

# Is it time to embrace preprints?

A conversation about the first 18 months of medRxiv

**NIH Collaboratory Grand Rounds**

January 22, 2021

Yale



**Harlan M. Krumholz, MD, SM**

**Joseph S. Ross, MD, MHS**

Department of Internal Medicine, Yale School of Medicine

Center for Outcomes Research and Evaluation, Yale-New Haven Hospital

**@hmkyale**

**@jsross119**



# Potential Conflicts of Interest

- **medRxiv funded by Chan-Zuckerberg Initiative via a grant to CSHL**

## Preprint (n):

a research manuscript yet to be certified by peer review and accepted for publication by a journal

## Preprint server (n):

an online platform dedicated to the distribution of preprints

# Preprint servers are proliferating



# medRxiv: a server for health science preprints

The screenshot shows the medRxiv website homepage. At the top left, there are logos for CSH Cold Spring Harbor Laboratory, BMJ, and Yale. Navigation links for HOME, ABOUT, SUBMIT, and ALERTS/ISS are visible. The main title 'medRxiv' is prominently displayed, with the subtitle 'THE PREPRINT SERVER FOR HEALTH SCIENCES'. Below the title is a search bar with a magnifying glass icon and a link to 'Advanced Search'. A red warning box states: 'Caution: Preprints are preliminary reports of work that have not been peer-reviewed. They should not be relied on to guide clinical practice or health-related behavior and should not be reported in news media as established information.' Below this is a 'Subject Areas' section with a grid of medical specialties. At the bottom left of the grid, there is a 'View by Month' link.

CSH Cold Spring Harbor Laboratory | BMJ | Yale

HOME | ABOUT | SUBMIT | ALERTS / ISS

# medRxiv

THE PREPRINT SERVER FOR HEALTH SCIENCES

 [Advanced Search](#)

**Caution:** Preprints are preliminary reports of work that have not been peer-reviewed. They should not be relied on to guide clinical practice or health-related behavior and should not be reported in news media as established information.

### Subject Areas

All Articles

Addiction Medicine	Hematology	Pain Medicine
Allergy and Immunology	HIV/AIDS	Palliative Medicine
Anesthesia	Infectious Diseases (except HIV/AIDS)	Pathology
Cardiovascular Medicine	Intensive Care and Critical Care Medicine	Pediatrics
Dentistry and Oral Medicine	Medical Education	Pharmacology and Therapeutics
Dermatology	Medical Ethics	Primary Care Research
Emergency Medicine	Nephrology	Psychiatry and Clinical Psychology
Endocrinology (including Diabetes Mellitus and Metabolic Diseases)	Neurology	Public and Global Health
Epidemiology	Nursing	Radiology and Imaging
Forensic Medicine	Nutrition	Rehabilitation Medicine and Physical Therapy
Gastroenterology	Obstetrics and Gynecology	Respiratory Medicine
Genetic and Genomic Medicine	Occupational and Environmental Health	Rheumatology
Geriatric Medicine	Oncology	Sexual and Reproductive Health
Health Economics	Ophthalmology	Sports Medicine
Health Informatics	Orthopedics	Surgery
Health Policy	Otolaryngology	Toxicology
Health Systems and Quality Improvement		Transplantation
		Urology

[View by Month](#)

- Conceptually and technologically similar to bioRxiv
- Not-for-profit
- A service not a product
- Publisher-neutral
- Operated by CSH Laboratory
- Managed in partnership with BMJ and Yale University
- Launched Q2 2019

# Preprints in medicine: potential benefits

## **Rapid, early sharing of new information**

- Establishes provenance of ideas while papers peer reviewed
- Facilitates awareness, prompts scientific feedback
- Enhances collaboration among scientists
- Demonstrates scientific productivity

# Preprints in medicine: potential benefits

## **Rapid, early sharing of new information**

- Establishes provenance of ideas while papers peer reviewed
- Facilitates awareness, prompts scientific feedback
- Enhances collaboration among scientists
- Demonstrates scientific productivity

## **Make less “publishable” studies more readily available**

- Medical education and qualitative research
- Quality improvement & healthcare delivery innovations
- Confirmatory or contradictory results
- Negative or inconclusive research findings

# Preprints in medicine: potential benefits

## **Rapid, early sharing of new information**

- Establishes provenance of ideas while papers peer reviewed
- Facilitates awareness, prompts scientific feedback
- Enhances collaboration among scientists
- Demonstrates scientific productivity

## **Make less “publishable” studies more readily available**

- Medical education and qualitative research
- Quality improvement & healthcare delivery innovations
- Confirmatory or contradictory results
- Negative or inconclusive research findings

## **Foster more “complete” results reporting**

- Promotes research transparency, particularly for abstract presentations, complements trial registry results reporting
- Links protocols, sensitivity analyses and supplementary materials (not all journals publish)



# Preprints in medicine: concerns and perceived risks

## **Editors worry about:**

- Harm to the public from wrong information, magnified by media reporting
- ‘Persistent preprints’ with results/conclusion that changed after peer review
- Manipulation by commercial interests
- Undermining established medical communication norms
  - Peer-reviewed journals
  - Conferences
  - ClinicalTrials.gov

# Preprints in medicine: concerns and perceived risks

## **Editors worry about:**

- Harm to the public from wrong information, magnified by media reporting
- ‘Persistent preprints’ with results/conclusion that changed after peer review
- Manipulation by commercial interests
- Undermining established medical communication norms
  - Peer-reviewed journals
  - Conferences
  - ClinicalTrials.gov

## **Authors worry about:**

- Journals won't publish their paper if it's preprinted

# medRxiv: mitigating concerns and risks

- Submission requirements for authors
- Clear posting criteria – research articles only!
- Established screening process
- Signaling the need for caution when scientists and non-scientists read and review preprints

# medRxiv: submission requirements

- Follow ICMJE guidance, including author names, contact info, affiliation
- Funding and competing interest statements
- Statement of IRB / ethics committee oversight
- Study registration when applicable
  - (ClinicalTrials.gov or other ICMJE approved registry for trials, PROSPERO for reviews)
- Study protocol \*
- Data sharing / availability statement \*
- EQUATOR Network reporting guidelines checklist(s) \*

# medRxiv: allowed article types

- Original research in the biomedical sciences, including clinical trials, observational research, surveys, qualitative research, quality improvement and implementation science, policy studies, and medical education
- Systematic reviews and meta-analytic research
- Methodological research
- Data publications
- Protocols (to accompany study preprints)

**Not Allowed:** commentaries, editorials, opinion pieces or essays, letters to editors, narrative reviews, medical-legal research, case reports



# medRxiv: urging caution in using preprints

The image shows the homepage of medRxiv, a preprint server for health sciences. At the top left, there are logos for Cold Spring Harbor Laboratory (CSH), BMJ, and Yale. To the right, navigation links for HOME, ABOUT, SUBMIT, and ALERTS / RSS are visible. The main title 'medRxiv' is prominently displayed in the center, with 'THE PREPRINT SERVER FOR HEALTH SCIENCES' underneath. A search bar is located below the title. A red warning message is circled in a dark blue oval, stating: 'Caution: Preprints are preliminary reports of work that have not been peer-reviewed. They should not be relied on to guide clinical practice or health-related behavior and should not be reported in news media as established information.' Below this, a 'Subject Areas' section lists various medical fields.

CSH Cold Spring Harbor Laboratory

BMJ Yale

HOME | ABOUT | SUBMIT | ALERTS / RSS

# medRxiv

THE PREPRINT SERVER FOR HEALTH SCIENCES

**Caution: Preprints are preliminary reports of work that have not been peer-reviewed. They should not be relied on to guide clinical practice or health-related behavior and should not be reported in news media as established information.**

### Subject Areas

All Articles

Addiction Medicine	Hematology	Pain Medicine
Allergy and Immunology	HIV/AIDS	Palliative Medicine
Anesthesia	Infectious Diseases (except HIV/AIDS)	Pathology
Cardiovascular Medicine		Pediatrics

# medRxiv: urging caution in using preprints



BMI Yale

HOME | ABOUT | SUBMIT | ALERTS / RSS

**Caution: Preprints are preliminary reports of work that have not been peer-reviewed. They should not be relied on to guide clinical practice or health-related behaviors and should not be reported in news media as established information.**

All Articles

Addiction Medicine

Allergy and Immunology

Anesthesia

Cardiovascular Medicine

Hematology

HIV/AIDS

Infectious Diseases (except  
HIV/AIDS)

Pain Medicine

Palliative Medicine

Pathology

Pediatrics



# medRxiv: urging caution in using preprints

**medRxiv**  
THE PREPRINT SERVER FOR HEALTH SCIENCES

CSH Cold Spring Harbor Laboratory **BMJ** Yale

HOME | ABOUT | SUBMIT | ALERTS / RSS

Search  [Advanced Search](#)

## Polo like kinase (Plk) I: A novel target for the treatment of prostate cancer

Marlene Graveland, Tom G. Bonner, Tony Greig, Tony Greig

doi: <https://doi.org/10.1101/01001552>

**This article is a preprint and has not been peer-reviewed [what does this mean?]. It reports new medical research that has yet to be evaluated and so should not be used to guide clinical practice.**

[Abstract](#) [Info/History](#) [Metrics](#) [Preview PDF](#)

### Abstract

Cancer of the Prostate gland (CaP), next only to skin cancer, is the most commonly occurring cancer in American men. The existing treatment approaches and surgical intervention have not been able to effectively manage this dreaded cancer and, therefore, continuing efforts are ongoing to explore novel targets and strategies for the management of CaP. A complete understanding of the genetic control of the processes of cellular proliferation and programmed cell death viz. apoptosis may provide the basis for the rational design of novel therapeutic strategies against CaP.

← Previous Next →

Posted January 22, 2019.

[Download PDF](#) [Email](#)  
[Data/Code](#) [Share](#)  
[Citation Tools](#)

[Tweet](#) [Like](#) [G+](#)

### Subject Areas

#### All Articles

- Addiction Medicine
- Allergy and Immunology
- Anesthesia
- Cardiovascular Medicine
- Dentistry and Oral Medicine
- Dermatology

# medRxiv: urging caution in using preprints

**medRxiv**  
THE PREPRINT SERVER FOR HEALTH SCIENCES



Cold  
Spring  
Harbor  
Laboratory

**BMJ** Yale

HOME | ABOUT | SUBMIT | ALERTS / RSS

Search



Advanced Search

Next ↗

Email

Share

Citation Tools

G+

**This article is a preprint and has not been peer-reviewed [what does this mean?]. It reports new medical research that has yet to be evaluated and so should not be used to guide clinical practice.**

therefore, continuing efforts are ongoing to explore novel targets and strategies for the management of CaP. A complete understanding of the genetic control of the processes of cellular proliferation and programmed cell death viz . apoptosis may provide the basis for the rational design of novel therapeutic strategies against CaP.

Anesthesia

Cardiovascular Medicine

Dentistry and Oral Medicine

Dermatology

# medRxiv: urging caution in reporting on preprints

The image shows a screenshot of the medRxiv website. At the top left is the medRxiv logo with the tagline "THE PREPRINT SERVER FOR HEALTH SCIENCES". To its right are logos for CSH Cold Spring Harbor Laboratory, BMJ, and Yale. On the top right, there are navigation links: HOME | ABOUT | SUBMIT | ALERTS / RSS. Below these is a search bar with the text "Search" and a magnifying glass icon, and a link for "Advanced Search".

## What is an unrefereed preprint?

Before formal publication in a scholarly journal, scientific and medical articles are traditionally "peer reviewed." In this process, the journal's editors take advice from various experts—called "referees"—who have assessed the paper and may identify weaknesses in its assumptions, methods, and conclusions. Typically a journal will only publish an article once the editors are satisfied that the authors have addressed referees' concerns and that the data presented support the conclusions drawn in the paper.

Because this process can be lengthy, authors use the medRxiv service to make their manuscripts available as "preprints" before peer review, allowing other scientists to see, discuss, and comment on the findings immediately. Readers should therefore be aware that articles on medRxiv have not been finalized by authors, might contain errors, and report information that has not yet been accepted or endorsed in any way by the scientific or medical community.

We also urge journalists and other individuals who report on medical research to the general public to consider this when discussing work that appears on medRxiv preprints and emphasize it has yet to be evaluated by the medical community and the information presented may be erroneous.

# medRxiv: urging caution in reporting on preprints

**medRxiv**

THE PREPRINT SERVER FOR HEALTH SCIENCES

## What is an unrefereed

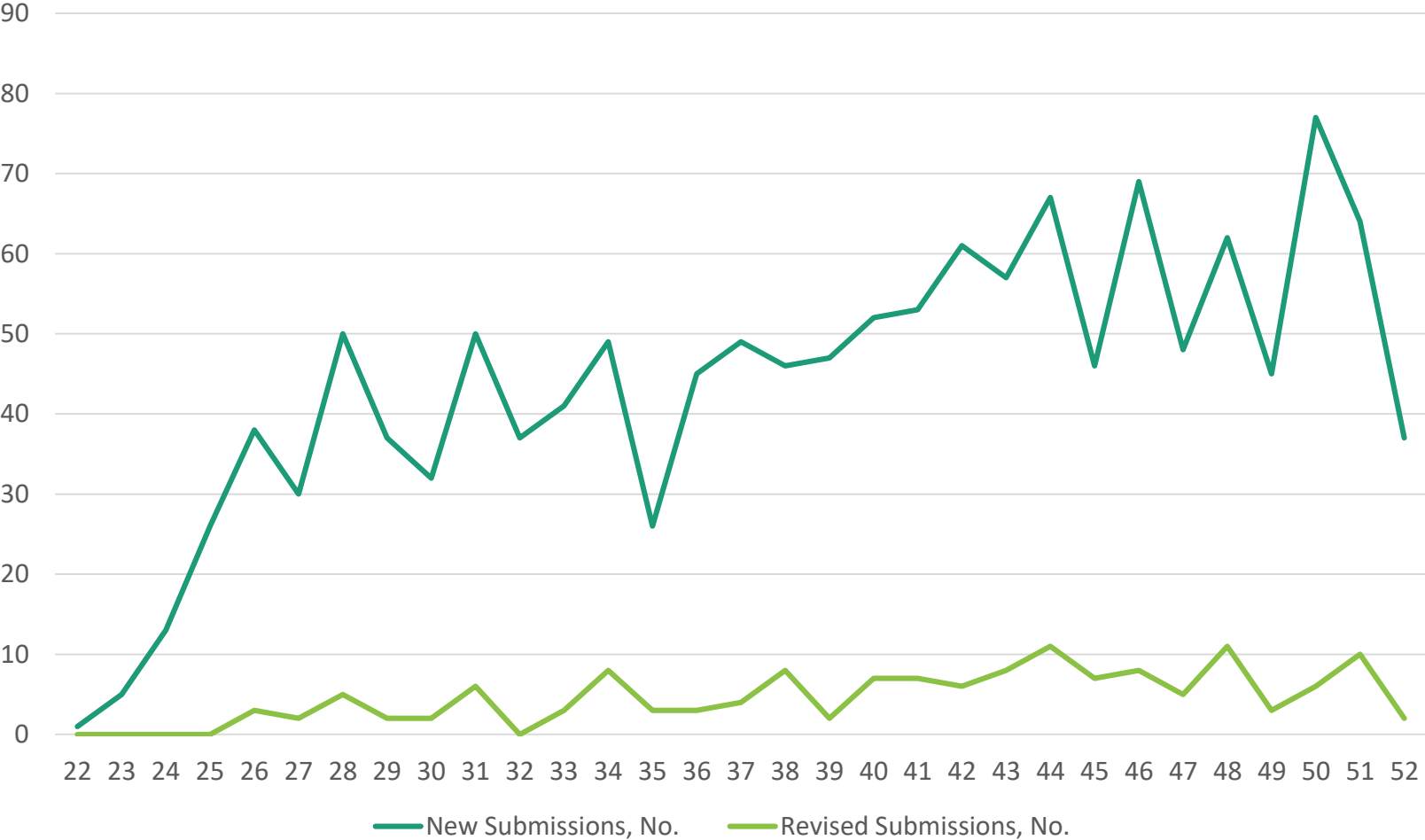
Before formal publication in a scholarly journal are traditionally “peer reviewed.” In this process, advice from various experts—called “referees”—is sought. The referees read the paper and may identify weaknesses in its assumptions and conclusions. Typically a journal will only publish a paper if it is satisfied that the authors have addressed referee comments and presented support for the conclusions drawn in the paper.

Because this process can be lengthy, authors usually make their manuscripts available as “preprints” before

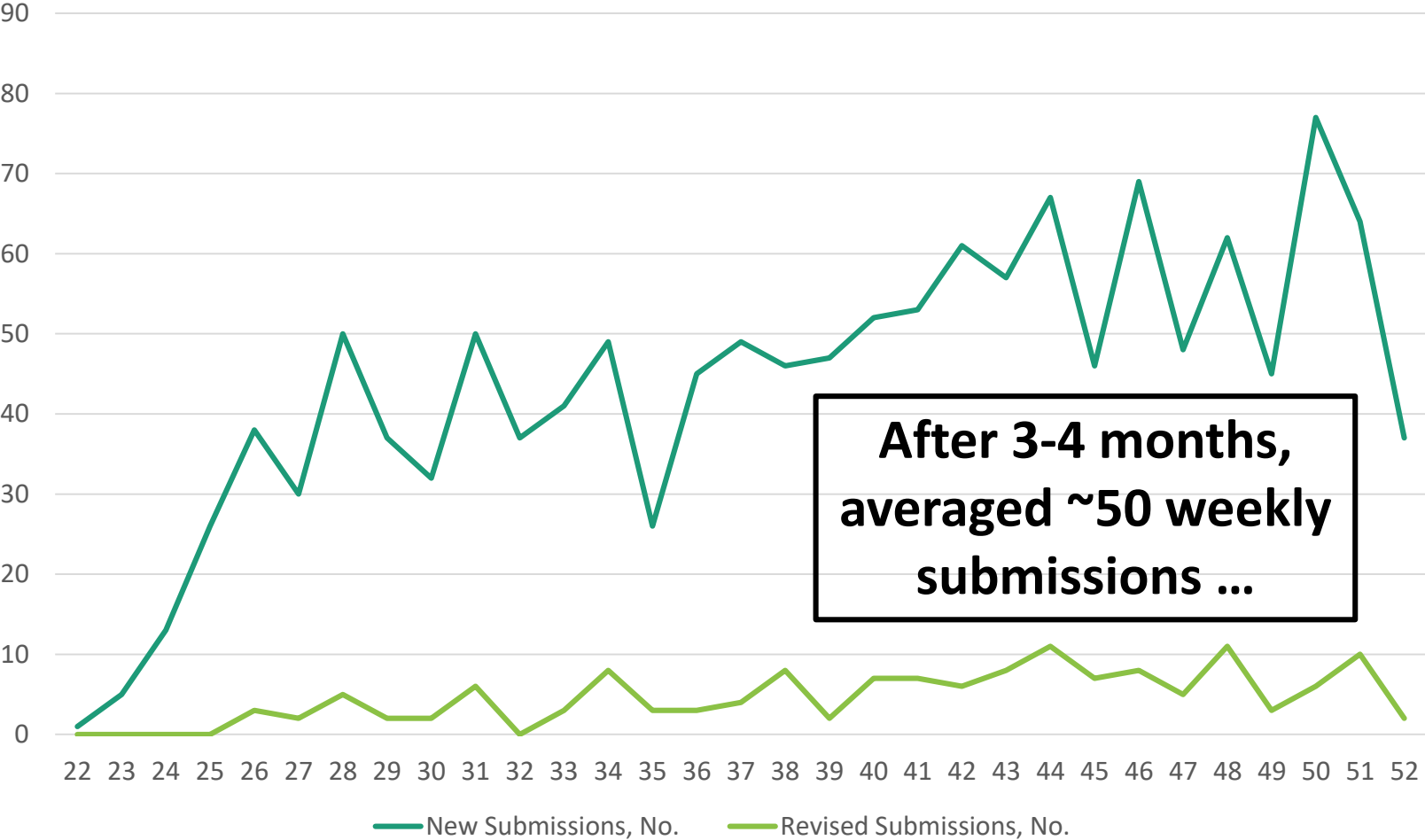
**We also urge journalists and other individuals who report on medical research to the general public to consider this when discussing work that appears on medRxiv and emphasize it has yet to be evaluated by the medical community and the information presented may be erroneous.**



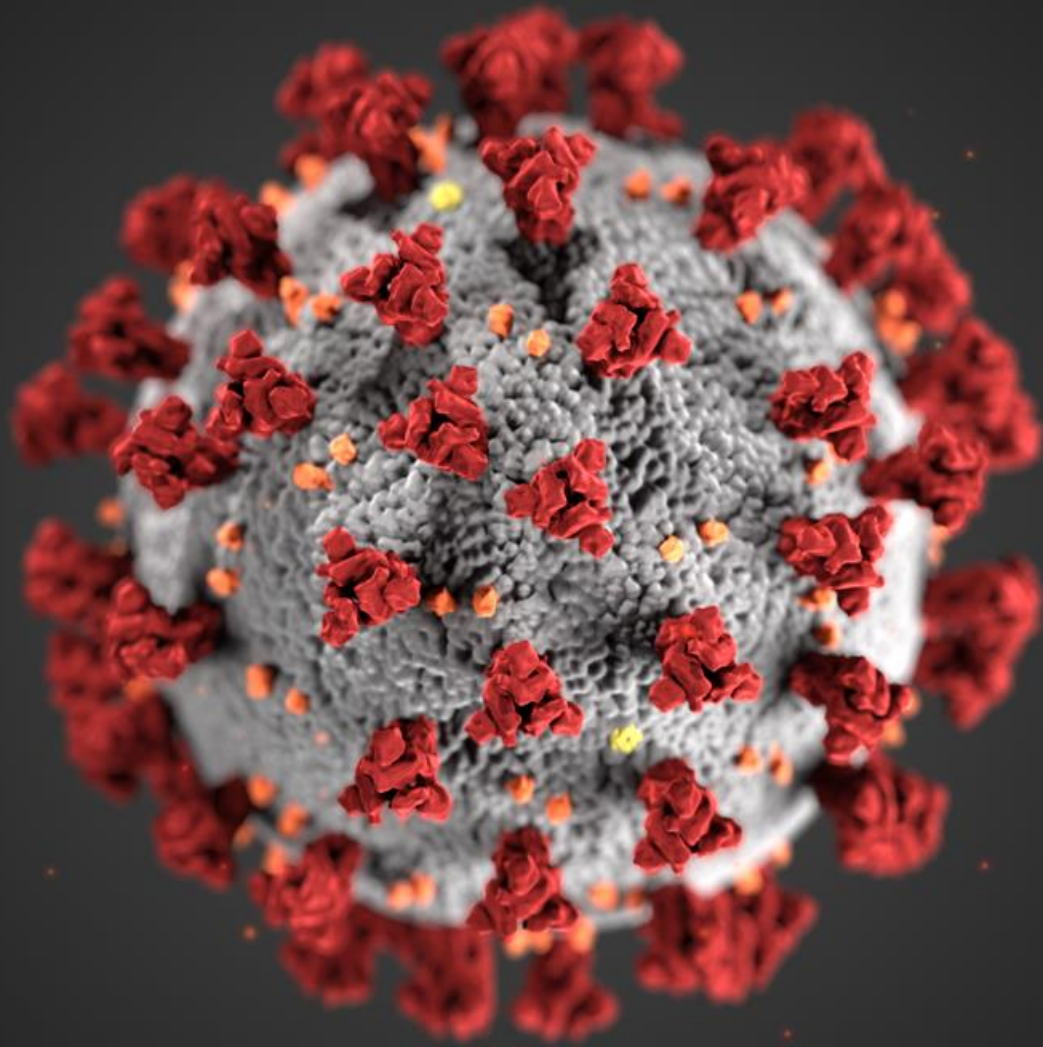
# Weekly submissions (06/05/19 – 12/31/19)



# Weekly submissions (06/05/19 – 12/31/19)

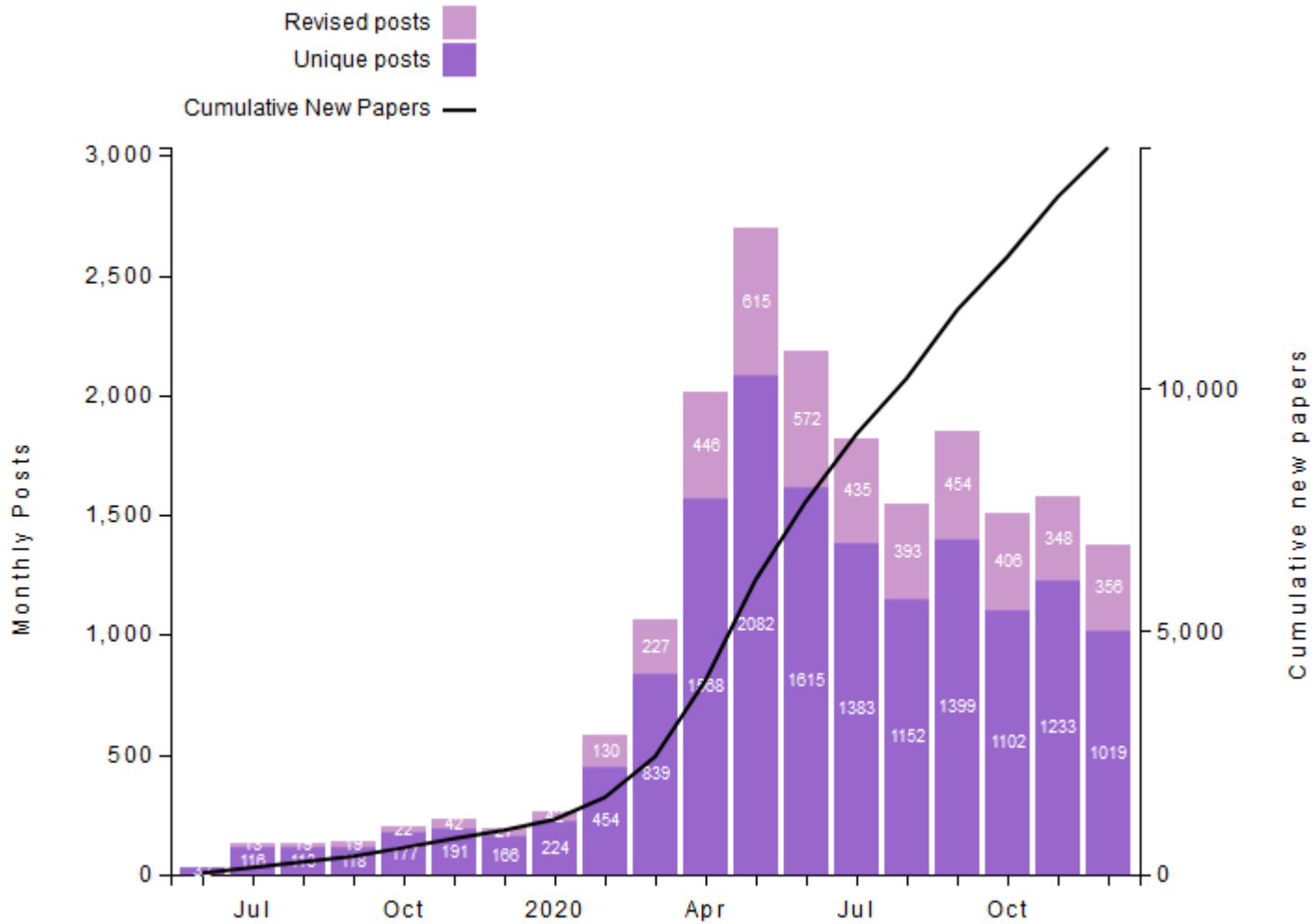




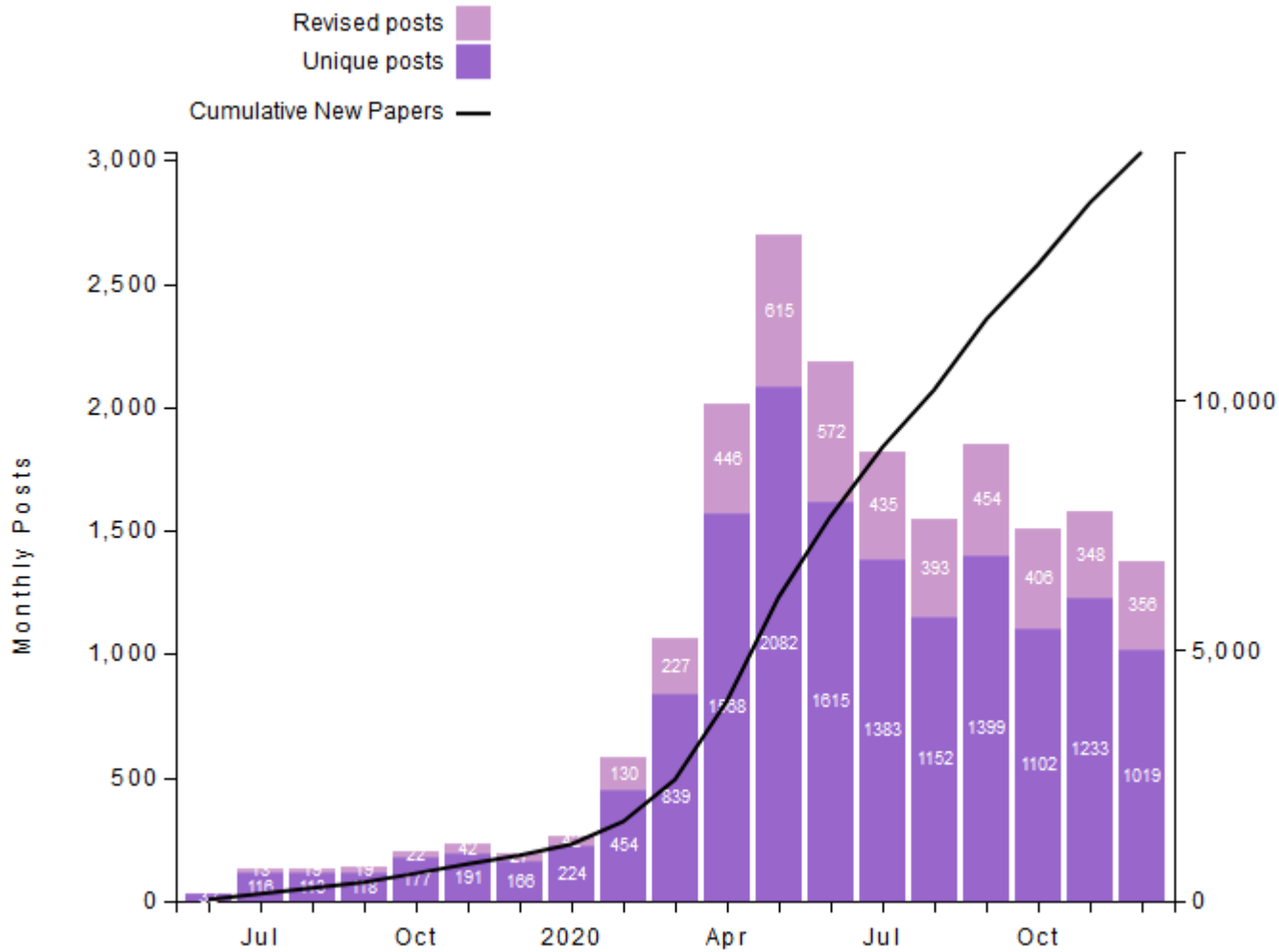




	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average <b>DAILY</b> Submissions, No.	7.2	16.2	27.1	52.3	77.1	65.1	58.6	49.5	61.8	48.6	52.7	44.4



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average <b>DAILY</b> Submissions, No.	7.2	16.2	27.1	52.3	77.1	65.1	58.6	49.5	61.8	48.6	52.7	44.4



**~15000  
total  
papers**

**~4600  
revised**

**~15%  
rejected**

# >8000 Institutions Represented

## Top 10

University of Oxford

University College London

Imperial College London

Stanford University

King's College London

University of Cambridge

University of Bristol

University of Pennsylvania

Icahn School of Medicine at Mount Sinai

London School of Hygiene and Tropical Medicine

Comments (11)

Previous

Next

## Factors associated with hospitalization and critical illness among 4,103 patients with COVID-19 disease in New York City

Christopher M. Petrilli, Simon A. Jones, Jie Yang, Harish Rajagopalan, Luke F. O'Donnell, Yelena Chernyak, Katie Tobin, Robert J. Cerfolio, Fritz Francois, Leora I. Horwitz

doi: <https://doi.org/10.1101/2020.04.08.20057794>

**This article is a preprint and has not been peer-reviewed [what does this mean?]. It reports new medical research that has yet to be evaluated and so should not be used to guide clinical practice.**

Abstract

Info/History

Metrics

Preview PDF

### Abstract

Background: Little is known about factors associated with hospitalization and critical illness in Covid-19 positive patients. Methods: We conducted a cross-sectional analysis of all patients with laboratory-confirmed Covid-19 treated at a single academic health system in New York City between March 1, 2020 and April 2, 2020, with follow up through April 7, 2020. Primary outcomes were hospitalization and critical illness (intensive care, mechanical ventilation, hospice and/or death). We conducted multivariable logistic regression to identify risk factors for adverse outcomes, and maximum information gain decision tree classifications to identify key splitters.

Results: Among 4,103 Covid-19 patients, 1,999 (48.7%) were hospitalized, of whom

Posted April 11, 2020.

Download PDF

Data/Code

Email

Share

Citation Tools

Tweet

Like 2.8K

## COVID-19 SARS-CoV-2 preprints from medRxiv and bioRxiv

### Subject Area

Intensive Care and Critical Care Medicine

### Subject Areas

#### All Articles

Addiction Medicine

Allergy and Immunology

Anesthesia

Cardiovascular Medicine

## Factors associated with hospitalization and critical illness among 4,103 patients with COVID-19 disease in New York City

Christop  
Katie To  
doi: htt  
This ar  
reports  
guide c  
Abstra  
Abstra  
Bac  
illne  
of a  
syst  
thro  
(int  
mul  
max  
Res

Blog posts linking to this article:

State Blogs, 18 May 2020  
The story of one of my patients is the story of so many of my patients.

soziologiemagazin, 15 May 2020  
von Arne Conte Das neue Virus „SARS-Covid-2“ mit seiner Erkrankung Covid-19 hat durch seine globale Verbreitung die gesamte...

Dielo RSS, 11 May 2020  
Študije kažejo, da se zapleti pojavljajo pogosteje zaradi čezmerne teže kot zaradi kroničnih bolezni.

Qubit, 02 May 2020  
Az elmúlt hetekben több egymástól függetlenül elvégzett kutatás is azt találta, hogy a koronavírus által okozott COVID-19 betegség...

The Equation, 28 Apr 2020  
Mike Marrah/UnsplashThe pandemic caused by the novel coronavirus has become a global public health calamity and has spurred the...

State Blogs, 28 Apr 2020  
Returning to the Mad Men—era ubiquity of smoking isn't an advisable path toward fighting the virus.

ConscienHealth, 27 Apr 2020  
What is the line that separates critical thinking from unreasonable doubt? A contrarian can save us from making grievous errors...

Healthy Debate, 27 Apr 2020  
The post There are many reasons why obesity puts people at risk of becoming critically ill from COVID-19 appeared first on...

Croakey, 26 Apr 2020  
In her latest edition of The Health Wrap, Dr Lesley Russell looks at coronavirus issues, including the impact of obesity...

Wake Up To The Truth, 25 Apr 2020  
HAFApril 25, 2020 The tragedy of the COVID-19 pandemic appears to be entering the containment phase. Tens of thousands of...

Research - The S Word, 16 Apr 2020  
More men die of covid-19 than women. Reasons for this may include differences in smoking, general health, immune defences...

TekCrispy, 16 Apr 2020  
El estudio de más de 3,000 pacientes con coronavirus reveló que la obesidad aumenta el riesgo de complicaciones en el curso de...

Well - New York Times, 16 Apr 2020  
Young adults with obesity are more likely to be hospitalized, even if they have no other health problems, studies show.

«Life.ru» — информационный портал, 15 Apr 2020  
Они также подтвердили более ранние исследования о связи заболевания с ожирением. Читать далее...

Booster Shots - latimes.com, 15 Apr 2020  
This may help explain why the coronavirus has hit the U.S. so hard: Obesity appears to be a risk factor for serious cases of...

ConscienHealth, 14 Apr 2020  
We are in the midst of an intense learning experience. We're learning how to live in physical isolation. At the same time, we're...

FOAMcast, 13 Apr 2020  
Apple Podcasts or Listen...

Latest BMJ blogs, 13 Apr 2020  
In this weekly round-up, Richard Lehman looks at a personal selection of articles of relevance to clinicians dealing with covid-1...

[Comments \(11\)](#)

[Previous](#)

[Next](#)

Posted April 11, 2020.

[Download PDF](#)  
[Data/Code](#)

[Email](#)  
[Share](#)  
[Citation Tools](#)

[Tweet](#) [Like 2.8K](#)

COVID-19 SARS-CoV-2 preprints from medRxiv and bioRxiv

Subject Area

[Intensive Care and Critical Care Medicine](#)

Subject Areas

All Articles

[Addiction Medicine](#)  
[Allergy and Immunology](#)  
[Anesthesia](#)  
[Cardiovascular Medicine](#)

felena Chernyak,  
mean?]. It  
not be used to

[Preview PDF](#)

and critical  
tional analysis  
demic health  
follow up  
Illness  
cted  
mes, and  
litters.  
t of whom

Search

### Factors associated with hospitalization and critical illness among 4,103 patients with COVID-19 disease in New York City

Comments (11)

- Blog posts linking to this article:
- State Blogs, 18 May 2020  
The story of one of my patients is the story of so many of my patients.
  - soziologiemagazin, 15 May 2020  
von Arne Conte Das neue Virus „SARS-Covid-2“ mit seiner Erkrankung Covid-19 hat durch seine globale Verbreitung die gesamte...
  - Dielo RSS, 11 May 2020  
Študije kažejo, da se zapletji pojavljajo pogosteje zaradi čezmerne teže kot zaradi kroničnih bolezni.
  - Qubit, 02 May 2020  
Az elmúlt hetekben több egymástól függetlenül elvégzett kutatás is azt találta, hogy a koronavírus által okozott COVID-19 betegség...
  - The Equation, 28 Apr 2020  
Mike Marrah/UnsplashThe pandemic caused by the novel coronavirus has become a global public health calamity and has spurred the...
  - State Blogs, 28 Apr 2020  
Returning to the Mad Men-era ubiquity of smoking isn't an advisable path toward fighting the virus.
  - ConscienHealth, 27 Apr 2020  
What is the line that separates critical thinking from unreasonable doubt? A contrarian can save us from making grievous errors...
  - Healthy Debate, 27 Apr 2020  
The post There are many reasons why obesity puts people at risk of becoming critically ill from COVID-19 appeared first on...
  - Croakey, 26 Apr 2020  
In her latest edition of The Health Wrap, Dr Lesley Russell looks at coronavirus issues, including the impact of obesity...
  - Wake Up To The Truth, 25 Apr 2020  
HAFApril 25, 2020 The tragedy of the COVID-19 pandemic appears to be entering the containment phase. Tens of thousands of...
  - Research - The S Word, 16 Apr 2020  
More men die of covid-19 than women. Reasons for this may include differences in smoking, general health, immune defences...
  - TekCrispy, 16 Apr 2020  
El estudio de más de 3,000 pacientes con coronavirus reveló que la obesidad aumenta el riesgo de complicaciones en el curso de...
  - Well - New York Times, 16 Apr 2020  
Young adults with obesity are more likely to be hospitalized, even if they have no other health problems, studies show.
  - Life.ru — информационный портал, 15 Apr 2020  
Они также подтвердили более ранние исследования о связи заболевания с ожирением. Читать далее...
  - Booster Shots - latimes.com, 15 Apr 2020  
This may help explain why the coronavirus has hit the U.S. so hard: Obesity appears to be a risk factor for serious cases of...
  - ConscienHealth, 14 Apr 2020  
We are in the midst of an intense learning experience. We're learning how to live in physical isolation. At the same time, we're...
  - FOAMcast, 13 Apr 2020  
Apple Podcasts or Listen...
  - Latest BMJ blogs, 13 Apr 2020  
In this weekly round-up, Richard Lehman looks at a personal selection of articles of relevance to clinicians dealing with covid-1...

Felena Chernyak,

mean?]. It not be used to

Preview PDF

and critical  
tional analysis  
demic health  
follow up  
Illness  
cted  
mes, and  
litters.  
t of whom

#### Tweets referencing this article:



Norbert Zillatron

@N\_Zillatron

RT @phil\_w888: What the data show so far: 1. Current smokers are less likely to be hospitalized than never smokers. 2. Hospitalized smoke...

09:28PM



LimoNada

@NadaLimon

RT @phil\_w888: What the data show so far: 1. Current smokers are less likely to be hospitalized than never smokers. 2. Hospitalized smoke...

07:50PM



Lollvlulubes 🍓🌈🌻🌙👉

11 Comments

medrxiv

Disqus' Privacy Policy

Login

Recommend 6

Tweet

Share

Sort by Newest



Join the discussion...

LOG IN WITH

OR SIGN UP WITH DISQUS ?



Name



pam garcia · 21 days ago

Obesity, diabetes, and hypertension are clearly the major factors in hospitalizations and deaths from Covid-19.

Northwell Health just released a study of over 5000 Covid-19 patients that revealed 94 percent

### Factors associated with hospitalization and critical illness among 4,103 patients with COVID-19 disease in New York City

Comments (11)

- Blog posts linking to this article:
- State Blogs, 18 May 2020  
The story of one of my patients is the story of so many of my patients.
  - soziologiemagazin, 15 May 2020  
von Arne Conte Das neue Virus „SARS-Covid-2“ mit seiner Erkrankung Covid-19 hat durch seine globale Verbreitung die gesamte...
  - Dielo RSS, 11 May 2020  
Študije kažejo, da se zapletji pojavljajo pogosteje zaradi čezmerne teže kot zaradi kroničnih bolezni.
  - Qubit, 02 May 2020  
Az elmúlt hetekben több egymástól függetlenül elvégzett kutatás is azt találta, hogy a koronavírus által okozott COVID-19 betegség...
  - The Equation, 28 Apr 2020  
Mike Marras/UnsplashThe pandemic caused by the novel coronavirus has become a global public health calamity and has spurred the...
  - State Blogs, 28 Apr 2020  
Returning to the Mad Men-era ubiquity of smoking isn't an advisable path toward fighting the virus.
  - ConscienHealth, 27 Apr 2020  
What is the line that separates critical thinking from unreasonable doubt? A contrarian can save us from making grievous errors...
  - Healthy Debate, 27 Apr 2020  
The post There are many reasons why obesity puts people at risk of becoming critically ill from COVID-19 appeared first on...
  - Croakey, 26 Apr 2020  
In her latest edition of The Health Wrap, Dr Lesley Russell looks at coronavirus issues, including the impact of obesity...
  - Wake Up To The Truth, 25 Apr 2020  
HAFApril 25, 2020 The tragedy of the COVID-19 pandemic appears to be entering the containment phase. Tens of thousands of...
  - Research - The S Word, 16 Apr 2020  
More men die of covid-19 than women. Reasons for this may include differences in smoking, general health, immune defences...
  - TekCrispy, 16 Apr 2020  
El estudio de más de 3,000 pacientes con coronavirus reveló que la obesidad aumenta el riesgo de complicaciones en el curso de...
  - Well - New York Times, 16 Apr 2020  
Young adults with obesity are more likely to be hospitalized, even if they have no other health problems, studies show.
  - Life.ru — информационный портал, 15 Apr 2020  
Они также подтвердили более ранние исследования о связи заболевания с ожирением. Читать далее...
  - Booster Shots - latimes.com, 15 Apr 2020  
This may help explain why the coronavirus has hit the U.S. so hard: Obesity appears to be a risk factor for serious cases of...
  - ConscienHealth, 14 Apr 2020  
We are in the midst of an intense learning experience. We're learning how to live in physical isolation. At the same time, we're...
  - FOAMcast, 13 Apr 2020  
Apple Podcasts or Listen...
  - Latest BMJ blogs, 13 Apr 2020  
In this weekly round-up, Richard Lehman looks at a personal selection of articles of relevance to clinicians dealing with covid-1...

Felena Chernyak,

mean?]. It not be used to

Preview PDF

and critical  
tional analysis  
demic health  
follow up  
Illness  
cted  
mes, and  
litters.  
t of whom

#### Tweets referencing this article:



Norbert Zillatron  
@N\_Zillatron

RT @phil\_w888: What the data show so far: 1. Current smokers are less likely to be hospitalized than never smokers. 2. Hospitalized smoke...

09:28PM



LimoNada 🍌  
@NadaLimon

RT @phil\_w888: What the data show so far: 1. Current smokers are less likely to be hospitalized than never smokers. 2. Hospitalized smoke...

07:50PM



Lollvlulubes 🍌🌈🌻🌙👉

11 Comments

medrxiv Disqus' Privacy Policy

Login

Recommend 6

Tweet Share

Sort by Newest



Join the discussion...

LOG IN WITH

OR SIGN UP WITH DISQUS ?



Name



pam garcia · 21 days ago

Obesity, diabetes, and hypertension are clearly the major factors in hospitalizations and deaths from Covid-19.

Northwell Health just released a study of over 5000 Covid-19 patients that revealed 94 percent

Comments (11)

Factors associated with hospitalization and critical illness among 4,103 patients with COVID-19 disease in New York City

Blog posts linking to this article:
State Blogs, 18 May 2020
The story of one of my patients is the story of so many of my patients.
soziologiemagazin, 15 May 2020
von Arne Conte Das neue Virus „SARS-Covid-2“ mit seiner Erkrankung Covid-19 hat durch seine globale Verbreitung die gesamte...
Dielo RSS, 11 May 2020
Študije kažejo, da se zapletji pojavljajo pogosteje zaradi čezmerne teže kot zaradi kroničnih bolezni.
Qubit, 02 May 2020
Az elmúlt hetekben több egymástól függetlenül elvégzett kutatás is azt találta, hogy a koronavírus által okozott COVID-19 betegség...
The Equation, 28 Apr 2020
Mike Marras/UnsplashThe pandemic caused by the novel coronavirus has become a global public health calamity and has spurred the...
State Blogs, 28 Apr 2020
Returning to the Mad Men-era ubiquity of smoking isn't an advisable path toward fighting the virus.
ConscienHealth, 27 Apr 2020
What is the line that separates critical thinking from unreasonable doubt? A contrarian can save us from making grievous errors...
Healthy Debate, 27 Apr 2020
The post There are many reasons why obesity puts people at risk of becoming critically ill from COVID-19 appeared first on...
Croakey, 26 Apr 2020
In her latest edition of The Health Wrap, Dr Lesley Russell looks at coronavirus issues, including the impact of obesity...
Wake Up To The Truth, 25 Apr 2020
HAFApril 25, 2020 The tragedy of the COVID-19 pandemic appears to be entering the containment phase. Tens of thousands of...
Research - The S Word, 16 Apr 2020
More men die of covid-19 than women. Reasons for this may include differences in smoking, general health, immune defences...
TekCrispy, 16 Apr 2020
El estudio de más de 3.000 pacientes con coronavirus reveló que la obesidad aumenta el riesgo de complicaciones en el curso de...
Well - New York Times, 16 Apr 2020
Young adults with obesity are more likely to be hospitalized, even if they have no other health problems, studies show.
Life.ru — информационный портал, 15 Apr 2020
Они также подтвердили более ранние исследования о связи заболевания с ожирением. Читать далее...
Booster Shots - latimes.com, 15 Apr 2020
This may help explain why the coronavirus has hit the U.S. so hard: Obesity appears to be a risk factor for serious cases of...
ConscienHealth, 14 Apr 2020
We are in the midst of an intense learning experience. We're learning how to live in physical isolation. At the same time, we're...
FOAMcast, 13 Apr 2020
Apple Podcasts or Listen...
Latest BMJ blogs, 13 Apr 2020
In this weekly round-up, Richard Lehman looks at a personal selection of articles of relevance to clinicians dealing with covid-1...

Tweets referencing this article:



Norbert Zillatron

@N\_Zillatron

RT @phil\_w888: What the data show so far: 1. Current smokers are less likely to be hospitalized than never smokers. 2. Hospitalized smoke...

09:28PM



LimoNada

@NadaLimon

RT @phil\_w888: What the data show so far: 1. Current smokers are less likely to be hospitalized than never smokers. 2. Hospitalized smoke...

07:50PM



Lollvlulubes

11 Comments

medrxiv Disqus' Privacy Policy

Login

Recommend 6 Tweet Share

Sort by Newest



Join the discussion...

LOG IN WITH

OR SIGN UP WITH DISQUS



Name



pam garcia · 21 days ago

Obesity, diabetes, and hypertension are clearly the major factors in hospitalizations and deaths from Covid-19.

Northwell Health just released a study of over 5000 Covid-19 patients that revealed 94 percent



Comments (11)

Factors associated with hospitalization and critical illness among 4,103 patients with COVID-19 disease in New York City

Blog posts linking to this article:
State Blogs, 18 May 2020
The story of one of my patients is the story of so many of my patients.
soziologiemagazin, 15 May 2020
von Arne Conte Das neue Virus „SARS-Covid-2“ mit seiner Erkrankung Covid-19 hat durch seine globale Verbreitung die gesamte...
Dielo RSS, 11 May 2020
Študije kažejo, da se zapletji pojavljajo pogosteje zaradi čezmerne teže kot zaradi kroničnih bolezni.
Qubit, 02 May 2020
Az elmúlt hetekben több egymástól függetlenül elvégzett kutatás is azt találta, hogy a koronavírus által okozott COVID-19 betegség...
The Equation, 28 Apr 2020
Mike Marrah/UnsplashThe pandemic caused by the novel coronavirus has become a global public health calamity and has spurred the...
State Blogs, 28 Apr 2020
Returning to the Mad Men-era ubiquity of smoking isn't an advisable path toward fighting the virus.
ConscienHealth, 27 Apr 2020
What is the line that separates critical thinking from unreasonable doubt? A contrarian can save us from making grievous errors...
Healthy Debate, 27 Apr 2020
The post There are many reasons why obesity puts people at risk of becoming critically ill from COVID-19 appeared first on...
Croakey, 26 Apr 2020
In her latest edition of The Health Wrap, Dr Lesley Russell looks at coronavirus issues, including the impact of obesity...
Wake Up To The Truth, 25 Apr 2020
HAFApril 25, 2020 The tragedy of the COVID-19 pandemic appears to be entering the containment phase. Tens of thousands of...
Research - The S Word, 16 Apr 2020
More men die of covid-19 than women. Reasons for this may include differences in smoking, general health, immune defences...
TekCrispy, 16 Apr 2020
El estudio de más de 3.000 pacientes con coronavirus reveló que la obesidad aumenta el riesgo de complicaciones en el curso de...
Well - New York Times, 16 Apr 2020
Young adults with obesity are more likely to be hospitalized, even if they have no other health problems, studies show.
eLife.ru — информационный портал, 15 Apr 2020
Они также подтвердили более ранние исследования о связи заболевания с ожирением. Читать далее...
Booster Shots - latimes.com, 15 Apr 2020
This may help explain why the coronavirus has hit the U.S. so hard: Obesity appears to be a risk factor for serious cases of...
ConscienHealth, 14 Apr 2020
We are in the midst of an intense learning experience. We're learning how to live in physical isolation. At the same time, we're...
FOAMcast, 13 Apr 2020
Apple Podcasts or Listen...
Latest BMJ blogs, 13 Apr 2020
In this weekly round-up, Richard Lehman looks at a personal selection of articles of relevance to clinicians dealing with covid-1...

Tweets referencing this article:



Norbert Zillatron

@N\_Zillatron

RT @phil\_w888: What the data show so far: 1. Current smokers are less likely to be hospitalized than never smokers. 2. Hospitalized smoke...

09:28PM



LimoNada

@NadaLimon

RT @phil\_w888: What the data show so far: 1. Current smokers are less likely to be hospitalized than never smokers. 2. Hospitalized smoke...

07:50PM



Lollvlulubes

11 Comments

medrxiv Disqus' Privacy Policy

Login

Recommend 6 Tweet Share

Sort by Newest



Join the discussion...

LOG IN WITH

OR SIGN UP WITH DISQUS



Name



pam garcia · 21 days ago

Obesity, diabetes, and hypertension are clearly the major factors in hospitalizations and deaths from Covid-19.

Northwell Health just released a study of over 5000 Covid-19 patients that revealed 94 percent

~10% have comments, ~33% have tweets \*

Search

Comments (11)

## Factors associated with hospitalization and critical illness among 4,103 patients with COVID-19 disease in New York City

- Blog posts linking to this article:
- State Blogs, 18 May 2020  
The story of one of my patients is the story of so many of my patients.
  - soziologiemagazin, 15 May 2020  
von Arne Conte Das neue Virus „SARS-Covid-2“ mit seiner Erkrankung Covid-19 hat durch seine globale Verbreitung die gesamte...
  - Dielo RSS, 11 May 2020  
Študije kažejo, da se zapletji pojavljajo pogosteje zaradi čezmerne teže kot zaradi kroničnih bolezni.
  - Qubit, 02 May 2020  
Az elmúlt hetekben több egymástól függetlenül elvégzett kutatás is azt találta, hogy a koronavírus által okozott COVID-19 betegség...
  - The Equation, 28 Apr 2020  
Mike Marras/Unsplash The pandemic caused by the novel coronavirus has become a global public health calamity and has spurred the...
  - State Blogs, 28 Apr 2020  
Returning to the Mad Men-era ubiquity of smoking isn't an advisable path toward fighting the virus.
  - ConscienHealth, 27 Apr 2020  
What is the line that separates critical thinking from unreasonable doubt? A contrarian can save us from making grievous errors...
  - Healthy Debate, 27 Apr 2020  
The post There are many reasons why obesity puts people at risk of becoming critically ill from COVID-19 appeared first on...
  - Croakey, 26 Apr 2020  
In her latest edition of The Health Wrap, Dr Lesley Russell looks at coronavirus issues, including the impact of obesity...
  - Wake Up To The Truth, 25 Apr 2020  
HAF April 25, 2020 The tragedy of the COVID-19 pandemic appears to be entering the containment phase. Tens of thousands of...
  - Research - The S Word, 16 Apr 2020  
More men die of covid-19 than women. Reasons for this may include differences in smoking, general health, immune defences...
  - TekCrispy, 16 Apr 2020  
El estudio de más de 3,000 pacientes con coronavirus reveló que la obesidad aumenta el riesgo de complicaciones en el curso de...
  - Well - New York Times, 16 Apr 2020  
Young adults with obesity are more likely to be hospitalized, even if they have no other health problems, studies show.
  - Life.ru — информационный портал, 15 Apr 2020  
Они также подтвердили более ранние исследования о связи заболевания с ожирением. Читать далее...
  - Booster Shots - latimes.com, 15 Apr 2020  
This may help explain why the coronavirus has hit the U.S. so hard: Obesity appears to be a risk factor for serious cases of...
  - ConscienHealth, 14 Apr 2020  
We are in the midst of an intense learning experience. We're learning how to live in physical isolation. At the same time, we're...
  - FOAMcast, 13 Apr 2020  
Apple Podcasts or Listen...
  - Latest BMJ blogs, 13 Apr 2020  
In this weekly round-up, Richard Lehman looks at a personal selection of articles of relevance to clinicians dealing with covid-1...

Tweets referencing this article:



Norbert Zillatron  
@N\_Zillatron

RT @phil\_w888: What the data show so far: 1. Current smokers are less likely to be hospitalized than never smokers. 2. Hospitalized smoke...

09:28PM



LimoNada 🍌  
@NadaLimon

RT @phil\_w888: What the data show so far: 1. Current smokers are less likely to be hospitalized than never smokers. 2. Hospitalized smoke...

07:50PM



Lollvlulubes 🍒🌈🌻🌙👉

11 Comments

medrxiv Disqus' Privacy Policy

Login

Recommend 6

Tweet

Share

Sort by Newest



Join the discussion...

Abstract Info/History Metrics

Preview PDF

### ARTICLE USAGE

Article lifetime

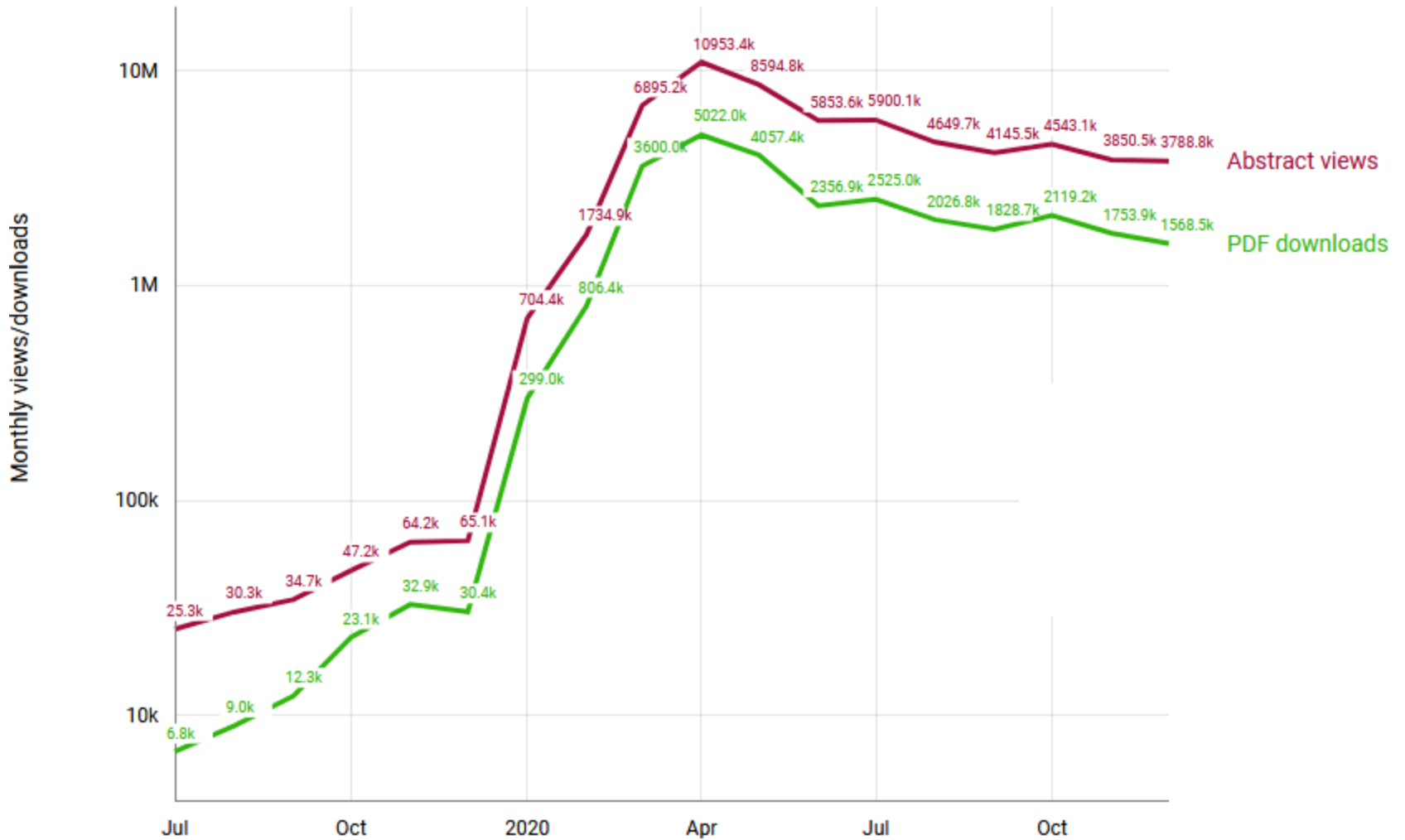
Last 6 months

This month

### Article usage: April 2020 to May 2020

	Abstract	Pdf
Apr 2020	87114	48875
May 2020	16310	8783

# Monthly Usage (excluding bots)



Thus far, ~25% of papers posted > 1 month  
have been published in ~1,600 journals ...

# Thus far, ~25% of papers posted > 1 month have been published in ~1,600 journals ...

The screenshot shows the medRxiv preprint server interface. At the top left is the medRxiv logo with the tagline 'THE PREPRINT SERVER FOR HEALTH SCIENCES'. To its right are logos for CSH Cold Spring Harbor Laboratory, BMJ, and Yale. A navigation bar includes links for HOME, ABOUT, SUBMIT, and ALERTS / RSS. A search bar is located on the right side of the header. The main content area features the title 'Aerosol and surface stability of HCoV-19 (SARS-CoV-2) compared to SARS-CoV-1' with a 'Comments (42)' link. Below the title is the author list: Neeltje van Doremalen, Trenton Bushmaker, Dylan Morris, Myndi Holbrook, Amandine Gamble, Brandi Williamson, Azaibi Tamin, Jennifer Harcourt, Natalie Thornburg, Susan Gerber, Jamie Lloyd-Smith, Emmie de Wit, Vincent Munster. The DOI is provided as https://doi.org/10.1101/2020.03.09.20033217. A note indicates the paper is now published in The New England Journal of Medicine with DOI 10.1056/NEJMc2004973. Navigation options include 'Abstract', 'Info/History', 'Metrics', and 'Preview PDF'. On the right side, there are links for 'Download PDF', 'Supplementary Material', 'Data/Code', 'Email', 'Share', and 'Citation Tools'. Social media buttons for 'Tweet' and 'Like 7.3K' are also present. A sidebar on the right contains a section for 'COVID-19 SARS-CoV-2 preprints from medRxiv and bioRxiv' with a 'Subject Area' filter set to 'Infectious Diseases (except HIV/AIDS)'. A 'Subject Areas' menu is visible at the bottom right of the sidebar.

**medRxiv**  
THE PREPRINT SERVER FOR HEALTH SCIENCES

CSH Cold Spring Harbor Laboratory | **BMJ** | Yale

HOME | ABOUT | SUBMIT | ALERTS / RSS

Search  [Advanced Search](#)

[Comments \(42\)](#) [Previous](#) [Next](#)

## Aerosol and surface stability of HCoV-19 (SARS-CoV-2) compared to SARS-CoV-1

Neeltje van Doremalen, Trenton Bushmaker, Dylan Morris, Myndi Holbrook, Amandine Gamble, Brandi Williamson, Azaibi Tamin, Jennifer Harcourt, Natalie Thornburg, Susan Gerber, Jamie Lloyd-Smith, Emmie de Wit, Vincent Munster

doi: <https://doi.org/10.1101/2020.03.09.20033217>

Now published in *The New England Journal of Medicine* doi: [10.1056/NEJMc2004973](https://doi.org/10.1056/NEJMc2004973)

[Abstract](#) [Info/History](#) [Metrics](#) [Preview PDF](#)

**Abstract**

A novel human coronavirus, now named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2, referred to as HCoV-19 here) that emerged in Wuhan, China in late 2019 is now causing a pandemic. Here, we analyze the aerosol and surface stability of HCoV-19 and compare it with SARS-CoV-1, the most closely related human coronavirus.<sup>2</sup> We evaluated the stability of HCoV-19 and SARS-CoV-1 in aerosols and on different surfaces and estimated their decay rates using a Bayesian regression model

[Download PDF](#) [Email](#)  
[Supplementary Material](#) [Share](#)  
[Data/Code](#) [Citation Tools](#)

[Tweet](#) [Like 7.3K](#)

### COVID-19 SARS-CoV-2 preprints from medRxiv and bioRxiv

**Subject Area**

[Infectious Diseases \(except HIV/AIDS\)](#)

**Subject Areas**

[All Articles](#)

# Thus far, ~25% of papers posted > 1 month have been published in ~1,600 journals ...

The screenshot shows the medRxiv preprint server interface. At the top left is the medRxiv logo with the tagline 'THE PREPRINT SERVER FOR HEALTH SCIENCES'. To its right are logos for CSH Cold Spring Harbor Laboratory, BMJ, and Yale. Navigation links for HOME, ABOUT, SUBMIT, and ALERTS / RSS are in the top right. A search bar is also present. The main content area features a paper titled 'Aerosol and surface stability of HCoV-19 (SARS-CoV-2) compared to SARS-CoV-1'. The authors listed are Neeltje van Doremalen, Trenton Bushmaker, Dylan Morris, Myndi Holbrook, Amandine Gamble, Brandi Williamson, Azaibi Tamin, Jennifer Harcourt, Natalie Thornburg, Susan Gerber, Jamie Lloyd-Smith, Emmie de Wit, and Vincent Munster. The DOI is https://doi.org/10.1101/2020.03.09.20033217. A red-bordered box highlights a note: 'Now published in *The New England Journal of Medicine* doi: 10.1056/NEJMc2004973'. Below the title are tabs for Abstract, Info/History, and Metrics, and a 'Preview PDF' button. On the right side, there are options for 'Comments (42)', 'Previous', and 'Next'. A 'Posted March 13, 2020.' date is shown. Further down are buttons for 'Download PDF', 'Supplementary Material', 'Data/Code', 'Email', 'Share', and 'Citation Tools'. At the bottom right, there are 'Tweet' and 'Like 7.3K' buttons. A section titled 'COVID-19 SARS-CoV-2 preprints from medRxiv and bioRxiv' includes a 'Subject Area' dropdown menu currently set to 'Infectious Diseases (except HIV/AIDS)'. Below this are 'Subject Areas' and 'All Articles' links.

**medRxiv**  
THE PREPRINT SERVER FOR HEALTH SCIENCES

CSH Cold Spring Harbor Laboratory | **BMJ** | Yale

HOME | ABOUT | SUBMIT | ALERTS / RSS

Search  [Advanced Search](#)

[Comments \(42\)](#) [Previous](#) [Next](#)

## Aerosol and surface stability of HCoV-19 (SARS-CoV-2) compared to SARS-CoV-1

Neeltje van Doremalen, Trenton Bushmaker, Dylan Morris, Myndi Holbrook, Amandine Gamble, Brandi Williamson, Azaibi Tamin, Jennifer Harcourt, Natalie Thornburg, Susan Gerber, Jamie Lloyd-Smith, Emmie de Wit, Vincent Munster

doi: <https://doi.org/10.1101/2020.03.09.20033217>

Now published in *The New England Journal of Medicine* doi: 10.1056/NEJMc2004973

[Abstract](#) [Info/History](#) [Metrics](#) [Preview PDF](#)

### Abstract

A novel human coronavirus, now named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2, referred to as HCoV-19 here) that emerged in Wuhan, China in late 2019 is now causing a pandemic. Here, we analyze the aerosol and surface stability of HCoV-19 and compare it with SARS-CoV-1, the most closely related human coronavirus.2 We evaluated the stability of HCoV-19 and SARS-CoV-1 in aerosols and on different surfaces and estimated their decay rates using a Bayesian regression model

[Download PDF](#) [Supplementary Material](#) [Data/Code](#) [Email](#) [Share](#) [Citation Tools](#)

[Tweet](#) [Like 7.3K](#)

### COVID-19 SARS-CoV-2 preprints from medRxiv and bioRxiv

**Subject Area**

[Infectious Diseases \(except HIV/AIDS\)](#)

[Subject Areas](#)

[All Articles](#)

Thus far  
have been

month  
als ...

medRxiv

THE PREPRINT SERVER FOR

### Aerosol and surface

Neeltje van Doremalen, Tim Brandi Williamson, Azaibi Emmie de Wit, Vincent M

doi: <https://doi.org/10.1101/2020.03.09.20033217>

Now published in *The New England Journal of Medicine*

[Abstract](#) [Info/History](#)

#### Abstract

A novel human coronavirus 2 (SARS-CoV-2) emerged in Wuhan, China in late 2019 and is now causing a pandemic. We analyzed the aerosol and surface stability of SARS-CoV-2 and compared it with SARS-CoV-1, the most closely related human coronavirus. We evaluated the stability of SARS-CoV-2 and SARS-CoV-1 in aerosols and on various surfaces and estimated their decay rates using a Bayesian regression model (see the Methods section in the Supplementary Appendix, available with the full text of this letter at NEJM.org). SARS-CoV-2 nCoV-WA1-2020 (MN985325.1) and SARS-CoV-1 Tor2 (AY274119.3) were the strains used. Aerosols (<5 μm) containing SARS-CoV-2 (10<sup>5.25</sup> 50% tissue-culture infectious dose [TCID<sub>50</sub>] per milliliter) or SARS-CoV-1 (10<sup>6.75-7.00</sup> TCID<sub>50</sub> per milliliter) were generated with the use of a three-jet Collision nebulizer and fed into a Goldberg drum to create an aerosolized environment. The inoculum resulted in cycle-threshold values between 20 and 22, similar to those observed in samples obtained from the upper and lower respiratory tract in humans. Our data consisted of 10 experimental conditions involving two viruses (SARS-CoV-2 and SARS-CoV-1) in five environmental conditions (aerosols, plastic, stainless steel, copper, and cardboard). All experimental measurements are reported as means across three replicates. SARS-CoV-2 remained viable in aerosols throughout the duration of our experiment (3 hours), with a reduction in infectious titer from 10<sup>3.5</sup> to 10<sup>2.7</sup> TCID<sub>50</sub> per liter of air. This reduction was similar to that observed with SARS-CoV-1, from 10<sup>4.3</sup> to 10<sup>3.5</sup> TCID<sub>50</sub> per milliliter (Fig. 1A). SARS-CoV-2 was more stable on plastic and stainless steel than on copper and cardboard, and viable virus was detected up to 72 hours

## CORRESPONDENCE



### Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1

**TO THE EDITOR:** A novel human coronavirus that is now named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (formerly called HCoV-19) emerged in Wuhan, China, in late 2019 and is now causing a pandemic.<sup>1</sup> We analyzed the aerosol and surface stability of SARS-CoV-2 and compared it with SARS-CoV-1, the most closely related human coronavirus.<sup>2</sup>

We evaluated the stability of SARS-CoV-2 and SARS-CoV-1 in aerosols and on various surfaces and estimated their decay rates using a Bayesian regression model (see the Methods section in the Supplementary Appendix, available with the full text of this letter at NEJM.org). SARS-CoV-2 nCoV-WA1-2020 (MN985325.1) and SARS-CoV-1 Tor2 (AY274119.3) were the strains used. Aerosols (<5 μm) containing SARS-CoV-2 (10<sup>5.25</sup> 50% tissue-culture infectious dose [TCID<sub>50</sub>] per milliliter) or SARS-CoV-1 (10<sup>6.75-7.00</sup> TCID<sub>50</sub> per milliliter)

were generated with the use of a three-jet Collision nebulizer and fed into a Goldberg drum to create an aerosolized environment. The inoculum resulted in cycle-threshold values between 20 and 22, similar to those observed in samples obtained from the upper and lower respiratory tract in humans.

Our data consisted of 10 experimental conditions involving two viruses (SARS-CoV-2 and SARS-CoV-1) in five environmental conditions (aerosols, plastic, stainless steel, copper, and cardboard). All experimental measurements are reported as means across three replicates.

SARS-CoV-2 remained viable in aerosols throughout the duration of our experiment (3 hours), with a reduction in infectious titer from 10<sup>3.5</sup> to 10<sup>2.7</sup> TCID<sub>50</sub> per liter of air. This reduction was similar to that observed with SARS-CoV-1, from 10<sup>4.3</sup> to 10<sup>3.5</sup> TCID<sub>50</sub> per milliliter (Fig. 1A).

SARS-CoV-2 was more stable on plastic and stainless steel than on copper and cardboard, and viable virus was detected up to 72 hours

THIS WEEK'S LETTERS

64 Aerosol and Surface Stability of SARS-CoV-2



Advanced Search

Next

mail

share

Publication Tools

Preprints from



Covid-19

# Scientific research on the coronavirus is being released in a torrent

# Mother Jones

## Will that change how science is published?

POLITICS ENVIRONMENT CRIME AND JUSTICE FOOD MEDIA INVESTIGATIONS PH

[Check for updates](#) **editorial**

### All that's fit to preprint

COVID-19 has reinforced the importance of preprints as an indispensable means for rapid research dissemination.

The uptake of preprints during the COVID-19 pandemic has been nothing short of remarkable. In April, papers indexed in PubMed last year (30,627 preprints versus 1,401,413 papers). Thus, preprints represent a larger proportion of one reason why the medical community was so cautious about preprints in the first place. A case in point is bioRxiv's most

**Bloomberg Opinion**

**CORONAVIRUS** APRIL 28, 2020

### Science Has an Ugly, Complicated Dark Side. And the Coronavirus Is Bringing It Out.

Experts say the pandemic is letting bad science slip through the cracks.



**JACKIE FLYNN MOGENSEN**  
Assistant Editor  
[Bio](#) | [Follow](#)



Technology & Ideas

## A Pandemic Moves Peer Review to Twitter

The coronavirus has transformed how scientific research findings are communicated. Is that good? Will the changes stick?

APRIL 1, 2020



**HEALTHNEWSREVIEW**  
YOUR HEALTH NEWS WATCHDOG

## Strong caveats are lacking as news stories trumpet preliminary COVID-19 research





# NIH Clinical Trial Shows Remdesivir Accelerates Recovery from Advanced COVID-19

April 29, 2020

Hospitalized patients with advanced COVID-19 and lung involvement who received remdesivir recovered faster than similar patients who received placebo, according to a preliminary data analysis from a randomized, controlled trial involving 1063 patients, which began on February 21. The trial (known as the [Adaptive COVID-19 Treatment Trial](#), or ACTT), sponsored by the [National Institute of Allergy and Infectious Diseases \(NIAID\)](#), part of the National Institutes of Health, is the first clinical trial launched in the United States to evaluate an experimental treatment for COVID-19.

An independent data and safety monitoring board (DSMB) overseeing the trial met on April 27 to review data and shared their interim analysis with the study team. Based upon their review of the data, they noted that remdesivir was better than placebo from the perspective of the primary endpoint, time to recovery, a metric often used in influenza trials. Recovery in this study was defined as being well enough for hospital discharge or returning to normal activity level.

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 ( $p = 0.059$ ).

More detailed information about the trial results, including more comprehensive data, will be available in a forthcoming report. As part of the U.S. Food and Drug Administration's commitment to expediting the development and availability of potential COVID-19 treatments, the agency has been engaged in sustained and ongoing discussions with Gilead Sciences regarding making remdesivir available to patients as quickly as possible, as appropriate. The trial closed to new enrollments on April 19. NIAID will also provide an update on the plans for the ACTT trial moving forward. This trial was an adaptive trial designed to incorporate additional investigative treatments.

The first trial participant in the ACTT trial was an American who was repatriated after being quarantined on the Diamond Princess cruise ship that docked in Yokohama, Japan, and volunteered to participate in the study at the first study site, the University of Nebraska Medical Center/Nebraska Medicine, in February 2020. A total of 68 sites ultimately joined the study—47 in the United States and 21 in countries in Europe and Asia.

Remdesivir, developed by Gilead Sciences Inc., is an investigational broad-spectrum antiviral treatment administered via daily infusion for 10 days. [It has shown promise in animal models for treating SARS-CoV-2 \(the virus that causes COVID-19\) infection](#) and has been examined in various clinical trials.

## Contact

To schedule interviews, contact  
NIAID Office of Communications  
(301) 402-1663  
[NIAIDNews@niaid.nih.gov](mailto:NIAIDNews@niaid.nih.gov)



# NIH Clinical Trial Shows Remdesivir Accelerates Recovery from Advanced COVID-19

April 29, 2020

Hospitalized patients with advanced COVID-19 and lung involvement who received remdesivir recovered faster than similar patients who received placebo, according to a preliminary data analysis from a randomized, controlled trial involving 1063 patients, which began on February 21. The trial (known as the [Adaptive COVID-19 Treatment Trial](#), or ACTT), sponsored by the [National Institute of Allergy and Infectious Diseases \(NIAID\)](#), part of the National Institutes of Health, is the first clinical trial launched in the United States to evaluate an experimental treatment for COVID-19.

An independent data and safety monitoring board (DSMB) overseeing the trial met on April 27 to review data and shared their interim analysis with the study team. Based upon their review of the data, they noted that remdesivir was better than placebo from the perspective of the primary endpoint, time to recovery, a metric often used in influenza trials. Recovery in this study was defined as being well enough for hospital discharge or returning to normal activity level.

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 ( $p = 0.059$ ).

More detailed information about the trial results, including more comprehensive data, will be available in a forthcoming report. As part of the U.S. Food and Drug Administration's commitment to expediting the development and availability of potential COVID-19 treatments, the agency has been engaged in sustained and ongoing discussions with Gilead Sciences regarding making remdesivir available to patients as quickly as possible, as appropriate. The trial closed to new enrollments on April 19. NIAID will also provide an update on the plans for the ACTT trial moving forward. This trial was an adaptive trial designed to incorporate additional investigative treatments.

The first trial participant in the ACTT trial was an American who was repatriated after being quarantined on the Diamond Princess cruise ship that docked in Yokohama, Japan, and volunteered to participate in the study at the first study site, the University of Nebraska Medical Center/Nebraska Medicine, in February 2020. A total of 68 sites ultimately joined the study—47 in the United States and 21 in countries in Europe and Asia.

Remdesivir, developed by Gilead Sciences Inc., is an investigational broad-spectrum antiviral treatment administered via daily infusion for 10 days. [It has shown promise in animal models for treating SARS-CoV-2 \(the virus that causes COVID-19\) infection and has been examined in various clinical trials.](#)

## Contact

To schedule interviews, contact  
NIAID Office of Communications  
(301) 402-1663  
[NIAIDNews@niaid.nih.gov](mailto:NIAIDNews@niaid.nih.gov)

MENU ▾

# nature

Subscribe



WORLD VIEW · 11 MAY 2020

## Pandemic researchers – recruit your own best critics



To guard against rushed and sloppy science, build pressure testing into your research.

Daniël Lakens 



# Preprints Aren't The Problem — WE Are The Problem



James Heathers [Follow](#)

May 20 · 9 min read



## Pandemic critics



Daniël Lakens [✉](#)



**A preprint is supposed to be a vehicle for discussion, not something to publicize as hard and immediately as possible!**

- 1. Give realistic statements of the limitations within the paper**
- 2. When you make public comments, attempt to give perspective**
- 3. Deliberately engage experts in the appropriate areas to assess your information publicly**
- 4. Admit that criticism of your work exists and then engage with it**
- 5. Update your pre-print!**



medRxiv

THE PREPRINT SERVER FOR HEALTH SCIENCES

harlan.krumholz@yale.edu @hmkyale

joseph.ross@yale.edu @jsross119

medrxiv@cshl.edu