

# April 17, 2020

## Daily COVID-19 Literature Surveillance Summary



Jasmine Rah, BA, MS<sup>3</sup><sup>1\*</sup>  
Erin Hartnett, BA, BS, MS<sup>4</sup><sup>2\*</sup>  
Emily V. Nelson, Ph.D<sup>3</sup><sup>\*</sup>  
Samuel M. Philbrick, MD<sup>4</sup>  
Thamanna Nishath, MSPH, MS<sup>2</sup><sup>1\*</sup>  
Jackson Schmidt, BA, MS<sup>3</sup><sup>1\*</sup>  
Daniel Lee, BS, MS<sup>3</sup><sup>1\*</sup>  
Zainab Khan, BS, MS<sup>4</sup><sup>2\*</sup>  
Brennan Enright, BS, MS<sup>1</sup><sup>2\*</sup>  
Jenny Jensen, BS, MS<sup>1</sup>  
Will Smith, MD, Paramedic, FAEMS<sup>1,5</sup><sup>#</sup>

All contributors acknowledged on the final page.

© 2020 | COVID19LST.org

### Contributor Affiliations:

<sup>1</sup>University of Washington School of Medicine

<sup>2</sup>University of Arizona College of Medicine Phoenix

<sup>3</sup>Bernhard Nocht Institute for Tropical Medicine

<sup>4</sup>United States Air Force

<sup>5</sup>Wilderness and Emergency Medicine Consulting LLC.



Editor in Chief\*, Assistant Editor\*, Major Contributors\*, Contributors\*, Associate Contributors\*, Advisor\*

## Disclaimer

This free and open source document represents a good faith effort to provide real time, distilled information for guiding best practices during the COVID-19 pandemic. This document is not intended to and cannot replace the original source documents and clinical decision making. These sources are explicitly cited for purposes of reference but do not imply endorsement, approval or validation.

This is not an official product or endorsement from the institutions affiliated with the authors, nor do the ideas and opinions described within this document represent the authors' or their affiliated institutions' values, opinions, ideas or beliefs. This is a good faith effort to share and disseminate accurate summaries of the current literature.

## Coming soon:



# COVID-19 Daily Literature Surveillance

COVID19LST



Bringing you real time, distilled information for guiding best practices during the COVID-19 pandemic



# The Swab

Jasmine Rah



The untold stories of the coronavirus (COVID-19) pandemic.

# April 17th, 2020

## Executive Summary

### Climate:

- The clear need for [reliable information](#) on COVID-19 and [emerging treatments](#)

### Education:

- Challenges include
  - Creating and maintaining the [sense of community](#) despite social distancing
  - [Financial stress](#)
  - Creating avenues for [continued learning](#) and development outside of clinical settings

### Epidemiology:

- More research support a [second peak](#) in Wuhan if return to work initiated at end of March
- Symptoms are consistently [more severe in elders and men](#) than women and children.
- [GI symptoms](#) and [sore throat is a better predictor of COVID-19](#) infection than nasal congestion or rhinorrhea
- Concerns for [arrhythmia](#) and [heart complications](#) with COVID-19 infection

### PPE:

- [Standard, contact and airborne precautions](#) in the ED

### Transmission and Prevention:

- Need for [repeated testing](#) before clearing individuals from quarantine

### New guidelines:

- For [critical care resource allocation](#)
- [Nutrition](#) for healthy folks at home
- [Pediatric surgery](#)
- ENT visits and [surgery](#)
- [Surgical management of lung cancer](#)
- Vascular care: [surgical](#) and [clinical](#) interventions

### Potential treatments on the horizon:

- [Clinical trials in the works](#)
- [Remdesivir](#)
- But mostly speculation

### Mental Health & Resilience

- Continued support for [health care workers being at increased risk](#) for stress related mental illness
- Promoting “[Deliberate Resilience](#)”

# Table of Contents

## Levels of Evidence

### Climate

[We have to write and share valid and reliable information on COVID-19.](#)

[Combating COVID-19: health equity matters.](#)

[Demand Analysis and Management Suggestion: Sharing Epidemiological Data Among Medical Institutions in Megacities for Epidemic Prevention and Control.](#)

[COVID-19: How to Prepare for the Pandemic?](#)

[Drug Evaluation during the Covid-19 Pandemic.](#)

[Predicting the impacts of epidemic outbreaks on global supply chains: A simulation-based analysis on the coronavirus outbreak \(COVID-19/SARS-CoV-2\) case.](#)

[Clinical Research and Trials-A "Nonessential" Victim of the COVID-19 Pandemic?](#)

[Digital technology and COVID-19.](#)

[Public health concerns and unsubstantiated claims at the intersection of vaping and COVID-19.](#)

[Practice Management During the COVID-19 Pandemic.](#)

[Using the Coronavirus Pandemic as an Opportunity to Address the Use of Human Milk and Breastfeeding as Lifesaving Medical Interventions.](#)

[How COVID-19 could ruin weather forecasts and climate records.](#)

### Education

[Five Questions for Residency Leadership in the Time of COVID-19: Reflections of Chief Medical Residents From an Internal Medicine Program.](#)

[COVID-19: Financial Stress Test for Academic Medical Centers.](#)

[Impact, Strategies and Opportunities for Early and Mid-Career Cardiovascular Researchers During the COVID-19 Pandemic.](#)

[Online learning in the time of COVID-19.](#)

[Love in the time of coronavirus: training and service during COVID-19.](#)

### Epidemiology

[Why is it difficult to accurately predict the COVID-19 epidemic?](#)

[Investigating the cases of novel coronavirus disease \(COVID-19\) in China using dynamic statistical techniques.](#)

[Rapid surveillance of COVID-19 in the United States using a prospective space-time scan statistic: Detecting and evaluating emerging clusters.](#)

[Prediction of COVID-19 Outbreak in China and Optimal Return Date for University Students Based on Propagation Dynamics.](#)

[COVID-19 and artificial intelligence: protecting health-care workers and curbing the spread.](#)

[A data driven time-dependent transmission rate for tracking an epidemic: a case study of 2019-nCoV.](#)

[D\(2\)EA: Depict the Epidemic Picture of COVID-19.](#)

[Spread of SARS-CoV-2 in the Icelandic Population.](#)

[Clinical Presentation of COVID-19: A Systematic Review Focusing on Upper Airway Symptoms.](#)

[A novel presentation of COVID-19 via community acquired infection.](#)

[Dysosmia and dysgeusia due to the 2019 Novel Coronavirus; a hypothesis that needs further investigation.](#)

[Potential neurological symptoms of COVID-19.](#)

[Clinical Characteristics of COVID-19 Patients With Digestive Symptoms in Hubei, China: A Descriptive, Cross-Sectional, Multicenter Study.](#)

## **Understanding the Pathology**

[The proportion of patients with thrombocytopenia in three human-susceptible coronavirus infections: a systematic review and meta-analysis.](#)

[scRNA-seq Profiling of Human Testes Reveals the Presence of the ACE2 Receptor, A Target for SARS-CoV-2 Infection in Spermatogonia, Leydig and Sertoli Cells.](#)

[Extreme genomic CpG deficiency in SARS-CoV-2 and evasion of host antiviral defense.](#)

[COVID-19 infections are also affected by human ACE1 D/I polymorphism.](#)

[Cardiac drugs and Outcome in COVID-19](#)

## **Transmission & Prevention**

[The active role of a blood center in outpacing the transfusion transmission of COVID-19.](#)

[COVID-19 Personal Protective Equipment \(PPE\) for the emergency physician.](#)

[Inactivation of Severe Acute Respiratory Syndrome Coronavirus 2 by WHO-Recommended Hand Rub Formulations and Alcohols.](#)

[Distinct characteristics of COVID-19 patients with initial rRT-PCR positive and negative results for SARS-CoV-2.](#)

[Recurrent PCR positivity after hospital discharge of people with coronavirus disease 2019 \(COVID-19\).](#)

[Role of mask/respirator protection against SARS-CoV-2.](#)

[Characteristics of pediatric SARS-CoV-2 infection and potential evidence for persistent fecal viral shedding.](#)

[COVID-19 Pandemic: What Every Otolaryngologist-Head and Neck Surgeon Needs to Know for Safe Airway Management.](#)

[Abstract:](#)

[COVID-19 in the perioperative period of lung resection: a brief report from a single thoracic surgery department in Wuhan, China.](#)

[Otolaryngology Providers Must Be Alert for Patients with Mild and Asymptomatic COVID-19.](#)

[The COVID-19 pandemic implications for the cytology laboratory](#)

[Public Education and Electronic Awareness of the New Coronavirus \(COVID-19\): Experiences from Iran.](#)

[African nations step up efforts to prevent spread of coronavirus.](#)

[Use of Handheld Transceiver for Hospital Healthcare Workers-Caregiver Communication During the Coronavirus disease 2019 \(COVID-19\) Outbreak in Pediatric Emergency Department](#)

[Clinical characteristics of 19 neonates born to mothers with COVID-19.](#)

[CT Findings of Pregnant Women With Coronavirus Disease \(COVID-19\) Pneumonia.](#)

## **Management**

[Hemoglobin value may be decreased in patients with severe coronavirus disease 2019.](#)

[The value of urine biochemical parameters in the prediction of the severity of coronavirus disease 2019.](#)

[Triage of scarce critical care resources in COVID-19: an implementation guide for regional allocation. An expert panel report of the Task Force for Mass Critical Care and the American College of Chest Physicians.](#)

[Pediatric Airway Management in COVID-19 patients - Consensus Guidelines from the Society for Pediatric Anesthesia's Pediatric Difficult Intubation Collaborative and the Canadian Pediatric Anesthesia Society.](#)

[COVID-19, Arrhythmic Risk and Inflammation: Mind the Gap!](#)

[Transient complete heart block in a patient with critical COVID-19.](#)

[Typical takotsubo syndrome triggered by SARS-CoV-2 infection.](#)

[Rehabilitation of COVID-19 patients.](#)

## **Management of other conditions during COVID-19**

[Nutritional recommendations for CoVID-19 quarantine.](#)

[Care of patients with liver disease during the COVID-19 pandemic: EASL-ESCMID position paper.](#)

[Collaborative Multi-Disciplinary Incident Command at Seattle Children's Hospital for Rapid Preparatory Pediatric Surgery Countermeasures to the COVID-19 Pandemic.](#)

[Sars-CoV-2 \(COVID-19\) Outbreak and Breast Cancer Surgery in Turkey.](#)

[What Is the Appropriate Use of Laparoscopy over Open Procedures in the Current COVID-19 Climate?](#)

[A High-Volume Thoracic Surgery Division into the Storm of the COVID-19 Pandemic.](#)

[A Commentary on Safety Precautions for Otologic Surgery during the COVID-19 Pandemic.](#)

[Breast Cancer Diagnosis, Treatment and Follow-Up During COVID-19 Pandemic](#)

[Priorities for Cath labs in the COVID-19 tsunami: Roberto Ferrari and co-authors present a procedure to follow subsequent to the outbreak in Italy](#)

[Cardiac drugs and Outcome in COVID-19](#)

[Cardiac drugs and outcome in COVID-19: Reply.](#)

[Lung cancer surgical management during the outbreak of COVID-19.](#)

[The Use of Nonsteroidal Anti-inflammatory Drugs in Urological Practice in the COVID-19 Era: Is "Safe Better than Sorry"?](#)

[Acute neurology during the COVID-19 pandemic: Supporting the front line.](#)

[Emergency endoscopic variceal band ligation in a COVID-19 patient presented with hematemesis while on mechanical ventilation.](#)

[Breast Cancer Diagnosis, Treatment and Follow-Up During COVID-19 Pandemic](#)

[Doing the right thing for the right reason when treating ruptured abdominal aortic aneurysms in the COVID-19 era.](#)

[Delivering High-Quality Vascular Care via Telehealth during the COVID-19 Pandemic.](#)

[Computed Tomography Imaging of an HIV-infected Patient with Coronavirus Disease 2019 \(COVID-19\).](#)

[Contracting HIV or Contracting SAR-CoV-2 \(COVID- 19\) in Pregnancy? Balancing the Risks and Benefits.](#)

[How to risk-stratify elective surgery during the COVID-19 pandemic?](#)

[Priorities for Cath labs in the COVID-19 tsunami: Roberto Ferrari and co-authors present a procedure to follow subsequent to the outbreak in Italy](#)

## **R&D: Diagnosis & Treatments**

[Detection of SARS-CoV-2 by RT-PCR in anal from patients who have recovered from coronavirus disease 2019](#)

[COVID-19 pneumonia manifestations at the admission on chest ultrasound, radiographs, and CT: single-center study and comprehensive radiologic literature review.](#)

[Lung Changes on Chest CT During 2019 Novel Coronavirus \(COVID-19\) Pneumonia. Clinical Trials during the SARS-CoV-2 Pandemic.](#)

[Herbal medicine and pattern identification for treating COVID-19: a rapid review of guidelines.](#)

[Novel decoy cellular vaccine strategy utilizing transgenic antigen-expressing cells as immune presenter and adjuvant in vaccine prototype against SARS-CoV-2 virus.](#)

[Mesenchymal Stromal Cell Secretome for Severe COVID-19 Infections: Premises for the Therapeutic Use.](#)

[Computational Design of ACE2-Based Peptide Inhibitors of SARS-CoV-2.](#)

[Efficacy of remdesivir in a rhesus macaque model of MERS-CoV infection.](#)

[Remdesivir is a direct-acting antiviral that inhibits RNA-dependent RNA polymerase from severe acute respiratory syndrome coronavirus 2 with high potency.](#)

[Human antibodies can neutralize SARS-CoV-2.](#)

[Clinical and microbiological effect of a combination of hydroxychloroquine and azithromycin in 80 COVID-19 patients with at least a six-day follow up: A pilot observational study](#)

[COVID-19 and emerging viral infections: The case for interferon lambda.](#)

[Searching therapeutic strategy of new coronavirus pneumonia from angiotensin-converting enzyme 2: the target of COVID-19 and SARS-CoV.](#)

## **Mental Health & Resilience**

[A Rational Use of Clozapine Based on Adverse Drug Reactions, Pharmacokinetics, and Clinical Pharmacopsychology.](#)

[The COVID-19 pandemic: The “black swan” for mental health care and a turning point for e-health.](#)

[Knowledge and attitudes of medical staff in Chinese psychiatric hospitals regarding COVID-19.](#)

[Mental health burden for the public affected by the COVID-19 outbreak in China: Who will be the high-risk group?](#)



[Cultivating Deliberate Resilience During the Coronavirus Disease 2019 Pandemic.](#)  
[Coronavirus Disease 2019 \(COVID-19\) and Mental Health for Children and Adolescents.](#)

**Resources: Broad Review Articles**

[COVID-19 Research in Brief: 4 April to 10 April, 2020.](#)

**Associate Contributors & Acknowledgments**

# Levels of Evidence

Oxford Centre for Evidence-Based Medicine 2011 Levels of Evidence

Question	Step 1 (Level 1*)	Step 2 (Level 2*)	Step 3 (Level 3*)	Step 4 (Level 4*)	Step 5 (Level 5)
<b>How common is the problem?</b>	Local and current random sample surveys (or censuses)	Systematic review of surveys that allow matching to local circumstances**	Local non-random sample**	Case-series**	n/a
<b>Is this diagnostic or monitoring test accurate?</b> (Diagnosis)	Systematic review of cross sectional studies with consistently applied reference standard and blinding	Individual cross sectional studies with consistently applied reference standard and blinding	Non-consecutive studies, or studies without consistently applied reference standards**	Case-control studies, or "poor or non-independent reference standard**	Mechanism-based reasoning
<b>What will happen if we do not add a therapy?</b> (Prognosis)	Systematic review of inception cohort studies	Inception cohort studies	Cohort study or control arm of randomized trial*	Case-series or case-control studies, or poor quality prognostic cohort study**	n/a
<b>Does this intervention help?</b> (Treatment Benefits)	Systematic review of randomized trials or <i>n</i> -of-1 trials	Randomized trial or observational study with dramatic effect	Non-randomized controlled cohort/follow-up study**	Case-series, case-control studies, or historically controlled studies**	Mechanism-based reasoning
<b>What are the COMMON harms?</b> (Treatment Harms)	Systematic review of randomized trials, systematic review of nested case-control studies, <i>n</i> -of-1 trial with the patient you are raising the question about, or observational study with dramatic effect	Individual randomized trial or (exceptionally) observational study with dramatic effect	Non-randomized controlled cohort/follow-up study (post-marketing surveillance) provided there are sufficient numbers to rule out a common harm. (For long-term harms the duration of follow-up must be sufficient.)**	Case-series, case-control, or historically controlled studies**	Mechanism-based reasoning
<b>What are the RARE harms?</b> (Treatment Harms)	Systematic review of randomized trials or <i>n</i> -of-1 trial	Randomized trial or (exceptionally) observational study with dramatic effect			
<b>Is this (early detection) test worthwhile?</b> (Screening)	Systematic review of randomized trials	Randomized trial	Non-randomized controlled cohort/follow-up study**	Case-series, case-control, or historically controlled studies**	Mechanism-based reasoning

\* Level may be graded down on the basis of study quality, imprecision, indirectness (study PICO does not match questions PICO), because of inconsistency between studies, or because the absolute effect size is very small; Level may be graded up if there is a large or very large effect size.

\*\* As always, a systematic review is generally better than an individual study.

Credit: OCEBM Levels of Evidence Working Group\*. "The Oxford 2011 Levels of Evidence". Oxford Centre for Evidence-Based Medicine.  
<http://www.cebm.net/index.aspx?o=5653>

## Climate

### **We have to write and share valid and reliable information on COVID-19.**

[PMID: 32284797](#)

[Publication Date: Mar 18, 2020; Apr 15, 2020 \(LitCovid\)](#)

Liew, Su May; Khoo, Ee Ming; Cheah, Wee Kooi; Goh, Pik Pin; Ibrahim, Hishamshah M  
Malays Fam Physician

Level of Evidence: 6 - No data cited

Article Type: Perspective

**Summary:** The pandemic in Malaysian unearthed a need for improved dissemination of evidence based medicine. The COVID-19 Malaysian writing group was created by concerned healthcare workers to improve literature availability to providers and the public through text messaging.

### **Combating COVID-19: health equity matters.**

[PMID: 32284617](#)

[Publication Date: Mar 26, 2020; Apr 15, 2020 \(LitCovid\)](#)

Wang, Zhicheng; Tang, Kun

Nature Medicine

Level of Evidence: 5 – Expert Opinion

Type of Article: Comment

**Summary:** COVID-19 case fatalities have disproportionately affected communities of a lower socio-economic status, as evidenced in part by the higher case fatality rate in Hubei province in China. The pandemic has exposed persistent challenges in achieving health equity. We also must anticipate that there will be long term socio-economic impacts on these communities. The authors call for the development of evidence-based strategies for addressing health inequities both during the current and future public health crises.

### **Demand Analysis and Management Suggestion: Sharing Epidemiological Data Among Medical Institutions in Megacities for Epidemic Prevention and Control.**

[PMID: 32288414](#)

[Publication Date: Apr 15, 2020](#)

Cai, Qinyi; Mi, Yiqun; Chu, Zhaowu; Zheng, Yuanyu; Chen, Fang; Liu, Yicheng  
J Shanghai Jiaotong Univ Sci

Level of Evidence: Level 6 – No Data Cited

Type of Article: Letter

**Summary:** The authors argue that sharing of epidemiological data among medical institutions is important for epidemic prevention and control of COVID-19. They recommend that sharing of epidemiological data should be guided and supported by the government, by updating existing health QR code according to the needs of medical institutions. The authors also recommend that local hospitals allow sharing of patient health information between different hospitals to decrease redundancies and delays in patient care.

## COVID-19: How to Prepare for the Pandemic?

PMID: [32285326](#)

Publication Date: Apr 13, 2020; Apr 15, 2020 (LitCovid)

Lodha, Rakesh; Kabra, S K Indian

J Pediatr

Level of Evidence: 5 - Expert opinion

Type of Article: Editorial

**BLUF:** As a country with limited health system resources relative to the population, India must focus on preventative strategies, judicious use of health resources, and prioritization of health care worker safety during the COVID-19 pandemic.

**Summarizing excerpt:** “India, even if we consider 0.1% of population [sic] gets infected over next 60 d, and 5% of those infected need critical care, we need ICU beds for 65,000 people. An average duration of mechanical ventilation of 15 d, which translates into approximately 975,000 ventilator days. If this surge in epidemic is spread over 60 d, we need approximately 16,200 ventilators on a given day [total infection 1,300,000, hospitalization (20%) 260,000, ICU 65000]. While this is a simplistic calculation which assumes 0.1% infection rate, with higher [sic] infection rate of 1%, the numbers of ventilators required will be approximately 162,000. **As of now India does not have that capacity...**In the setting of weak [sic] health system, the preparedness to face the onslaught has to be ramped up rapidly. At the same time, there has to be **judicious use of the available resources** with a **high priority for safety of the health care professionals**- the front-line warriors in this situation. In absence of specific antiviral treatments as of now, supportive care for the diseased and use of multiple **preventive strategies appear to be the key** to containing the pandemic.”

## Drug Evaluation during the Covid-19 Pandemic.

PMID: [32289216](#)

Publication Date: Apr 14, 2020

Rome, Benjamin N; Avorn, Jerry

N Engl J Med

Level of Evidence: Level 6 – No Data Cited

Type of Article: Perspective

**Summarizing Excerpt:** “Rigorous premarketing evaluation of drugs’ safety and effectiveness in randomized, controlled trials remains our primary tool for protecting the public from drugs that are ineffective, unsafe, or both. It is a false dichotomy to suggest that we must choose between rapid deployment of treatments and adequate scientific scrutiny. For the Covid-19 pandemic and other pressing medical challenges, the health of individual patients and the public at large will be best served by remaining true to our time-tested approach to clinical trial evidence and drug evaluation, rather than cutting corners and resorting to appealing yet risky quick fixes.

## Predicting the impacts of epidemic outbreaks on global supply chains: A simulation-based analysis on the coronavirus outbreak (COVID-19/SARS-CoV-2) case.

PMID: [32288597](#)

Publication Date: Mar 24, 2020; Apr 15, 2020 (LitCovid)

Ivanov, Dmitry

Transp Res E Logist Transp Rev

Level of Evidence: 4 - Simulation

Type of Article: Simulation Experiment

**BLUF:** Based on a simulation model, epidemic outbreak supply-chain risks are characterized by long-term disruption that is highly dependent on the timing of the ripple effect and the sequence of facility closures and reopenings.

**Summary:** Based on a simulation model, the authors propose that “Epidemic outbreaks represent a special case of SC risks which is distinctively characterized by three components. These components are: (i) **long-term disruption existence** and its unpredictable scaling, (ii) **simultaneous disruption propagation in the SC** (i.e., the ripple effect) and epidemic outbreak propagation in the population (i.e., pandemic propagation), and (iii) **simultaneous disruptions in supply, demand, and logistics infrastructure**. In particular, our analysis revealed that in the case of an epidemic outbreak propagation, the **SC performance reaction depends on the timing and scale of disruption propagation** (i.e., the ripple effect) as well as the sequence of facility closing and opening at different SC echelons rather than on the disruption duration upstream the SC.”

## Clinical Research and Trials-A "Nonessential" Victim of the COVID-19 Pandemic?

[PMID: 32287137](#)

Publication Date: Apr 14, 2020; Apr 15, 2020 (LitCovid)

Peyrin-Biroulet, Laurent; Ananthakrishnan, Ashwin N

Am J Gastroenterol

Level of Evidence: Level 5 - Expert opinion

Type of Article: Correspondence

**Summary with excerpts:** The current pandemic has significantly hindered many clinical trials, many of which may be very important for patient refractory to standard treatment. “Eligibility to proceed with the clinical trial is often contingent on evaluation. The necessary canceling of elective procedures makes this group of patients highly vulnerable to disruption in care.” Use of **surrogate biomarkers for qualification or using clinical research centers rather than hospitals could allow patients to remain in trials and receive a novel treatment in the future.**

## Digital technology and COVID-19.

[PMID: 32284618](#)

Publication Date: Mar 27, 2020; Apr 15, 2020 (LitCovid)

Ting, Daniel Shu Wei; Carin, Lawrence; Dzau, Victor; Wong, Tien Y

Nat Med

Level of Evidence: 5 - Expert Opinion

Type of Article: Commentary

**Summary:** The authors discuss the role of digital technology in combating COVID-19. “First, the [internet] provides a platform that allows public-health agencies access to data for monitoring the COVID-19 pandemic...Second, big data also provides opportunities for performing modeling studies of viral activity and for guiding individual country healthcare policymakers to enhance preparation for the outbreak...Third, digital technology can enhance public-health education and communication [by allowing] healthcare agencies to provide ‘real-time’ updates...Fourth, artificial intelligence (AI) and deep learning can enhance the detection and diagnosis of COVID-19.” Digital technology can also mitigate the impact of COVID-19 by allowing for virtual clinics as well as alleviating physician workload through AI support as mentioned above.

## Public health concerns and unsubstantiated claims at the intersection of vaping and COVID-19.

[PMID: 32285129](#)

[Publication Date: Apr 14, 2020; Apr 15, 2020 \(LitCovid\)](#)

Majmundar, Anuja; Allem, Jon-Patrick; Cruz, Tess Boley; Unger, Jennifer B  
Nicotine & Tobacco Research

Level of Evidence: Level 5

Type of Article: Research

**Summary (with excerpts):** “During [a] systematic surveillance of vaping-related conversations on Twitter, we identified topics of conversations at the intersection of the ongoing COVID-19 pandemic and vaping.” Along with unsubstantiated health claims being posted, there were two major thematic concerns: 1) elevated health risks associated with COVID-19 among those that vape and pertaining questions and 2) the dangers of spreading COVID-19 through shared vape devices. Currently, there is limited evidence for COVID-19 and vaping associations and implications. More evidence is needed and continued surveillance of public discourse “can offer early insights for timely health interventions targeting unsubstantiated health claims and informing clinical care.”

## Practice Management During the COVID-19 Pandemic.

[PMID: 32287086](#)

[Publication Date: Apr 13, 2020; Apr 15, 2020 \(LitCovid\)](#)

Vaccaro, Alexander R; Getz, Charles L; Cohen, Bruce E; Cole, Brian J; Donnelly, Chester J 3rd  
American Academy of Orthopaedic Surgeons

Level of Evidence: Level 5 - Expert Opinion

Type of Article: Editorial

**BLUF:** This editorial discusses how to manage hospitals/clinical practices during the COVID-19 pandemic due to the ban on elective surgery procedures, which has major financial and workforce implications. The strategy for managing finances, assets, and staffing is through the Rothman Institute’s three operational phase responses:

- Phase 1: broadly implementing changes affecting staffing hours and compensation
- Phase 2: if the federal government extends social distancing to beyond May 1st, 2020, furloughs should be considered to maximize viability of practice
- Phase 3: if limitations are extended beyond June 1st, 2020, have roadmap of which offices and staff members would be most impacted for swift transitions

There is also discussion of the Coronavirus Aid, Relief, and Economic Security (CARES) Act and the Paycheck Protection Program serving a role in “managing cash reserves and maintaining a loyal employee base.” Using telehealth as a powerful patient access tool while considering aspects of user-friendliness and HIPAA compliance is recommended along with ethical considerations of PPE usage and returning to normalcy.

### Abstract:

On March 14, 2020 the Surgeon General of the United States urged a widespread cessation of all elective surgery across the country. The suddenness of this mandate and the concomitant spread of the COVID-19 virus left many hospital systems, orthopaedic practices, and patients with significant anxiety and confusion as to the near, intermediate, and long-term future of our healthcare system. As



with most businesses in the United States during this time, many orthopaedic practices have been emotionally and fiscally devastated as a result of this crisis. Furthermore, this pandemic is occurring at a time where small and mid-sized orthopaedic groups are already struggling to cover practice overhead and to maintain autonomy from larger health systems. It is anticipated that many groups will experience financial demise leading to substantial global consolidation. As the authors represent some of the larger musculoskeletal multispecialty groups in the country, we are uniquely positioned to provide a framework with recommendations to best weather the ensuing months. We believe these recommendations will allow providers and their staff to return to an infrastructure that can adjust immediately to the pent-up healthcare demand that may occur following the COVID-19 pandemic. In this editorial, we address practice finances, staffing, telehealth, operational plans following the crisis and ethical considerations.

## **Using the Coronavirus Pandemic as an Opportunity to Address the Use of Human Milk and Breastfeeding as Lifesaving Medical Interventions.**

[PMID: 32289260](#)

[Publication date: April 11, 2020; Apr 15, 2020 \(LitCovid\)](#)

Spatz, Diane L

Journal of Obstetric Gynecology and Neonatal Nursing

Level of Evidence: 5 – Expert opinion

Type of Article: Editorial

**Summary:** The current pandemic provides a unique opportunity to increase public awareness of the health benefits and safety of breastfeeding. Mothers and families should be educated that breastfeeding is encouraged, if appropriate hygiene and precautions are followed, even if a mother has been ill or exposed to COVID-19.

## **How COVID-19 could ruin weather forecasts and climate records.**

[PMID: 32284558](#)

[Publication Date: Apr 13, 2020; Apr 15, 2020 \(LitCovid\)](#)

Viglione, Guiliana.

*Nature.*

Level of Evidence: Level 6: No Data.

Type of Article: News

**BLUF:** Climate scientists are unable to gather field data during the pandemic due to travel restrictions. This may negatively impact weather forecasts and ecological studies.

**Summary:** Amidst the current viral pandemic, scientists responsible for studying weather patterns are unable to retrieve field data, potentially jeopardizing weather forecasts in the near-term. Meanwhile, some networks investigating ecological sites and long-term climate patterns are unable to operate for the first time in 40 years. Travel restrictions are significantly limiting the ability to collect measurements made in air and at sea. Ongoing, atmospheric monitoring is currently relying on autonomous systems.

## Education

### Five Questions for Residency Leadership in the Time of COVID-19: Reflections of Chief Medical Residents From an Internal Medicine Program.

[PMID: 32287083](#)

[Publication Date: Apr 13, 2020; Apr 15, 2020 \(LitCovid\)](#)

Rakowsky, Shana; Flashner, Bess M; Doolin, Jim; Reese, Zachary; Shpilsky, Jason; Yang, Shu; Smith, C Christopher; Graham, Kelly

Acad Med

Level of Evidence: 6 - No data cited

Article Type: Comment

**BLUF:** Chief residents are being tasked with preparing their junior colleagues for the new demands of medical training in a pandemic. To facilitate successful leadership they should ask the following questions of their faculty leaders:

- “1. What Are Our Program’s Core Values and How Do We Maintain Them?
2. How Do We Manage Communication?
3. How Do We Maintain Community?
4. How Have Our Roles as Chief Residents Evolved?
5. How Do We Create a Sense of “Normalcy”?”

The authors indicate their answers were as follows:

1. Maintain education by virtual adaptations and untraditional platforms (podcasts, email, social media).
2. Scheduled emails with updates, Q&A sessions, online discussion forums.
3. Group mentorship, videoconferencing, story sharing.
4. Changing teaching topics and responsibilities to pertinent logistical matters.
5. Acknowledging that this is not normal and look for silver linings.

**Abstract:** The COVID-19 pandemic has drastically affected the traditional methods residency programs use to train their residents. Chief residents serve a unique role as part of the residency leadership to foster the education and development of the residents. Given the rapid shift in demands on physicians in the face of the pandemic, **the responsibilities of the chief residents have also shifted** to help prepare the residents to meet these demands as front-line providers. There is not a precedent for how residency programs respond to this crisis while maintaining their primary role to develop and train physicians. **The authors have identified 5 questions chief residents can ask to guide their program's response to the demands of COVID-19 during this uncertain time in health care.**

### COVID-19: Financial Stress Test for Academic Medical Centers.

[PMID: 32287082](#)

[Publication Date: Apr 13, 2020; Apr 15, 2020 \(LitCovid\)](#)

Colenda, Christopher C; Applegate, William B; Reifler, Burton V; Blazer, Dan G 2nd

Acad Med

Whibley, Annette

Acta Paediatr

Level of Evidence: 5 - Expert opinion



Article Type: Commentary

**BLUF:** Academic medical centers (AMCs) are safety nets within the US healthcare system that are more vulnerable to profit reduction because of the costs associated with providing academic training. The authors suggest that AMC budgets may be adversely affected from:

- “ (1) likelihood of lower cash flows in the health care sector because of reductions in profitable services in preparation for surges of COVID-19 cases,
- (2) increased expenses in the health care sector because of higher staffing costs and supply needs,
- (3) lack of an inpatient diagnostic-related group for COVID-19,
- (4) greater use of expensive ICU care.”

The Coronavirus Aid, Relief, and Economic Security Act addresses some of these concerns in the short-term, however long-term aid is not guaranteed and the duration of pandemic impact is not yet known. To support AMCs medicare contributions to medical education must increase, medicaid benefits must expand, telecommunication regulations need to be relaxed, and trainees from struggling AMCs should be absorbed by other AMCs to continue their education.

**Abstract:** The coronavirus pandemic (COVID-19) is having profound effects on the lives and well-being of the world’s population. All levels of the nation’s public health and health care delivery systems are rapidly adjusting to secure the health infrastructure to manage the pandemic in the United States. As the nation’s **safety net health care systems**, academic medical centers (AMCs) are vital clinical and academic resources in managing the pandemic. **COVID-19 may also risk the financial underpinnings of AMCs** because their cost structures are high, and they may have incurred large amounts of debt over the last decade as they expanded their clinical operations and facilities. This Invited Commentary reviews existing data on AMC debt levels; summarizes relief provided in the Coronavirus Aid, Relief, and Economic Security Act; and suggests **policy options to help mitigate risk**.

## Impact, Strategies and Opportunities for Early and Mid-Career Cardiovascular Researchers During the COVID-19 Pandemic.

[PMID: 32286082](#)

[Publication Date: Apr 14, 2020; Apr 15, 2020 \(LitCovid\)](#)

Climie, Rachel E; Marques, Francine Z

Circulation

Level of Evidence: Level 6 - no evidence

Type of Article: Comment

**Summary:** Some of the main impacts of COVID-19 on early- and mid-career cardiovascular researchers are reduced opportunities for training and peer-learning, peer-recognition, research funding, career progression, and “data collection in the laboratory or clinic, which will delay publication of original research, networking, presentations at conferences and invited talks, awards, and team recruitment and development.” Potential solutions and opportunities to minimize the impact are:

- Strong leadership with clear communications and expectations
- Holding annual scientific meeting, conferences, or seminar series throughout the year
- Social media to decrease feelings of isolation
- Research boards for new collaborations

- Online learning for new skills
- Analyze existing data and write papers/reviews
- Developing and making learning tools open access
- Telehealth approaches to interview participants to increase outreach of research
- An overall change in the culture of cardiovascular research for increased translation, innovation, and collaboration

## Online learning in the time of COVID-19.

[PMID: 32289547](#)

[Publication Date: Apr 11, 2020; Apr 15, 2020 \(LitCovid\)](#)

Chiodini, Jane

Travel Medicine and Infectious Disease

Level of Evidence: Level 6 - no evidence

Type of Article: Comment

**Summary:** With the onset of the COVID-19 pandemic, there has been a significant change in travel medicine and while some practitioners can be deployed others may lose general patient care skills. To prevent this, authors present two resources for online learning that have launched in light of the pandemic are:

- COVID-19 Tackling the Novel Coronavirus (by the London School of Hygiene and Tropical Medicine (LSHTM) and FutureLearn)
- Emerging respiratory viruses, including COVID-19: methods for detection, prevention, response and control (by the World Health Organization)

## Love in the time of coronavirus: training and service during COVID-19.

[PMID: 32283886](#)

[Publication Date: Apr 14, 2020; Apr 15, 2020 \(LitCovid\)](#)

Wong, Chen Seong; Tay, Woo Chiao; Hap, Xing Fu; Chia, Faith Li-AnnSingapore Med J

Level of Evidence: 5 - Qualitative survey

Article Type: Perspective

**Summary:** Resident physicians responding to the COVID-19 pandemic in Singapore were surveyed. 61% said their training was adversely affected, 55% said their work was beyond their usual scope of practice, and 49% felt they were equipped for their new roles. Stress level ratings ranged from 3-8.3 with a mean of 4.7 related to their new role. **The balance between responding to the pandemic, medical education, and resident support must be continually re-evaluated for a sustainable solution.**

# Epidemiology

## Why is it difficult to accurately predict the COVID-19 epidemic?

[PMID: 32289100](#)

Publication Date: Mar 25, 2020; Apr 15, 2020 (LitCovid)

Roda, Weston C; Varughese, Marie B; Han, Donglin; Li, Michael Y

Infectious Disease Modeling

Level of Evidence: Predictive Modeling

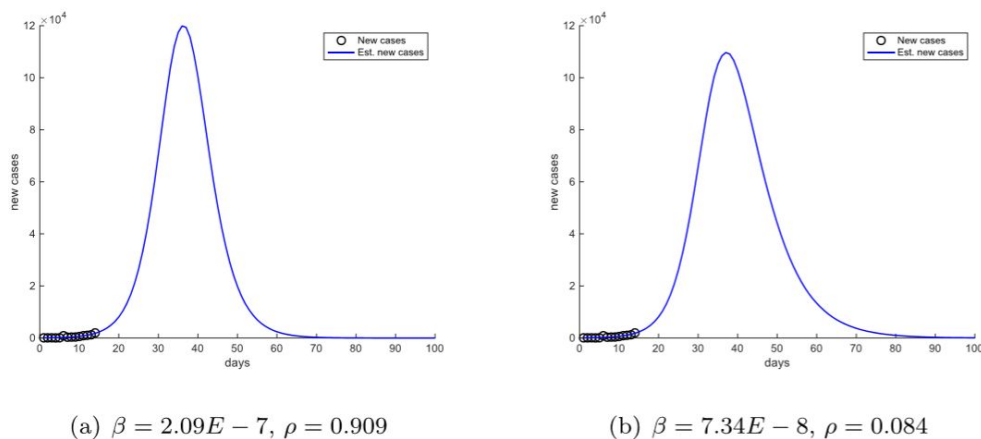
Type of Article: Research

**BLUF:** The study focused on predictive modeling of the COVID-19 epidemic in Wuhan city after the lock down and quarantine of the city. The following results were concluded:

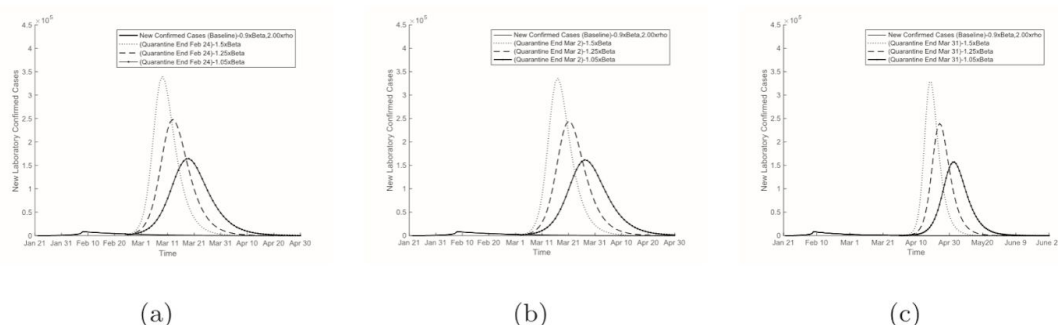
- Given the same dataset of confirmed cases, **more complex models may not necessarily be more reliable** in making predictions due to the larger number of model parameters to be estimated
- “There is a linkage between the transmission rate  $\beta$  and the case-infection ratio  $\rho$ , which resulted in a continuum of best-fit parameter values, which can produce significantly different model predictions of the epidemic. **This is a hallmark of nonidentifiability, and the root cause for variabilities in model predictions.**”
- The **reliability in model predictions depends on how rigorously the nonidentifiability is addressed in model calibration** and on the choice of parameter values.
- Bayesian inference and an improved Markov chain Monte Carlo algorithm can significantly reduce the wide parameter ranges in the uniform prior and produce workable credible intervals, even in the presence of nonidentifiability.
- The peak time of the epidemic is much less sensitive to parameter variations than the peak values and the scale of the epidemic.
- When the more restrictive measures are incorporated into the model they can effectively stop and significantly reduce the duration of the epidemic.
- **A second peak in Wuhan is very likely even if the return-to-work happens near the end of March 2020.**

### Abstract:

Since the COVID-19 outbreak in Wuhan City in December of 2019, numerous model predictions on the COVID-19 epidemics in Wuhan and other parts of China have been reported. These model predictions have shown a wide range of variations. In our study, we demonstrate that nonidentifiability in model calibrations using the confirmed-case data is the main reason for such wide variations. Using the Akaike Information Criterion (AIC) for model selection, we show that an SIR model performs much better than an SEIR model in representing the information contained in the confirmed-case data. This indicates that predictions using more complex models may not be more reliable compared to using a simpler model. We present our model predictions for the COVID-19 epidemic in Wuhan after the lockdown and quarantine of the city on January 23, 2020. We also report our results of modeling the impacts of the strict quarantine measures undertaken in the city after February 7 on the time course of the epidemic, and modeling the potential of a second outbreak after the return-to-work in the city.



**Fig. 3.** Model projections using two likely  $\beta$ - $\rho$  combinations, corresponding to two endpoints on the curve in Fig. 2 (b). Day 0 is January 21, 2020.



**Fig. 7.** Model predictions of time courses of COVID-19 epidemic in Wuhan with return to work on (a) February 24, (b) March 2, and (c) March 31, 2020.

## Investigating the cases of novel coronavirus disease (COVID-19) in China using dynamic statistical techniques.

[PMID: 32289090](#)

Publication Date: Apr 1, 2020; Apr 15, 2020 (LitCovid)

Sarkodie, Samuel Asumadu; Owusu, Phebe Asantewaa

Heliyon

Level of Evidence: 5 – Statistical modeling-based case series

Type of Article: Research

**BLUF:** Estimated models using case data from China suggest a linear relationship between COVID-19 attributable deaths and confirmed cases that is affected by the presence of undefined and unobserved heterogeneity and common factors.

### Abstract:

The initial investigation by local hospital attributed the outbreak of the novel coronavirus disease (COVID-19) to pneumonia with unknown cause that appeared like the 2003 severe acute respiratory syndrome (SARS). The World Health Organization declared COVID-19 as public health emergency after it spread outside China to several countries. Thus, an assessment of the novel coronavirus disease (COVID-19) with novel estimation approaches is essential to the global debate. This study is the first to develop both time series and panel data models to construct conceptual tools that examine the nexus between death from COVID-19 and confirmed cases. We collected daily data on four health indicators namely deaths, confirmed cases, suspected cases, and recovered cases across 31 Provinces/States in China. Due to the complexities of the COVID-19, we investigated the unobserved factors including environmental exposures accounting for the spread of the disease through

human-to-human transmission. We used estimation methods capable of controlling for cross-sectional dependence, endogeneity, and unobserved heterogeneity. We predicted the impulse-response between confirmed cases of COVID-19 and COVID19-attributable deaths. Our study revealed that the **effect of confirmed cases on the novel coronavirus attributable deaths is heterogeneous across Provinces/States in China**. We found a **linear relationship between COVID-19 attributable deaths and confirmed cases** whereas a **nonlinear relationship was confirmed for the nexus between recovery cases and confirmed cases**. The empirical evidence revealed that an increase in confirmed cases by 1% increases coronavirus attributable deaths by  $\sim 0.10\% - \sim 1.71\%$  (95% CI). Our empirical results **confirmed the presence of unobserved heterogeneity and common factors that facilitates the novel coronavirus attributable deaths caused by increased levels of confirmed cases**. Yet, the role of such a medium that facilitates the transmission of COVID-19 remains unclear. We highlight safety precaution and preventive measures to circumvent the human-to-human transmission.

## Rapid surveillance of COVID-19 in the United States using a prospective space-time scan statistic: Detecting and evaluating emerging clusters.

[PMID: 32287518](#)

Publication Date: Apr 8, 2020; Apr 15, 2020 (LitCovid)

M.R. Desjardins, A. Hohl, E.M Delmelle

Science Direct

Level of Evidence: 5 – Mechanism-based reasoning

Type of Article: Research

**BLUF:** SaTScan can detect significant space-time clusters of infection and be used to allocate pandemic response to active areas.

**Summarizing Excerpt:** “Using daily case data at the county level provided by Johns Hopkins University, we conducted a prospective spatial-temporal analysis with SaTScan. We detect statistically significant space-time clusters of COVID-19 at the county level in the U.S. between January 22nd-March 9th, 2020, and January 22nd-March 27th, 2020. **The space-time prospective scan statistic detected “active” and emerging clusters that are present at the end of our study periods – notably, 18 more clusters were detected when adding the updated case data.** These timely results can inform public health officials and decision makers about where to improve the allocation of resources, testing sites; also, where to implement stricter quarantines and travel bans”

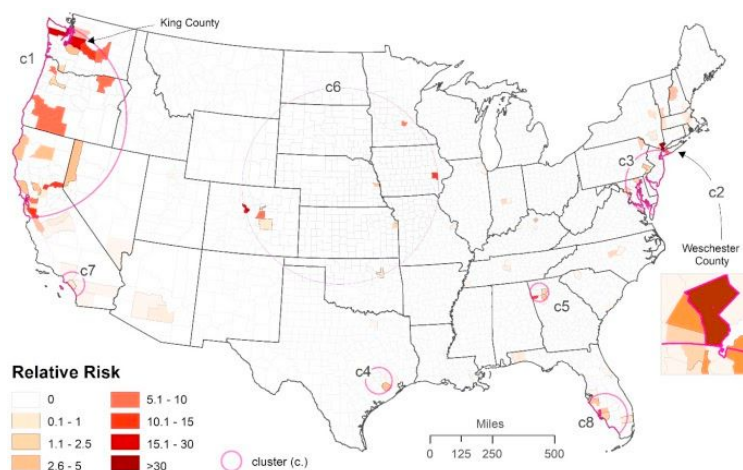


Fig. 3 Spatial distribution of emerging space-time clusters of COVID-19 at the county level from January 22nd-March 27th, 2020.



# Prediction of COVID-19 Outbreak in China and Optimal Return Date for University Students Based on Propagation Dynamics.

PMID: 32288415

Publication Date: Apr 7, 2020; Apr 15, 2020 (LitCovid)

Huang, Ganyu; Pan, Qiaoyi; Zhao, Shuangying; Gao, Yucen; Gao, Xiaofeng

J Shanghai Jiaotong Univ Sci

Level of Evidence: 5 - Mechanism-based research

Article Type: Article

**BLUF:** The BAT model predicts that university students in Wuhan may return to school on March 23.

## Summary:

On 12 December 2019, a novel coronavirus disease, named COVID-19, began to spread around the world from Wuhan, China. It is useful and urgent to consider the future trend of this outbreak. We establish the **4+1 penta-group model to predict the development of the COVID-19 outbreak**. In this model, we use the collected data to calibrate the parameters, and let the recovery rate and mortality change according to the actual situation. Furthermore, we propose the **BAT model**, which is composed of three parts: simulation of the return rush (**Back**), **analytic hierarchy process (AHP) method, and technique for order preference by similarity to an ideal solution (TOPSIS) method**, to figure out the best return date for university students. We also discuss the impacts of some factors that may occur in the future, such as secondary infection, emergence of effective drugs, and population flow from Korea to China.

	Ending date	Number of cases	Economic impact	Students' graduation
Ending date	1.00	0.20	0.25	3.00
Number of cases	5.00	1.00	2.00	4.00
Economic impact	4.00	0.50	1.00	3.00
Students' graduation	0.33	0.25	0.33	1.00

Fig. 2 Weight matrix for four factors

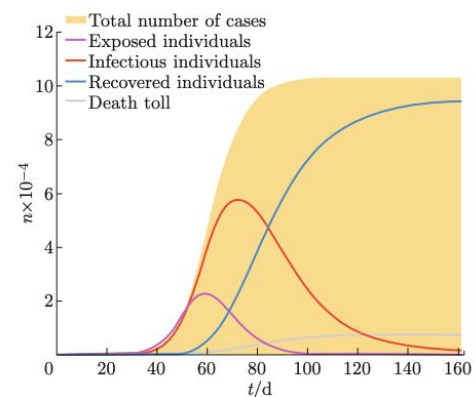


Fig. 4 Long-term prediction of the COVID-19 outbreak

# COVID-19 and artificial intelligence: protecting health-care workers and curbing the spread.

PMID: 32289116

Publication Date: Feb 20, 2020; Apr 15, 2020 (LitCovid)

McCall, Becky

Lancet Digit Health

Level of Evidence: 5 - Expert opinion

Type of Article: News

**Summary:** Artificial intelligence (AI) can be very useful in predicting the spread of pandemics, diagnosis of disease, as well as in designing therapeutics; however, AI is guided by input data and AI model quality is determined by input data quality.

## A data driven time-dependent transmission rate for tracking an epidemic: a case study of 2019-nCoV.

PMID: [32288968](#)

Publication Date: Feb 7, 2020; Apr 15, 2020 (LitCovid)

Huang, Norden E; Qiao,

FangliSci Bull (Beijing)

Level of Evidence: 5 - Mechanism based reasoning

Type of Article: News and Views

**Summary:** The authors propose an alternative COVID-19 model for deriving  $R_0$  "based on the physics of natural growth algorithm, for the transmission pattern in an epidemic is quite similar to the natural growth...In this simple model, no nuance on transmission modes or mechanisms is necessary."

$$N(t) = N_0 \cdot \exp\{a_t(t - t_0)\}, \quad (2)$$

where  $N(t)$  is the current existing infected case number at time  $t$ , which is the total confirmed case number minus the cumulative death and recovered;  $N_0$  is the initial number of the existing infected case number at  $t_0$ , and  $a_t$  is the growth rate at time  $t$ . To emulate the epidemiological community practice, we further define the transmission rate,  $c_t$ , as

$$c_t = 1 + a_t. \quad (3)$$

## D(2)EA: Depict the Epidemic Picture of COVID-19.

PMID: [32288418](#)

Publication Date: Apr 7, 2020; Apr 15, 2020 (LitCovid)

Liu, Chenzhengyi; Zhao, Jingwei; Liu, Guohang; Gao, Yuanning; Gao, XiaofengJ Shanghai Jiaotong Univ Sci

Level of Evidence: 5 - Mechanism-based reasoning

Article Type: Article

**BLUF:** This mathematical model incorporates quarantine efforts and factors related to society re-entry into the SEIR model predicted pandemic peak in February in Hubei. The authors predicted Wuhan could be reopened in late March.

**Abstract:** The outbreak of coronavirus disease 2019 (COVID-19) has aroused a global alert. To release social panic and guide future schedules, this article proposes **a novel mathematical model, the Delay Differential Epidemic Analyzer (D(2)EA), to analyze the dynamics of epidemic and forecast its future trends.** Based on the traditional Susceptible-Exposed-Infectious-Recovered (SEIR) model, the D(2)EA model innovatively introduces a set of quarantine states and applies both ordinary differential equations and delay differential equations to describe the transition between two states. Potential variations of practical factors are further considered to reveal the true epidemic picture. In the experiment part, we use the D(2)EA model to simulate the epidemic in Hubei Province. Fitting to the collected real data as non-linear optimization, the D(2)EA model forecasts that the accumulated **confirmed infected cases in Hubei Province will reach the peak at the end of February and then steady down.** We also

evaluate the effectiveness of the quarantine measures and schedule the date to reopen Hubei Province.

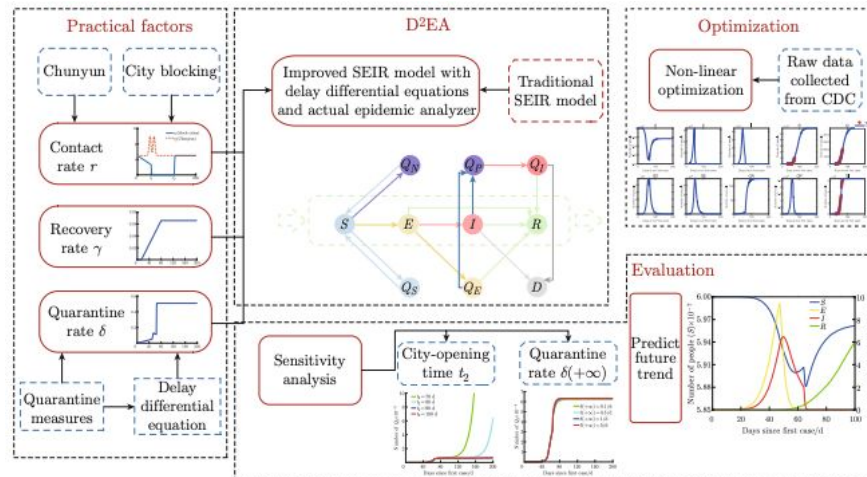


Fig. 1 Scheme of the D<sup>2</sup>EA model

## Spread of SARS-CoV-2 in the Icelandic Population.

PMID: 32289214

Publication Date: Apr 14, 2020; Apr 15, 2020 (LitCovid)

Gudbjartsson, Daniel F; Helgason, Agnar; Jonsson, Hakon; Magnusson, Olafur T; Melsted, Pall; Norddahl, Gudmundur L; Saemundsdottir, Jona; Sigurdsson, Asgeir; Sulem, Patrick; Agustsdottir, Arna B; Eiriksdottir, Berglind; Fridriksdottir, Run; Gardarsdottir, Elisabet E; Georgsson, Gudmundur; Gretarsdottir, Olafia S; Gudmundsson, Kjartan R; Gunnarsdottir, Thora R; Gylfason, Arnaldur; Holm, Hilma; Jensson, Brynjar O; Jonasdottir, Aslaug; Jonsson, Frosti; Josefsdottir, Kamilla S; Kristjansson, Thordur; Magnusdottir, Droplaug N; le Roux, Louise; Sigmundsdottir, Gudrun; Sveinbjornsson, Gardar; Sveinsdottir, Kristin E; Sveinsdottir, Maney; Thorarensen, Emil A; Thorbjornsson, Bjarni; Love, Arthur; Masson, Gisli; Jonsdottir, Ingileif; Moller, Alma D; Gudnason, Thorolfur; Kristinsson, Karl G; Thorsteinsdottir, Unnur; Stefansson, Kari

N Engl J Med

Level of Evidence: 5 - Qualitative data

Article Type: Article

**BLUF:** In an Icelandic population considered to have high infectious risk, men were more likely to be infected than females and children were less likely to be infected than adults. International travel was more commonly seen in early infected individuals versus those tested late. Haplotype variability was present in early vs late infected individuals and could represent a source from outside the original high-risk designated areas.

### Abstract:

**BACKGROUND:** During the current worldwide pandemic, coronavirus disease 2019 (Covid-19) was first diagnosed in Iceland at the end of February. However, data are limited on how SARS-CoV-2, the virus that causes Covid-19, enters and spreads in a population.

**METHODS:** We targeted testing to persons living in Iceland who were at high risk for infection (mainly those who were symptomatic, had recently traveled to high-risk countries, or had contact with infected persons). We also carried out population screening using two strategies: issuing an open invitation to 10,797 persons and sending random invitations to 2283 persons. We sequenced SARS-CoV-2 from 643 samples.



**RESULTS:** As of April 4, a total of 1221 of 9199 persons (13.3%) who were recruited for targeted testing had positive results for infection with SARS-CoV-2. Of those tested in the general population, 87 (0.8%) in the open-invitation screening and 13 (0.6%) in the random-population screening tested positive for the virus. In total, 6% of the population was screened. **Most persons in the targeted-testing group who received positive tests early in the study had recently traveled internationally, in contrast to those who tested positive later in the study.** Children under 10 years of age were less likely to receive a positive result than were persons 10 years of age or older, with percentages of 6.7% and 13.7%, respectively, for targeted testing; in the population screening, **no child under 10 years of age had a positive result**, as compared with 0.8% of those 10 years of age or older. **Fewer females than males** received positive results both in targeted testing (11.0% vs. 16.7%) and in population screening (0.6% vs. 0.9%). The haplotypes of the sequenced SARS-CoV-2 viruses were diverse and changed over time. The percentage of infected participants that was determined through population screening remained stable for the 20-day duration of screening.

**CONCLUSIONS:** **In a population-based study in Iceland, children under 10 years of age and females had a lower incidence of SARS-CoV-2 infection than adolescents or adults and males.** The proportion of infected persons identified through population screening did not change substantially during the screening period, which was consistent with a beneficial effect of containment efforts. (Funded by deCODE Genetics-Amgen.).

## **Clinical Presentation of COVID-19: A Systematic Review Focusing on Upper Airway Symptoms.**

[PMID: 32283980](#)

[Publication Date: Apr 13, 2020; Apr 15, 2020 \(LitCovid\)](#)

Lovato, Andrea; de Filippis, Cosimo

Ear Nose Throat J

Level of Evidence: 3 - Systematic review of case series

Type of Article: Research

**BLUF:** The aim of the study was to assess upper respiratory symptoms in COVID-19 patients to help otolaryngologists help identify potential cases of COVID-19. The study was a systematic review of 5 retrospective case series with a minimum of 80 patients in each study. In total, 1556 patients were included. The researchers “...found that **pharyngodynia was quite common between patients with COVID-19 (12.4%), while nasal congestion was not frequent (3.7%), and rhinorrhea was rare.**”

### **Abstract:**

**Aim:** Pharyngodynia, nasal congestion, rhinorrhea, smell, and taste dysfunctions could be the presenting symptoms of coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2. The aim was to perform a systematic review of current evidences on clinical presentation of COVID-19, focusing on upper airway symptoms in order to help otolaryngologists identifying suspected cases.

**Methods:** We searched PubMed and Web of Science electronic databases.

**Results:** We included 5 retrospective clinical studies for a total of 1556 hospitalized patients with COVID-19, 57.5% were male and mean age was 49.1 years. Pooled data revealed that pharyngodynia was present in 12.4% of patients, nasal congestion in 3.7%, and rhinorrhea was rare. No reports on COVID-19 and olfactory/gustative disorders matched inclusion criteria but preliminary evidences suggested they could be present. Common symptoms were fever (85.6%), cough (68.7%), and fatigue (39.4%). Frequent comorbidities were hypertension (17.4%), diabetes (3.8%), and coronary heart

disease (3.8%); 83% of patients had alterations on chest computed tomography that were bilateral in 89.5% of cases. Ground-glass opacity was the most common finding (50%). Lymphopenia (77.2%) and leucopenia (30.1%) were common. Critical cases with complications were 9%, intensive care unit admission was required in 7.3%, invasive ventilation in 3.4%, and mortality was 2.4%.

**Conclusion:** Otolaryngologists should know that pharyngodynia, nasal congestion, olfactory, and gustative disorders could be the presenting symptoms of COVID-19. Clinical presentation together with radiological and laboratory findings could help to identify suspected cases.

## **A novel presentation of COVID-19 via community acquired infection.**

[PMID: 32289085](#)

[Publication Date: Mar 31, 2020; Apr 15, 2020 \(LitCovid\)](#)

Jansen, Jaclyn H; Day, Rachel L

Vis J Emerg Med

Level of Evidence: Level 4 - Case study

Type of Article: Research/Education

**Summary:** The authors present the case of a COVID-19 patient with no known exposures, travel history or underlying lung disease, who presented with altered mental status.

## **Dysosmia and dysgeusia due to the 2019 Novel Coronavirus; a hypothesis that needs further investigation.**

[PMID: 32289035](#)

[Publication Date: Mar 30, 2020](#)

Keyhan, Seied Omid; Fallahi, Hamid Reza; Cheshmi, Behzad

Maxillofac Plast Reconstr Surg

Level of Evidence: Level 6 – No Data Cited

Type of Article: Editorial

**Summary:** The authors suggest dysosmia and dysgeusia could truly be attributed to olfactory and trigeminal nerve damage caused by SARS-CoV-2, or it could be due to excessive exposure to chemicals and disinfectants that are more commonly used by people during this pandemic. Either way, more research is needed to validate this hypothesis given that it could be an important piece of diagnostic criteria.

## **Potential neurological symptoms of COVID-19.**

[PMID: 32284735](#)

[Publication Date: Mar 28, 2020; Apr 15, 2020 \(LitCovid\)](#)

Wang, Hai-Yang; Li, Xue-Lin; Yan, Zhong-Rui; Sun, Xiao-Pei; Han, Jie; Zhang, Bing-Wei

Ther Adv Neurol Disord

Level of Evidence: 5 - Expert opinion

Article Type: Letter

**BLUF:** COVID-19 patients may present with initial neurological symptoms. COVID-19 may increase cerebral hemorrhage risk due to decreased ACE2 expression and alterations to coagulopathy, but correlation is not clear.

**Summary:** Some COVID-19 patients have manifested solely neurological symptoms and imaging instead of upper respiratory symptoms as the presenting symptoms. “In a recent study of 214 patients

with COVID-19, 78 (36.4%) patients had neurological manifestations, such as headache, dizziness, acute cerebrovascular diseases, and impaired consciousness.<sup>3</sup> Of these 214 patients, 40 (18.7%) patients required intensive care unit (ICU) interventions for their severe neurological involvement.” Many patients have experienced cerebral hemorrhage, but the relationship is not clear. The authors suppose this may be due to decreased ability of ACE2 receptors to modulate blood pressure and coagulopathy changes reported in patients.

## **Clinical Characteristics of COVID-19 Patients With Digestive Symptoms in Hubei, China: A Descriptive, Cross-Sectional, Multicenter Study.**

[PMID: 32287140](#)

[Publication Date: Apr 15, 2020](#)

Pan, Lei; Mu, Mi; Yang, Pengcheng; Sun, Yu; Wang, Runsheng; Yan, Junhong; Li, Pibao; Hu, Baoguang; Wang, Jing; Hu, Chao; Jin, Yuan; Niu, Xun; Ping, Rongyu; Du, Yingzhen; Li, Tianzhi; Xu, Guogang; Hu, Qinyong; Tu, Lei

Am J Gastroenterol

Level of Evidence: Level 2 – Multicenter Cross-Sectional Study

Type of Article: Research

**BLUF:** Digestive symptoms are common in COVID-19 in addition to fever and respiratory symptoms and are reported in nearly half of patients presenting to the hospital. **In rare cases, digestive symptoms may occur in the absence of any respiratory symptoms.**

### **Abstract:**

**OBJECTIVE:** Since the outbreak of Coronavirus Disease 2019 (COVID-19) in December 2019, various digestive symptoms have been frequently reported in patients infected with the virus. In this study, we aimed to further investigate the prevalence and outcomes of COVID-19 patients with digestive symptoms.

**METHODS:** In this descriptive, cross-sectional, multicenter study, we enrolled confirmed patients with COVID-19 who presented to 3 hospitals from January 18, 2020, to February 28, 2020. All patients were confirmed by real-time polymerase chain reaction and were analyzed for clinical characteristics, laboratory data, and treatment. Data were followed up until March 18, 2020.

**RESULTS:** In the present study, 204 patients with COVID-19 and full laboratory, imaging, and historical data were analyzed. The average age was 52.9 years (SD 6.16), including 107 men and 97 women. Although most patients presented to the hospital with fever or respiratory symptoms, we found that 103 patients (50.5%) reported a digestive symptom, including lack of appetite (81 [78.6%] cases), diarrhea (35 [34%] cases), vomiting (4 [3.9%] cases), and abdominal pain (2 [1.9%] cases). If lack of appetite is excluded from the analysis (because it is less specific for the gastrointestinal tract), there were 38 total cases (18.6%) where patients presented with a gastrointestinal-specific symptom, including diarrhea, vomiting, or abdominal pain. Patients with digestive symptoms had a significantly longer time from onset to admission than patients without digestive symptoms (9.0 days vs 7.3 days). In 6 cases, there were digestive symptoms, but no respiratory symptoms. As the severity of the disease increased, digestive symptoms became more pronounced. Patients with digestive symptoms had higher mean liver enzyme levels, lower monocyte count, longer prothrombin time, and received more antimicrobial treatment than those without digestive symptoms.

**DISCUSSION:** We found that digestive symptoms are common in patients with COVID-19. Moreover, these patients have a longer time from onset to admission, evidence of longer coagulation, and higher liver enzyme levels. Clinicians should recognize that digestive symptoms, such as diarrhea, are commonly among the presenting features of COVID-19 and that the index of suspicion may need to be

raised earlier in at-risk patients presenting with digestive symptoms. However, further large sample studies are needed to confirm these findings

## Understanding the Pathology

### The proportion of patients with thrombocytopenia in three human-susceptible coronavirus infections: a systematic review and meta-analysis.

PMID: [32285448](#)

Publication Date: Apr 13, 2020; Apr 15, 2020 (LitCovid)

Zhou, Meng; Qi, Jiaqian; Li, Xueqian; Zhang, Ziyang; Yao, Yifang; Wu, Depei; Han, YueBr  
British Journal of Haematology

Level of Evidence: Level 1 -systematic review and meta-analysis

Type of Article: Research

**Summary:** A systematic review and meta-analysis was done to analyze the proportion of patients with thrombocytopenia in SARS-CoV, MERS-CoV, and 2019-nCoV infections with an inclusion of 19 articles and a sample size of 2130, post exclusion. “The pooled proportion of patients with thrombocytopenia was subsequently calculated as 0.30 (95% confidence interval [CI] of 0.24– 0.37), with considerable heterogeneity ( $X^2 = 174.59$ ,  $I^2 = 90\%$ ,  $P < 0.01$ ).” Critical heterogeneity was found and “the results strongly indicated that the type of virus and the publication year of the studies were the main causes.”

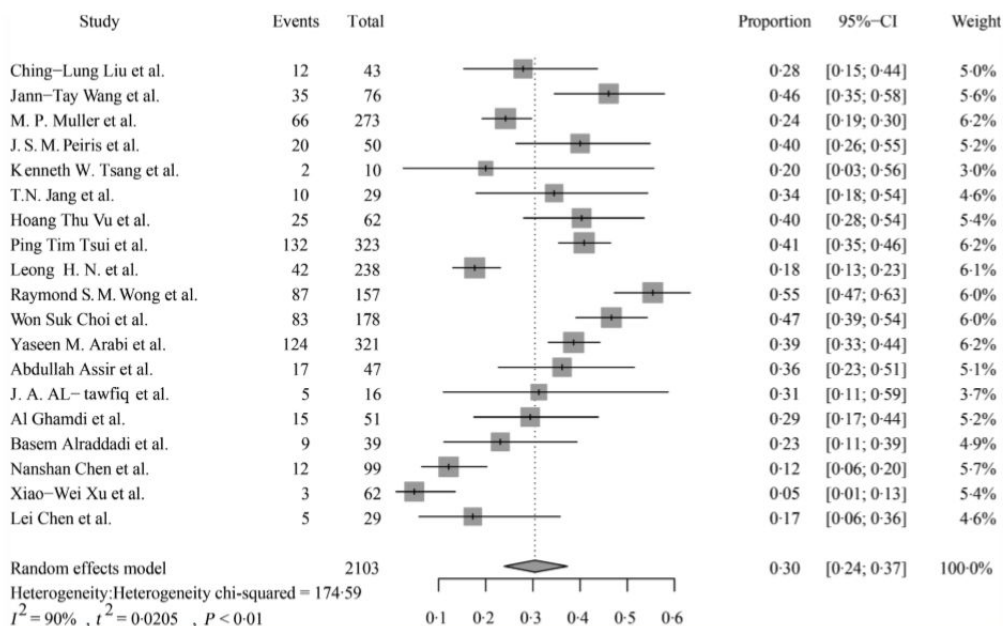


Fig 1. Forest plot of the pooled proportion of patients with thrombocytopenia infected with coronavirus and 95% confidence intervals of the 19 included studies.

### scRNA-seq Profiling of Human Testes Reveals the Presence of the ACE2 Receptor, A Target for SARS-CoV-2 Infection in Spermatogonia, Leydig and Sertoli Cells.

PMID: [32283711](#)

Publication Date: Apr 9, 2020; Apr 15, 2020 (LitCovid)

Wang, Zhengpin; Xu, Xiaojiang  
Cells

Level of Evidence: 5- Mechanism

Type of Article: Research article

**BLUF:** Here the authors examine the expression of the SARS-CoV-2 receptor ACE2 in the adult human testes at a single-cell resolution by RNA sequencing. They find ACE2 is expressed primarily in spermatogonia and in a combined Leydig and Sertoli cell population (they were unable to distinguish the two subsets in their analysis). They suggest that testes may be susceptible to SARS-CoV-2 infection, however involvement of the reproductive organs during human SARS-CoV-2 remains unknown.

**Abstract:** In December 2019, a novel coronavirus (SARS-CoV-2) was identified in COVID-19 patients in Wuhan, Hubei Province, China. SARS-CoV-2 shares both high sequence similarity and the use of the same cell entry receptor, angiotensin-converting enzyme 2 (ACE2), with severe acute respiratory syndrome coronavirus (SARS-CoV). Several studies have provided bioinformatic evidence of potential routes of SARS-CoV-2 infection in respiratory, cardiovascular, digestive and urinary systems. However, whether the reproductive system is a potential target of SARS-CoV-2 infection has not yet been determined. Here, we investigate the expression pattern of ACE2 in adult human testes at the level of single-cell transcriptomes. The results indicate that ACE2 is predominantly enriched in spermatogonia and Leydig and Sertoli cells. Gene Set Enrichment Analysis (GSEA) indicates that Gene Ontology (GO) categories associated with viral reproduction and transmission are highly enriched in ACE2-positive spermatogonia, while male gamete generation related terms are downregulated. Cell-cell junction and immunity-related GO terms are increased in ACE2-positive Leydig and Sertoli cells, but mitochondria and reproduction-related GO terms are decreased. These findings provide evidence that the human testis is a potential target of SARS-CoV-2 infection, which may have significant impact on our understanding of the pathophysiology of this rapidly spreading disease.

## **Extreme genomic CpG deficiency in SARS-CoV-2 and evasion of host antiviral defense.**

[PMID: 32289821](#)

[Publication Date: Apr 14, 2020; Apr 15, 2020 \(LitCovid\)](#)

Xia, Xuhua

Mol Biol Evol

Level of Evidence: 5- mechanism

Type of Article: Letter

**BLUF:** Experimental evidence suggests that a lower than expected proportion of C and G nucleotides in an RNA virus genome is related to the expression of the Zinc finger antiviral protein (ZAP) in host cells and tissues. The author suggests understanding these interactions between host defense proteins and viral genomes can give us a better idea of the specific evolutionary origins of SARS-CoV-2

**Abstract:** Wild mammalian species, including bats, constitute the natural reservoir of Betacoronavirus (including SARS, MERS, and the deadly SARS-CoV-2). Different hosts or host tissues provide different cellular environments, especially different antiviral and RNA modification activities that can alter RNA modification signatures observed in the viral RNA genome. The zinc finger antiviral protein (ZAP) binds specifically to CpG dinucleotides and recruits other proteins to degrade a variety of viral RNA genomes. Many mammalian RNA viruses have evolved CpG deficiency. Increasing CpG dinucleotides in these low-CpG viral genomes in the presence of ZAP consistently leads to decreased viral replication and virulence. Because ZAP exhibits tissue-specific expression, viruses infecting different tissues are expected to have different CpG signatures, suggesting a means to identify viral tissue-switching events. I show that **SARS-CoV-2 has the most extreme CpG deficiency in all known Betacoronavirus genomes. This suggests that SARS-CoV-2 may have evolved in a new host (or new host tissue) with high ZAP expression.** A survey of CpG



deficiency in viral genomes identified a virulent canine coronavirus (Alphacoronavirus) as possessing the most extreme CpG deficiency, comparable to that observed in SARS-CoV-2. This suggests that the canine tissue infected by the canine coronavirus may provide a cellular environment strongly selecting against CpG. Thus, viral surveys focused on decreasing CpG in viral RNA genomes may provide important clues about the selective environments and viral defenses in the original hosts

## COVID-19 infections are also affected by human ACE1 D/I polymorphism.

[PMID: 32286246](#)

Publication Date: Apr 14, 2020; Apr 15, 2020 (LitCovid)

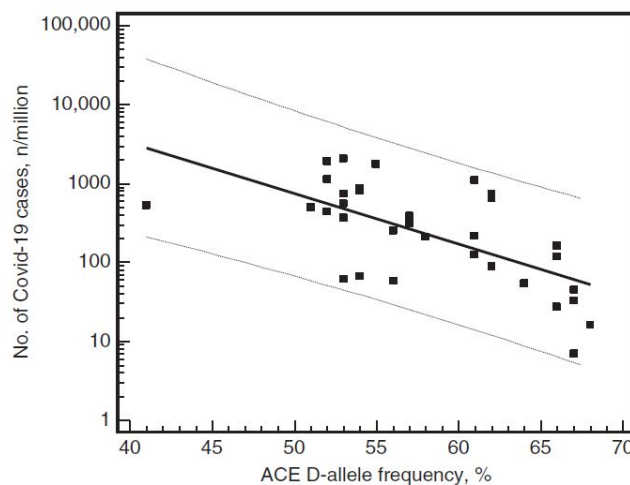
Delanghe, Joris R; Speeckaert, Marijn M; De Buyzere, Marc L

Clinical Chemistry and Laboratory Medicine

Level of Evidence: Level 5- Statistical Analysis

Type of Article: Letter to the Editor

**Summary:** Prevalence and mortality data of COVID-19 infections 33 countries were used in a multi-regression analysis model to see the geographical variation of these outcomes are affected by immune system-related human plasma protein polymorphisms on the deletion/insertion polymorphisms of the angiotensin-converting enzyme 1 (ACE1) gene, human homeostatic iron regulator protein (HFE), complement factor C3, haptoglobin and vitamin D binding protein. **The prevalence of COVID-19 significantly correlated with ACE1 Polymorphisms while the other polymorphisms did not.** COVID-19-associated mortality only correlated with ACE1 [  $\log(\text{mortality; number of cases}/10^6 \text{ inhabitants}) = 4.767 - 0.070 (\text{D-allele frequency, \%})$ ,  $r^2 = 0.285$ ;  $p = 0.01$ ] and with the other polymorphisms. This indicates that the ACE1 D/I polymorphism could be a confounder in the spread of COVID-19 and the outcome of the infection.



**Figure 1:** Prevalence of COVID-19 in 33 countries (on April 1, 2020) vs. ACE1 D-allele frequency (%):  $\log(\text{prevalence; no. of cases}/10^6 \text{ inhabitants}) = 6.074 - 0.064 (\text{D-allele frequency, \%})$ ,  $r^2 = 0.410$ ;  $p = 0.0001$ .

## Cardiac drugs and Outcome in COVID-19

[PMID:32289168](#)

Publication date: April 14, 2020; April 15, 2020 (LitCovid)

Mishra, Ajay Kumar; Sahu, Kamal Kant; Sargent, Jennifer

QJM

Level of Evidence: 5—Expert opinion

Type of Article: Letter

**BLUF:** The Ace2 receptor has been linked to COVID-19 cell entry. However, East Asian populations have shown greater receptor number without increased disease severity. Further investigation into the relationship between virus and receptor are needed.

**Summary:** The use of ARBs for hypertension increases the expression of ACE2 receptor, possibly leading to greater COVID-19 disease severity. However, genetic studies in East Asian populations demonstrate higher ACE2 receptor expression, but no increased disease severity. Despite this, early animal models and mRNA analysis show that all classes of RAAS inhibitors (ARB, ACE, etc.) lead to increased ACE2 expression and subsequent increased SARS-CoV binding. Analysis and careful observation needs to be done over patients with COVID-19 and hemodynamic comorbidities that warrant the use of RAAS inhibitors.



## Transmission & Prevention

### The active role of a blood center in outpacing the transfusion transmission of COVID-19.

[PMID: 32284222](#)

[Publication Date: Mar 31, 2020](#)

Raturi, Manish; Kusum, Anuradha

Transfus Clin Biol

Level of Evidence: Level 6 – No Data Cited

Type of Article: Letter

**Summary:** This tertiary care blood center shares the additional measures they have implemented in their routine blood donor screening protocol to prevent transmission of COVID-19. These include posting Q&As, and follow-up of all blood donors by calling and inquiring about the physical conditions of the donors and their family within the 3 days after their last donation.

### COVID-19 Personal Protective Equipment (PPE) for the emergency physician.

[PMID: 32289084](#)

[Publication Date: Mar 18, 2020; Apr 15, 2020 \(LitCovid\)](#)

Holland, Michael; Zaloga, Debra J; Friderici, Charles S

Vis J Emerg Med

Level of Evidence: 5- Expert opinion

Type of Article: Guideline

**Summary:** Emergency providers of patient care to persons with suspected COVID-19 infections or who will be in the same room or compartment with such patients should follow **Standard, Contact, and Airborne Precautions**, including the use of eye protection, as recommended by the CDC and WHO. The article notes the specifics of each of these precautions.

### Inactivation of Severe Acute Respiratory Syndrome Coronavirus 2 by WHO-Recommended Hand Rub Formulations and Alcohols.

[PMID: 32284092](#)

[Publication Date: Apr 13, 2020; Apr 15, 2020 \(LitCovid\)](#)

Kratzel, Annika; Todt, Daniel; V'kovski, Philip; Steiner, Silvio; Gultom, Mitra; Thao, Tran Thi Nhu;

Ebert, Nadine; Holwerda, Melle; Steinmann, Jorg; Niemeyer, Daniela; Dijkman, Ronald; Kampf,

Gunter; Drosten, Christian; Steinmann, Eike; Thiel, Volker; Pfaender, Stephanie

Emerg Infect Dis

Level of Evidence: 5 - Mechanism based reasoning

Type of Article: Research

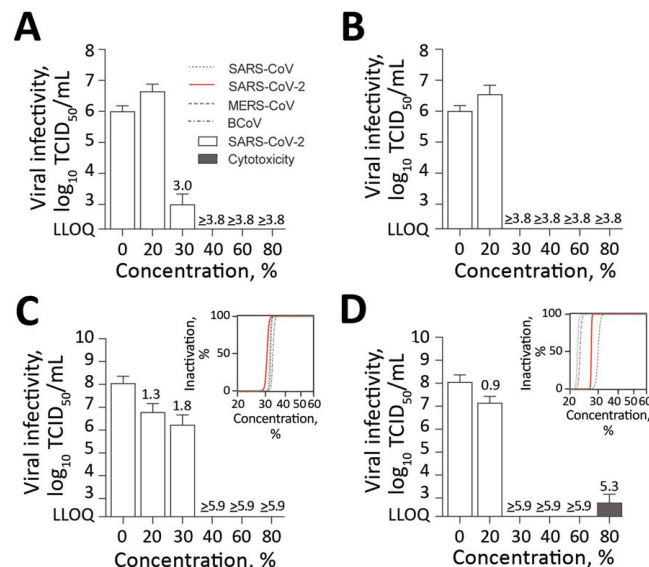
**BLUF:** “We found that **SARS-CoV-2 was efficiently inactivated by WHO-recommended [hand rub] formulations**, supporting their use in healthcare systems and viral outbreaks”

**Summary:** The authors performed analysis of the two WHO recommended hand rub formulations as well as two suggested modifications. Formulations are as follows:

- A. WHO formulation I: 80% (vol/vol) ethanol, 1.45% (vol/vol) glycerol, and 0.125% (vol/vol) hydrogen peroxide.

- B. WHO formulation II: 75% (vol/vol) 2-propanol, 1.45% (vol/vol) glycerol, and 0.125% (vol/vol) hydrogen peroxide.
- C. Modified WHO formulation I: 80% (wt/wt) ethanol, 0.725% (vol/vol) glycerol, and 0.125% (vol/vol) hydrogen peroxide.
- D. Modified isopropyl-based WHO formulation II: 75% (wt/wt) 2-propanol, 0.725% (vol/vol) glycerol, and 0.125% (vol/vol) hydrogen peroxide.

Results of virucidal activity studies using quantitative suspension test with 30s exposure time are as follows: (figure labels match formulation labels above):



## Distinct characteristics of COVID-19 patients with initial rRT-PCR positive and negative results for SARS-CoV-2.

[PMID: 32281110](#)

Publication Date: 13; Apr 15, 2020 (LitCovid)

Zhang, Jin-Jin; Cao, Yi-Yuan; Dong, Xiang; Wang, Bin-Chen; Liao, Mei-Yan; Lin, Jun; Yan, You-Qin; Akdis, Cezmi A; Gao, Ya-Dong

Allergy

Level of Evidence: Level 3 - Cross-sectional study

Type of Article: Research

**Summarizing excerpt:** “The findings presented herein suggest that a considerable proportion of COVID-19 patients may have an initial negative rRT-PCR result and that initially positive patients had a higher tendency to progress to severe cases. Therefore, **diagnosis of SARS-CoV-2 infection should not be excluded in patients with an initial negative rRT-PCR result, especially when presented with typical clinical manifestations.** Inview of these results, **we recommend repeated rRT-PCR tests to confirm diagnosis** and identify potentially infected individuals.”

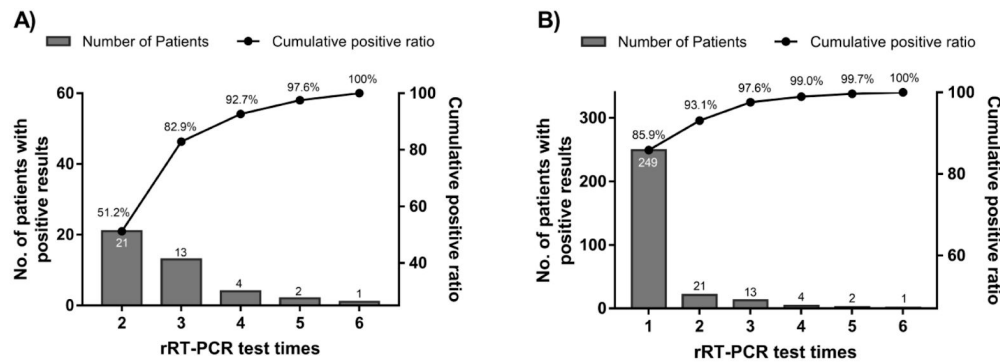


Fig 1. Number of patients testing positive for SARS-CoV-2, and the cumulative positive ratio at different rRT-PCR tests. A) Changes in the outcome of the rRT-PCR test of patients, from negative to positive, after consecutive assays. Of the 41 patients with an initial negative result, 21, 13, 4, 2 and 1 patients were tested positive at the 2nd, 3rd, 4th, 5th and 6th rRT-PCR assay, respectively. The cumulative positive rRT-PCR assay ratio from the second to the fifth test increased from 51.2% (21/41) to 97.6% (40/41). B) Number and percentage of positive results within the total patient population. **The cumulative positive ratio of all 290 patients from the first to the fifth test increased from 85.9% (249/290) to 99.7% (289/290).** rRT-PCR, real-time reverse transcription–polymerase chain reaction.

## Recurrent PCR positivity after hospital discharge of people with coronavirus disease 2019 (COVID-19).

PMID: 32289343

Publication Date: Apr 11, 2020; Apr 15, 2020

Jiang, Dr Minlin

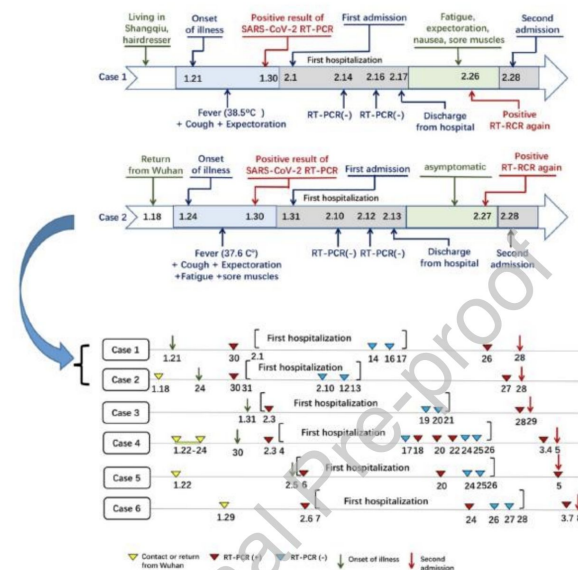
J Infect

Level of Evidence: Level 4 - Case series

Type of Article: Research

**Summary:** The article describes 6 patients in China who were treated for COVID-19 infection (**with negative PCR prior to discharge**), but then re-tested positive via PCR within 1-2 weeks. Of the 6 patients, 1 had significant recurrence of symptoms, 1 had mild symptoms and 4 were asymptomatic. No significant difference in leukocyte, lymphocyte, neutrophil, platelet, or albumin was seen between these cases and control cases of COVID-19 patients. For this reason, the authors suggest **at least two weeks of supervision for patients after discharge**.

Figure 1. Timeline of six recurrence cases.



## Role of mask/respirator protection against SARS-CoV-2.

[PMID: 32287141](#)

Publication Date: Apr 13, 2020; Apr 15, 2020 (LitCovid)

Smereka, Jacek; Ruetzler, Kurt; Szarpak, Lukasz; Filipiak, Krzysztof Jerzy; Jaguszewski, Milosz  
Anesthesia & Analgesia

Level of Evidence: N/A

Type of Article: Letter to the Editor

**Summary:** Masks and respirators are recommended for the COVID-19 transmission prevention, however there is a high risk of infection among medical personnel. There are many types of masks available, they differ in maximum internal leakage rate. “The maximum internal leakage limit is 25% for FFP1, 11% for FFP2, and 5% for FFP3. Class P1 masks retain about 80% of particles smaller than 2 µm, P2 ones retain 94% of particles smaller than 0.5 µm, and P3 ones retain 99.95% of particles smaller than 0.5 µm (Table 1).” **Masks, specifically class FFP3, should be the first protection against SARS-CoV-2 for medical personnel.**

Table 1. Filtration efficiency for each class of masks

Test	FFP1	FFP2	FFP3
Concentration of harmful substances	till 4 × NDS	till 10 × NDS	till 30 × NDS
Leakage	< 22%	< 8%	< 2%
Penetration	< 20%	< 6%	< 1%
Initial expiration resistance at 95 l/min	< 210 Pa	< 240 Pa	< 300 Pa

## Characteristics of pediatric SARS-CoV-2 infection and potential evidence for persistent fecal viral shedding.

[PMID: 32284613](#)

Publication Date: Apr 13, 2020; Apr 15, 2020 (LitCovid)

Xu, Yi; Li, Xufang; Zhu, Bing; Liang, Huiying; Fang, Chunxiao; Gong, Yu; Guo, Qiaozhi; Sun, Xin; Zhao, Danyang; Shen, Jun; Zhang, Huayan; Liu, Hongsheng; Xia, Huimin; Tang, Jinling; Zhang, Kang; Gong, Sitang

Nat Med

Level of Evidence: 4 - Case series

Type of Article: Research

**Summary:** In this study, 9 pediatric patients were followed. “Symptoms in [pediatric] cases were nonspecific and no children required respiratory support or intensive care. Chest X-rays lacked definite signs of pneumonia, a defining feature of the infection in adult cases. Notably, **eight children persistently tested positive on rectal swabs even after nasopharyngeal testing was negative, raising the possibility of fecal–oral transmission.**”

## COVID-19 Pandemic: What Every Otolaryngologist-Head and Neck Surgeon Needs to Know for Safe Airway Management.

[PMID: 32286909](#)

Publication Date: Apr 14, 2020; Apr 15, 2020 (LitCovid)

Balakrishnan, Karthik; Schechtman, Samuel; Hogikyan, Norman D; Teoh, Anthony Y B; McGrath, Brendan; Brenner, Michael

Journal of Otolaryngology - Head and Neck Surgery

Level of Evidence: Level 5 - Expert Opinion

Type of Article: Commentary

**BLUF:** “Otolaryngologists, as experts in airway management, share a critical role in providing high-quality care, minimizing [inhalation or mucosal contact with infected respiratory secretions, like high risk COVID-19 transmissions during] aerosol-generating procedures” to protect themselves and others. **“This risk is maximal during intubation, tracheostomy, or open airway procedures, where the exposure will occur in close proximity, often involving positive-pressure ventilation.** [...] We recommend preparation, planning, vigilance, and mindful application of lessons garnered from the SARS, MERS, and the current COVID-19 outbreak” (as seen in Table 1 and 2).

### Abstract:

The novel coronavirus disease 2019 (COVID-19) pandemic has unfolded with remarkable speed, posing unprecedented challenges for health care systems and society. Otolaryngologists have a special role in responding to this crisis by virtue of expertise in airway management. Against the backdrop of nations struggling to contain the virus’s spread and to manage hospital strain, otolaryngologists must partner with anesthesiologists and front-line health care teams to provide expert services in high-risk situations while reducing transmission. Airway management and airway endoscopy, whether awake or sedated, expose operators to infectious aerosols, posing risks to staff. This commentary provides background on the outbreak, highlights critical considerations around mitigating infectious aerosol contact, and outlines best practices for airway-related clinical decision making during the COVID-19 pandemic. What otolaryngologists need to know and what actions are required are considered alongside the implications of increasing demand for tracheostomy. Approaches to managing the airway are presented, emphasizing safety of patients and the health care team.

Table 1. Measures to Minimize Generation of Infectious Aerosols.

Principle	Practical Implementation
<b>Avoid elective airway surgery</b>	Limit procedures, especially airway procedures, to urgent cases.
<b>Optimize personnel</b>	Experienced individuals should perform procedures expeditiously with the fewest assistants possible.
<b>Close circuits when possible</b>	Tracheal intubation with cuffed tube (closed system) is preferred over supraglottic airway devices or facemasks (partially closed systems) or THRIVE/jet ventilation (open systems).
<b>Use rapid sequence induction</b>	Preoxygenation followed by rapid sequence induction minimizes bag-masking and associated high-risk exposures.
<b>Minimize bag-masking</b>	Laryngeal mask airway (LMA) is generally a preferable stop-gap measure to bag-masking when airway is not immediately secured.
<b>Avoid awake intubations</b>	Such procedures involve atomized analgesia that promotes coughing, with the endoscopist in close proximity to the airway.

Abbreviation: THRIVE, transnasal humidified rapid-insufflation ventilatory exchange.

Table 2. Proper Use of Personal Protective Equipment (PPE) to Avoid Exposure.

Principle	Practical Implementation
<b>Adhere to respiratory droplet precautions</b>	Protection from aerosol droplets requires eye protection, gown, gloves, mask; the health care team requires updated fit tested N95 mask or powered air-purifying respirator (PAPR) for procedures.
<b>Practice donning/doffing</b>	Clinicians should become proficient with safely donning and removing PPE prior to entering high-risk areas.
<b>Confirm visibility</b>	Ensure that line of vision is not obstructed or obscured. Some equipment may be incompatible with microscope; if alternative options are unavailable, procedure is done without a microscope.
<b>Maintain communication</b>	Be cognizant of impaired ability to speak and hear, which can impede safety and communication; minimize ambient noise.
<b>Assess fidelity</b>	Confirm adequate maneuverability and tactile sense to ensure adequate dexterity to accomplish the intended procedure.
<b>Perform safe endoscopy</b>	Standards are evolving; in addition to PPE worn by the clinician, patient should wear a loop mask (drop mask below the nose for transnasal scope) that captures droplets, should patient cough.
<b>Be alert to carriers</b>	Many cases of coronavirus disease 2019 (COVID-19) are undocumented, with patients who are asymptomatic or in prodromal state; clinicians should be alert to the possibility of any patient harboring COVID-19 infection.



## COVID-19 in the perioperative period of lung resection: a brief report from a single thoracic surgery department in Wuhan, China.

[PMID: 32289516](#)

Publication Date: Apr 11, 2020; Apr 15, 2020 (LitCovid)

Cai, Yixin; Hao, Zhipeng; Gao, Yi; Ping, Wei; Wang, Qi; Peng, Shu; Zhao, Bo; Sun, Wei; Zhu, Min; Li, Kaiyan; Han, Ying; Kuang, Dong; Chu, Qian; Fu, Xiangning; Zhang, Ni

Journal of Thoracic Oncology

Level of Evidence: Level 4 - Case Reports

Type of Article: Research

**BLUF:** Seven pathology (lung specimen) cases with SARS-CoV-2 infection in the perioperative period of lung resection (1 infected prior and 6 infected post surgery) were studied. “Three out seven patients died from COVID-19 pneumonia, suggesting that **lung resection surgery might be a risk factor for death in patients with COVID-19 in the perioperative period.**” Cross infection was evident in the hospital, “**highlighting the high risk for SARS-CoV-2 transmission within thoracic surgery department**” since more aerosol-generating procedures are performed.

### Abstract:

Coronavirus disease 2019 (COVID-19) is an emerging infectious disease that was first reported in Wuhan, China, and has subsequently spread worldwide. Clinical information on patients contracted with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection in the perioperative period is limited. Here we report seven cases who were confirmed infected with SARS-CoV-2 in the perioperative period of lung resection. Retrospective analysis suggested that one patient had been infected with the SARS-CoV-2 prior to the surgery, the other 6 patients contracted the infection after the lung resection. Fever, lymphopenia and ground-glass opacities on computerized tomography (CT) are the most common clinical manifestations of COVID-19 in patients after lung resection surgery. Pathology studies of the specimens of these 7 patients were performed. The pathological examination of Patient 1, who was infected the SARS-CoV-2 before the surgery, revealed that apart from the tumor, there was a wide range of interstitial inflammation with plasma cells and macrophages infiltration. High density of macrophages and foam cells in the alveolar cavities but no obvious proliferation of pneumocyte was found. Three out seven patients died from COVID-19 pneumonia, suggesting that lung resection surgery might be a risk factor for death in patients with COVID-19 in the perioperative period.

## Otolaryngology Providers Must Be Alert for Patients with Mild and Asymptomatic COVID-19.

[PMID: 32286913](#)

Publication Date: Apr 14, 2020; Apr 15, 2020 (LitCovid)

Cheng, Xiaoting; Liu, Jialin; Li, Ning; Nisenbaum, Eric; Sun, Qing; Chen, Bing; Casiano, Roy; Weed, Donald; Telischi, Fred; Denny, James C 3rd; Liu, Xuezhong; Shu, Yilai

Otolaryngol Head Neck Surg

Level of Evidence: 5 - Expert Opinion

Type of Article: Comment

**BLUF:** Due to the high risk for otolaryngologists to contract COVID-19, it is recommended that they do not schedule non-emergency appointments and instead utilize telemedicine. A screening process prior to appointments should also be implemented even when patients are asymptomatic.

**Abstract:**

More than half of COVID-19 patients are afebrile early in the disease course, yet mildly ill or asymptomatic patients can still spread SARS-CoV-2 with high efficiency. Atypically presenting patients may be seen in noninfectious disease settings such as otolaryngology, which is a specialty prone to occupation exposure. **Otolaryngologist have been infected with COVID-19 at higher rates than other specialties in China and other countries.** Otolaryngologist providers should maintain high clinical suspicion for mild and asymptomatic COVID-19 patients. **Protective strategies should be implemented** including **preappointment screening, triaging, restriction of nonurgent visits and surgeries**, telemedicine, and appropriate personal protective equipment use.

**The COVID-19 pandemic implications for the cytology laboratory**

[PMID: 32284276](#)

[Publication Date: Mar 26, 2020; Apr 15, 2020 \(LitCovid\)](#)

S.E. Pambuccian

Journal of the American Society of Cytopathology

Level of Evidence: 5 – Expert opinion

Type of Article: Comment

**Summary:** Laboratory personnel are particularly susceptible to contracting COVID-19. COVID-19 may also exist in cytology specimens. Laboratories should minimize risks by **working in shifts, and staggered meal breaks, to avoid contact between people, and having only the strictly necessary personnel in the laboratory.**

**Public Education and Electronic Awareness of the New Coronavirus (COVID-19): Experiences from Iran.**

[PMID: 32285765](#)

[Publication Date: April 14, 2020; Apr 15, 2020 \(LitCovid\)](#)

Peyravi, Mahmoudreza; Ahmadi Marzaleh, Milad; Shamspour, Navab; Soltani, Ahmad

Disaster Medicine and Public Health Preparedness

Level of Evidence: 5 – Expert opinion

Type of Article: Letter to the Editor

**BLUF:** Public education on infection prevention, transmission, and illness management can be provided via the internet and text messaging to safely and efficiently reach citizens.

**Summary:** One of the most important steps in handling COVID-19 is a timely, effective, and cost-effective method for training and educating a country's public on infection prevention, transmission, and how to handle illness. In Iran, education via cyberspace and text messages was felt to meet all of these requirements while safely providing training for the country's population on a wide range of public health topics. It is recommended that educational media be simple to understand; tailored to different levels of education, understanding, and ability; and freely available to all.

**African nations step up efforts to prevent spread of coronavirus.**

[PMID: 32287795](#)

[Publication Date: Feb 15, 2020; Apr 15, 2020 \(LitCovid\)](#)

MacKenzie, Debora

New Scientist

Level of Evidence: 5 – Expert Opinion

Type of Article: Commentary

**Summary:** Africa is preparing for coronavirus by expanding public health testing capabilities and utilizing existing medical surveillance networks established to monitor Ebola. Computer models using flight data indicate an overall low risk of virus transmission to the African continent, but identify Nigeria, Ethiopia, Sudan, Angola, Tanzania, Ghana, and Kenya as the most at-risk. Controlling case outbreaks in Africa may be severely limited by weak health infrastructure, poverty, social instability, and public distrust.

## **Use of Handheld Transceiver for Hospital Healthcare Workers-Caregiver Communication During the Coronavirus disease 2019 (COVID-19) Outbreak in Pediatric Emergency Department**

[PMID: 32287053](#)

[Publication Date: Apr 13, 2020; Apr 15, 2020 \(LitCOVID\)](#)

Curatola, Antonietta; Ferretti, Serena; Gatto, Antonio; Chiaretti, Antonio

Pediatr Infect Dis J

Level of Evidence: 6– No Data Cited

Type of Article: Editorial

**Bluf:** To reduce exposure and potential infection sources, handheld transceivers between pediatric caregivers and healthcare workers can be a useful tool to save PPE and protect healthcare workers.

**Summary [Excerpt]:** “By taking inspiration from telemedicine, which uses a lot of audio-video technologies to improve patient health by facilitating interactions between patients and clinicians or between 2 or more clinicians.<sup>4</sup> Our hospital tried to adapt to COVID-19 health emergency in a short time. **Some dedicated rooms to lockdown infected children, without an interphone or telemetry system, were set up, cameras were positioned inside, and handheld transceivers (HTs) were given to the parents for communication with the healthcare workers (HCW). The HT are synchronous, engaging a real-time, 2-way communication without delay of time. Thereby reducing number of clinical evaluations carried out on the patient and therefore the use of PPE and reducing exposure to potential infectious sources.**”

## **Clinical characteristics of 19 neonates born to mothers with COVID-19.**

[PMID: 32285380](#)

[Publication Date: Apr 13, 2020; Apr 15, 2020 \(LitCovid\)](#)

Liu, Wei; Wang, Jing; Li, Wenbin; Zhou, Zhaoxian; Liu, Siying; Rong, Zhihui

Front Med

Level of Evidence: 4 - Cases series

Type of Article: Research

**Summary:** This case series looked at 19 neonates born to mothers with COVID-19. Nine mothers were clinically diagnosed with COVID-19 and 10 were laboratory-confirmed with COVID-19. Eighteen pregnant women delivered their infants by cesarean section and one by vaginal delivery. **None of the neonates developed clinical, radiologic, hematologic, or biochemical evidence of COVID-19. SARS-CoV-2 RT-PCR test results in throat swab, gastric fluid right after birth, urine and feces of all neonates were negative.**



## **CT Findings of Pregnant Women With Coronavirus Disease (COVID-19) Pneumonia.**

[PMID: 32286871](#)

[Publication Date: Apr 14, 2020; Apr 15, 2020 \(LitCovid\)](#)

Moradi, Behnaz; Kazemi, Mohammad Ali; Gity, Masoumeh

American Journal of Roentgenology

Level of Evidence: 5 - Expert opinion

Type of Article: Letter

**BLUF:** Early CT findings of COVID-19 may help to identify infected pregnant women early on in the course of infection.

### **Summary:**

The authors comments on a study by Liu et al. on findings of pregnant women diagnosed with COVID-19 pneumonia. The findings of the study suggested that early CT findings show ground-glass opacity, consolidations, and crazy paving pattern forms as the disease progresses. It is important to do an early assessment and treatment plan for positive cases in pregnant women as they have a higher risk of contracting the viral infection. The authors concluded that the findings from the study provide essential information for health providers when managing pregnant women with COVID-19.

## Management

### Hemoglobin value may be decreased in patients with severe coronavirus disease 2019.

PMID: [32284281](#)

Publication Date: Apr 2, 2020; Apr 15, 2020 (LitCovid)

Lippi, Giuseppe; Mattiuzzi, Camilla

Hematol Transfus Cell Ther

Level of Evidence: 2- Systematic review of studies

Type of Article: Letter to Editor

**Summary:** The authors performed a meta analysis of 4 studies and found that “[i]n all except one of these four investigations, the hemoglobin value was found to be significantly lower in COVID-19 patients with severe disease than in those with milder forms, yielding a WMD of  $-7.1$  g/L; 95% CI,  $-8.3$  to  $-5.9$  g/L.”

### The value of urine biochemical parameters in the prediction of the severity of coronavirus disease 2019.

PMID: [32286242](#)

Publication Date: Apr 14, 2020; Apr 15, 2020 (LitCovid)

Liu, Rui; Ma, Qingfeng; Han, Huan; Su, Hanwen; Liu, Fang; Wu, Kailang; Wang, Wei; Zhu, Chengliang

Clin Chem Lab Med

Level of Evidence: Level 4 - Case-control study

Type of Article: Research

**BLUF:** Positive urinary rates of **blood and proteinuria were significantly higher in COVID-19 patients** compared to healthy controls, and within the COVID-19 group, rates of positive urine glucose and proteinuria were increased in severe and critical patients compared to those with moderate symptoms. **Urine biochemical studies may be useful in identifying and monitoring progression** of COVID-19 infections.

#### **Abstract:**

**Background:** Among patients with coronavirus disease 2019 (COVID-19), the cases of a significant proportion of patients are severe. A viral nucleic acid test is used for the diagnosis of COVID-19, and some hematological indicators have been used in the auxiliary diagnosis and identification of the severity of COVID-19. Regarding body fluid samples, except for being used for nucleic acid testing, the relationship between COVID-19 and routine body fluid parameters is not known. Our aim was to investigate the value of urine biochemical parameters in the prediction of the severity of COVID-19.

**Methods:** A total of 119 patients with COVID-19 were enrolled at Renmin Hospital of Wuhan University. According to the severity of COVID-19, the patients were divided into three groups (moderate 67, severe 42 and critical 10), and 45 healthy persons were enrolled in the same period as healthy controls. The relationship between the results of urine biochemical parameters and the severity of COVID-19 was analyzed.

**Results:** The **positive rates of urine occult blood (BLOOD) and proteinuria (PRO) were higher in COVID-19 patients** than in healthy controls ( $p < 0.05$ ); the **urine specific gravity (SG) value was lower** in patients than in healthy controls ( $p < 0.05$ ), and the **urine potential of hydrogen (pH) value was higher** in patients than in healthy controls ( $p < 0.01$ ). The positive rates of urine glucose (GLU-U) and PRO in the severe and critical groups were higher than those in

the moderate group ( $p < 0.01$  and  $p < 0.05$ , respectively); other biochemical parameters of urine were not associated with the severity of COVID-19.

**Conclusions:** Some urine biochemical parameters are different between patients with severe acute respiratory syndrome (SARS)-CoV-2 and healthy controls, and GLU-U and PRO may be helpful for the differentiation of COVID-19 severity.

## **Triage of scarce critical care resources in COVID-19: an implementation guide for regional allocation. An expert panel report of the Task Force for Mass Critical Care and the American College of Chest Physicians.**

[PMID: 32289312](#)

[Publication Date: Apr 11, 2020; Apr 15, 2020 \(LitCovid\)](#)

Maves, Ryan C; Downar, James; Dichter, Jeffrey R; Hick, John L; Devereaux, Asha; Geiling, James A; Kissoon, Niranjana; Hupert, Nathaniel; Niven, Alexander S; King, Mary A; Robinson, Lewis L; Hanfling, Dan; Hodge Jr., James G; Marshall, Mary Faith; Fischkoff, Katherine; Evans, Laura E; Tonelli, Mark R; Wax, Randy S; Seda, Gilbert; Parrish, John S; Truog, Robert D; Sprung, Charles L; Christian, Michael D; ACCP Task Force for Mass Critical Care

*CHEST*

Level of Evidence: 5 - Expert Opinion

Type of Article: Guidelines and Consensus Statements

**BLUF:** Triage systems need to provide critical care in low-resource settings need to include an inventory of ICU resources, identifying triggers for triage, establishment of a triage system and protocol, re-evaluation of blanket life-saving measures in place at non-critical times, and considerations for the care of pediatrics patients, as well as the wellbeing of healthcare workers and the public.

**Summary:** A potential surge in the number of critically ill COVID-19 patients may rapidly exceed hospital capacities, necessitating a **triage system to best allocate available critical care resources**. The authors detail operational steps to implement a triage system with the collaborative efforts of multiple stakeholders. The **framework** detailed herein can provide essential tools to rapidly assist communities in establishing an infrastructure necessary to **equitably meet the clinical demands of the greatest number of patients during a time of scarce resources**.

## **Pediatric Airway Management in COVID-19 patients - Consensus Guidelines from the Society for Pediatric Anesthesia's Pediatric Difficult Intubation Collaborative and the Canadian Pediatric Anesthesia Society.**

[PMID: 32287142](#)

[Publication Date: Apr 13, 2020](#)

Matava, Clyde T; Kovatsis, Pete G; Summers, Jennifer Lee; Castro, Pilar; Denning, Simon; Yu, Julie; Lockman, Justin L; Von Ungern-Sternberg, Britta; Sabato, Stefano; Lee, Lisa K; Ayad, Ihab; Mireles, Sam; Lardner, David; Whyte, Simon; Szolnoki, Judit; Jagannathan, Narasimhan; Thompson, Nicole; Stein, Mary Lyn; Dalesio, Nicholas; Greenberg, Robert; McCloskey, John; Peyton, James; Evans, Faye; Haydar, Bishr; Reynolds, Paul; Chiao, Franklin; Taicher, Brad; Templeton, Thomas; Bhalla, Tarun; Raman, Vidya T; Garcia-Marcinkiewicz, Annery; Galvez, Jorge; Tan, Jonathan; Rehman, Mohamed; Crockett, Christy; Olomu, Patrick; Szmuk, Peter; Glover, Chris; Matuszczak, Maria; Galvez, Ignacio; Hunyady, Agnes; Polaner, David; Gooden, Cheryl; Hsu, Grace; Gumaney, Harshad; Perez-Pradilla, Caroline; Kiss, Edgar E; Theroux, Mary C; Lau, Jennifer; Asaf, Saeedah; Ingelmo,

Pablo; Engelhardt, Thomas; Hervias, Monica; Greenwood, Eric; Javia, Luv; Disma, Nicola; Yaster, Myron; Fiadjoe, John E  
Anesth Analg

Level of Evidence: Level 5 – Expert Opinion

Type of Article: Guidelines

**BLUF:** The PeDI-C recommends the following guidelines for multiple aspects of pediatric anesthesia care during this COVID-19 pandemic.

**Summary:** Key recommendations include:

- Administration of anxiolytics and IV anesthetic inductions
- Tracheal intubation using video laryngoscopes and cuffed tracheal tubes
- Use of in-line suction catheters
- Modifying workflow to recover patients from anesthesia in the operating room
- Anesthesiologists considering using appropriate PPE when performing aerosol-generating medical procedures in asymptomatic children
- Airway procedures should be done in negative pressure rooms when available
- Adequate time should be allowed for operating room cleaning and air filtration between cases

## COVID-19, Arrhythmic Risk and Inflammation: Mind the Gap!

[PMID: 32286863](#)

[Publication Date: Apr 14, 2020; Apr 15, 2020 \(LitCovid\)](#)

Lazzerini, Pietro Enea; Boutjdir, Mohamed; Capecchi, Pier Leopoldo

Circulation

Level of Evidence: 5 – Expert Opinion

Type of Article: Research

**Summarizing Excerpt:** “In conclusion, when treating COVID-19, physicians should always consider that **these patients are burdened by an increased arrhythmic risk, which can significantly affect overall mortality.** The extent of systemic inflammation, as reflected by circulating CRP (and IL-6) levels, should also be carefully considered in order to optimize the benefit/risk ratio, particularly when concomitant QT-prolonging risk factors including QT-prolonging medications are present. **The administration of anti-IL-6 targeted therapies (tocilizumab, sarilumab) to COVID-19 patients, particularly those severely ill, might represent a very useful “two birds with one stone” approach not only promoting the recovery from multi-organ dysfunction, but also mitigating the associated high arrhythmic risk.**”

## Transient complete heart block in a patient with critical COVID-19.

[PMID: 32285920](#)

[Publication Date: Apr 14, 2020; Apr 15, 2020 \(LitCovid\)](#)

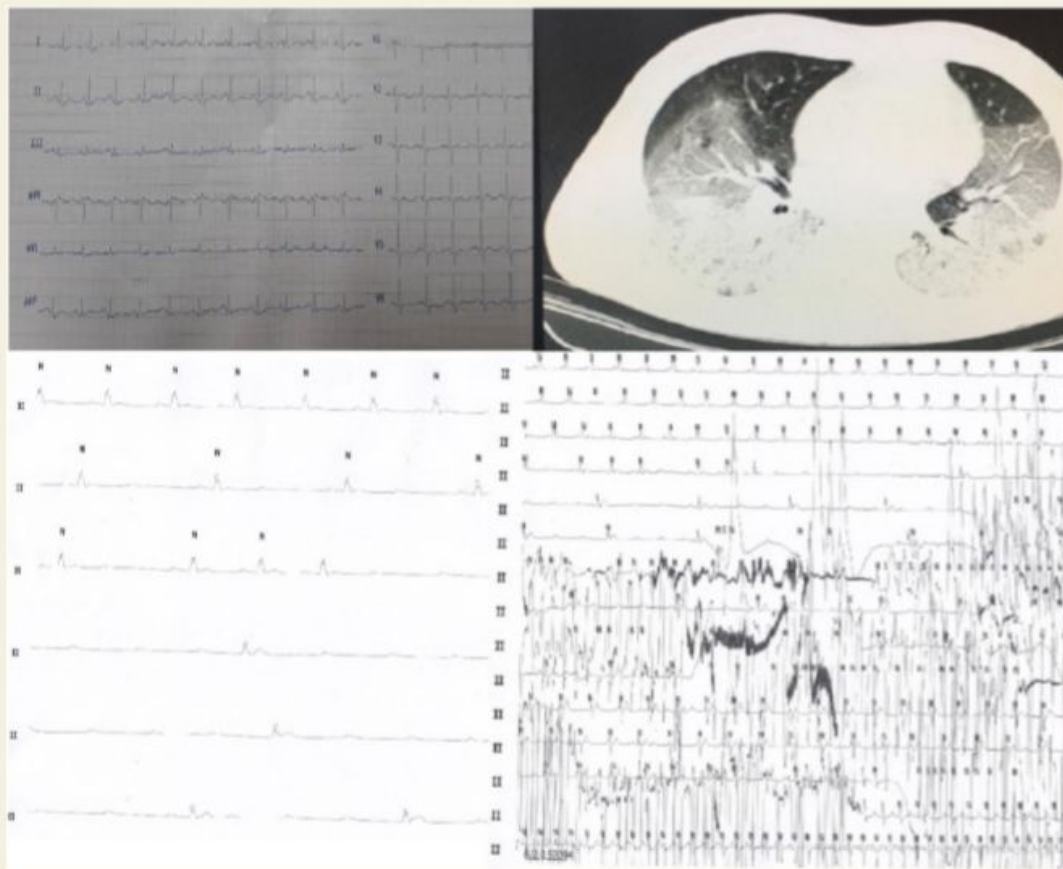
Azarkish, Mona; Laleh Far, Vahideh; Eslami, Masoud; Mollazadeh, Reza

European Heart Journal

Level of Evidence: Level 4- Case Report

Type of Article: Case Report

**BLUF:** Case report (below) of a COVID-19 patient who was administered an antiviral and hydroxychloroquine. Later the patient developed a sudden cardiac block, was returned back to normal sinus rhythm, but eventually died of severe respiratory distress.



A 54-year-old man came to the Imam Khomeini hospital complex, Tehran, Iran due to shaking chills, dry cough, nausea, and vomiting during the outbreak of COVID-2019. In the emergency room, he had tachypnoea (respiratory rate 32/min), temperature 37.3°C, and O<sub>2</sub> saturation of 76%, so he was admitted to the ward. Baseline ECG was normal (Panel A). High-resolution computed tomography showed bilateral ground-glass appearance (Panel B). PCR of the nasopharyngeal swab documented coronavirus infection. He was administered an antiviral and hydroxy-chloroquine. On the 13th day of hospital stay, due to aggravation of tachypnoea, he was intubated and transferred to the intensive care unit. Next morning, the patient suddenly developed complete heart block (CHB) (Panel C). Cardiopulmonary resuscitation (CPR) was performed for ~10 min until resumption of normal sinus rhythm (Panel D). Echocardiography showed normal left ventricular size and function with ejection fraction up to 50% without pericardial effusion. The patient remained in sinus rhythm until 30 March 30 when he died due to severe respiratory failure.

(A) A 12-lead ECG shows no atrioventricular block. (B) High-resolution computed tomography shows diffuse bilateral ground-glass opacities with some foci of consolidation formation in almost all lung lobes. (C) ECG of lead II shows CHB. (D) Acquired ECG of lead II at the rate of 6.25 cm/s. The upper part shows normal sinus rhythm, then proceeding to CHB. CPR was performed in the middle part of Holter monitoring with resultant artefacts. In the lower part of the Holter, the sinus rhythm returns.

## Typical takotsubo syndrome triggered by SARS-CoV-2 infection.

PMID: [32285915](https://pubmed.ncbi.nlm.nih.gov/32285915/)

Publication Date: Apr 14, 2020; Apr 15, 2020 (LitCovid)

Meyer, Philippe; Degrauwe, Sophie; Delden, Christian Van; Ghadri, Jelena-Rima; Templin, Christian  
European Heart Journal

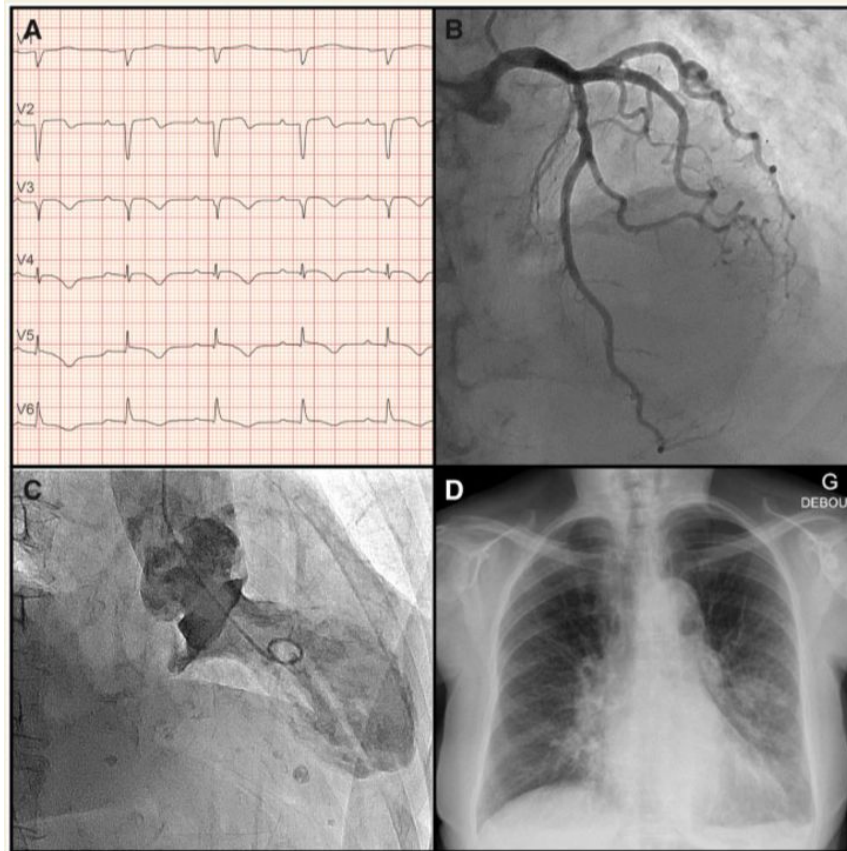
Level of Evidence: Level 4 - Case Report

Type of Article: Case Report

**Summary:** This case report of an 83 y/o female Takotsubo Syndrome (TTS) triggered by SARS-CoV-2 infection, is the **first known case of TSSS in the COVID-19 pandemic**. The patient was hospitalized for acute chest pain and dry cough (starting 3 days prior) and showed signs of TTS.



Three days later the patient developed fever symptoms and tested positive for the virus. The patient recovered progressively on conventional heart failure medication without need for oxygen/ventilation and was later discharged with mild residual apical hypokinesis.



**Figure.** Panel A) ECG showed <1 mm ST-segment elevation in all precordial leads with deep T-wave inversions. Panel B) Coronary angiography showed non-significant lesions. Panel C) A typical TTS image on ventriculography. Panel D) Biological signs of inflammation, and clear bilateral lung X-ray opacities.

## Rehabilitation of COVID-19 patients.

[PMID: 32286674](#)

Publication Date: Apr 14; Apr 15, 2020 (LitCovid)

Brugliera, Luigia; Spina, Alfio; Castellazzi, Paola; Cimino, Paolo; Tettamanti, Andrea; Houdayer, Elise; Arcuri, Pietro; Alemanno, Federica; Mortini, Pietro; Iannaccone, Sandro  
J Rehabil Med

Level of Evidence: Level 5 - Expert opinion

Type of Article: Editorial

**Summarizing excerpt:** “Rehabilitation of COVID-19 patients cannot be separated from the medical assistance, for respiratory, infective or neurological issues which, together with bedsores, peripheral muscle weakness, muscular retractions, articular limitations, balance/postural disorders, and physical deconditioning caused by prolonged bed rest, could dramatically reduce the chances of returning to a pre-infection functional status.”

## Rehabilitation program recommendations:

- “Aerobic exercise: for those cases with respiratory/ motor problems and physical deconditioning

- Strength training for peripheral muscle weakness;
- Static and dynamic balance training for balance dysfunction
- Bronchial clearance techniques: in hypersecretive patients, training in techniques favouring secretions removal is recommended
- Evaluation of Basic Activities of Daily Life (BADL): evaluation of patients' ability to carry out daily activities and eventually improve recovery or adaptation to them, with the support of physiotherapists and occupational therapists
- Neuropsychological training: counselling sessions, psychological support, and cognitive training”



# Management of other conditions during COVID-19

## Nutritional recommendations for CoVID-19 quarantine.

[PMID: 32286533](#)

Publication Date: Apr 14, 2020; Apr 15, 2020 (LitCovid)

Muscogiuri, Giovanna; Barrea, Luigi; Savastano, Silvia; Colao, Annamaria

Eur J Clin Nutr

Level of Evidence: 5 - Expert opinion

Article Type: Perspective

**BLUF:** Calorie-dense foods of poor nutritional quality, inadequate sleep, anxiety, and vitamin deficiencies can lead to impaired health and wellbeing during quarantine. **Individuals should follow a Mediterranean diet when possible and focus on incorporating whole, vitamin-rich foods into their and maintain adequate sleep.**

**Summary:** The authors point out that boredom and anxiety can lead to increased energy intake and food cravings. Increased consumption of calorie-dense foods can lead to obesity and put individuals at risk for comorbidities that could impact their prognosis if infected with COVID-19. Anxiety also impacts sleep cycles, which can further impact health. The authors recommend **serotonin, tryptophan, and melatonin** containing foods in the evening including: “plant species including roots, leaves, fruits, and seeds such as almonds, bananas, cherries, and oats”, as well as milk. These compounds have been shown to improve the immune system and regulate satiety. Antioxidants such as “**vitamin E, vitamin C, and beta-carotene**” also aid the immune system. These are found in foods like: “sweet potatoes, carrots, and green leafy vegetables...red peppers, oranges, strawberries, broccoli, mangoes, lemons...vegetable oils (soybean, sunflower, corn, wheat germ, and walnut), nuts, seeds, spinach, and broccoli.” **Vitamin D** is also a concern due to lack of sun exposure during quarantine and supplementation should be encouraged. Inadequate vitamin D has been implicated in chronic disease risk and impaired immunity in the lungs. Finally, **zinc** may be protective by impairing virus replication and can be found in “poultry, red meat, nuts, pumpkin seeds, sesame seeds, beans, and lentils.” All these dietary recommendations are cornerstones of the **Mediterranean diet** which focuses on “olive oil, fresh fruits and vegetables, protein-rich legumes, fish, and whole grains with moderate amounts of wine and red meat.”

## Care of patients with liver disease during the COVID-19 pandemic: EASL-ESCMID position paper.

[PMID: 32289115](#)

Publication Date: Mar 31, 2020

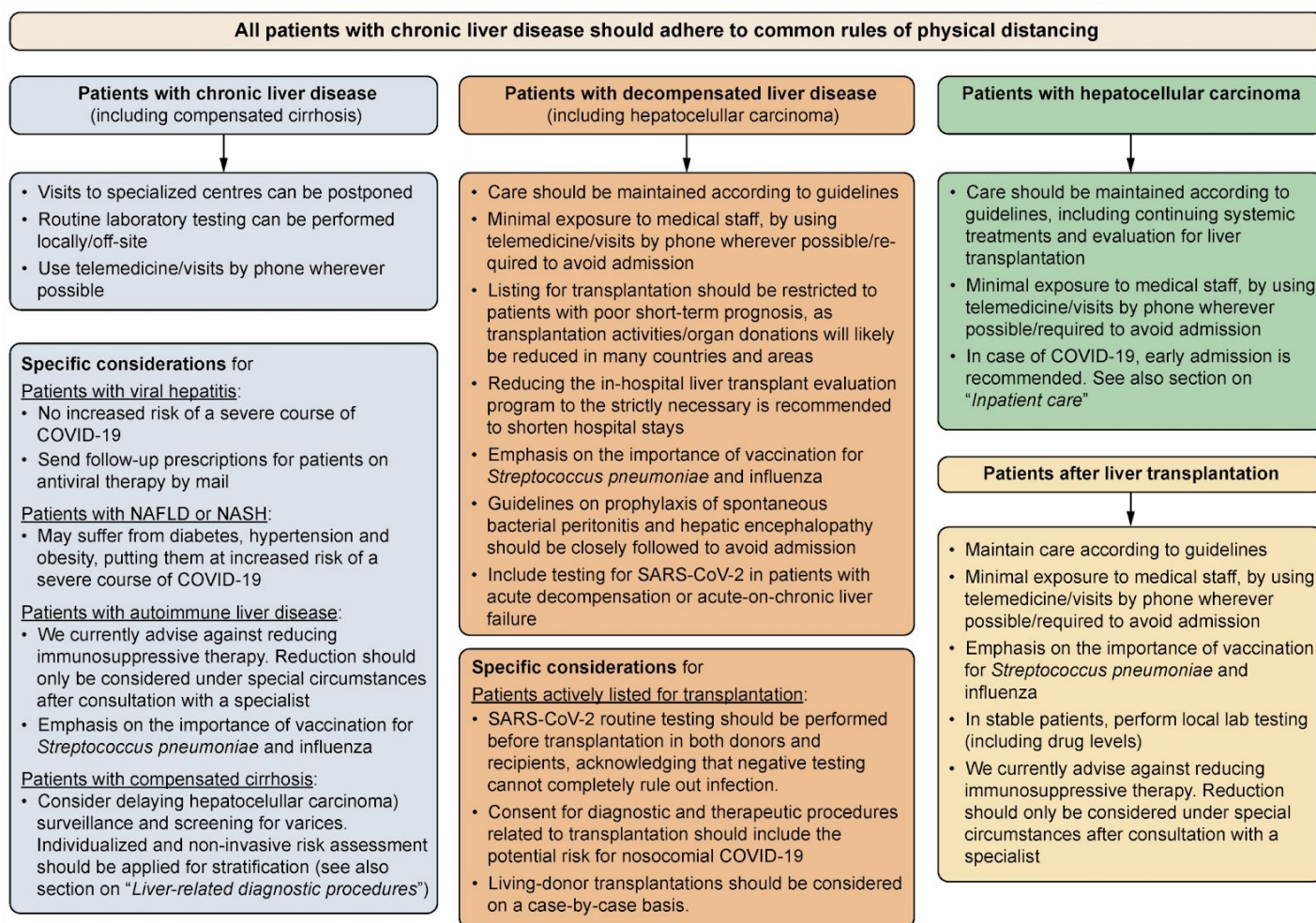
Boettler, Tobias; Newsome, Philip N; Mondelli, Mario U; Maticic, Mojca; Cordero, Elisa; Cornberg, Markus; Berg, Thomas

JHEP Rep

Level of Evidence: Level 5 – Expert Opinion

Type of Article: Guidelines

**Summary:** Currently, there is only limited data available linking underlying liver diseases with the course of SARS-CoV-2 infection and there are many open questions. The authors provide guidelines for patients with chronic liver disease, liver-transplantation, compensated/decompensated liver disease, hepatocellular carcinoma, and guidelines for liver-related diagnostic procedures.



## Collaborative Multi-Disciplinary Incident Command at Seattle Children's Hospital for Rapid Preparatory Pediatric Surgery Countermeasures to the COVID-19 Pandemic.

PMID: 32289376

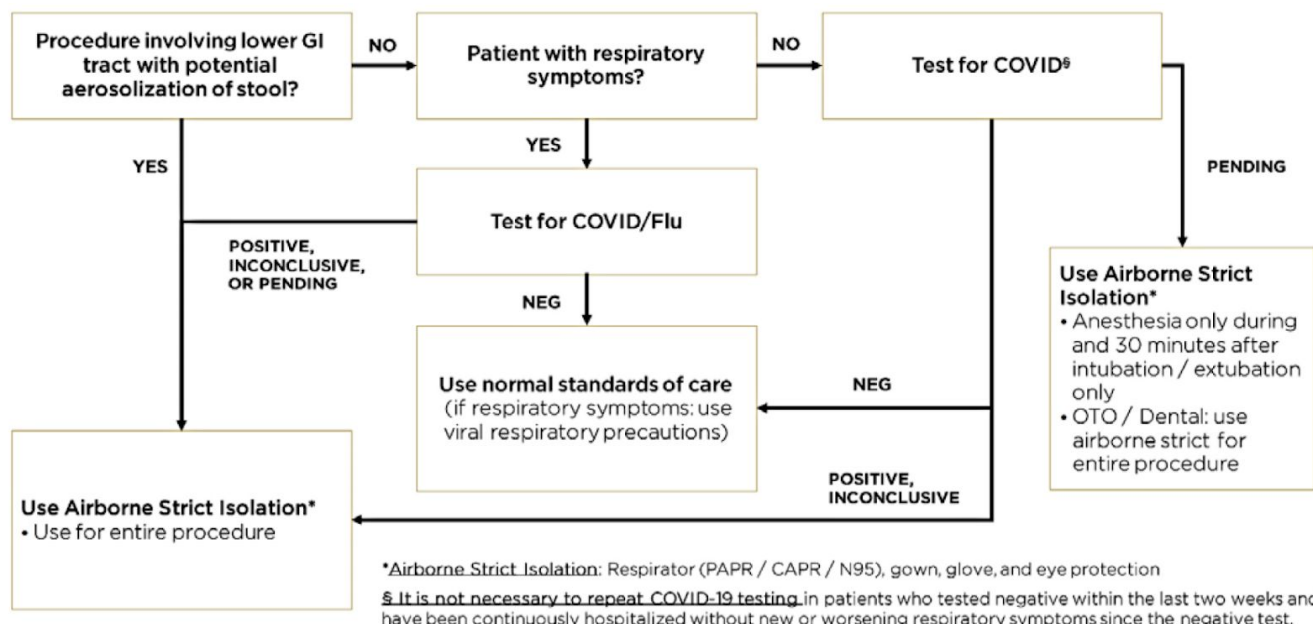
Publication Date: Apr 8, 2020

Parikh, Sanjay R; Avansino, Jeffrey R; Dick, Andre As; Enriquez, Brianna K; Geiduschek, Jeremy M; Martin, Lynn D; McDonald, Ruth A; Yandow, Suzanne M; Zerr, Danielle M; Ojemann, Jeffrey G  
J Am Coll Surg

Level of Evidence: Level 5 – Expert Opinion

Type of Article: Guidelines

**Summarizing Excerpt:** “Although the treatment and protective standards are continuously evolving, this commentary shares our thoughts on how an institution, specifically surgical services may develop collaborative process improvement to accommodate for rapid and ongoing change. Specific changes outlined include [1] early establishment of incident command [2] personal protective equipment conservation, [3] workforce safety, [4] surgical and ambulatory patient triage, and [5] optimization of trainee education.”



## Sars-CoV-2 (COVID-19) Outbreak and Breast Cancer Surgery in Turkey.

[PMID: 32285026](#)

Publication Date: Apr 1, 2020

Cakmak, Guldeniz Karadeniz; Ozmen, Vahit

Eur J Breast Health

Level of Evidence: Level 5 – Expert Opinion

Type of Article: Editorial

**BLUF:** The authors provide an overview of current guidelines from various healthcare authorities and provide their own recommendations outlined below.

### Summary:

- Management of new and old breast cancer patients during the COVID-19 period should be personalized according to hospital resources and restrictions.
- In all patients with DCIS, surgery may be deferred for 3-6 months together with monthly physical examination and ultrasound. ER+ patients will receive endocrine therapy in this period.
- Patients with triple-negative/ HER2+, T2N0-3Mo or T0-4N1-3Mo invasive breast cancer should begin neoadjuvant chemotherapy.
- Endocrine or chemotherapy in neoadjuvant fashion for ER+ Stage I-III invasive breast cancer.
- Surgery will be delayed for 4-8 weeks if there is a good response to neoadjuvant chemotherapy.
- Hormonal therapy should be the first choice in old patients with ER+ breast cancer.
- Patients with progressive disease on chemotherapy, malignant phyllodes, and aggressive sarcomas should have priority for surgery.

## What Is the Appropriate Use of Laparoscopy over Open Procedures in the Current COVID-19 Climate?

[PMID: 32285338](#)

Apr 15, 2020

Vigneswaran, Yalini; Prachand, Vivek N; Posner, Mitchell C; Matthews, Jeffrey B; Hussain, Mustafa

**BLUF:** Although this literature review of viral transmission in surgery and of COVID-19 transmission did not demonstrate or suggest the ability for a virus to be transmitted during surgical treatment whether open or laparoscopic, the authors still recommend making modifications to surgical practice such as the use of smoke evacuation and minimizing energy device use.

### **Summary of Recommendations:**

- Minimizing use of energy devices during procedures when possible. When energy is needed, we recommend avoiding the ultrasonic scalpel and lower energy settings to minimize surgical smoke.
- Using a closed circuit with smoke evacuation device with high-efficiency particle air filter or best available equivalent substitute
- Use of enhanced PPE in the operating room
- Use of low pneumoperitoneum pressures (12 mmHg or lower) when possible
- At the conclusion of the operation, to desufflate the abdomen using a smoke evacuation device.

### **Abstract:**

**INTRODUCTION:** Among surgeons worldwide, a concern with the use of minimally invasive techniques has been raised due to a proposed risk of viral transmission of the coronavirus disease of 2019 (COVID-19) with the creation of pneumoperitoneum. Due to this proposed concern, we sought to collect the available data and evaluate the use of laparoscopy and the risk of COVID-19 transmission.

**METHODS:** A literature review of viral transmission in surgery and of the available literature regarding the transmission of the COVID-19 virus was performed. We additionally reviewed surgical society guidelines and recommendations regarding surgery during this pandemic.

**RESULTS:** Few studies have been performed on viral transmission during surgery, but to date there is no study that demonstrates or can suggest the ability for a virus to be transmitted during surgical treatment whether open or laparoscopic. There is no societal consensus on limiting or restricting laparoscopic or robotic surgery; however, there is expert consensus on the modification of standard practices to minimize any risk of transmission.

**CONCLUSIONS:** Despite very little evidence to support viral transmission through laparoscopic or open approaches, we recommend making modifications to surgical practice such as the use of smoke evacuation and minimizing energy device use among other measures to minimize operative staff exposure to aerosolized particles.

## **A High-Volume Thoracic Surgery Division into the Storm of the COVID-19 Pandemic.**

[PMID: 32289302](#)

[Publication Date: Mar 26, 2020](#)

Maurizi, Giulio; Rendina, Erino Angelo

Ann Thorac Surg

Level of Evidence: Level 5 – Expert Opinion

Type of Article: Perspective

**Summary:** This high-volume thoracic surgery division had only a reduction of only 22.4% of operative cases in this period in comparison to the same period last year by following the guidelines



below. No patients converted to COVID-19 positive during follow-up or any postoperative readmissions related to COVID-19.

- All patients with lung or mediastinal cancer scheduled for operations received a meticulous history of symptoms and what the patients did and who they met during the previous 15 days.
- Nasopharyngeal swab offered only to symptomatic patients or those who reported clear contact with infected patients.
- All the physicians, residents, nurses, and patients carefully used and adopted individual protection devices and protocols.
- Reduced to a minimum the in-patient waiting list, in order to limit the risk of infection before the operation.
- Reduced the hospital stay and established virtual connection by electronic systems between patients and their relatives to minimize any outside contact.
- Reorganized outpatient clinics and reduced activity to ensure minimal interaction among different patients and healthcare providers.

## A Commentary on Safety Precautions for Otologic Surgery during the COVID-19 Pandemic.

PMID: [32286916](#)

Publish Date: [Apr 14, 2020](#); [Apr 15, 2020 \(LitCovid\)](#)

Saadi, Robert A; Bann, Darrin V; Patel, Vijay A; Goldenberg, David; May, Jason; Isildak, Huseyin  
Otolaryngol Head Neck Surg

Level of Evidence: 5 - Expert opinion

Type of Article: Commentary

**BLUF:** Respiratory pathogens often involve the middle ear and thus otologic surgery should be performed on emergent cases only and with proper PPE and procedural precautions.

**Summarizing Statement:** “There are insufficient data regarding the safety of otologic procedures in the setting of the coronavirus disease 2019 (COVID-19) pandemic. Given the proclivity for respiratory pathogens to involve the middle ear and the significant aerosolization associated with many otologic procedures, safety precautions should follow current recommendations for procedures involving the upper airway. Until preoperative diagnostic testing becomes standardized and readily available, **elective cases should be deferred** and **emergent/urgent cases should be treated as high risk for COVID-19 exposure**. Necessary otologic procedures on positive, suspected, or unknown COVID-19 status patients should be performed using enhanced personal protective equipment, including an N95 respirator and eye protection or powered air-purifying respirator (PAPR, preferred), disposable cap, disposable gown, and gloves. **Powered instrumentation should be avoided unless absolutely necessary**, and if performed, PAPR or sealed eye protection is recommended.”

## Breast Cancer Diagnosis, Treatment and Follow-Up During COVID-19 Pandemic

PMID: [32285027](#)

Publication date: [March 25, 2020](#); [April 15, 2020 \(LitCovid\)](#)

Soran, Atilla; Gimbel, Michael; Diego, Emilia

Eur J Breast Health

Level of Evidence: 5—Expert opinion

Type of Article: Comment

**Summary:** The COVID-19 pandemic has brought into light the concern of maintaining or postponing care for breast cancer patients. Should they maintain their chemotherapeutic treatment regimens even though immunosuppressive side-effects put them more at risk? What about surgical treatments: should patients proceed with their procedures despite the limited resources or are they in the place where they can postpone their surgeries? **It was ultimately decided for more routine screening, pathology reports, and visits will either be done virtually or will be postponed. However, clinical trials and emergent procedures, such as those indicated following the completion of a chemotherapeutic regimen, will continue as necessary.**

## **Priorities for Cath labs in the COVID-19 tsunami: Roberto Ferrari and co-authors present a procedure to follow subsequent to the outbreak in Italy**

[PMID:32286606](#)

Publication date: April 14, 2020; April 15, 2020 (LitCovid)

Campo, Gianluca; Rapezzi, Claudio; Tavazzi, Luigi; Ferrari, Roberto

Eur Heart J

Level of Evidence: Level 6—No Data

Type of Article: Comment

**Summary:** As cath labs are continuing business as usual, they need to acknowledge their priorities in keeping both their workers and patients safe. Maintaining COVID-19 precautions can sometimes affect the timeline during which an MI patient can get care. For that reason, the University of Ferrara hospital has modified their protocols for STEMI and NSTEMI patients. **A cath lab will be assigned to the COVID-specific floor, NSTEMI patients will be put on the track for immediate discharge following revascularization to maximize bed space, patients will be followed-up via phone call, and the necessary amount of cleaning time in the cath lab-post procedure will be strictly adhered to.**

## **Cardiac drugs and Outcome in COVID-19**

[PMID:32289168](#)

Publication date: April 14, 2020; April 15, 2020 (LitCovid)

Mishra, Ajay Kumar; Sahu, Kamal Kant; Sargent, Jennifer

QJM

Level of Evidence: 5—Expert opinion

Type of Article: Letter

**Summary:** The use of ARBs for hypertension increases the expression of ACE2 receptor, possibly leading to greater COVID-19 disease severity. However, genetic studies in East Asian populations demonstrate higher ACE2 receptor expression, but no increased disease severity. Despite this, early animal models and mRNA analysis show that all classes of RAAS inhibitors (ARB, ACE, etc.) lead to increased ACE2 expression and subsequent increased SARS-CoV binding. Analysis and careful observation needs to be done over patients with COVID-19 and hemodynamic comorbidities that warrant the use of RAAS inhibitors.



## Cardiac drugs and outcome in COVID-19: Reply.

PMID: 32289171

Publication Date: 14 April 2020; Apr 15, 2020 (LitCovid)

Goldstein, Mark R; Poland, Gregory A; Graeber, Charles W

QJM: An International Journal of Medicine

Level of evidence: 5 – Expert opinion

Type of article: letter to the editor

**BLUF:** The authors disagree with a letter to the editor titled “Cardiac drugs and outcome in COVID-19” which recommended the discontinuation of ACE-inhibitors, ARBs, and other RAAS antagonists in patients with COVID-19. This discontinuation **could cause harm by increasing blood pressure or worsening heart failure**, but they acknowledge that more research is necessary to determine if these drugs are related to adverse outcomes.

**Summarizing Excerpt:** “Clinicians need adequate retrospective and prospective data to determine if the drugs used in the treatment of the comorbidities commonly seen in patients with COVID-19 are in part related to adverse outcomes. Until such data are available, **clinicians should not routinely discontinue these medications based on theory and limited retrospective data.** Finally, absence of evidence is not evidence of absence.”

## Lung cancer surgical management during the outbreak of COVID-19.

PMID: 32289517

Publication Date: Mar 31, 2020 (accepted date); Apr 15, 2020 (LitCovid)

Cafarotti, Stefano; Patella, Miriam

J Thorac Oncol

Level of Evidence: 5 - Expert opinion

Type of Article: Letter to the Editor

**BLUF:** The authors establish new treatment recommendations based on risk for lung cancer progression and COVID-19 infection.

**Summary:** The risk stratification is as follows:

	Low	High
Risk of progression	T1(a-c) N (0-1)	Surgical T4 (any N)
	T2(a-b) N (0-1)	Surgical N2 (any T)
	T3 (N0-1)	Surgical OligoMetastasis
Risk of COVID-19	<70 y	>70 y
	< 2 associated disease	> 2 associated disease
	disease	immunosuppression

Tab.1 new risk stratification of lung cancer progression and COVID infection

<b>STAGE I</b>	Low risk of progression and low risk of COVID-19 infection
<b>STAGE IIa</b>	High risk of progression and low risk of COVID-19 infection
<b>STAGE IIb</b>	Low risk of progression and high risk of COVID-19 infection
<b>STAGE III</b>	High risk of progression and high risk of COVID Infection

Tab.2 new integrated Risk classification

**Based on the risk stratification, the authors make the following recommendations:**

- Stage I: SURGERY. The early stages allow definitive oncological treatment without the need for further hospital admission or for adjuvant treatments. (low risk of infection)
- Stage IIa: SURGERY (low risk of infection)
- Stage IIb: Discuss with the patient also the possibility of a follow-up (up to 3 months) before a definitive therapeutic decision, once the epidemiological peak has been overcome. Personalized treatments are examined.
- Stage III: consider exclusive non-surgical treatments .

## **The Use of Nonsteroidal Anti-inflammatory Drugs in Urological Practice in the COVID-19 Era: Is "Safe Better than Sorry"?**

[PMID: 32284245](#)

[Publication Date: Apr 10, 2020; Apr 15, 2020 \(LitCovid\)](#)

Pradere, Benjamin; Ploussard, Guillaume; Catto, James W F; Roupret, Morgan; Misrai, Vincent  
Eur Urol

Level of Evidence: Level 5 - expert opinion

Type of Article: Editorial

**Summary with excerpts:** The effect of NSAIDs in relation to SARS-CoV-2 is not yet understood, but there is **currently no scientific evidence that NSAIDs worsen COVID-19**. Given the added benefit NSAIDs provide over other pain medications in certain urologic diseases, the authors argue physicians should “follow established indications [for NSAID use], particularly for all patients without fever or COVID-19 symptoms, but with more caution...In case of any doubt, NSAIDs should be avoided.”

## **Acute neurology during the COVID-19 pandemic: Supporting the front line.**

[PMID: 32284363](#)

[Publication Date: Apr 13, 2020; Apr 15, 2020 \(LitCovid\)](#)

Majersik, Jennifer J; Reddy, Vivek K

Neurology

Level of Evidence: Level 5 - Expert opinion

Type of Article: Editorial

**Summary:** The authors address the increased demands and challenges, such as limited beds in larger centers and limited providers in rural areas, for acute neurologists during this pandemic. Strategies to deal with these problems include **modifying criteria for transferring patients to their neurologic facility and providing telemedicine consult services to smaller hospitals.**

**Abstract:** Neurologists are affected by the COVID-19 pandemic in several key ways, including: a reduced ability to admit and accept in transfer critically ill neurologic patients due to census overflow; personal risk of exposure to COVID-19; and potentially redeployment of the acute neurologist workforce towards general medicine to assist our colleagues managing the surge of medical patients. As providers of inpatient and emergency-based acute neurologic care, we have been attempting to locally prepare for and manage the COVID-19 pandemic by focusing on 3 key areas: creating an integrated preparation plan that supports hospital measures; building an optimized, flexible, and redundant workforce; and maintaining a high level of neurologic care in our hospital and across our region despite limited transfer capabilities during the pandemic. This final concern is of key relevance in our region where our tertiary hospital supports numerous smaller community hospitals, typically

by providing an open door to patient transfers. These hospitals are often in rural or frontier regions and are also affected by COVID-19, so not only are beginning to experience their own bed and clinician shortages, but are understandably nervous about what the pandemic means for the availability of traditional support systems for other non-COVID-related diseases.

## **Emergency endoscopic variceal band ligation in a COVID-19 patient presented with hematemesis while on mechanical ventilation.**

[PMID: 32289878](#)

[Publication Date: Apr 14, 2020; Apr 15, 2020 \(LitCovid\)](#)

El Kassas, Mohamed; Al Shafie, Ahmad; Abdel Hameed, Abo Seif; Mahdi, Mamdouh  
Digestive Endoscopy

Level of Evidence: Level 4 - Case Report

Type of Article: Case Report

**BLUF:** This is a case report for a successful endoscopic band ligation for bleeding esophageal varices in a COVID-19 patient with acute hematemesis while on mechanical ventilation.

### **Abstract:**

COVID-19, caused by severe acute respiratory syndrome coronavirus (SARS-CoV-2), is now a global pandemic with serious health consequences. Currently, many strict control measures are applied in health care settings, including endoscopy units, in order to limit virus spread. Several recommendations called to limit endoscopic procedures to emergent endoscopies; however, several uncertainties still existing concerning patient safety, protective measures, and infection control methods in emergency endoscopic settings. In this case report, we present a case of successful endoscopic band ligation for bleeding esophageal varices in man with COVID-19 disease who presented with an acute attack of hematemesis while on mechanical ventilation (MV). Esophago-gastroduodenoscopy was performed in the ICU room after preparing the setting, and revealed large, risky esophageal varices. Endoscopic band ligation was done with successful control of bleeding. Third-level measures of medical protection were applied for the participating medical personnel, and patient monitoring was kept all through the procedure. After the procedure, the bleeding stopped, and the patient was vitally stable and conscious. We conclude that emergency endoscopic interventions could be performed safely with appropriate arrangements in patients with confirmed COVID-19 on mechanical ventilation.

## **Doing the right thing for the right reason when treating ruptured abdominal aortic aneurysms in the COVID-19 era.**

[PMID: 32289438](#)

[Publication Date: Apr 11, 2020; Apr 15, 2020 \(LitCovid\)](#)

Verikokos, Christos; Lazaris, Andreas M; Geroulakos, George  
Journal of Vascular Surgery

Level of Evidence: Level 4 - Case Report

Type of Article: Comment

**Summary:** ICU beds are in short supply during the COVID-19 pandemic. **Patients with ruptured abdominal aortic aneurysms (rAAA)** are one population that may need ICU beds postoperatively. **Endovascular treatment is recommended over open repair**, which “increases both the intraoperative complexity of treatment and the need for postoperative intensive care,” because it can be “performed under local anesthesia, and a successful outcome is usually

accompanied by **short recovery and quick turnover”** and because it saves valuable **healthcare resources**.

## **Delivering High-Quality Vascular Care via Telehealth during the COVID-19 Pandemic.**

[PMID: 32289437](#)

[Publication Date: Apr 11, 2020; Apr 15, 2020 \(LitCovid\)](#)

Fankhauser, Grant

Journal of Vascular Surgery

Level of Evidence: Level 5 - Expert Opinion

Type of Article: Comment

**Summary:** With many elective surgeries being canceled, many healthcare systems/clinics have converted to Telehealth visits. Limited physical examination is possible through this method with basic tools being unavailable. However, information through thorough history taking is accessible to help maintain and deliver high quality of care. A careful history with follow-up questions can steer to the correct diagnosis, despite limitations, and contact with surgeons will provide reassurance and continuity of care for patients.

## **Computed Tomography Imaging of an HIV-infected Patient with Coronavirus Disease 2019 (COVID-19).**

[PMID: 32285949](#)

[Publication Date: Apr 14, 2020; Apr 15, 2020 \(LitCovid\)](#)

Chen, Jiaxiang; Cheng, Xinge; Wang, Rongpin; Zeng, Xianchun

J Med Virol

Level of Evidence: 5 - Case report

Type of Article: Research

**Summary:** This case report discusses a case of a patient who was confirmed with HIV infection two years ago, and had been receiving antiretroviral therapy (ART) for the past 2 years. “The chest CT **imaging findings of the case of non-severe COVID-19 pneumonia with HIV infection are mainly patchy shadows in the peripheral lung, involving the interlobar fissure**, which are different from the common chest CT findings of COVID-19. The quick absorption of pulmonary lesions also highlights the importance of ART in this patient.”

## **Contracting HIV or Contracting SAR-CoV-2 (COVID- 19) in Pregnancy? Balancing the Risks and Benefits.**

[PMID: 32285221](#)

[Publication Date: Apr 13, 2020; Apr 15, 2020 \(LitCovid\)](#)

Joseph Davey, Dvora; Bekker, Linda-Gail; Coates, Thomas J; Myer, Landon

AIDS and Behavior

Level of Evidence: 5 – Expert Opinion

Type of Article: Comment

**BLUF:** The authors recommend continuation of HIV risk reduction efforts via counselling and PrEP provision for pregnant and breastfeeding patients at high risk of HIV-infection in South Africa.

**Summarizing Excerpt:** “South Africa has the largest coronavirus epidemic in Africa, with over 1650 cases in all nine Provinces in its early days... On top of a potentially devastating COVID-19 epidemic, South Africa has the largest HIV epidemic in the world, with 7.7 million people living with HIV (PLHIV) and approximately 3 million PLHIV not on treatment... Prior research has shown that during emergencies and disasters like coronavirus, in which people are told to stay home, sexual activity will continue and increase. Consequently, the risks of intimate partner violence, rape and HIV acquisition will also rise... In a South African township, living conditions are extremely crowded. Socializing is unavoidable... The major components recommended-social distancing and hygiene—are extremely difficult to implement in much of Africa. Given the evidence and our experience, we argue that the benefits outweighs the risks in pregnant women and advocate for continued PrEP provision and HIV risk reduction counselling in HIV-uninfected pregnant and breastfeeding women at high-risk of HIV acquisition in South Africa.”

## How to risk-stratify elective surgery during the COVID-19 pandemic?

PMID: 32288785

Publication Date: Mar 31, 2020; Apr 15, 2020 (LitCovid)

Stahel, Philip F

Patient Safety in Surgery

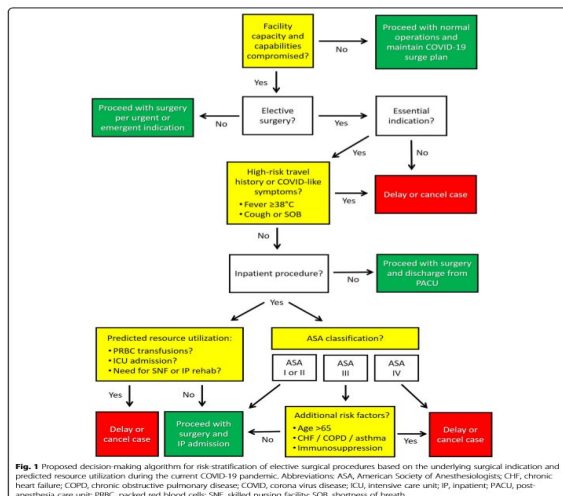
Level of Evidence: Level 5 - Expert Opinion

Type of Article: Editorial

**Summary:** With the COVID-19 pandemic, elective surgeries were canceled without clear agreement on how to classify various levels of necessary care. Table 1 and Figure 1 outline some guidelines for considering stratification of urgency of surgical indications for considering appropriate elective case cancellation and based on predicted resource utilization during the pandemic.

**Table 1** Examples of surgical case types stratified by indication and urgency

Indication	Urgency	Case examples
Emergent	< 1 h	<ul style="list-style-type: none"> <li>Life-threatening emergencies</li> <li>Acute exsanguination / hemorrhagic shock</li> <li>Trauma level 1 activations</li> <li>Acute vascular injury or occlusion</li> <li>Aortic dissection</li> <li>Emergency C-section</li> <li>Acute compartment syndrome</li> <li>Necrotizing fasciitis</li> <li>Peritonitis</li> <li>Bowel obstruction / perforation</li> </ul>
Urgent	< 24 h	<ul style="list-style-type: none"> <li>Appendicitis / cholecystitis</li> <li>Septic arthritis</li> <li>Open fractures</li> <li>Bleeding pelvic fractures</li> <li>Femur shaft fractures &amp; hip fractures</li> <li>Acute nerve injuries / spinal cord injuries</li> <li>Surgical infections</li> </ul>
Urgent-elective	< 2 weeks	<ul style="list-style-type: none"> <li>Cardiothoracic / cardiovascular procedures</li> <li>Cerebral aneurysm repair</li> <li>Vascular access devices</li> <li>Skin grafts / flaps / wound closures</li> <li>Scheduled C-section</li> <li>Closed fractures</li> <li>Spinal fractures &amp; acetabular fractures</li> </ul>
Elective (essential)	1–3 months	<ul style="list-style-type: none"> <li>Cancer surgery &amp; biopsies</li> <li>Subacute cardiac valve procedures</li> <li>Hernia repair</li> <li>Hysterectomy</li> <li>Reconstructive surgery</li> </ul>
Elective (discretionary)	> 3 months	<ul style="list-style-type: none"> <li>Cosmetic surgery</li> <li>Bariatric surgery</li> <li>Joint replacement</li> <li>Sports surgery</li> <li>Vasectomy / tubal ligation</li> <li>Infertility procedures</li> </ul>





## R&D: Diagnosis & Treatments

### Detection of SARS-CoV-2 by RT-PCR in anal from patients who have recovered from coronavirus disease 2019

PMID: [32285947](#)

Publication Date: Apr 14, 2020; Apr 15, 2020; LitCOVID

Liu, Juan; Xiao, Yong; Shen, Yuan; Shi, Chao; Chen, Yujun; Shi, Ping; Gao, Yumeng; Wang, Yiqing; Lu, Bin

J Med Virol

Level of Evidence: 4 – Case Series

Type of Article – Letter/Research

**BLUF:** Nasopharyngeal swabs may not be a perfect criterion for diagnosis and discharge as live SARS-CoV-2 may exist in fecal matter while the oropharyngeal/nasopharyngeal specimen is negative.

#### Abstract:

An outbreak of coronavirus disease 2019 (COVID-19) pneumonia caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), started in Wuhan City, Hubei Province, China. The real-time reverse- transcriptase polymerase - chain - reaction (RT - PCR) method can be used for the detection of SARS-CoV-2 in oral swabs<sup>1</sup>. Now, **results have confirmed the presence of the live virus in stool samples from patients with COVID- 19<sup>2</sup>**. Recently, several reports of RT-PCR in fecal to diagnose COVID-19 have increase<sup>3-5</sup>. **Therefore, it is important to detect SARS-CoV-2 in oral and anal swabs in discharge patients.**

### COVID-19 pneumonia manifestations at the admission on chest ultrasound, radiographs, and CT: single-center study and comprehensive radiologic literature review.

PMID: [32289051](#) Apr 15, 2020

Lomoro, Pascal; Verde, Francesco; Zerboni, Filippo; Simonetti, Igino; Borghi, Claudia; Fachinetti, Camilla; Natalizi, Anna; Martegani, Alberto

Eur J Radiol Open

Level of Evidence: 3 - Local non-random sample

Type of Article: Research

**BLUF:** Upon admission, chest imaging manifestations of COVID-19 includes B-lines and consolidations on US, consolidations and hazy opacities on CXR, and GGO with consolidations on CT. These findings were additionally confirmed by a literature search.

#### Summary:

Purpose: To investigate the imaging features of emerging COVID-19 pneumonia on chest ultrasound (US), radiographs (CXR) and computed tomography (CT) examinations performed at admission and to provide a comprehensive radiological literature review on ongoing radiological data from recent publications.

Materials and methods: In this **retrospective single-center study**, we enrolled consecutive patients from February 15, 2020, to March 15, 2020, with **laboratory-confirmed SARS-CoV-2** hospitalized in Valduce Hospital (Como, Italy). Multi-modality imaging findings were evaluated and compared. Literature research was conducted through a methodical search on Pubmed and Embase databases.



Results: Fifty-eight patients (36 men, 22 women; age range, 18-98 years) were included in the study. Among these, chest US, CXR, and CT were performed respectively in twenty-two, thirty-two and forty-two patients. **Lung US findings were consistent with diffuse B lines (100%) and subpleural consolidations (27.3%). CXR showed prevalent manifestations of consolidations (46.9%) and hazy increased opacities (37.5%). Typical CT features included bilateral and multilobar ground-glass opacities (GGO) with (59.5%) and without (35.7%) consolidations having a predominantly peripheral distribution (64.3%).** Other imaging features included **crazy paving pattern (57.1%), fibrous stripes (50%), subpleural lines (35.7%), architectural distortion (28.6%), air bronchogram sign (26.2%), vascular thickening (23.8%) and nodules (2.4%).** Also, enlarged lymph nodes (14.3 %) and pleural effusion (7.1%) were observed. The literature review identified twenty-six original studies supporting our imaging chest findings.

## **Lung Changes on Chest CT During 2019 Novel Coronavirus (COVID-19) Pneumonia.**

[PMID: 32285028](#)

[Publication Date: Apr 1, 2020; Apr 15, 2020 \(LitCovid\)](#)

Cinkooglu, Akin; Bayraktaroglu, Selen; Savas, Recep

Eur J Breast Health

Level of Evidence: Level 5 - Expert opinion

Type of Article: Editorial

**Summary with excerpts:** Given that PCR can sometimes result in false negatives especially in early disease, the authors argue for **the importance of CT imaging in combination with PCR for diagnosing COVID-19** and also summarize common findings on CT from the literature. Regarding CT findings from their own hospital, they remark, “at the early stages of the disease (1-4 days), we commonly see GGOs [ground-glass opacities] distributed mostly bilateral and peripheral with lower lobe predilection. **Later on, GGO with consolidation or septal thickening (crazy paving pattern), pure consolidation, and subpleural lines are seen as additional imaging findings.** We rarely observe unilateral, central distribution, and isolated upper lobe infiltration as an initial finding. Pleural and pericardial effusion, mediastinal and hilar lymphadenopathies are uncommon imaging findings.”

## **Clinical Trials during the SARS-CoV-2 Pandemic.**

[PMID: 32289798](#)

[Publication Date: Apr 14, 2020; Apr 15, 2020 \(LitCovid\)](#)

Warnock, David G

Nephron

Level of Evidence: 6 - No data cited

Article Type: Letter to the Editor

**BLUF:** 4-aminochloroquinines are being used to treat COVID-19 anecdotally in an uncontrolled fashion. **Controlled clinical trials are beginning to test these treatments, including and hydroxychloroquine study at the University of Minnesota which is actively recruiting patients.**

**Summarizing Excerpt:** “The University of Minnesota has organized a randomized placebo-controlled clinical trial (RCT) within a remarkably rapid timeframe, with initial posting at

ClinicalTrials.gov on March 16, 2020, and active recruitment beginning on March 17, 2020. This is a single-center RCT with nation-wide recruitment. The primary outcome measures of this trial include the incidence of active COVID-19-related disease at 14 days post-enrollment, and a COVID-19 Disease Severity Scale self-reported by participants at 14 days post-enrollment: no COVID-19-related disease (score of 1); COVID-19-related disease with no hospitalization (score of 2); or COVID-19-related disease with hospitalization or death (score of 3). The goal is to enroll and randomize 1,500 subjects into each of the active-drug and placebo arms, followed by a 6-day treatment course with hydroxychloroquine. Secondary outcome measures include 14-day incidence of hospitalization, 14-day incidence of confirmed SARS-CoV-2 infection, the number of participants in each arm who discontinue or withdraw from the protocol, and 90-day incidence of death related to COVID-19-related disease. The subjects included in this RCT will be healthcare workers or household contact who have been exposed to a COVID-19-related disease case within 3 days but have not yet developed symptoms (e.g., fever, cough, or shortness of breath)."

Country	Trial registry	Design	Setting, severity	Active arm(s)	PLC arm	Outcomes	Reference
Canada (Nova Scotia Health Authority)	NCT #: 04321993	Nonrandom, parallel assignment; open label	Hospitalized patients (1,000 subjects)	Lopinavir/ritonavir OHChlor Baricitinib Sarilumab		Clinical status scale while hospitalized, and at 15, 29, and 180 days	Goodall et al. NCT #: 04321993 (not yet recruiting)
China	NCT #: 04252885	Open label, random	Hospital, mild to moderate COVID-19	Lopinavir/ritonavir (21) Arbidol (16)	7	No sig diff: SARS-CoV-2 clearance, antipyretic, clinical status	Li et al. doi: <a href="https://doi.org/10.1101/2020.03.19.20038984">https://doi.org/10.1101/2020.03.19.20038984</a>
France	EU clin trials; 2020-000890-25	Open label, randomized, nonrandom	Hospital, non-ICU	OHChlor (20)	16	Reduced viral load, patients transferred to ICU excluded from treatment-arm analysis	Gautret et al. <a href="https://doi.org/10.1016/j.ijantimicag.2020.105949">https://doi.org/10.1016/j.ijantimicag.2020.105949</a>
Italy (Bergamo)		Observational case-control study	Hospital, before and after ICU admission with ARDS	Sarilumab		Reduced need for mechanical ventilation, ICU days, 30-day mortality	Retrospective case-matched controls for both treatment arms (anti-IL6 mAb)
US (Columbia University)	NCT #: 04318444	Randomized, double blind	Household contact of confirmed cases	OHChlor (800)	800	14 days: symptomatic COVID-19, or virus-positive COVID-19	NCT #: 04318444 (not yet recruiting)
US (University of Minnesota)	NCT #: 04308668	Randomized, double blind	Asymptomatic: healthcare workers, or COVID-19-positive household member	OHChlor (800)	800	14 days: SARS-CoV-2 positive, COVID-19 severity scale, 90-day mortality	NCT #: 04308668 (active nationwide recruitment)
US (NIAID)	NCT #: 04280705	Randomized, double-blind, adaptive trial design	Hospitalized with COVID-19 symptoms and positive SARS-CoV-2 viral test	Remdesivir (200)	200	15 days: COVID-19 severity scale	NCT #: 04280705; multiple sites, actively recruiting

ARDS, acute respiratory distress syndrome; COVID-19, disease related to SARS-CoV-2 infection; ICU, intensive care unit; mAb, monoclonal antibody; OHChlor, hydroxychloroquine; PLC, placebo; random, randomized significant; SARS-CoV-2, current Corona virus; sig diff, significant difference.

Table 1. Abbreviated summary of clinical trials evaluating the effects of hydroxychloroquine and other agents on COVID-19 (updated March 26, 2020).

## Herbal medicine and pattern identification for treating COVID-19: a rapid review of guidelines.

PMID: [32289016](https://pubmed.ncbi.nlm.nih.gov/32289016/)

Publication Date: Mar 29, 2020; Apr 15, 2020 (LitCovid)

Ang, Lin; Lee, Hye Won; Choi, Jun Yong; Zhang, Junhua; Soo Lee, MyeongIntegr Med Res

Level of Evidence: 5 - Review of guidelines without presenting supporting evidence

Article Type: Review Article

**BLUF:** China and South Korea have produced guidelines for use of traditional medicines in COVID-19. The most commonly recommended herbs were Armeniacae Semen Amarum and Ephedrae Herba in various formulations across all stages of disease. The most frequently utilized herb overall was Glycyrrhizae Radix et Rhizoma. **The review did not include data on efficacy of traditional medicine in COVID-19.**

### **Abstract:**

Background: Coronavirus disease 2019 (COVID-19) is pandemic and has caused illness to many people worldwide. This review aimed to summarize and analyze the herbal formulae provided by the guidelines for their pattern identifications (PIs) and compositions of herbs to treat patients with COVID-19.

Methods: We searched 7 data sources for eligible traditional medicine guidelines up to March 6, 2020 and found a total of **28 traditional medicine guidelines that provide treatment measures for COVID-19.**

Results: Of the 28 guidelines, there were 26 government-issued Chinese guidelines and 2 Korean guidelines. After standardizing the terminology of the PIs and herbal formulae, there were 8 PIs and 23 herbal formulae for the mild stage, 11 PIs and 31 herbal formulae for the moderate stage, 8 PIs and 21 herbal formulae for the severe stage, and 6 PIs and 23 herbal formulae for the recovery stage in the Chinese guidelines. In the Korean guidelines, there were 4 PIs and 15 herbal formulae for the mild stage, 3 PIs and 3 herbal formulae for the severe stage, and 2 PIs and 2 herbal formulae for the recovery stage. **In the frequency analysis of herbs, Glycyrrhizae Radix et Rhizoma was found to be the herb with the highest frequency of usage in the Chinese guidelines.**

Conclusion: This review can be used as guidance for the traditional medicine treatment of COVID-19. Clinical evidence is needed in the future to evaluate the efficacy of traditional medicine.

## **Novel decoy cellular vaccine strategy utilizing transgenic antigen-expressing cells as immune presenter and adjuvant in vaccine prototype against SARS-CoV-2 virus.**

[PMID: 32289117](#)

[Publication Date: March 25, 2020 \(online\); Apr 15, 2020 \(LitCovid\)](#)

Ji, Henry; Yan, Ying; Ding, Beibei; Guo, Wenzhong; Brunswick, Mark; Niethammer, Andreas; SooHoo, Williams; Smith, Robin; Nahama, Alexis; Zhang, Yanliang  
Med Drug Discov

Level of Evidence:5- Mechanism

Type of Article: Short communication

**BLUF:** Authors introduce a vaccine design idea for COVID-19 based on the concept of decoy cellular vaccination. They propose engineering these decoy cells to express the Spike-1 protein of SARS-CoV-2 as the immunogen.

### **Abstract:**

A novel approach modifying cells to express viral markers to elicit protective immunity responses (decoy cellular vaccination) in the prevention of COVID-19 disease is currently being explored. **Our approach entails utilizing SARS-CoV-2 Spike antigen-expressing, non-replicating cells as carriers and presenters of immunogenic antigens**, so called "I-cells". By using irradiated cells as presenting vehicles of SARS-CoV-2 viral antigens(s) in a cellular context, these presented viral proteins can be recognized by the host immune system, thus, an efficient protective immune response

might be elicited. Another advantage of this strategy is that the manufacturing process is scalable and yields uniform cell products allowing for "off-the-shelf" frozen supply availability. To prevent engraftment and proliferation of the cells after administration, the cells will be irradiated post-harvesting abolishing in vivo replication potential. Specifically, immunoreactive Spike-1 proteins from SARS-CoV-2 are expressed on the surface of irradiated target I-cells. Utilizing this innovative strategy, these viral antigen-displaying decoy cells will be developed as a vaccine to protect against COVID-19 disease.

## **Mesenchymal Stromal Cell Secretome for Severe COVID-19 Infections: Premises for the Therapeutic Use.**

[PMID: 32283815](#)

[Publication Date: Apr 9, 2020; Apr 15, 2020 \(LitCovid\)](#)

Bari, Elia; Ferrarotti, Ilaria; Saracino, Laura; Perteghella, Sara; Torre, Maria Luisa; Corsico, Angelo Guido  
Cells

Level of Evidence: 5- Mechanism

Type of Article: Perspective

**BLUF:** Authors briefly review some basics of COVID-19 pathology and suggest that mesenchymal stem cells (MSCs) could potentially serve as a therapeutic. They draw these conclusions from previous studies that indicate MSCs show promise in treating different lung disorders. Specifically they suggest that MSCs can act as delivery vehicles for biologically active substances (making a MSC-secretome).

### **Abstract:**

From the end of 2019, the world population has been faced the spread of the novel coronavirus SARS-CoV-2 responsible for COVID-19 infection. In approximately 14% of the patients affected by the novel coronavirus, the infection progresses with the development of pneumonia that requires mechanical ventilation. At the moment, there is no specific antiviral treatment recommended for the COVID-19 pandemic and the therapeutic strategies to deal with the infection are only supportive. **In our opinion, mesenchymal stem cell secretome could offer a new therapeutic approach in treating COVID-19 pneumonia, due to the broad pharmacological effects it shows, including anti-inflammatory, immunomodulatory, regenerative, pro-angiogenic and anti-fibrotic properties.**

## **Computational Design of ACE2-Based Peptide Inhibitors of SARS-CoV-2.**

[PMID: 32286790](#)

[Publication Date: Apr 14, 2020; Apr 15, 2020 \(LitCovid\)](#)

Han, Yanxiao; Kral, Petr

ACS Nano

Level of Evidence: Statistical modeling

Type of Article:

**BLUF:** Computational methods are often used for drug discovery purposes. Here they design and simulate different peptide inhibitors using the crystal structure of the receptor binding domain of the SARS-CoV-2 S protein binding to its human receptor ACE2 as a model. **They find a number of inhibitors show promise for blocking SARS-CoV-2 infection but provide no *in vitro* or *in vivo* testing.**



**Abstract: Peptide inhibitors against the SARS-CoV-2** coronavirus, currently causing a worldwide pandemic, **are designed and simulated.** The inhibitors are mostly formed by two sequential self-supporting alpha-helices (bundle) extracted from the protease domain (PD) of angiotensin-converting enzyme 2 (ACE2), which bind to the SARS-CoV-2 receptor binding domains. **Molecular dynamics simulations revealed that the alpha-helical peptides maintain their secondary structure and provide a highly specific and stable binding (blocking) to SARS-CoV-2.** To provide a multivalent binding to the SARS-CoV-2 receptors, many such peptides could be attached to the surfaces of nanoparticle carriers. The proposed peptide inhibitors could provide simple and efficient therapeutics against the COVID-19 disease.

## **Efficacy of remdesivir in a rhesus macaque model of MERS-CoV infection.**

[PMID: 32284571](#)

[Publication Date: Apr 9, 2020; Apr 15, 2020 \(LitCovid\)](#)

Le Bras, Alexandra

Lab Anim (NY)

Level of Evidence: 6- Opinion

Type of Article: Research highlight

**Summary:** Here the author highlights important takeaways from a previously published study examining the use of remdesivir as a treatment in a rhesus macaque model of MERS-CoV. The focus of this study is not on SARS-CoV-2 but on MERS-CoV and remdesivir.

## **Remdesivir is a direct-acting antiviral that inhibits RNA-dependent RNA polymerase from severe acute respiratory syndrome coronavirus 2 with high potency.**

[PMID: 32284326](#)

[Publication Date: Apr 13, 2020; Apr 15, 2020 \(LitCovid\)](#)

Gordon, Calvin J; Tchesnokov, Egor P; Woolner, Emma; Perry, Jason K; Feng, Joy Y; Porter, Danielle P; Gotte, Matthias

J Biol Chem

Level of Evidence: 5 - Mechanism based reasoning

Type of Article: Research

**BLUF:** Remdesivir is mechanistically a direct acting antiviral active in coronaviruses due to SARS-CoV-2 RNA-dependent RNA polymerase efficiently incorporating remdesivir into RNA leading to synthesis termination.

**Abstract:** Effective treatments for coronavirus disease 2019 (COVID-19) are urgently needed to control this current pandemic, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). **Replication of SARS-CoV-2 depends on the viral RNA-dependent RNA polymerase (RdRp), which is the likely target of the investigational nucleotide analogue remdesivir (RDV).** RDV shows broad-spectrum antiviral activity against RNA viruses, and previous studies with RdRps from Ebola virus (EBOV) and Middle East respiratory syndrome coronavirus (MERS-CoV) have revealed that **delayed chain-termination is RDV's plausible mechanism of action.** Here, we expressed and purified active SARS-CoV-2 RdRp composed of the non-structural proteins nsp8 and nsp12. **Enzyme kinetics indicated that this RdRp efficiently incorporates the active triphosphate form of RDV (RDV-TP) into RNA.** Incorporation of RDV-TP at position i caused termination of RNA synthesis at position i+3. We obtained almost identical results

with SARS-CoV, MERS-CoV, and SARS-CoV-2 RdRps. A unique property of RDV-TP is its high selectivity over incorporation of its natural nucleotide counterpart ATP. In this regard, the triphosphate forms of 2'-C-methylated compounds, including sofosbuvir, approved for the management of hepatitis C virus infection, and the broad-acting antivirals favipiravir and ribavirin, exhibited significant deficits. Furthermore, we provide evidence for the target specificity of RDV, as RDV-TP was less efficiently incorporated by the distantly related Lassa virus RdRp, and termination of RNA synthesis was not observed. These results collectively provide a unifying, refined mechanism of RDV-mediated RNA synthesis inhibition in coronaviruses and define this nucleotide analogue as a direct-acting antiviral (DAA).

## **Human antibodies can neutralize SARS-CoV-2.**

[PMID: 32286538](#)

[Publication Date: Apr 14, 2020; Apr 15, 2020 \(LitCovid\)](#)

Catalan-Dibene, Jovani

Nat Rev Immunol

Level of Evidence: Level 4 - Brief of research study

Type of Article: Research

**Summarizing excerpt:** “Ju et al. demonstrate the existence of virus-specific memory B cells recognizing the receptor-binding domain (RBD) of the SARS-CoV-2 spike protein in patients infected with SARS-CoV-2...Only two clones showed 98–99% blocking of viral entry, which correlated with high competing capacity against ACE2 receptor. These results indicate that **the humoral response is virus specific and diverse and can produce potent neutralizing antibodies.**”

## **Clinical and microbiological effect of a combination of hydroxychloroquine and azithromycin in 80 COVID-19 patients with at least a six-day follow up: A pilot observational study**

[PMID: 32289548](#)

[Publication Date: Apr 11, 2020; Apr 15, 2020 \(LitCovid\)](#)

Gautret, Philippe; Lagier, Jean-Christophe; Parola, Philippe; Hoang, Van Thuan; Meddeb, Line; Sevestre, Jacques; Mailhe, Morgane; Doudier, Barbara; Aubry, Camille; Amrane, Sophie; Seng, Piseth; Hocquart, Marie; Eldin, Carole; Finance, Julie; Vieira, Vera Esteves; Dupont, Herve Tissot; Honore, Stephane; Stein, Andreas; Million, Matthieu; Colson, Philippe; La Scola, Bernard; Veit, Veronique; Jacquier, Alexis; Deharo, Jean-Claude; Drancourt, Michel; Fournier, Pierre Edouard; Rolain, Jean-Marc; Brouqui, Philippe; Raoult, Didier

Travel Med Infect Dis

Level of Evidence: Level 3 - Observational Study

Type of Article: Research

**BLUF:** Of the 80 patients with mild COVID-19 treated with azithromycin and hydroxychloroquine, 65 had favorable outcomes and 93% of patients had negative PCR by day 8 of treatment. **Evidence suggests a beneficial effect of co-administering these drugs, which may also reduce early contagiousness.**

### **Abstract:**

**BACKGROUND:** We need an effective treatment to cure COVID-19 patients and to decrease virus carriage duration.



**METHODS:** We conducted an uncontrolled non-comparative observational study in a cohort of 80 relatively mildly infected inpatients treated with a combination of hydroxychloroquine and azithromycin over a period of at least three days, with three main measurements: clinical outcome, contagiousness as assessed by PCR and culture, and length of stay in infectious disease unit (IDU)

**RESULTS:** All patients improved clinically except one 86 year-old patient who died, and one 74 year-old patient still in intensive care. A rapid fall of nasopharyngeal viral load was noted, with 83% negative at Day7, and 93% at Day8. Virus cultures from patient respiratory samples were negative in 97.5% of patients at Day5. Consequently patients were able to be rapidly discharged from IDU with a mean length of stay of five days.

**CONCLUSION:** We believe there is urgency to evaluate the effectiveness of this potentially-life saving therapeutic strategy at a larger scale, both to treat and cure patients at an early stage before irreversible severe respiratory complications take hold and to decrease duration of carriage and avoid the spread of the disease. Furthermore, the cost of treatment is negligible.

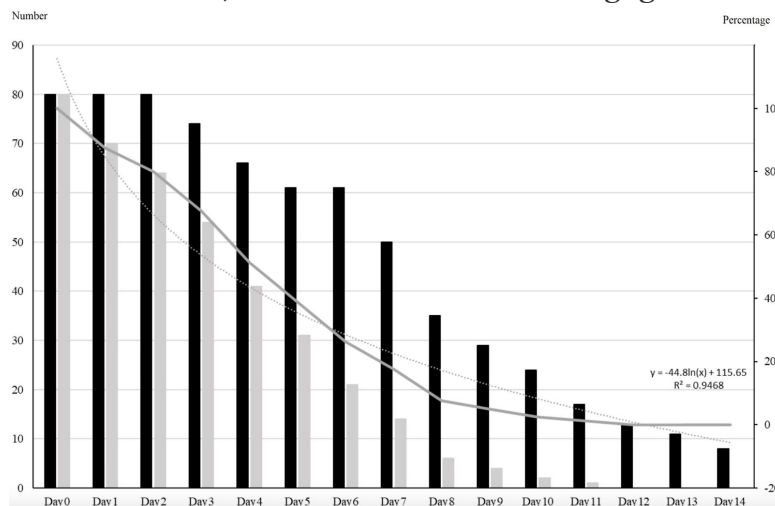


Fig. 1. SARS-CoV-2 PCR from nasopharyngeal samples overtime. Black bars: number of patients with available results, grey bars: number of patients with PCR Ct value < 34, solid line: percentage of patients with PCR Ct value < 34, dashed line: logarithmic regression curve.

## COVID-19 and emerging viral infections: The case for interferon lambda.

PMID: [32289152](https://pubmed.ncbi.nlm.nih.gov/32289152/)

Publication Date: Apr 14, 2020; Apr 15, 2020 (LitCOVID)

Prokunina-Olsson, Ludmila; Alphonse, Noemie; Dickenson, Ruth E; Durbin, Joan E; Glenn, Jeffrey S; Hartmann, Rune; Kotenko, Sergei V; Lazear, Helen M; O'Brien, Thomas R; Odendall, Charlotte; Onabajo, Olusegun O; Piontkivska, Helen; Santer, Deanna M; Reich, Nancy C; Wack, Andreas; Zandoni, Ivan

J Exp Med

Level of Evidence: 5 – Expert Opinion

Type of Article: Viewpoint

**BLUF:** IFN-λ has anti-viral capabilities and could be considered in the treatment of COVID-19.

**However, whether it can act in an effectively in an environment of severe inflammation has not been proven and needs to be investigated.**

**Abstract:** With the first reports on coronavirus disease 2019 (COVID-19), which is caused by the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the scientific community working in the field of type III IFNs (IFN-λ) realized that this class of IFNs could play an important role in this and other emerging viral infections. In this Viewpoint, we present our opinion on the

benefits and potential limitations of using IFN- $\lambda$  to prevent, limit, and treat these dangerous viral infections.

## Searching therapeutic strategy of new coronavirus pneumonia from angiotensin-converting enzyme 2: the target of COVID-19 and SARS-CoV.

PMID: [32285293](#)

Publication Date: [Apr 15, 2020 \(LitCovid\)](#)

Li, Shu-Ren; Tang, Zi-Jian; Li, Zai-Han; Liu, XuanEur J Clin Microbiol Infect Dis

Eur J Clin Microbiol Infect Dis

Level of Evidence: 5 - Expert Opinion

Type of Article: Review

**BLUF:** ACE2 receptor's wide distribution in the body has been implicated in diffuse organ damage in COVID-19 patients. It is a potential target for therapies due to its role in viral entry.

**Abstract:** Since December 2019, the infection of the new coronavirus (COVID-19) caused an outbreak of new coronavirus pneumonia in Wuhan, China, and caused great public concern. Both COVID-19 and SARS-CoV belong to the coronavirus family and both invade target cells through ACE2. An in-depth understanding of ACE2 and a series of physiological and physiological changes caused by the virus invading the human body may help to discover and explain the corresponding clinical phenomena and then deal with them timely. In addition, ACE2 is a potential therapeutic target. This article will summarize the role of ACE2 in multiple organ damage caused by COVID-19 and SARS-CoV, targeted blocking drugs against ACE2, and drugs that inhibit inflammation in order to provide the basis for subsequent related research, diagnosis and treatment, and drug development.

## Mental Health & Resilience

### A Rational Use of Clozapine Based on Adverse Drug Reactions, Pharmacokinetics, and Clinical Pharmacopsychology.

[PMID: 32289791](#)

[Publication Date: Apr 14, 2020; Apr 15, 2020 \(LitCovid\)](#)

de Leon, Jose; Ruan, Can-Jun; Schoretsanitis, Georgios; De Las Cuevas, Carlos

Psychother Psychosom

Level of Evidence: 5 - Expert opinion

Article Type: Review article

**BLUF:** Data regarding clozapine and risk of infection in COVID-19 patients due to agranulocytosis and other adverse reactions is not available and therefore its use should be modified. **Psychiatrists should inform patients to call if they develop flu like symptoms and should decrease their dose by 50% if they cannot contact their provider.** Inpatient admission for COVID-19 could warrant medication cessation.

**Abstract:** Using Richardson and Davidson's model and the sciences of pharmacokinetics and clinical pharmacopsychology, this article reviewed the: (1) poor life expectancy associated with treatment-resistant schizophrenia (TRS), which may be improved in patients who adhere to clozapine; (2) findings that clozapine is the best treatment for TRS (according to efficacy, effectiveness and well-being); and (3) potential for clozapine to cause vulnerabilities, including potentially lethal adverse drug reactions such as agranulocytosis, pneumonia, and myocarditis. Rational use requires: (1) modification of the clozapine package insert worldwide to include lower doses for Asians and to avoid the lethality associated with pneumonia, (2) the use of clozapine levels for personalizing dosing, and (3) the use of slow and personalized titration. This may make clozapine as safe as possible and contribute to increased life expectancy and well-being. **In the absence of data on COVID-19 in clozapine patients, clozapine possibly impairs immunological mechanisms and may increase pneumonia risk in infected patients.** Psychiatrists should call their clozapine patients and families and explain to them that if the patient develops fever or flu-like symptoms, the psychiatrist should be called and should consider halving the clozapine dose. If the patient is hospitalized with pneumonia, the treating physician needs to assess for symptoms of clozapine intoxication since halving the dose may not be enough for all patients; consider decreasing it to one-third or even stopping it. Once the signs of inflammation and fever have disappeared, the clozapine dose can be slowly increased to the prior dosage level.

### The COVID-19 pandemic: The “black swan” for mental health care and a turning point for e-health.

[PMID: 32289019](#)

[Publication Date: Mar 19, 2020; Apr 15, 2020 \(LitCovid\)](#)

Wind, Tim R; Rijkeboer, Marleen; Andersson, Gerhard; Riper, Heleen

Internet Interventions

Level of Evidence: 5 - Expert opinion

Type of Article: Comment

**BLUF:** The COVID-19 pandemic is responsible for many factors that increase the need for mental health professionals. Telemedicine can be used to fill this need and is vital.

**Summary:** Levels of anxiety will increase, both through direct causes including fears of contamination, stress, grief, and depression triggered by exposure to COVID-19, and through influences from the consequences of the social and economic mayhem that is occurring on individual and societal levels. There may be a shift in mental health care provision toward online prevention, treatment, and care in the near future. **Providing mental health care at a ‘warm’ distance by video-conferencing psychotherapy and internet interventions is more valuable than ever today and in the future.**

## **Knowledge and attitudes of medical staff in Chinese psychiatric hospitals regarding COVID-19.**

[PMID: 32289123](#)

[Publication Date: Mar 29, 2020; Apr 15, 2020 \(LitCovid\)](#)

Shi, Yudong; Wang, Juan; Yang, Yating; Wang, Zhiqiang; Wang, Guoqing; Hashimoto, Kenji; Zhang, Kai; Liu, Huanzhong

Brain, Behavior, and Immunity – Health

Level of Evidence: 5 – Survey

Type of Article: Research

**Summary:** A majority of a survey sample of 141 psychiatrists and 170 psychiatric nurses from two psychiatric hospitals in China expressed confidence of their knowledge of COVID-19 (89.51%) and willingness to work with psychiatric patients with COVID-19 (77.17%). A smaller majority (64.63%) of the surveyed participants had completed a COVID-19 training program provided by their hospital.

**Advanced training and prior experience in caring for a patient with COVID-19 were independent predictors of willingness to care for psychiatric patients with COVID-19.**

## **Mental health burden for the public affected by the COVID-19 outbreak in China: Who will be the high-risk group?**

[PMID: 32286091](#)

[Publication Date: Apr 14, 2020; Apr 15, 2020 \(LitCovid\)](#)

Huang, Yeen; Zhao, Ning

Psychol Health Med

Level of Evidence: 4 - Cross-sectional study

Type of Article: Research

**Summary:** This web-based cross-sectional survey was conducted to examine the psychological impact on the COVID-19 on the Chinese public (n=7,236). “The overall prevalence of anxiety symptoms, depressive symptoms, and poor sleep quality were 35.1%, 20.1%, and 18.2%, respectively.

**People aged < 35 years reported a higher prevalence of anxiety symptoms and depressive symptoms than people aged ≥ 35 years. Healthcare workers have the highest rate of poor sleep compared to other occupations.”**

## **Patients with chronic illness urgently need integrated physical and psychological care during the COVID-19 outbreak.**

[PMID: 32289729](#)

[Publication Date: Apr 15, 2020 \(LitCovid\)](#)

Kang, Chuanyuan; Yang, Shuran; Yuan, Jing; Xu, Li; Zhao, Xudong; Yang, Jianzhong  
Asian J Psychiatr

Level of Evidence: 5 - Expert Opinion

Type of Article: Letter to the Editor

**Summary:** Patients with multiple comorbidities need integrated psychological care in addition to their physical care during this pandemic. Psychiatrists can play a pivotal role in providing psychological care to this vulnerable population.

## Cultivating Deliberate Resilience During the Coronavirus Disease 2019 Pandemic.

[PMID: 32286616](#)

Publication Date: Apr 14, 2020; Apr 15, 2020 (LitCovid)

Rosenberg, Abby R

JAMA Pediatr

Level of Evidence: 5 - Expert opinion

Type of Article: Commentary

**Summary:** The author emphasizes the importance of **promoting deliberate resilience** in health care workers and organizations during COVID-19 pandemic. She introduces categories of resilience resources and states that “...naming the categories and examples of their corresponding, specific resilience resources helps [individuals] identify and harness them.”

Table. Evidence-Based Categories of Resilience Resources and Possible Applications in the Era of Coronavirus Disease 2019

Resilience resource category	Individual	Community	Existential
How to consider the resilience resource category	What do I (or we) do when times get hard?	Who helps me (or us) when times get hard?	Who do I (or we) want to be when this is over? What will it have meant for me (or us)?
Classic examples of the resilience resource category	Reliance on personal or group characteristics (eg, grit, hardiness, optimism); development of personal or group skills (eg, stress management, mindfulness, goal setting).	Prioritization and leverage of existing relationships with empathic or understanding people (eg, friends, family, peer networks); development and cultivation of new individual and group relationships with people who are like-minded to validate feelings and identify shared purpose (eg, colleagues, faith communities, advocacy groups).	Reframing appraisal(s) of adversity with integration of ongoing lessons learned; iterative evaluation of personal or group identity, with focus on values, meaning, and purpose; identification of gratitude and what matters in personal or group worldview.
Possible person-level applications	Practice self-care (we cannot be resilient if we, too, are ill); prioritize rest and stress management techniques, such as mindfulness and exercise; celebrate successes and recognize forward momentum; be proactive; approach challenges, such as required work from home by creating manageable short-term goals and steps toward their achievement.	Cultivate community: dedicate several minutes of virtual meetings toward checking in and conversations about experiences in the hospital, how people's children are faring, or the new normal of working from home. (This helps us maintain a sense of connection to colleagues and friends.)	Reframe social distancing as (1) a deliberate activity to promote patient and community safety, (2) an opportunity to identify which meetings are truly necessary in our work, and/or (3) an opportunity to become skillful at video conferencing; build personal purpose by helping others. (This may include caring for patients with coronavirus disease 2019 or volunteering to help communities disproportionately affected by social distancing guidelines.)
Possible organization-level applications	Practice self-care; support staff by clearly communicating expectations, acknowledging uncertainty, expressing gratitude, and providing access for frequently asked questions; celebrate successes and recognize forward momentum; be proactive; anticipate systems challenges, such as low morale, stress, workforce and/or equipment shortages, childcare needs, and sick leave; consider novel approaches to meeting shared organizational goals.	Cultivate for opportunities for shared self-discovery; organizations and staff can come together to explore lessons learned, new perspectives, and strategies for managing the stress of uncertainty and/or fear of the viral pandemic. (This helps us maintain a sense of connection to our organizational culture.)	Deliberately consider the future narrative of our medical community; begin writing the story we hope to tell about how we handled this adversity; cultivate and champion shared purpose in health care missions to support patients, families, and communities.



## Coronavirus Disease 2019 (COVID-19) and Mental Health for Children and Adolescents.

PMID: 32286618

Publication Date: Apr 14, 2020; Apr 15, 2020 (LitCovid)

Golberstein, Ezra; Wen, Hefei; Miller, Benjamin F

JAMA Pediatr.

Level of Evidence: 5 - Expert Opinion

Type of Article: Opinion

**BLUF:** Mental health care is often given in schools, especially for children that have limited resources to access it otherwise. If schools are closed these children are not receiving care and a solution should be put in place during the pandemic.

**Summarizing excerpt:** “Furthermore, **among adolescents who received any mental health services during 2012 to 2015, 35% received their mental health services exclusively from school settings.**<sup>5</sup> School closures will be especially disruptive for the mental health services of that group. It is important to also understand that school closures will be relatively more disruptive for the mental health care of some youths. Adolescents in racial and ethnic minority groups, with lower family income, or with public health insurance were disproportionately likely to receive mental health services exclusively from school settings.<sup>5</sup> These students may lack the family resources and existing relationships with clinicians to quickly gain access to alternative community-based services. **Policy makers should consider responses to address COVID-19’s short-term disruptions for children’s mental health services while also laying groundwork to improve children’s mental health services in the long term.**”



## Resources: Broad Review Articles

**COVID-19 Research in Brief: 4 April to 10 April, 2020.**

[PMID: 32286558](#)

Publication Date: Apr 13, 2020; Apr 15, 2020 (LitCovid)

Carvalho, Thiago

Nat Med

## **Associate Contributors & Acknowledgments**

### **University of Arizona, School of Medicine**

Abel De Castro, MS1<sup>2</sup>  
Charlotte Archuleta, MS3<sup>2</sup>  
Maggie Donovan, MS1<sup>2</sup>  
Akshara Malla, MS4<sup>2</sup>  
Ann Staudinger Knoll, MS1<sup>2</sup>  
Michael Olson, MS1<sup>2</sup>  
Marzia Shah, MS4<sup>2</sup>  
Shandiin Sam, MS4<sup>2</sup>  
Michelle Arnold, MS3<sup>2</sup>  
John Michael Sherman, MS1<sup>2</sup>  
Kathleen Hanlon, MS3<sup>2</sup>  
Celina Virgen, MS3<sup>2</sup>

