.0 to 30.5)	-2.0 (-6.0 to 1.0)
Duration of hospital stay, days	25.0 (16.0 to 38.0)	24.0 (18.0 to 36.0)	0.0 (-4.0 to 4.0)
Time from random group assignment to discharge, days	21.0 (12.0 to 31.0)	21.0 (13.5 to 28.5)	0.0 (-3.0 to 3.0)
Time from random group assignment to death, days	9.5 (6.0 to 18.5)	11.0 (7.0 to 18.0)	-1.0 (-7.0 to 5.0)
Six-category scale at day 7			
1—discharge (alive)	4/154 (3%)	2/77 (3%)	OR 0.69 (0.41 to 1.17)§
2—hospital admission, not requiring supplemental oxygen	21/154 (14%)	16/77 (21%)	..
3—hospital admission, requiring supplemental oxygen	87/154 (56%)	43/77 (56%)	..
4—hospital admission, requiring high-flow nasal cannula or non-invasive mechanical ventilation	26/154 (17%)	8/77 (10%)	..
5—hospital admission, requiring extracorporeal membrane oxygenation or invasive mechanical ventilation	6/154 (4%)	4/77 (5%)	..
6—death	10/154 (6%)	4/77 (5%)	..
Six-category scale at day 14			
1—discharge (alive)	39/153 (25%)	18/78 (23%)	OR 1.25 (0.76 to 2.04)§
2—hospital admission, not requiring supplemental oxygen	21/153 (14%)	10/78 (13%)	..
3—hospital admission, requiring supplemental oxygen	61/153 (40%)	28/78 (36%)	..
4—hospital admission, requiring high-flow nasal cannula or non-invasive mechanical ventilation	13/153 (8%)	8/78 (10%)	..
5—hospital admission, requiring extracorporeal membrane oxygenation or invasive mechanical ventilation	4/153 (3%)	7/78 (9%)	..
6—death	15/153 (10%)	7/78 (9%)	..

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<https://www.nih.gov/news-events/news-release/remdesivir-accelerates-recovery-advanced-covid-19>

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 **COVID-19 is an emerging, rapidly evolving situation.**

Get the latest public health information from CDC: <https://www.coronavirus.gov>  
Get the latest research information from NIH: <https://www.nih.gov/coronavirus>

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**NEWS RELEASES**

Wednesday, April 29, 2020

### NIH clinical trial shows Remdesivir accelerates recovery from advanced COVID-19

Preliminary results indicate that patients who received remdesivir had a **31% faster time to recovery than those who received placebo ( $p < 0.001$ )**. Specifically, the median time to recovery was 11 days for patients treated with remdesivir compared with 15 days for those who received placebo. Results also suggested a survival benefit, with a **mortality rate of 8.0%** for the group receiving remdesivir **versus 11.6%** for the placebo group ( $p = 0.059$ ).



Gilead

## Press Releases

April 29, 2020

### **Gilead Announces Results From Phase 3 Trial of Investigational Antiviral Remdesivir in Patients With Severe COVID-19**

*-- Study Demonstrates Similar Efficacy with 5- and 10-Day Dosing Durations of Remdesivir --*

### **FACT SHEET FOR HEALTH CARE PROVIDERS EMERGENCY USE AUTHORIZATION (EUA) OF REMDESIVIR (GS-5734™)**

FDA

The U.S. Food and Drug Administration (FDA) has issued an Emergency Use Authorization (EUA) to permit the emergency use of the unapproved product remdesivir for treatment of suspected or laboratory confirmed coronavirus disease 2019 (COVID-19) in adults and children hospitalized with severe disease. Severe disease is defined as patients with an oxygen saturation (SpO<sub>2</sub>) ≤ 94% on room air or requiring supplemental oxygen or requiring mechanical ventilation or requiring extracorporeal membrane oxygenation (ECMO).



## **Trials in Calgary**

# RESEARCH UPDATE

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DEMO - Alberta HOPE COVID-19 Trial

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### Welcome

To The Official Site For The ALBERTA HOPE COVID-19 Trial

This trial is an Alberta-wide effort to assess the efficacy and safety of oral hydroxychloroquine (HCQ) for the treatment of SARS-CoV-2 positive patients for the prevention of severe COVID-19 disease.

The Alberta HOPE COVID19 trial is a collaboration between Researchers and Health Professionals at the University of Calgary, University of Alberta, and Alberta Health Services. Lack of any proven treatments for this severe condition makes it imperative that we work together and use the resources we have to try to improve the lives of Albertans during this global pandemic.

The ALBERTA HOPE COVID-19 study has been approved by Health Canada and by the Research Ethics Boards (REB): CHREB in Calgary, and HREB in Edmonton. It is listed on [clinicaltrials.gov](https://clinicaltrials.gov) under identifier NCT04329611

DEMO - Alberta HOPE COVID-19 Trial

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COVID-19 is an emerging, rapidly evolving situation.  
Get the latest public health information from CDC: <https://www.coronavirus.gov>.  
Get the latest research information from NIH: <https://www.nih.gov/coronavirus>.



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☐ Save this study

### Treatments for COVID-19: Canadian Arm of the SOLIDARITY Trial (CATCO)

The safety and scientific validity of this study is the responsibility of the study sponsor and investigators. Listing a study does not mean it has been evaluated by the U.S. Federal Government. [Know the risks and potential benefits](#) of clinical studies and talk to your health care provider before participating. Read our [disclaimer](#) for details.

ClinicalTrials.gov Identifier: NCT04330690

Recruitment Status ⓘ : Recruiting

First Posted ⓘ : April 1, 2020

Last Update Posted ⓘ : April 29, 2020

See [Contacts and Locations](#)

**Sponsor:**  
Sunnybrook Health Sciences Centre

**Collaborators:**  
AbbVie  
Apotex Inc.

**Information provided by (Responsible Party):**  
Sunnybrook Health Sciences Centre

- [Study Details](#)
- [Tabular View](#)
- [No Results Posted](#)
- [Disclaimer](#)
- [How to Read a Study Record](#)

#### Study Description

**Brief Summary:**

This study is an adaptive, randomized, open-label, controlled clinical trial, in collaboration with countries around the world through the World Health Organization.

Subjects will be randomized to receive either standard-of-care products or the study medication plus standard of care, while being hospitalized for COVID-19.

Participants will be randomized to one of the following groups:

1. Lopinavir/ritonavir 400mg/100mg PO BID for 14 day plus optimized supportive care, OR

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Calithera: CX-280-202 Study Overview an...

FW: Capacity Planning Update - Calgary Zo...

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NIH U.S. National Library of Medicine

ClinicalTrials.gov

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### CONvalescent Plasma for Hospitalized Adults With COVID-19 Respiratory Illness (CONCOR-1) (CONCOR-1)



The safety and scientific validity of this study is the responsibility of the study sponsor and investigators. Listing a study does not mean it has been evaluated by the U.S. Federal Government. [Know the risks and potential benefits](#) of clinical studies and talk to your health care provider before participating. Read our [disclaimer](#) for details.

ClinicalTrials.gov Identifier: NCT04348656

Recruitment Status : Not yet recruiting  
First Posted : April 16, 2020  
Last Update Posted : April 29, 2020  
See [Contacts and Locations](#)

Sponsor:

Hamilton Health Sciences Corporation

Collaborators:

Canadian Blood Services  
Héma-Québec  
University of Toronto  
Université de Montréal

Information provided by (Responsible Party):

McMaster University ( Hamilton Health Sciences Corporation )

Study Details

Tabular View

No Results Posted

Disclaimer

How to Read a Study Record

#### Study Description

Brief Summary:

There is currently no treatment available for COVID-19, the acute respiratory illness caused by the novel SAR-CoV-2. Convalescent plasma from patients who have recovered from COVID-19 that contain antibodies to the virus may be used for treatment. On March 25th, 2020, the FDA approved the use of convalescent plasma under the emergency investigational new drug (eIND) category. Randomized trials are needed to determine the efficacy of convalescent plasma for acute COVID-19 infection.

