

# April 19-20, 2020

## Weekend COVID-19 Literature Surveillance Summary



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## 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 21st, 2020

## Executive Summary

### Climate:

- [Systematic metaanalysis of reviews coming out on Covid-19 were consistently found to be of low or critically low quality based on the AMSTAR 2](#) (A MeASurement Tool to Assess systematic Reviews). The authors recommend exercising caution when using systematic reviews to make clinical and public policy decisions. Inclusion of a methodologist in the research team and funding support were associated with increased quality.
- Continued concerns for the [disproportionate impact of the pandemic on the underserved](#)

### Epidemiology

- Predictive modeling suggests
  - That countries with [older populations will experience a greater burden of disease](#) and higher mortality rates.
  - High incidence of [COVID-19 in South Korea through June 2020](#), and advises continued social distancing
  - Other [studies caution against leaning too heavily on modeling studies](#) because they require dynamic updating with high quality data
- [9282 COVID-19 patients in the United States were Health care workers](#), 55% reported a known exposure at their job only and 27 have unfortunately passed.
- Data supporting that [hepatic, cardiac](#) and [neurological dysfunction](#) are also clinical findings that are highly associated with COVID-19.
- More evidence for [smell dysfunction](#) and the potential role of [androgens](#)

### Pathology

- Histological sections of lung samples from patients who died from COVID-19 suggest “generalized thrombotic microvascular injury[Complement Associated Microvascular Injury and Thrombosis in the Pathogenesis of Severe COVID-19 Infection: A Report of Five Cases](#)”, complement deposition and inflammatory response.

### Guidelines:

1. How to [protect patients and staff](#) in outpatient cardiology and valve surgeries
2. [Emergent abdominal surgeries](#)
3. Limiting exposure to on [orthopedic trauma](#) and [pediatric ortho](#) services
4. [Infantile hemangiomas](#)

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[COVID-19 Pandemic and Impending Global Mental Health Implications.](#)

[PMID: 32303027](#)

[Publication Date: Apr 17, 2020](#)

[Shuja KH, Aqeel M, Jaffar A, Ahmed A. Shuja KH, et al.](#)

[Psychiatria Danubina.](#)

[Level of Evidence: Level 5 - Opinion](#)

[Type of Article: Review](#)

[BLUF: There are multiple mental health and psychiatric disorders that are found in health workers and general public survivors of pandemics, and it can be speculated there will be for the COVID-19 pandemic as well. For example, anxiety, obsessive compulsive disorder, aggression, frustration, and post-traumatic stress disorders have manifested along with stigmatization, medical mistrust, and conspiracy theories are either already being witnessed during this pandemic or are speculated to be seen once studies begin. Therefore, there is a need to implement proper mental health precautions, in addition to physical health precautions.](#)

[Abstract:](#)

The increase in organisms transference and infectious pandemics across the globe have been accelerated by an increase in travel, international exchange and global changes in earth's climate. COVID-19, a virus caused by the novel coronavirus that was initially identified on December 2019, in Wuhan city of China is currently affecting 146 territories, states and countries raising distress, panic and increasing anxiety in individuals exposed to the (actual or supposed) peril of the virus across the globe. Fundamentally, these concerns ascend with all infections, including those of flu and other agents, and the same worldwide safeguards are compulsory and suggested for protection and the prevention of further diffusion. However, media has underlined COVID-19 as rather an exclusive threat, which has added to panic and stress in masses which can lead to several mental health issues like anxiety, obsessive compulsive disorder and post-traumatic stress disorder which should be contained immediately in its initial phases.

Mental Health Nurses locked out while Australia locks down.

PMID: 32302447

Publication Date: Apr 17, 2020

Lakeman R.Lakeman R.

Journal of Psychiatric and Mental Health Nursing

Level of Evidence: Article is not able to be accessed to be verified.

Type of Article: Letter to the Editor

BLUF: Article is not able to be accessed to be verified.

Abstract:

Australia is currently in lockdown, it's State, and National borders closed, gatherings of more than two people in public are banned, and a raft of other unprecedented measures have been implemented in response to the COVID-19 pandemic. This comes on the back of apocalyptic fires, floods and cyclones. Those that have been involved in recovery efforts in any of these events will have been witness to the resilience of the Australian community. These adventitious crises tend to bring communities together. This pandemic poses quite a different existential, psychological and social threat to Australians.

# 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? (Diagnosis)</b>	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? (Prognosis)</b>	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? (Treatment Benefits)</b>	Systematic review of randomized trials or n-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? (Treatment Harms)</b>	Systematic review of randomized trials, systematic review of nested case-control studies, n-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? (Treatment Harms)</b>	Systematic review of randomized trials or n-of-1 trial	Randomized trial or (exceptionally) observational study with dramatic effect	Non-randomized controlled cohort/follow-up study**	Case-series, case-control, or historically controlled studies**	Mechanism-based reasoning
<b>Is this (early detection) test worthwhile? (Screening)</b>	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

### Global

#### [Coronavirus \(COVID-19\) in Haiti: A Call for Action.](#)

Louis-Jean J, Cenat K, Sanon D, Stvil R.

J Community Health

2020 Apr 17, PMID: 32303920

Level of Evidence: 5 - Expert Opinion

Article Type: Commentary

**BLUF:** The Haitian government needs to clarify misinformation about the coronavirus to the public in order to reduce the risk transmission.

**Abstract:** Recently, the cholera outbreak in Haiti demonstrated just how unprepared the country is to rapidly isolate an outbreak of this magnitude, and its vulnerability to the COVID-19 pandemic. This communication briefly examines the health system in Haiti and its vulnerability toward the COVID-19 outbreak.

### Healthcare Workers

#### [Healthcare Ethics During a Pandemic.](#)

PMID: 32302284

Publication Date: April 13, 2020

Iserson KV

West J Emerg Med.

Level of Evidence: Level 5 - Expert opinion

Type of Article: Opinion

**BLUF:** The author discusses the risks and nature of physicians and healthcare providers during the COVID-19 epidemic. He argues that providers will have enough information and resources to treat patients and stay safe but support personnel may not.

#### **Abstract:**

As clinicians and support personnel struggle with their responsibilities to treat during the current COVID-19 pandemic, several ethical issues have emerged. Will healthcare workers and support staff fulfill their duty to treat in the face of high risks? Will institutional and government leaders at all levels do the right things to help alleviate healthcare workers risks and fears? Will physicians be willing to make hard, resource-allocation decisions if they cannot first husband or improvise alternatives? With our healthcare facilities and governments unprepared for this inevitable disaster, front-line doctors, advanced providers, nurses, EMS, and support personnel struggle with acute shortages of equipment-both to treat patients and protect themselves. With their personal and possibly their family's lives and health at risk, they must weigh the option of continuing to work or retreat to safety. This decision, made daily, is based on professional and personal values, how they **perceive existing risks-including available protective measures, and their perception of the level and transparency of information they receive. Often, while clinicians get this information, support personnel do not, leading to absenteeism and deteriorating healthcare services.** Leadership can use good risk communication (complete, widely transmitted, and transparent) to align healthcare workers' risk perceptions with reality. They also can address the common problems healthcare workers must overcome to continue working (ie, risk mitigation

techniques). Physicians, if they cannot sufficiently husband or improvise lifesaving resources, will have to face difficult triage decisions. Ideally, they will use a predetermined plan, probably based on the principles of Utilitarianism (maximizing the greatest good) and derived from professional and community input. Unfortunately, none of these plans is optimal.

## Disparities

### [COVID-19: health literacy is an underestimated problem.](#)

Paakkari L, Okan O.

Lancet Public Health

2020 Apr 14; PMID: 32302535

Level of Evidence: 5 - Expert Opinion

Article Type: Commentary

**Summary:** Poor health literacy is a significant public health issue that is impacting people's understanding of health recommendations. Addressing it as this moment with COVID-19 is difficult but should become a topic of discussion.

### [COVID-19 in long-term care facilities: An upcoming threat that cannot be ignored.](#)

Lai CC, Wang JH, Ko WC, Yen MY, Lu MC, Lee CM, Hsueh PR; Society of Taiwan Long-term Care Infection Prevention and Control. Lai CC, et al.

J Microbiol Immunol Infect

2020 Apr 13; PMID: 32303483

Level of Evidence: 5 - Expert opinion

Type of Article: Perspective

**Summary:** Elderly patients residing in long-term care facilities (LTCF) are highly vulnerable to SARS-CoV-2 infection and COVID-19 associated morbidity and mortality based on high fatality rates in patients over 80 years old in China and Italy and poorer outcomes among patients with underlying conditions. LTCF residents are at high risk for infectious disease due to their history of multiple chronic diseases, the sharing of common sources, and frequent interactions with healthcare providers. Infection prevention and control (IPC) policies, vaccination strategies, staff education, hygiene and respiratory etiquette promotion, and physical distancing and containment measures are recommended interventions to prevent disease spread.

### [When Basic Supplies Are Missing, What to Do? Specific Demands of the Local Street Population in Times of Coronavirus - A Concern of Social Psychiatry.](#)

Neto MLR, de Souza RI, Quezado RMM, Mendonça ECS, de Araújo TI, Luz DCRP, de Santana WJ, Sampaio JRF, Carvalho PMM, Arrais TMSN, Landim JMM, da Silva CGL.

Psychiatry Res

2020 Apr 13; PMID: 32304928

Level of Evidence: 5 – Expert Opinion

Type of Article: Letter

**Summary:** The authors discuss the unique challenges encountered by homeless populations during this pandemic, including unclear applications of preventative measures like social distancing and frequent handwashing in this population as well as the increased risk of COVID-19 this population encounters secondary to a high comorbidity rate. The authors note that COVID-19 has highlighted the

health vulnerabilities homeless populations face and suggest that “[p]erhaps it is time to reconsider the ethical basis of our communities and our social system.”

**Abstract:**

Background: Homeless experts and some federal housing officials are sounding the alarm that the patchwork of government efforts to address the coronavirus outbreak risks leaving out one group of acutely vulnerable people: the homeless. In terms of isolation, it is too unclear what that looks like if you normally sleep on the streets. In this tough moment, when people should be turned away, not only does it feel inhumane, but it is also a big public health risk, because where are they going to go?

Method: The studies were identified using large-sized newspapers with international circulation

RESULTS: With more cities suspecting community transmission of the novel coronavirus, people who sleep in shelters or hunker down outside already have a lower life expectancy and often have underlying health conditions that put them at greater risk if they develop COVID-19 (Global News, 2020). These people face lack of sleep, malnutrition, and "extreme stress levels just to meet their daily needs", all of which weakens the immune system. Along with mental illness or substance abuse disorders, they are "incredibly vulnerable to this virus".

Conclusions: Health organizations are well aware of the risks involved in mental health. A large population of homeless people experience their pain and psychological distress intermittently. For low-income patients, the various borderline situations related to health/illness involve growing expectations regarding the basic needs. This is a serious concern when linked to the pandemic."

## Can the human coronavirus epidemic also spread through solid waste?

Mol MPG, Caldas S.Mol MPG, et al.

Waste Manag Res

2020 Apr 17; PMID: 32303151

Level of Evidence: 5 - Expert Opinion

Type of Article: Letter

**Bluf:** Poor solid waste management could intensify the risk of spread in waste workers, mainly in developing countries

**Abstract:** Wastes generated in healthcare facilities have been discussed and the World Health Organization has proposed a guideline for controlling the spread of the virus that causes Coronavirus Disease 2019 (COVID-19). However, waste management outside the generating facility should be discussed in more detail, taking into account factors such as virus resistance, differences in waste management systems and the climatic conditions in each affected region. Patients infected by human coronavirus being treated at home are generating infected waste possibly discarded as domestic waste, which can pose risks to workers and the environment, depending on the conditions of transport and disposal. In particular, the spread of the coronavirus may be increased by inadequate waste management, highlighting poor handling conditions associated with inappropriate use of personal protective equipment and other unfavourable conditions presented mainly in developing countries.

## Susceptibility of Southwestern American Indian Tribes to Coronavirus Disease 2019 (COVID-19).

Kakol M, Upson D, Sood A.Kakol M, et al.

J Rural Health

2020 Apr 18; PMID: 32304251

Level of Evidence: 5 - Expert Opinion

Type of Article: Commentary

**Bluf:** Explaining how the COVID-19 pandemic is affecting the Southwestern American Indians with greater force.

**Summary:** The American Indian population faces a higher risk for COVID-19 due to the disproportionate higher prevalence and/or mortality rates of obesity, diabetes mellitus, and cardiovascular disease than the general US population. Other potential reasons that increase American Indians' risk are various social determinants of health. Ways some American Indian groups are taking approaches to mitigate local spread of infection is promoting personal hygiene, social isolation, curfew, quarantine housing, and culturally appropriate healthcare preparedness.

## COVID-19 and the coming epidemic in US immigration detention centres.

Meyer JP, Franco-Paredes C, Parmar P, Yasin F, Gartland M.Meyer JP, et al.

Lancet Infect Dis.

2020 Apr 15; PMID: 32304631

Level of Evidence: 5 - Expert opinion

Type of Article: Comment

**Summarizing excerpt:** “Because of the existing barriers to adequate mitigation, containment, and provision of medical care in detention facilities, the policy response to this crisis must involve the release of individuals in ICE detention and a halt of ICE enforcement action in the community. These actions should include the immediate release on humanitarian parole of individuals at risk of severe disease and death due to COVID-19 infection”

## Policy

### **The effective use of telemedicine to save lives and maintain structure in a healthcare system: Current response to COVID-1.**

Elkbuli A, Ehrlich H, McKenney M.

Am J Emerg Med.

2020 Apr 7; PMID: 32303410No abstract available.

Level of Evidence: 6 - Expert opinion

Type of Article: Commentary

**Summary:** The author cites research and reports from the AMA and USDHHS supporting the effectiveness of telemedicine and telecommunication in medical education, triage, remote OB monitoring, communication with isolated patients, and for routine medical care.

## Technology

### **Health Communication Through News Media During the Early Stage of the COVID-19 Outbreak in China: A Digital Topic Modeling Approach.**

Liu Q, Zheng Z, Zheng J, Chen Q, Liu G, Chen S, Chu B, Zhu H, Akinwunmi B, Huang J, Zhang CJP, Ming WKJ.

Med Internet Res.

2020 Apr 16; PMID: 32302966

Level of Evidence: 5 - Expert Opinion

Type of Article: Analysis

**Summary:** An analysis of news articles released in China from 1/1/2020-2/2/2020 yielded nine major themes the top three of which were disease prevention/control, treatment, and the global and local effects of the virus on society and the economy. Additionally, news of new cases/outbreaks appears to be delayed and might not be the most efficient way to inform populations of new threats.

### **Innovative technologies for hand hygiene monitoring are urgently needed in the fight against COVID-19.**

Cawthorne KR, Cooke RPD.

J Hosp Infect.

2020 Apr 15; PMID: 32304726No abstract available.

Level of Evidence: 6 - Expert opinion

Type of Article: Letter

**BLUF:** Innovation in hand hygiene monitoring technology is needed.

**Summary:** The authors discuss the limitations and potential uses of different measures of hand hygiene including direct observation, alcohol based hand rub purchases, and newer automated methods. The automated hand hygiene monitoring methods discussed are door monitoring systems, badge trackers, and video review. **Current hand hygiene monitoring practices all have significant drawbacks** and the authors conclude that **innovation in hand hygiene monitoring is needed.**

## Education

### The role of the future physician: building on shifting sands.

Fernandes L, FitzPatrick ME, Roycroft M, Fernandes L, et al.

Clin Med (Lond).

2020 Apr 17; PMID: 32303498

Level of Evidence: Level 5 - Expert Opinion

Type of Article: Comment

**BLUF:** The future of medical practice will require changes in several domains - physician training, incorporation of technology, workforce, patient expectations, and healthcare organization.

#### **Abstract:**

The role of the future physician in the NHS is of interest to current doctors, patients, policymakers and the wider public. Amid the COVID-19 pandemic, it has never been more clear that the healthcare needs of the population, and the technical and scientific advances with which to solve them, are rapidly evolving and the medical workforce must adapt to these changes to deliver personalised healthcare. This article considers the current challenges that need to be addressed to deliver a future physician-led healthcare service that works for its patients. Key themes are expanded upon, including the changing healthcare workforce, digital and technological innovation, service delivery, complex conditions and changing patient demographics. The impact and challenges of the ongoing COVID-19 pandemic on these factors are highlighted. Avenues for development are suggested, both in postgraduate medical training and the health service as a whole. These changes will be required to deliver the physicians of the future, imbued with the skills and attributes they will need to provide a high standard of care in the mid-21st century.

### Assessment of the Angolan (CHERRT) Mobile Laboratory Curriculum for Disaster and Pandemic Response.

Owens, Michael D; Lloyd, Michael L; Brady, Tyler M; Gross, Robin;

West J Emerg Med

2020 Apr 13; PMID: 32302277

Level of Evidence: 3 - Cohort Study

Type of Article: Research

**BLUF:** Authors assess the effectiveness of the CHERRT training by surveying 32 individuals, indicating this training module made those individuals feel more confident about their response in a pandemic such as COVID-19.

#### **Abstract:**

Introduction: As of April 5, 2020, the World Health Organization reported over one million confirmed cases and more than 62,000 confirmed coronavirus (COVID-19) deaths affecting 204 countries/regions. The lack of COVID-19 testing capacity threatens the ability of both the United States (US) and low middle income countries (LMIC) to respond to this growing threat. The purpose of this study was to assess the effectiveness through participant self-assessment of a rapid response team (RRT) mobile laboratory curriculum

Methods: We conducted a pre and post survey for the purpose of a process improvement assessment in Angola, involving 32 individuals. The survey was performed before and after a 14-day training

workshop held in Luanda, Angola, in December 2019. A paired t-test was used to identify any significant change on six 7-point Likert scale questions with  $\alpha < 0.05$  (95% confidence interval). **Results:** All six of the questions - 1) "I feel confident managing a real laboratory sample test for Ebola or other highly contagious sample;" 2) "I feel safe working in the lab environment during a real scenario;" 3) "I feel as if I can appropriately manage a potentially highly contagious laboratory sample;" 4) "I feel that I can interpret a positive or negative sample during a suspected contagious outbreak;" 5) "I understand basic Biobubble/mobile laboratory concepts and procedures;" and 6) "I understand polymerase chain reaction (PCR) principles" - showed statistical significant change pre and post training. Additionally, the final two questions - "I can more effectively perform my role/position because of the training I received during this course;" and "This training was valuable" - received high scores on the Likert scale.

**Conclusion:** This Angolan RRT mobile laboratory training curriculum provides the nation of Angola with the confidence to rapidly respond and test at the national level a highly infectious contagion in the region and perform on-scene diagnostics. This mobile RRT laboratory provides a mobile and rapid diagnostic resource when epidemic/pandemic resource allocation may need to be prioritized based on confirmed disease prevalence.

## **Virtual Learning during the COVID-19 Pandemic: A Disruptive Technology in Graduate Medical Education.**

Almarzooq Z, Lopes M, Kochar A.

J Am Coll Cardiol.

2020 Apr 9; PMID: 32304797 No abstract available.

Level of Evidence: 6 - Expert opinion

Type of Article: Commentary

**BLUF: Virtual education can be as or more engaging than in person instruction** for didactic education, especially when issues are anticipated and addressed up front.

**Summary:** The authors discuss the way their institution used Zoom and Microsoft Teams to continue **didactic education in their General Cardiology Fellowship**. They make several recommendations for successful virtual learning including:

1. An **orientation** to make sure all users know how to use the software
2. Having **microphones muted for lectures** until questions are asked to minimize disruptions but keep microphones **unmuted in small group discussion** to maximize teamwork
3. Having **lecturers use video** to increase viewer engagement
4. Make a **moderator** available, separate from the speaker in lectures, **to troubleshoot technology issues** without disruption

## **The Impact Of Despecialisation And Redeployment On Surgical Training In The Midst Of The COVID-19 Pandemic.**

Hourston GJM.

Int J Surg.

2020 Apr 14; PMID: 32302740

Level of Evidence: 5 - Expert opinion

Type of Article: Correspondence

**Summary:** Due to the shortage of healthcare professionals to manage the COVID-19 pandemic, the UK has taken numerous steps to increase their workforce, including asking retired healthcare workers to return to work and graduating medical students early. Additionally, doctors-in-training are also being asked to work outside of their specialties to meet the requirements. “**The Royal College of Surgeons has published guidance which specifies four priorities in these challenging times which include maintaining emergency surgery provision; protecting the surgical workforce; and fulfilling alternate surgical, and non-surgical roles.**” The author argues that surgical training programs must try to adhere to this guidance, but if that will happen remains to be seen.

## Pandemics and Their Impact on Medical Training: Lessons From Singapore

Liang, Zhen Chang; Ooi, Shirley Beng Suat; Wang, Wilson  
Acad Med

2020 Apr 17; PMID: 32304387

Level of Evidence: 5

Type of Article: Correspondence

**BLUF:** The authors believe that medical students and residents have the unique opportunity to continue medical education and training during the COVID-19 pandemic, and medical educators must rise to the challenge of continuing to teach despite the circumstances.

Abstract: The ongoing COVID-19 crisis has hit Singapore hard. As of February 25, 2020, Singapore had the 4th highest number of confirmed COVID-19 infections outside of China, only trailing behind South Korea, Italy, and Japan. This has had reverberating effects on Singapore's health care system, and has, consequently, also affected medical education all the way from the undergraduate to the postgraduate level. While efforts are underway to contain disease spread and transmission, the authors believe that this is an opportune time to examine and reflect on the impact that medical crises like COVID-19 can have on medical training and education and to evaluate "business continuity plans" to ensure quality medical education even in the face of constant disruptions from pandemic outbreaks. Medical training is as important a mandate as patient care and service. **The authors believe that even in trying times like this, rich and precious lessons can be sought and taught, which will immensely benefit medical students and residents-the health care leaders of tomorrow.** In this Perspective, the authors discuss the various ways in which the COVID-19 crisis has affected medical instruction in Singapore and explore pertinent practical and creative solutions for the continuity of medical training in these trying times, drawing on their previous experience with the Severe Acute Respiratory Syndrome (SARS) outbreak in 2003 as well as the current ongoing COVID-19 crisis.

## Adapting the Educational Environment for Cardiovascular Fellows-in-Training During the COVID-19 Pandemic.

DeFilippis EM, Stefanescu Schmidt AC, Reza N.

J Am Coll Cardiol.

2020 Apr 9; PMID: 32304798

Level of Evidence: 5 - Expert opinion

Type of Article: Editorial

**BLUF:** The medical education of cardiology fellows-in-training has undergone a massive transformation recently and the overseeing organizations have made changes accordingly. FITs have unique opportunities to explore other fields of medicine and new educational formats.

**Summary:** The Accreditation Council for Graduate Medical Education (ACGME) is allowing institutions to **self-declare Pandemic Emergency Status**, which permits Fellows-in-training (FITs) in cardiology to **function as attending physicians in internal medicine for up to 20% of each academic year. For institutions that do, some program requirements are suspended for at least 30 days**. The COVID-19 pandemic provides opportunities for cardiology FITs to gain valuable experience in the fields of critical care, infectious disease, disaster medicine, and telemedicine. Other systems of education, collaboration, and discussion have been moved to various online platforms.

# Epidemiology

## Case series of coronavirus (SARS-CoV-2) in a military recruit school: clinical, sanitary and logistical implications.

Baettig SJ, Parini A, Cardona I, Morand GB.

BMJ Mil Health.

2020 Apr 18; PMID: 32303575

Level of Evidence: Level 4

Type of Article: Research

**BLUF: Basic hygiene measures and social distancing are essential but difficult in the military setting. Young healthy recruits usually show mild course with early symptom resolution, but may be asymptomatic carriers.**

### **Abstract:**

Introduction: A new coronavirus, called Severe Acute Respiratory Syndrome-CoronaVirus-2 (SARS-CoV-2), has emerged from China in late 2019 and has now caused a worldwide pandemic. **The impact of covid-19 has not been described so far in a military setting.** We therefore report a case series of infected patients in a recruit school in Switzerland and the herein associated challenges.

Material and methods: Retrospective review of covid-19 cases among Swiss Armed Forces recruits in the early weeks of SARS-CoV-2 pandemic in the canton of Ticino, the southernmost canton of Switzerland. Positive cases were defined with two positive PCR testing for SARS-CoV-2 from nasopharyngeal swabs. Serological testing was performed with a commercially available kit according to manufacturers' instructions.

Results: The first case was likely contaminated while skiing during weekend permission. He became symptomatic 4 days later, tested positive for SARS-CoV-2 and was put into isolation. He showed complete symptom resolution after 48 hours. **Quarantine was ordered for all recruits with close contact in the past 2 days, a total of 55 persons out of 140 in the company.** Seven out of nine recruits in one particular quarantine room became mildly symptomatic. SARS-CoV-2 PCR was positive in one of them. Seven days after initial diagnosis, the index patient and the other one from the quarantine retested positive for SARS-CoV-2, although they had been completely asymptomatic for over 96 hours. Serological testing revealed positive for both patients. All others showed negative IgM and IgG.

Conclusions: **Young healthy recruits often showed a mild course of covid-19 with rapid symptom decline but were persistent SARS-CoV-2 carriers.** This illustrates how asymptomatic patients may be responsible for covert viral transmission. An early and prolonged establishment of isolation and quarantine for patients and close contacts is essential to slow down the spread of SARS-CoV-2, especially in the confined space of a military environment.

## Modelling the epidemic spread of COVID-19 virus infection in Northern African countries.

Daw MA, El-Bouzedi AH.

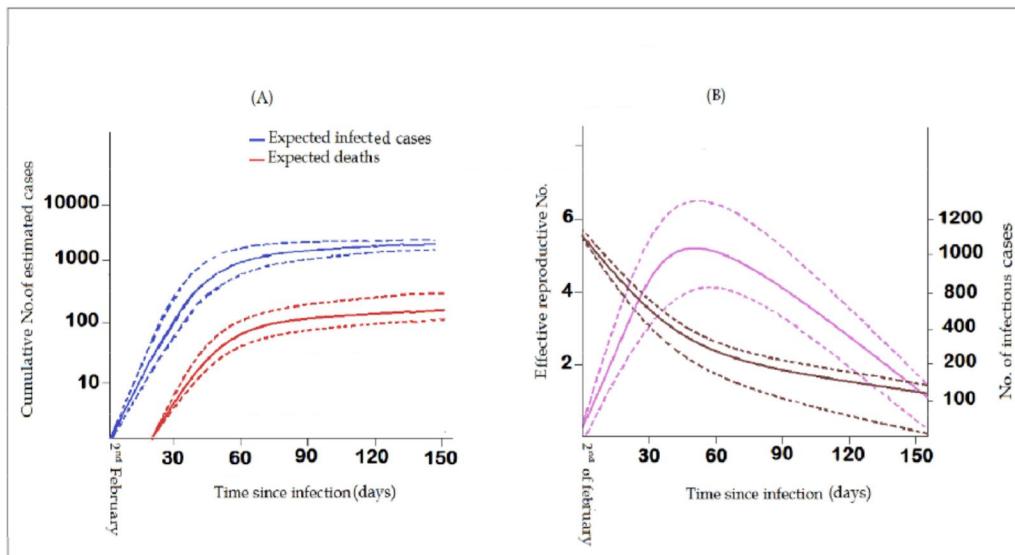
Travel Med Infect Dis.

2020 Apr 15; PMID: 32304743

Level of Evidence: Level 5

Type of Article: Letter to the Editor

**Summary:** Response to the ongoing COVID-19 pandemic remains challenging in Northern African countries that suffer from poor infrastructure, political instability, and lack of experience in combatting epidemics. Herein, the transmissibility of COVID-19 in Northern Africa was evaluated using the serial interval equal to that of COVID-19 in Wuhan, China, with a mean of 7.5 days and a standard deviation of 3.4 days. The number of **infected individuals is expected to peak in early May 2020** (80 days since initiation) with a **peak population size of 795 (750-1,200)** infectious individuals in Northern Africa. Promotion of face mask use and reduction of travel are measures that should be promoted in these regions to slow the ongoing spread.



## Impact of meteorological factors on the COVID-19 transmission: A multi-city study in China.

Liu J, Zhou J, Yao J, Zhang X, Li L, Xu X, He X, Wang B, Fu S, Niu T, Yan J, Shi Y, Ren X, Niu J, Zhu W, Li S, Luo B, Zhang K, Liu J, et al.

Sci Total Environ.

2020 Apr 9; PMID: 32304942

Level of Evidence: Level 3 - Cohort study

Type of Article: Research

### **BLUF:**

In a retrospective cohort study examining the relationship between meteorological conditions and new cases of COVID-19, **increases in ambient temperature and diurnal temperature range were significantly correlated with a decline in daily case counts.**

### **Abstract:**

The purpose of the present study is to explore the associations between novel coronavirus disease 2019 (COVID-19) case counts and meteorological factors in 30 provincial capital cities of China. We compiled a daily dataset including confirmed case counts, ambient temperature (AT), diurnal temperature range (DTR), absolute humidity (AH) and migration scale index (MSI) for each city during the period of January 20th to March 2nd, 2020. First, we explored the associations between

COVID-19 confirmed case counts, meteorological factors, and MSI using non-linear regression. Then, we conducted a two-stage analysis for 17 cities with more than 50 confirmed cases. In the first stage, generalized linear models with negative binomial distribution were fitted to estimate city-specific effects of meteorological factors on confirmed case counts. In the second stage, the meta-analysis was conducted to estimate the pooled effects. Our results showed that among 13 cities that have less than 50 confirmed cases, 9 cities locate in the Northern China with average AT below 0 °C, 12 cities had average AH below 4 g/m<sup>3</sup>, and one city (Haikou) had the highest AH (14.05 g/m<sup>3</sup>). Those 17 cities with 50 and more cases accounted for 90.6% of all cases in our study. **Each 1 °C increase in AT and DTR was related to the decline of daily confirmed case counts, and the corresponding pooled RRs were 0.80 (95% CI: 0.75, 0.85) and 0.90 (95% CI: 0.86, 0.95), respectively.** For AH, the association with COVID-19 case counts were statistically significant in lag 07 and lag 014. In addition, we found the all these associations increased with accumulated time duration up to 14 days. In conclusions, meteorological factors play an independent role in the COVID-19 transmission after controlling population migration. **Local weather condition[s] with low temperature, mild diurnal temperature range and low humidity likely favor the transmission.**

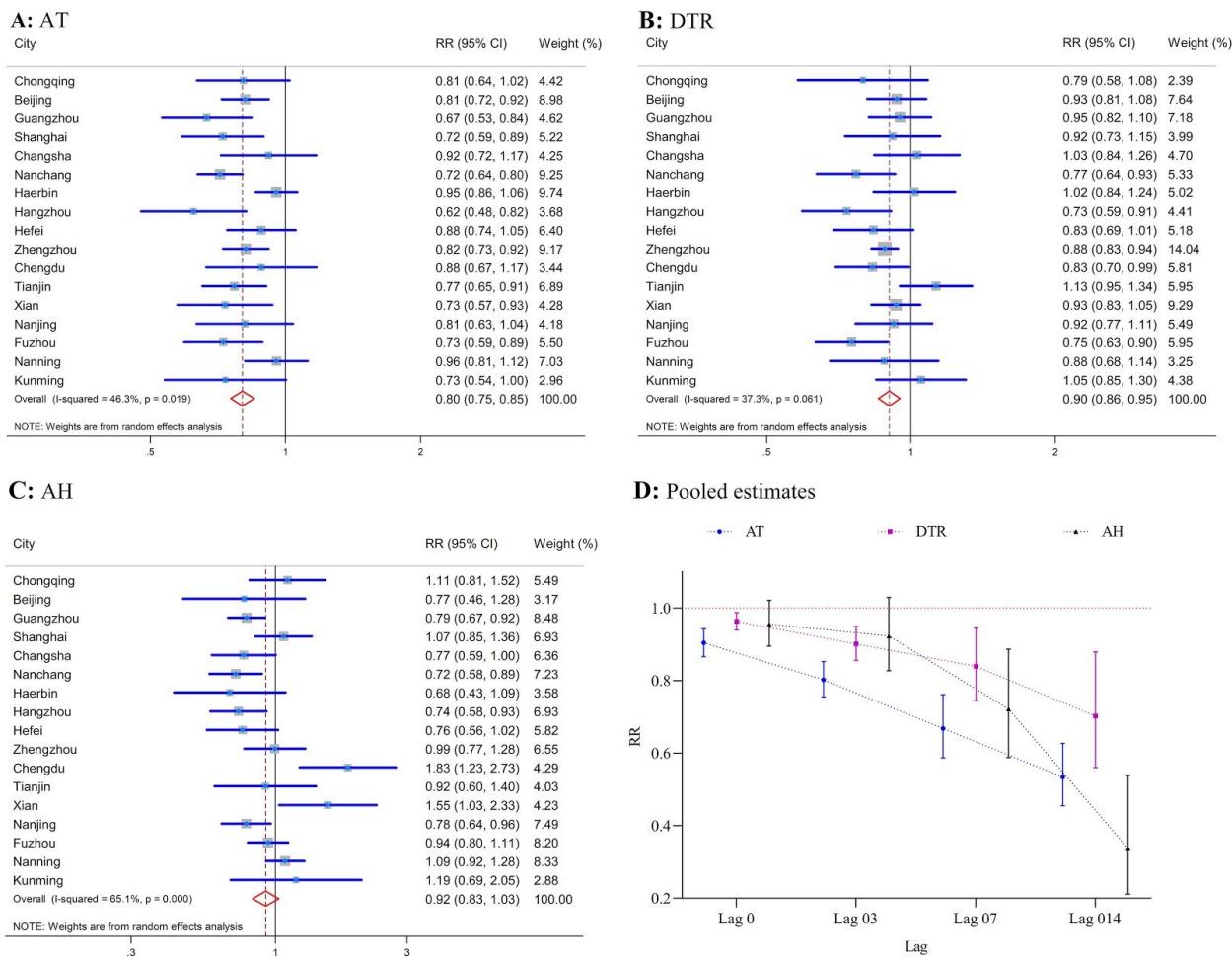


Figure 4. Meta-analysis for effects of meteorological factors on COVID-19 case counts in 17 cities during the period of January 20th to March 2nd 2020.

Note: (A) [Ambient Temperature]; (B) [Diurnal Temperature Range]; (C) [Ambient Humidity]; (D) Pooled estimates in lag 0, lag 03, lag 07 and lag 014. The association of COVID-19 case counts with AT, AH and DTR in each city was evaluated by fitting generalized linear models respectively (Lag 03). The meta-analysis was conducted to combine the city-specific results. AT: Ambient Temperature; DTR: Diurnal Temperature Range; AH, Absolute Humidity. Fig. 4D showed associations between confirmed case counts and AT, DTR and AH in lag 0, lag 03, lag 07 and lag 014. The pooled effects of AT, DTR and AH became stronger with the increase of cumulative lag days.

## **Hospitalization Rates and Characteristics of Patients Hospitalized With Laboratory-Confirmed Coronavirus Disease 2019 - COVID-NET, 14 States, March 1-30, 2020**

Garg, Shikha; Kim, Lindsay; Whitaker, Michael; O'Halloran, Alissa; Cummings, Charisse; Holstein, Rachel; Prill, Mila; Chai, Shua J; Kirley, Pam D; Alden, Nisha B; Kawasaki, Breanna; Yousey-Hindes, Kimberly; Niccolai, Linda; Anderson, Evan J; Openo, Kyle P; Weigel, Andrew; Monroe, Maya L; Ryan, Patricia; Henderson, Justin; Kim, Sue; Como-Sabetti, Kathy; Lynfield, Ruth; Sosin, Daniel; Torres, Salina; Muse, Alison; Bennett Nancy M; Billing, Laurie; Sutton, Melissa; West, Nicole; Schaffner, William; Talbot, H Keipp; Aquino, Clarissa; George, Andrea; Budd, Alicia; Brammer, Lynnette; Langley, Gayle; Hall, Aron J; Fry, Alicia  
MMWR

2020 Apr 17; PMID: 32298251

Level of Evidence: 5 - Mechanism-Base

Type of Article: Correspondence

**BLUF:** Using a model (COVID-NET) to track COVID-19 patients in the US, authors report upon age-stratified hospitalization rates and clinical data of the respective patients in the month of March, all of which show **older patients and those with multiple comorbidities have higher rates of admission.**

### **Abstract:**

Since SARS-CoV-2, the novel coronavirus that causes coronavirus disease 2019 (COVID-19), was first detected in December 2019 (1), approximately 1.3 million cases have been reported worldwide (2), including approximately 330,000 in the United States (3). To conduct population-based surveillance for laboratory-confirmed COVID-19-associated hospitalizations in the United States, the COVID-19-Associated Hospitalization Surveillance Network (COVID-NET) was created using the existing infrastructure of the Influenza Hospitalization Surveillance Network (FluSurv-NET) (4) and the Respiratory Syncytial Virus Hospitalization Surveillance Network (RSV-NET). This report presents age-stratified COVID-19-associated hospitalization rates for patients admitted during March 1-28, 2020, and clinical data on patients admitted during March 1-30, 2020, the first month of U.S. surveillance. Among 1,482 patients hospitalized with COVID-19, 74.5% were aged  $\geq 50$  years, and 54.4% were male. The hospitalization rate among patients identified through COVID-NET during this 4-week period was 4.6 per 100,000 population. Rates were highest (13.8) among adults aged  $\geq 65$  years. Among 178 (12%) adult patients with data on underlying conditions as of March 30, 2020, 89.3% had one or more underlying conditions; the most common were hypertension (49.7%), obesity (48.3%), chronic lung disease (34.6%), diabetes mellitus (28.3%), and cardiovascular disease (27.8%). These findings suggest that older adults have elevated rates of COVID-19-associated hospitalization and the majority of persons hospitalized with COVID-19 have underlying medical conditions. These findings underscore the importance of preventive measures (e.g., social distancing, respiratory hygiene, and wearing face coverings in public settings where social distancing measures are difficult to maintain)<sup>†</sup> to protect older adults and persons with underlying medical conditions, as well as the general public. In addition, older adults and persons with serious underlying medical conditions should avoid contact with persons who are ill and immediately contact their health care provider(s) if they have symptoms consistent with COVID-19

(<https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>) (5). Ongoing

monitoring of hospitalization rates, clinical characteristics, and outcomes of hospitalized patients will be important to better understand the evolving epidemiology of COVID-19 in the United States and the clinical spectrum of disease, and to help guide planning and prioritization of health care system resources.

## **Clinical characteristics of 80 hospitalized frontline medical workers infected with COVID-19 in Wuhan, China.**

Wang X, Liu W, Zhao J, Lu Y, Wang X, Yu C, Hu S, Shen N, Liu W, Sun Z, Li W. Wang X, et al. J Hosp Infect.

2020 Apr 14; PMID: 32302722

Level of Evidence: 4 - Case control

Type of Article: Research

**BLUF:** A case series of 80 frontline medical workers hospitalized with COVID-19 found higher rates of diarrhea (18.75% vs 10%) and lower mortality rates (1.25% vs 4.3%) than the general population.

**Summarizing excerpt:** “More than 1,000 medical workers have been infected with COVID-19 in China. The 80 hospitalized patients included 57 SARS-CoV-2 confirmed and 23 clinically diagnosed. The median age was 39 years, 49 (61.25%) were women, and one patient died. **The most common symptoms at onset were fever (65, 81.25%), cough (47, 58.75%), fatigue (28, 35%), myalgia (19, 23.75%), expectoration (19, 23.75%), and diarrhea (15, 18.75%).** Patients of frontline medical workers at a single-center hospital showed some unique clinical and laboratory findings compared with other patients in Wuhan and outside of Wuhan. This study provides our experience for other frontline medical workers.”

## **Risk factors of fatal outcome in hospitalized subjects with coronavirus disease 2019 from a nationwide analysis in China.**

Chen R, Liang W, Jiang M, Guan W, Zhan C, Wang T, Tang C, Sang L, Liu J, Ni Z, Hu Y, Liu L, Shan H, Lei C, Peng Y, Wei L, Liu Y, Hu Y, Peng P, Wang J, Liu J, Chen Z, Li G, Zheng Z, Qiu S, Luo J, Ye C, Zhu S, Liu X, Cheng L, Ye F, Zheng J, Zhang N, Li Y, He J, Li S, Zhong N; Medical Treatment Expert Group for COVID-19. Chen R, et al.

Chest

2020 Apr 15; PMID: 32304772

Level of Evidence: 3 - Statistical modeling based on cohort study

Type of Article: Research

**BLUF:** A monogram model to predict clinical outcomes of patients with COVID-19 based on individual characteristic risk factors was developed using data from a national cohort study of confirmed COVID-19 patients in China. While advanced age is the most significant predictor of fatal outcome, coronary heart disease, cerebrovascular disease, dyspnea at disease onset, and elevated procalcitonin and AST levels are additional independent risk factors associated with fatal outcomes.

### **Abstract:**

Background: The novel coronavirus disease 2019 (COVID-19) has become a global health emergency. Cumulative number of new confirmed case and death are still increasing out of China. However, the independent predicted factors associated with the fatal outcome remain uncertain.

Methods: A retrospective cohort of 1590 hospitalized subjects with COVID-19 throughout China was established. The prognostic effects of variables, including clinical features and laboratory findings, were analyzed using Kaplan-Meier method and Cox proportional hazard model. A prognostic nomogram was formulated to predict the survival of patient with COVID-19.

**Results:** In this nationwide cohort, **non-survivors showed higher incidence of elderly people, subjects with co-existing chronic illness, dyspnea and laboratory abnormalities on admission, compared with survivors.** Multivariate Cox regression analysis showed that age $\geq$ 75 (HR: 7.86, 95% CI: 2.44-25.35), age between 65-74 years (HR:3.43, 95%CI: 1.24-9.5), coronary heart disease (HR:4.28, 95%CI:1.14-16.13), cerebrovascular disease(HR:3.1, 95%CI:1.07-8.94), dyspnea (HR: 3.96, 95%CI:1.42-11), procalcitonin $>$ 0.5ng/ml(HR:8.72, 95%CI:3.42-22.28), aspartate aminotransferase $>$ 40U/liter (HR: 2.2, 95% CI: 1.1- 6.73) were independent risk factors associated with fatal outcome. A nomogram was established based on the results of multivariate analysis. The internal bootstrap resampling approach suggested the nomogram has sufficient discriminatory power with the C-index of 0.91 (95%CI 0.85-0.97). The calibration plots also demonstrated good consistence between the prediction and the observation.

**Conclusions:** The proposed nomogram accurately predict clinical outcomes of patients with COVID-19 based on individual characteristics. **Earlier identification, more intensive surveillance and appropriate therapy should be considered in patients with high risk.**

## **Risk Factors for Disease Severity, Unimprovement, and Mortality of COVID-19 Patients in Wuhan, China**

PMID: 32304745

Publication Date: April 15, 2020

Zhang, Jixiang; Wang, Xiaoli; Jia, Xuemei; Li, Jiao; Hu, Ke; Chen, Guozhong; Wei, Jie; Gong, Zuojiong; Zhou, Chenliang; Yu, Hongang; Yu, Mosheng; Lei, Hongbo; Cheng, Fan; Zhang, Binghong; Xu, Yu; Wang, Gaohua; dong, Weiguo

Clinical Microbiology and Infection

Level of Evidence: Level 2 - Retrospective cohort

Type of Article: Research

**BLUF:** The authors conducted a retrospective cohort study that included 663 patients diagnosed with COVID-19 at Renmin Hospital of Wuhan University, and documented the prevalence of symptoms as well as socioeconomic status, gender and other comorbidities. Their study found that the key factors correlating with a longer length of recovery included being male, experiencing severe symptoms, myalgias, expectoration, and decreased albumin level (see table 4).

### **Abstract:**

**Objective:** Since December 2019, coronavirus disease (COVID-19) emerged in Wuhan. However, the characteristics and risk factors associated with disease severity, unimprovement and mortality are unclear.

**Methods:** All consecutive patients diagnosed with COVID-19 admitted to the Renmin Hospital of Wuhan University from January 11 to February 6, 2020 were enrolled in this retrospective cohort study.

**Results:** A total of 663 COVID-19 patients were included in this study. Among those, 247 (37.3%) had at least one kind of chronic disease. A total of 0.5% (n=3) of patients were diagnosed with mild COVID-19, while 37.8% (251/663), 47.5% (315/663), and 14.2% (94/663) were in moderate, severe, and critical condition, respectively. In our hospital during follow-up, 251 of 663 (37.9%) patients were improved and 25 patients died, leading to a mortality rate of 3.77%. Older patients ( $>$ 60 years old) and those with chronic diseases were prone to have severe and critical COVID-19 conditions, show unimprovement, and die ( $P < 0.001$ ,  $< 0.001$ ). Multivariate logistic regression analysis identified being male (OR = 0.486, 95% CI 0.311-0.758;  $P = 0.001$ ), having severe COVID-19 conditions (OR = 0.129, 95% CI 0.082-0.201;  $P < 0.001$ ), expectoration (OR = 1.796, 95% CI 1.062-3.036;  $P = 0.029$ ), muscle ache (OR = 0.309, 95% CI 0.153-0.626;  $P = 0.001$ ), and decreased albumin (OR = 1.929, 95% CI 1.199-3.104;  $P = 0.007$ ) were associated with unimprovement in COVID-19 patients.

**Conclusion: Being male, in severe COVID-19 conditions, expectoration, muscle ache, and decreased albumin were independent risk factors which influence the improvement of COVID-19 patients.**

Table 4 Logistic regression modeling evaluating risk factors for unimprovement during follow-up

Item	Univariate Logistic Regression			Multivariate Logistic Regression		
	OR	95%CI	P value	OR	95%CI	P value
Male	0.520	0.355-0.761	0.001	0.486	0.311-0.758	0.001
Severe and critical condition	0.118	0.077-0.181	0.000	0.129	0.082-0.201	<0.001
Expectoration	1.899	1.205-2.992	0.006	1.796	1.062-3.036	0.029
Muscle ache	0.304	0.166-0.557	0.000	0.309	0.153-0.626	0.001
Decreased Albumin	2.377	1.576-3.587	0.000	1.929	1.199-3.104	0.007
Decreased lymphocytes	3.828	2.579-5.680	0.000	-	-	-
Age >60	4.791	3.018-7.606	0.000	-	-	-
Occupation	0.187	0.124-0.281	0.000	-	-	-
Cardiovascular disease	2.436	1.503-3.948	0.000	-	-	-
Dyspnea	2.361	1.455-3.830	0.001	-	-	-
Chest tightness	2.266	1.413-3.633	0.001	-	-	-
Fever	1.740	1.102-2.747	0.018	-	-	-
Bilateral pneumonia	4.942	2.386-10.240	0.000	-	-	-
Reduced hemoglobin	1.731	1.156-2.591	0.008	-	-	-
Increased ALT	1.699	1.075-2.686	0.023	-	-	-
Increased AST	2.081	1.324-3.271	0.002	-	-	-
Increased LDH	4.381	2.932-6.545	0.000	-	-	-
Damaged kidney function	5.957	2.320-15.296	0.000	-	-	-
Increased CRP	4.693	3.099-7.107	0.000	-	-	-

P < 0.05 was considered statistically significant. ALT=Alanine aminotransferase. AST=Aspartate aminotransferase. Cr=Creatinine. GFR=Glomerular filtration rate. CRP=C reactive protein.

LDH=Lactate dehydrogenase. CT=Computed tomography.

**Table 4: Risk factors for unimprovement of COVID-19 patients**

## Estimation of basic reproduction number for COVID-19 and the reasons for its differences.

Najafimehr H, Mohamed Ali K, Safari S, Yousefifard M, Hosseini M.

Int J Clin Pract.

2020 Apr 16; PMID: 32301199

Level of Evidence: 5 - Expert opinion

Type of Article: Letter to the Editor

**Summary:** A review of current data **estimates the  $R_0$  for COVID-19 to be between 2.44-4.2.**

Studies from China give a wide range of  $R_0$ , from 1.4 to 7.23. In Italy, it was estimated as 4.2. The WHO range is 1.4-2.5. Differences in the authors' estimated  $R_0$  values are primarily due to the different methods of calculation (mathematical, statistical, or stochastic). Another explanation for the variance is due to the contact rate varying wildly by geographical location, as well as the varied accuracy of the reported data used in these studies.

## Sex- And Gender-specific Observations and Implications for COVID-19.

Walter LA, McGregor AJ.

West J Emerg Med

2020 Apr 10; PMID: 32302282

Level of Evidence: 5 – Expert Opinion

Type of Article: Editorial

**BLUF:** The authors utilize a sex- and gender-based medicine approach to assess potential reasons why initial data suggests that men have been disproportionately affected by COVID-19 worldwide.

**Summary:** The authors review sex-specific and gender-specific factors that may be impacting the epidemiology of COVID-19, which data from several countries suggests may have a higher incidence and case-mortality rate in men. Relevant sex-specific factors include the high number of immune genes on the X chromosome and the potential role testosterone may play in increasing ACE2 activity. Gender-specific factors include higher smoking rates in men, women typically being more focused on their own healthcare and the healthcare of others as a result of their caregiving role, and men's higher tendency to engage in health-related risks. The authors call for other researchers to consider the potential roles of sex and gender in when developing management plans for patients and performing research on COVID-19.

## Women's Health

### Pregnant Versus Non-Pregnant SARS-CoV-2 and COVID-19 Hospital Admissions: The First 4 Weeks in New York.

Tekbali A, Grünebaum A, Saraya A, McCullough L, Bornstein E, Chervenak FA.

Am J Obstet Gynecol

2020 Apr 15; PMID: 32304691

Level of Evidence: 3 – Local Non-Random Sample

Type of Article: Comment

**BLUF:** While admissions for COVID-19 rose over the month of March in New York for all patients, pregnant patients had much lower rates of COVID-19 related admissions than other patients.

**Summary:** The authors present data from admissions to a hospital group in New York in the month of March. The data shows an increase in COVID-19 admissions during this time. While admissions due to COVID-19 were higher in non-pregnant than pregnant patients, COVID-19 infection rates increased over the course of the month in both groups. The authors speculate the lower percentage of COVID-19 admission rate for pregnant patients could be attributed to the younger age and good health status of most pregnant patients, as well as the higher number of admissions for labor and delivery. The authors advocate for “ring-fencing” of hospital maternity services to ensure that this care can continue to be safely provided.

# Understanding the Pathology

## Human Leukocyte Antigen Susceptibility Map for SARS-CoV-2.

Nguyen A, David JK, Maden SK, Wood MA, Weeder BR, Nellore A, Thompson RF.

J Virol

2020 Apr 17; PMID:32303592

Level of Evidence: Statistical modeling

Type of Article: Research

**Summary:** Human leukocyte antigen (HLA) alleles have been implicated in conferring differential susceptibility to various diseases. This study presents an *in silico* analysis of individual genetic variability of HLA alleles in the context of SARS-CoV-2 infection. They find certain alleles may be associated with more severe disease.

### **Abstract:**

Genetic variability across the three major histocompatibility complex (MHC) class I genes (human leukocyte antigen [lsqb]HLA[rsqb] A, B, and C) may affect susceptibility to and severity of severe acute respiratory syndrome 2 (SARS-CoV-2), the virus responsible for coronavirus disease 2019 (COVID-19). **We execute a comprehensive *in silico* analysis of viral peptide-MHC class I binding affinity across 145 HLA -A, -B, and -C genotypes for all SARS-CoV-2 peptides.** We further explore the potential for cross-protective immunity conferred by prior exposure to four common human coronaviruses. The SARS-CoV-2 proteome is successfully sampled and presented by a diversity of HLA alleles. However, **we found that HLA-B\*46:01 had the fewest predicted binding peptides for SARS-CoV-2, suggesting individuals with this allele may be particularly vulnerable to COVID-19**, as they were previously shown to be for SARS (Lin M, Tseng H-K, Trejaut JA, Lee H-L, Loo J-H, Chu C-C, Chen P-J, Su Y-W, Lim KH, Tsai Z-U, Lin R-Y, Lin R-S, Huang C-H. BMC Med Genet 4:9. 2003.). Conversely, we found that HLA-B\*15:03 showed the greatest capacity to present highly conserved SARS-CoV-2 peptides that are shared among common human coronaviruses, suggesting it could enable cross-protective T-cell based immunity. Finally, we report global distributions of HLA types with potential epidemiological ramifications in the setting of the current pandemic. **IMPORTANCE Individual genetic variation may help to explain different immune responses to a virus across a population.** In particular, understanding how variation in HLA may affect the course of COVID-19 could help identify individuals at higher risk from the disease. HLA typing can be fast and inexpensive. Pairing HLA typing with COVID-19 testing where feasible could improve assessment of viral severity in the population. Following the development of a vaccine against SARS-CoV-2, the virus that causes COVID-19, individuals with high-risk HLA types could be prioritized for vaccination

## Comparative Pathogenesis of COVID-19, MERS, and SARS in a Nonhuman Primate Model

Rockx B, Thijs Kuiken T, Sander Herfst S, Theo Bestebroer T, Lamers MM, Oude Munnink BB, de Meulder D, van Amerongen G, van den Brand J, Okba NMA, Schipper D, van Run P, Leijten L, Sikkema R, Verschoor E, Verstrepen B, Bogers W, Langermans J, Drosten C, van Vlissingen NF, Fouchier R, de Swart R, Koopmans M, Haagmans BL

Science

2020 Apr 17; PMID: 32303590

Level of Evidence: 5- Basic Research

Type of Article: Report

**Summary:** The development of COVID19 drugs and vaccines relies on the establishment and use of a suitable animal model for the disease. Here the authors describe a non-human primate model for SARS-CoV-2 infection and use SARS-CoV and MERS-CoV as comparison infections.

**Abstract:**

The current pandemic coronavirus, SARS-CoV-2, was recently identified in patients with an acute respiratory syndrome, COVID-19. To compare its pathogenesis with that of previously emerging coronaviruses, we inoculated cynomolgus macaques with SARS-CoV-2 or MERS-CoV and compared the pathology and virology with historical reports of SARS-CoV infections. In SARS-CoV-2-infected macaques, virus was excreted from nose and throat in the absence of clinical signs, and detected in type I and II pneumocytes in foci of diffuse alveolar damage and in ciliated epithelial cells of nasal, bronchial, and bronchiolar mucosae. In SARS-CoV-infection, lung lesions were typically more severe, while they were milder in MERS-CoV infection, where virus was detected mainly in type II pneumocytes. These data show that SARS-CoV-2 causes COVID-19-like disease in macaques, and provides a new model to test preventive and therapeutic strategies.

## Assessing ACE2 expression patterns in lung tissues in the pathogenesis of COVID-19.

Li G, He X, Zhang L, Ran Q, Wang J, Xiong A, Wu D, Chen F, Sun J, Chang C.  
J Autoimmun.

2020 Apr 13; PMID: 32303424

Level of Evidence: 5 - Mechanism Based Reasoning

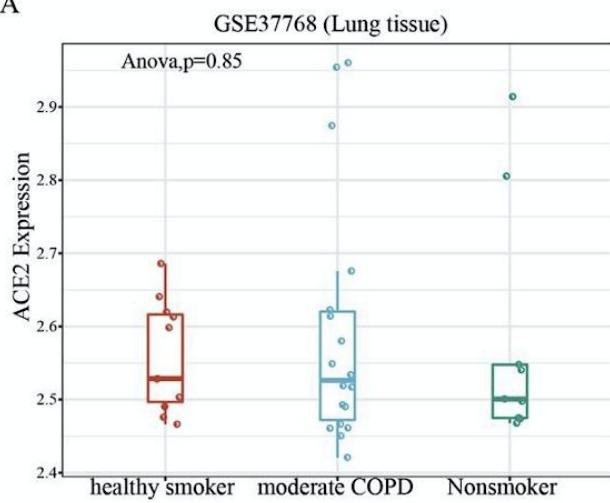
Type of Article: Research

**BLUF: ACE2 receptors have a known role in upregulating inflammatory pathways.**

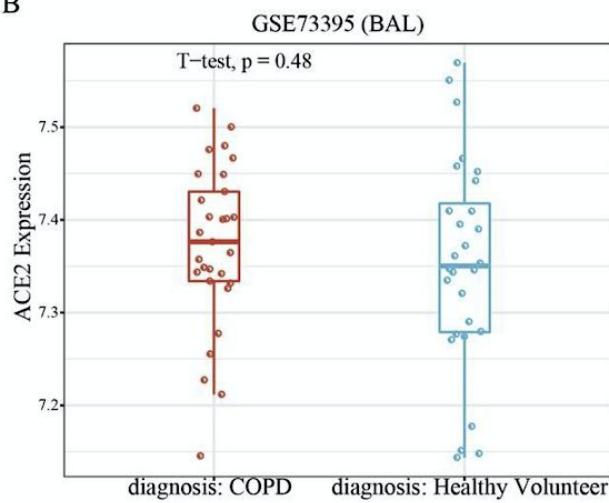
Based on new analysis of already existing data that shows **upregulation of ACE2 and other inflammatory proteins in SARS-CoV infected cells and at baseline in smokers** the **authors recommend further research into these pathways, and medications modifying them, in COVID-19**. Of note, **medication modifications were not recommended**. The title is somewhat misleading as the authors' conclusions assume SARS-CoV affects these pathways similarly to the current SARS-CoV-2 (Covid-19).

**Abstract:** It has been reported that **SARS-CoV-2 may use ACE2 as a receptor to gain entry into human cells, in a way similar to that of SARS-CoV**. Analyzing the distribution and expression level of ACE2 may therefore help reveal underlying mechanisms of viral susceptibility and post-infection modulation. In this study, **we utilized previously uploaded information on ACE2 expression in various conditions including SARS-CoA to evaluate the role of ACE2 in SARS-CoV and extrapolate that to COVID-19**. We found that the **expression of ACE2 in healthy populations and patients with underlying [COPD and asthma] diseases was not significantly different**. However, based on the **elevated expression of ACE2 in cigarette smokers, we speculate that long-term smoking may be a risk factor for COVID-19**. **Analysis of ACE2 in SARS-CoV infected cells suggests that ACE2 is not only a receptor but is also involved in post-infection regulation, including immune response, cytokine secretion, and viral genome replication**. Moreover, we constructed Protein-protein interaction (PPI) networks and identified hub genes in viral activity and cytokine secretion. Our findings may help clinicians and researchers gain more **insight into the pathogenesis of SARS-CoV-2 and design therapeutic strategies for COVID-19**.

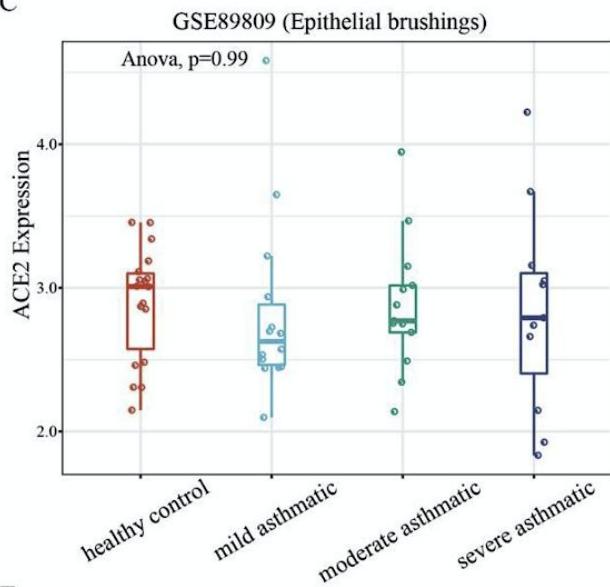
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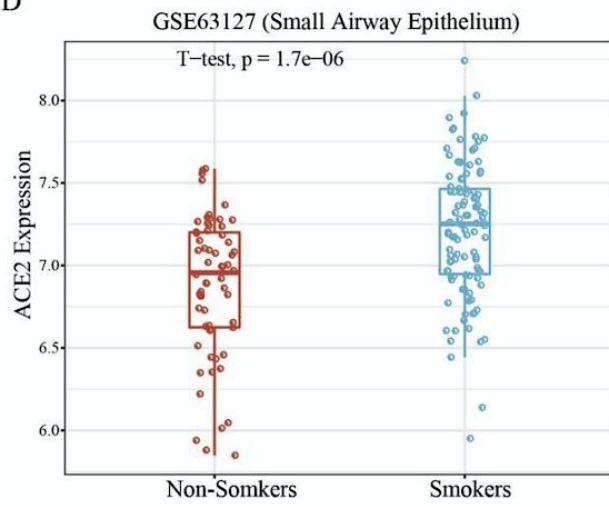
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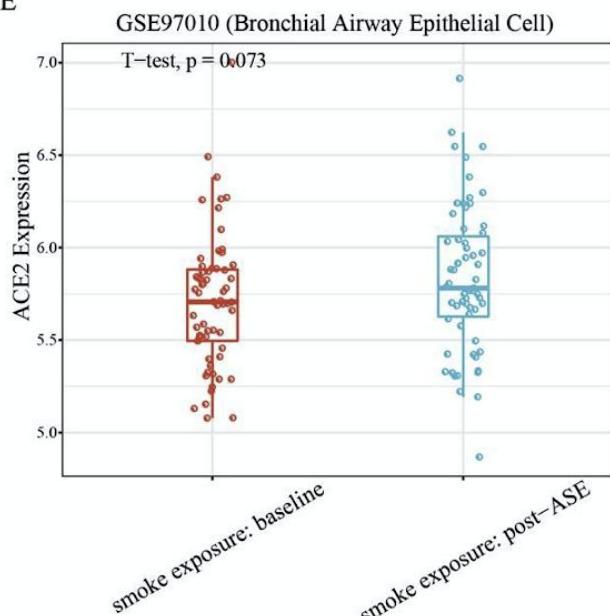
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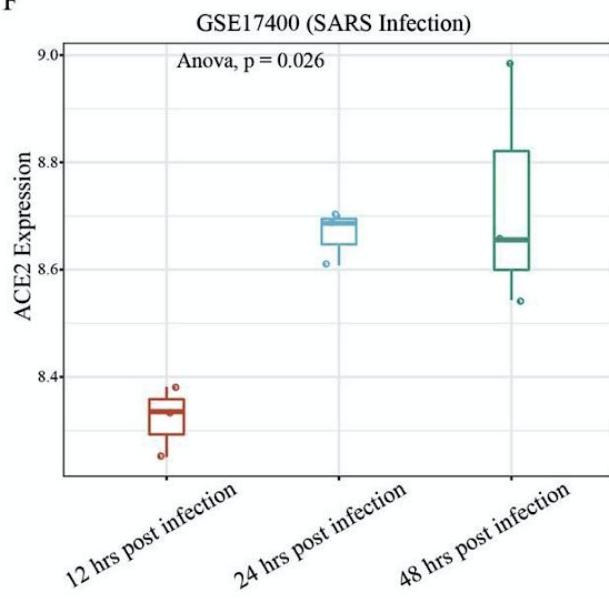
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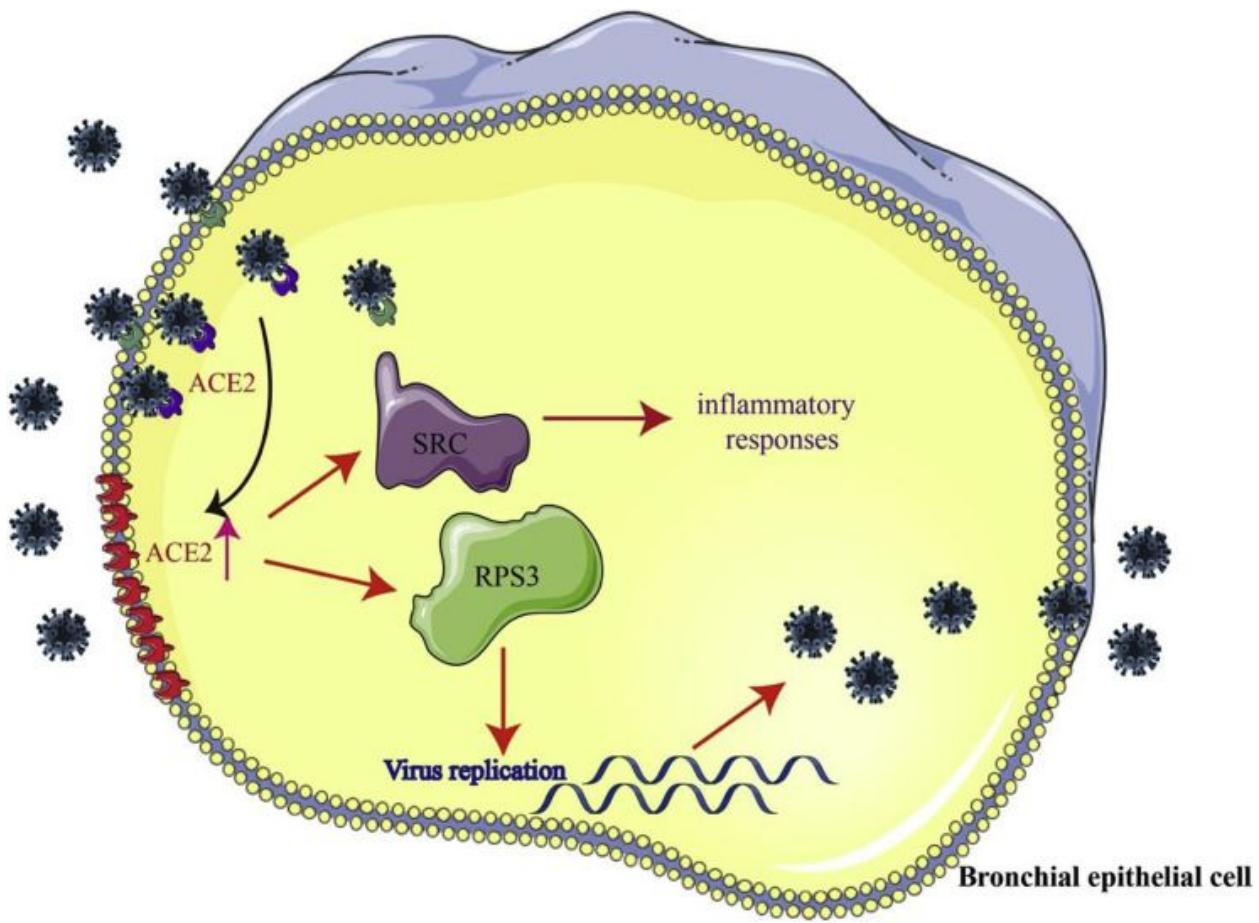
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**Figure 1.** Shows a significant difference in ACE2 expression in BAL samples from smokers compared to non-smokers and in ACE2 expression at 12, 24, and 48 hours post infection



**Figure 2.** This figure shows a proposed pathway the effect of ACE2 on two proteins identified as major contributors to the inflammatory response in SARS-CoV infection

### Thromboinflammation and the hypercoagulability of COVID-19.

Connors, Jean M; Levy, Jerrold H

J Thromb Haemost

2020 Apr 17; PMID: 32302453

Level of Evidence: 5 - Mechanism-Based Reasoning

Type of Article: Comment

**BLUF:** Through analysis of previous research into hypercoagulability and the cytokine storm that can be associated with COVID-19, the authors suggest a **risk adapted approach to anticoagulation** in COVID-19 patients as well as monitoring fibrinogen, PT, PTT, and renal function when considering severe COVID and acute lung injury. **There does not seem to be a benefit in increasing anticoagulant dosing but authors admit more research is needed to be certain.**

#### **Abstract:**

The pathogenic coronavirus has been wreaking havoc worldwide since January. Infection with SARS-CoV-2 is problematic as no one has prior immunity, and no specific antiviral treatments are available. While many people with COVID-19 develop mild to moderate symptoms, some develop profound seemingly unchecked inflammatory responses leading to acute lung injury and hypoxic respiratory failure, the most common cause for death.

## Hypercoagulability of COVID-19 patients in Intensive Care Unit. A Report of Thromboelastography Findings and other Parameters of Hemostasis.

Panigada, Mauro; Bottino, Nicola; Tagliabue, Paola; Grasselli, Giacomo; Novembrino, Cristina; Chantarangkul, Veena; Pesenti, Antonio; Peyvandi, Fora; Tripodi, Armando

J Thromb Haemost

2020 Apr 17; PMID: 32302438

Level of Evidence: 3 - Cohort Study

Type of Article: Research

**BLUF:** After analysis of coagulation factors and platelet counts in a cohort of 24 patients admitted to the ICU due to COVID-19, authors conclude that the severe inflammatory state in COVID-19 is not consistent with DIC.

### **Abstract:**

**Background:** The severe inflammatory state secondary to Covid-19 leads to a severe derangement of hemostasis that has been recently described as a state of disseminated intravascular coagulation (DIC) and consumption coagulopathy, defined as decreased platelet count, increased fibrin(ogen) degradation products such as D-dimer as well as low fibrinogen. **Aims:** Whole blood from 24 patients admitted at the intensive care unit because of Covid-19 was collected and evaluated with thromboelastography by the TEG point-of-care device on a single occasion and six underwent repeated measurements on two consecutive days for a total of 30 observations. Plasma was evaluated for the other parameters of hemostasis. **Results:** TEG parameters are consistent with a state of hypercoagulability as shown by decreased R and K values, and increased values of K angle and MA. Platelet count was normal or increased, prothrombin time and activated partial thromboplastin time were near(normal). Fibrinogen was increased and D-dimer was dramatically increased. C-reactive protein was increased. Factor VIII and von Willebrand factor (n=11) were increased. Antithrombin (n=11) was marginally decreased and protein C (n=11) was increased. **Conclusion:** The results of this cohort of patients with Covid-19 are not consistent with acute DIC, rather they support hypercoagulability together with a severe inflammatory state. These findings may explain the events of venous thromboembolism observed in some of these patients and support antithrombotic prophylaxis/treatment. Clinical trials are urgently needed to establish the type of drug, dosage and optimal duration of prophylaxis.

## New-onset Acute Symptomatic Seizure and Risk Factors in Corona Virus Disease 2019: A Retrospective Multicenter Study.

Lu L, Xiong W, Liu D, Liu J, Yang D, Li N, Mu J, Guo J, Li W, Wang G, Gao H, Zhang Y, Lin M, Chen L, Shen S, Zhang H, Sander JW, Luo J, Chen S, Zhou D.

Epilepsia

2020 Apr 18; PMID: 32304092

Level of Evidence: 4 – Case Series

Type of Article: Brief Communication

**BLUF:** Based on a retrospective study of COVID-19 cases at hospitals in the Hubei province, COVID-19 does not appear to acutely increase seizure risk in patients without a history of epilepsy. However, over a quarter of the patients in this study had metabolic or neurological insults that are associated with increased seizure risk, so additional studies are needed to definitively rule out the possibility for seizure development as a later complication.

**Summarizing Excerpt:** “Our aim was to clarify the incidence and risk of acute symptomatic seizures in people with coronavirus disease 2019 (COVID-19). This multicenter retrospective study enrolled people with COVID-19 from 18 January to 18 February 2020 at 42 government-designated hospitals in Hubei province, the epicenter of the epidemic in China; Sichuan province; and Chongqing municipality. Data were collected from medical records by 11 neurologists using a standard case report form. A total of 304 people were enrolled, of whom 108 had a severe condition. None in this cohort had a known history of epilepsy. **Neither acute symptomatic seizures or status epilepticus were observed.** Two people had seizure-like symptoms during hospitalization due to acute stress reaction and hypocalcemia. **Eighty-four (27%) had brain insults or metabolic imbalances during the disease course known to increase the risk of seizures.** There was no evidence suggesting an additional risk of acute symptomatic seizures in people with COVID-19. Neither the virus or potential risk factors for seizures seem to be significant risks for the occurrence of acute symptomatic seizures in COVID-19.”

## Comparative Computational Analysis of SARS-CoV-2 Nucleocapsid Protein Epitopes in Taxonomically Related Coronaviruses

Tilocca B, Soggiu A, Sanguinetti M, Musella V, Britti D, Bonizzi L, Urbani A, Roncada P  
Microbes Infect

2020 Apr 14; PMID:32302675

Level of Evidence: Statistical model

Type of Article: Basic Research

**Summary:** This study provides an in silico analysis of the potential immunogenic epitopes found in the SARS-CoV-2 nucleoprotein and compares these epitopes to those from related coronaviruses. They hope to provide insight onto the host tropism of these viruses and better understand the potential immune responses that may be elicited.

### **Abstract:**

Several research lines are currently ongoing to address the multitude of facets of the pandemic COVID-19. In line with the One-Health concept, extending the target of the studies to the animals which humans are continuously interacting with may favor a better understanding of the SARS-CoV-2 biology and pathogenetic mechanisms; thus, helping to adopt the most suitable containment measures. The last two decades have already faced severe manifestations of the coronavirus infection in both humans and animals, thus, circulating epitopes from previous outbreaks might confer partial protection from SARS-CoV-2 infections. In the present study, we provide an **in-silico survey of the major nucleocapsid protein epitopes and compare them with the homologues of taxonomically-related coronaviruses with tropism for animal species that are closely interrelated with the human beings population all over the world.** Protein sequence alignment provides evidence of high sequence homology for some of the investigated proteins. Moreover, structural epitope mapping by homology modelling revealed a potential immunogenic value also for specific sequences scoring a lower identity with SARS-CoV-2 nucleocapsid proteins. These evidence provide a molecular structural rationale for a potential role in conferring protection from SARS-CoV-2 infection and identifying potential candidates for the development of diagnostic tools and prophylactic-oriented strategies.

## Genomic Characterization of a Novel SARS-CoV-2

Khailany RA, Safdar M, Ozaslan M  
Gene Rep  
2020 Apr 16; PMID: 32300673  
Level of Evidence:

Type of Article:

**Summary:** Here the authors compare 94 publically available SARS-CoV-2 genomes to examine their molecular variation.

**Abstract:** A new severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) associated with human to human transmission and extreme human sickness has been as of late announced from the city of Wuhan in China. **Our objectives were to mutation analysis between recently reported genomes at various times and locations and to characterize the genomic structure of SARS-CoV-2 using bioinformatics programs.** Information on the variation of viruses is of considerable medical and biological impacts on the prevention, diagnosis, and therapy of infectious diseases. To understand the genomic structure and variations of the SARS-CoV-2. The study analyzed 95 SARS-CoV-2 complete genome sequences available in GenBank, National MicrobiologyData Center (NMDC) and NGDC Genome Warehouse from December-2019 until 05 of April-2020. The genomic signature analysis demonstrates that a strong association between the time of sample collection, location of sample and accumulation of genetic diversity. We found 116 mutations, the three most common mutations were 8782C>T in ORF1ab gene, 28144T>C in ORF8 gene and 29095C>T in the N gene. **The mutations might affect the severity and spread of the SARS-CoV-2. The finding heavily supports an intense requirement for additional prompt, inclusive investigations that combine genomic detail, epidemiological information and graph records of the clinical features of patients with COVID-19.**

Keywords: BLAST, Basic Local Alignment Search Tool; CDC, Centers of Disease Control and Prevention; COVID-19; COVID-19, Coronavirus disease 2019; EMBOSS, The European Molecular Biology Open Software Suite; Genomic characterization; MERS, Middle East Respiratory Syndrome; Mutation; NCBI, National Center for Biotechnology Information; NGDC, National Genomics Data Center; NMDC, National Microbiology Data Center; NSP, nonstructural protein; ORF, Open Reading Frame; SARS-CoV-2; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2; UTR, Untranslated region; WHO, World Health Organization.

## More clinical warning indicators should be explored for monitoring COVID-19 patients' condition.

Yang C, Yang J, Zhang J, Yang J

Int J Cardiol

2020 Apr 11; PMID: 32303418

Level of Evidence: 5- Expert opinion

Type of Article: Letter

**Summary Excerpt:** The authors “strongly recommend more clinical warning indicators such as BNP should be explored for the early identification of COVID-19 critically ill patients, and take more effective and normative approaches to reduce the conversion from mild to severe patients at an earlier stage.”

## The role of Nuclear Medicine for COVID-19 - Time to act now.

Juengling FD, Maldonado A, Wuest F, Schindler TH.Juengling FD, et al.  
J Nucl Med.

2020 Apr 17; PMID: 32303597

Level of Evidence: Level 5 - Expert opinion

Type of Article: Editorial

**Summary:** The authors argue physicians and researchers in the field of nuclear medicine can and should make meaningful research contributions regarding COVID-19. Suggested areas of research include utilizing FDG-PET/CT, the P2X<sub>7</sub> receptor pathway, and/or other radiopharmaceuticals to better characterize the inflammatory aspects of the disease.

## Cytokine release syndrome in severe COVID-19.

Moore BJB, June CH.

Science

2020 Apr 18; PMID: 32303591

Level of Evidence: Level 5

Type of Article: Perspective

**Summary:** Underlying pathways leading to cytokine release syndrome are detailed herein. SARS-CoV-2 infection results in monocyte, macrophage, and dendritic cell activation. Interleukin (IL)-6 release induces an amplification cascade that results in cis signaling with T<sub>H</sub>17 differentiation, among other lymphocyte changes, and trans signaling in many cell types, such as endothelial cells. Increased systemic cytokine production contributes to the pathophysiology of severe COVID-19, including hypotension and acute respiratory distress syndrome. **IL-6 antagonists, such as tocilizumab, sarilumab, and siltuximab, may provide efficacious in mediating severe disease manifestations.** Lessons learned from arthritis and cell therapy in cancer patients may offer evidence for additional treatments.

## Androgen hazards with COVID-19.

Sharifi N, Ryan C

Endocr Relat Cancer

2020 Apr 1; PMID: 32302975

Level of Evidence: Level 5 - Mechanism Based Reasoning

Type of Article: Editorial

**BLUF:** Androgen modulation of the immune system or androgen regulation of specific proteins may explain increased disease severity of COVID-19 in men, though the role of androgen antagonism/inhibition in treating the disease is unknown.

**Summary with excerpts:** Recent evidence has demonstrated poorer clinical outcomes and higher mortality for men infected with COVID-19 compared to women. “Although the etiology is probably multifactorial, the physiological effects of androgens are one possible reason that may explain these sex-specific differences in outcomes.” The authors posit two possible mechanisms for the role of androgen regulation in COVID-19:

1. The expression and function of TMPRSS2, a cellular protease required for SARS-CoV-2 infection (similar to ACE2 in this context), known for its androgen-regulated role in prostate cancer. If TMPRSS2 also responds to androgens in lung tissue, then inhibition of androgens could potentially impede SARS-CoV-2 cellular entry or activation via downregulation of this protein.
2. Androgens appear to have an immunosuppressive effect, but the degree of peripheral conversion of adrenal androgens to more potent androgens differs depending on a person’s genotype. Those with alleles that promote greater peripheral androgen conversion may be at

risk for worsened clinical outcomes in COVID-19, suggested by the high frequency of this genotype in countries that have been severely affected by the disease like Italy and Spain.

## Physiological and Pathological Regulation of ACE2, the SARS-CoV-2 Receptor

PMID: 32302706

Publication Date: April 14, 2020

Li, Yanwei; Zhou, Wei; Yang, Li; You, Ran

Pharmacological Research

Level of Evidence: Level 5 - Literature Review

Type of Article: Review

**BLUF:** This article reviews the variation of ACE2 expression in physiological (sex, age, tissue distribution) and pathological states (pulmonary, cardiovascular, renal and diabetes) and the implications it may have on COVID-19 clinical outcomes. The authors summarize various recent literature that overall suggests ACE-2 levels correlate with a patient's susceptibility to SARS-CoV-19, and they speculate that targeting ACE2 (via hrsACE2 or ACE2 activator) may have a therapeutic effect.

**Abstract:** The renin-angiotensin system (RAS) is crucial for the physiology and pathology of all the organs. Angiotensin-converting enzyme 2 (ACE2) maintains the homeostasis of RAS as a negative regulator. Recently, ACE2 was identified as the receptor of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the coronavirus that is causing the pandemic of Coronavirus disease 2019 (COVID-19). Since SARS-CoV-2 must bind with ACE2 before entering the host cells in humans, the distribution and expression of ACE2 may be critical for the target organ of the SARS-CoV-2 infection. Moreover, **accumulating evidence has demonstrated the implication of ACE2 in the pathological progression in tissue injury and several chronic diseases**, ACE2 may also be essential in the progression and clinical outcomes of COVID-19. Therefore, we summarized the expression and activity of ACE2 in various physiological and pathological conditions, and discussed its potential implication in the susceptibility of SARS-CoV-2 infection and the progression and prognosis of COVID-19 patients in the current review.

# Transmission & Prevention

## [European Society of Minimally Invasive Neurological Therapy \(ESMINT\) Recommendations for Optimal Interventional Neurovascular Management in the covid-19 Era](#)

Aggour, Mohamed; White, Phil; Kulcsar, Zsolt; Fiehler, Jens; Brouwer, Patrick

J Neurointerv Surg

2020 Apr 17; PMID: 32303584

Level of Evidence: 6 - Expert Opinion

Type of Article: Editorial

**BLUF:** The European Society of Minimally Invasive Neurological Therapy (ESMINT) provides recommendations on protocols and new protocol training, patient risk classification and management, stocking, healthcare worker and family precautions, and mental health and stress management.

**SUMMARY:** Neurointerventional activity should be limited to acute and relative interventionalneuroradiology (INR) emergencies and interventions that will actively affect the outcome of patients. It is critical to verify the availability of ICU beds and anesthesia and staff availability. Telemedicine consultations are recommended whenever possible. Patients can be separated into four categories: low-risk, which requires only a simple surgical mask and consideration of a chest CT or x-ray; high-risk, which requires that the patient wear a mask at all times and testing according to local protocols; known confirmed COVID-19 and suspected patients, which should be managed according to local guidelines. Precautions for healthcare workers include decreasing the number of attending staff, limiting interactions with other staff and risk of exposure from patients, use adequate protective gear, and comprehensive training for correct use and cleaning of PPE. Angiography suites should be staffed with the minimum number of staff possible, and only essential equipment should be brought into the suite. Frequently touched equipment should be wrapped in plastic sheets, and protocols for disinfection should be followed. Use of materials should be kept to an adequate minimum, and stock delivery network and supply status should be confirmed. Protecting HCW families is important and can be managed by changing immediately upon arriving and before leaving the hospital and limiting materials taken back home. It is important to support the mental health of HCWs and provide ways of dealing with stress following the crisis.

## [Augmenting the Disaster Healthcare Workforce.](#)

Iserson KV.

West J Emerg Med.

2020 Apr 13; PMID: 32302286

Level of Evidence: 5 - Expert opinion

Type of Article: Expert commentary

**BLUF:** Augmentation of the healthcare workforce in response to COVID-19 requires accurate staffing estimates, streamlining licensing processes, identifying roles for them, and supporting their well-being. The earlier these are addressed, the smoother the process of augmentation will go.

**Summary:** “Based on a 40% prevalence of COVID-19 in the United States during the pandemic, 100 million people infected, about 21 million will be hospitalized, with about 4.5 million of them needing intensive care. While healthcare systems across the country have varying abilities to accommodate this patient load, a **six-month epidemic will result in filling 275% of the potentially available capacity of inpatient beds and >500% of the intensive care unit (ICU) bed**

**capacity.** If the course is flattened to **12 months, the need for hospital beds would be 137% and the ICU beds 254% of capacity.**" Due to this the author outlines methods and relevant precedents to augment the disaster healthcare workforce:

- Specialty-trained primary physicians can be reassigned to more useful positions
- Expand diagnostic and treatment scope of experienced nurses
- Expand recognition of and employer access to out-of-state medical licenses and interstate licensing compacts.
- Recruitment of retirees, medical students, and international medical graduates.

### **Preparedness for COVID-19 infection prevention in Korea: Single-center experience.**

Kim, Youn Jeong; Jeong, Yeon Jeong; Kim, Si Hyun; Kim, Yeo Ju; Lee, Shin Young; Kim, Tae Yeong; Choi, Mi Sun; Ahn, Joong Hyun

J Hosp Infect

2020 Apr 18; PMID: 32302723

Level of Evidence: 6 - Expert Opinion

Type of Article: Letter

**BLUF:** A hospital in Incheon, South Korea has implemented preparedness protocols for management of COVID-19 infection including a flow chart for actions in case of suspected COVID-19 infection, designation of three zones according to risk, and in-hospital RT-PCR.

**SUMMARY:** A flow chart (Figure 1!) was developed to guide active in the case of a suspected COVID-19 infection, and checklists for patients at high risk were handed out to all medical staff and employees to assess all patients visiting the hospital. All entrances to the hospital excluding the main entrance were closed, and visitors were restricted. Proper PPE was distributed to staff. The hospital was divided into three zones (Figure 1B) according to flow chart risk: the main clinical hospital was the clean zone, a separate temporary building was the moderate-risk zone used for suspected COVID-19 cases, and a separate area at the emergency department was the high-risk zone. Staff in each zone were appropriately trained. Samples were labeled with warning labels and hand-delivered to the laboratory for RT-PCR testing. Laboratory personnel wore appropriate PPE.

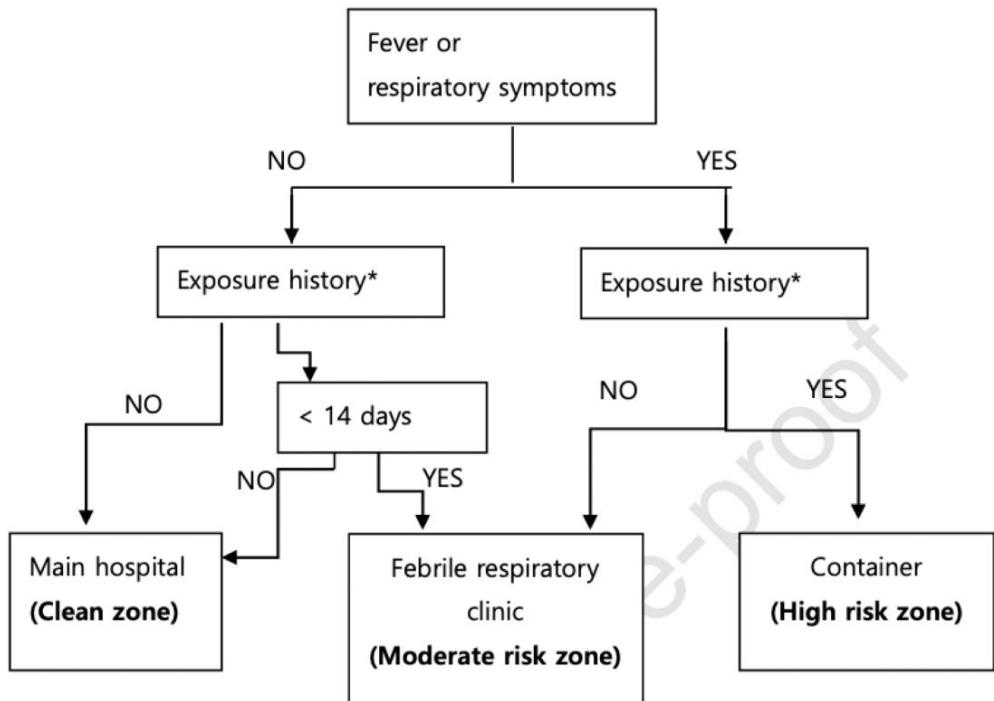


Fig 1A Response flow chart to a suspected COVID-19 case

Exposure history included contact with confirmed cases or travel history of risk area.

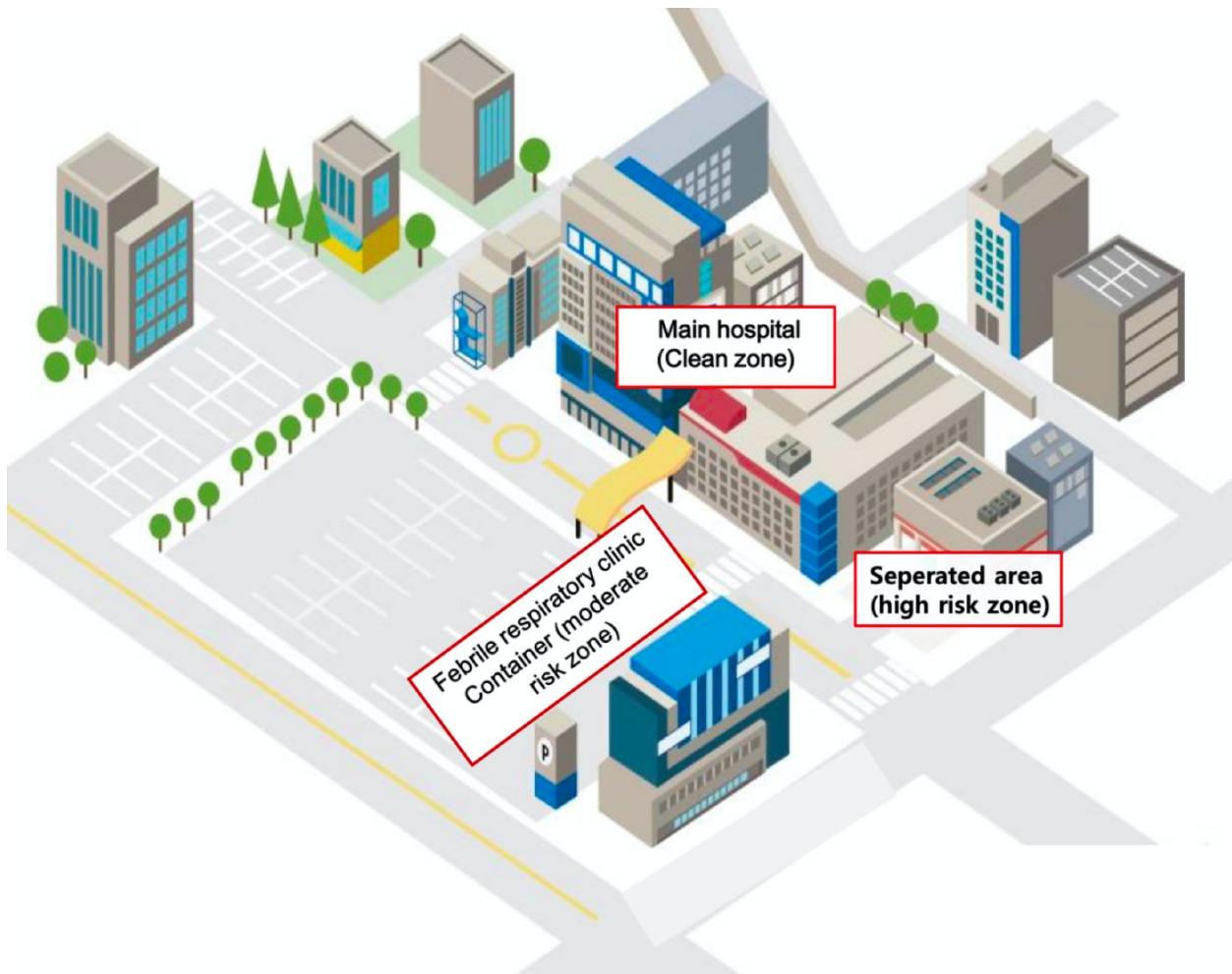


Fig 1 B. Map of hospital zones set up for risk stratification

## Recommendations for protecting against and mitigating the COVID-19 pandemic in long-term care facilities.

Yen MY, Schwartz J, King CC, Lee CM, Hsueh PR

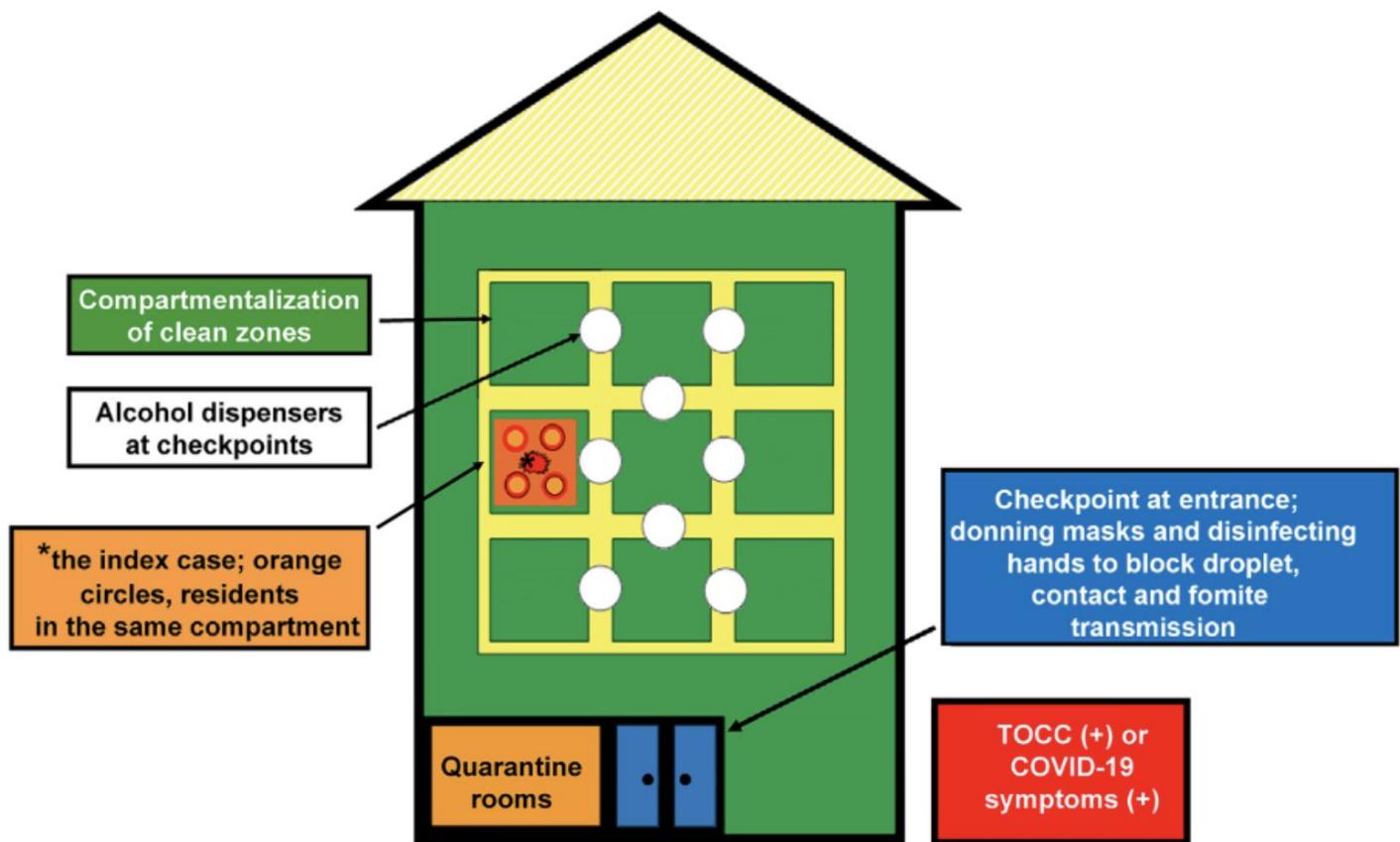
J Microbiol Immunol Infect.

2020 Apr 10; PMID: 32303480

Level of Evidence: Level 5 – Expert Opinion

Type of Article: Letter

**Summary:** The authors recommend adapting enhanced traffic control bundling (eTCB) to long-term care facilities, with further compartmentalization of clean zones plus active integrated syndromic and virological surveillance.



## Preterm Delivery in Pregnant Woman With Critical COVID-19 Pneumonia and Vertical Transmission.

Zamaniyan M, Ebadi A, Mir SA, Rahmani Z, Haghshenas M, Azizi S.

Prenat Diagn

2020 Apr 17; PMID: 32304114

Level of Evidence: 5 – Case Report

Type of Article: Letter

**BLUF:** A possible case of vertically transmitted COVID-19 is presented.

**Summary:** The authors present a case report of a 22 year old patient with COVID-19 who delivered at 32 weeks by C-section in March at Imam Khomeini Hospital in Iran. A COVID-19 RT-PCR of amniotic fluid aspirated during the procedure tested positive. The neonate initially had negative nasal and throat swabs, but tested positive 24 hours later. The neonate developed fever and had a series of positive PCR tests but recovered. After delivery, the mother's condition worsened and she ultimately died a few weeks later as a result of COVID-19. The authors speculate that her severe disease course may have contributed to this possible case of vertical transmission.

## Digital Triage for People With Multiple Sclerosis in the Age of COVID-19 Pandemic

Bonavita S, Tedeschi G, Atreja A, Lavorgna L.  
Neurol Sc.

2020 Apr 17; PMID: 32304114  
Level of Evidence: 5 – Expert Opinion  
Type of Article: Comment

**Summary:** Many patients with multiple sclerosis (MS) are immunosuppressed or have disabilities or comorbidities that place them at a higher risk of COVID-19 infection. The authors propose a triage tool that can be used for patients with MS to remotely screen their risk of COVID-19 infection, with the primary goal of preventing lower risk patients from utilizing in-person healthcare services that could increase their risk of infection.

## [SARS-CoV-2 Isolation From Ocular Secretions of a Patient With COVID-19 in Italy With Prolonged Viral RNA Detection](#)

Colavita, Francesca; Lapa, Daniele; Carletti, Fabrizio; Lalle, Eleonora; Bordi, Licia; Marsella, Patrizia; Nicastri, Emanuele; Bevilacqua, Nazario; Giancola, Maria Letizia; Corpolongo, Angela; Ippolito, Giuseppe; Capobianchi, Maria Rosaria; Castilletti, Concetta

Ann Intern Med

2020 Apr 17; PMID: 32302380

Level of Evidence: 4  
Type of Article: Letter

**Summary:**

Based on clinical samples from a single patient of COVID-19 in Italy, viral RNA was detected in ocular swabs in persistent conjunctivitis that first presented at admission. Although conjunctivitis resolved on day 20, ocular samples continued to test positive for infectious virus at day 27. This demonstrates that ocular fluid may be a potential source of infection and underlies the importance of adequate PPE for ophthalmologists and other medical personnel.

## [Re-emergence of SARS-CoV2 in a discharged COVID-19 case.](#)

Zhou M, Li Q, Cao L, Liu Y, Zha Y, Xie H, Zeng M, Shi X, Gao Y, Xie L, Luo M, Zeng Y  
J Microbiol Immunol Infect

2020 Apr 2; PMID: 32303482  
Level of Evidence: 4- Case report  
Type of Article: Letter

**Summary:** The authors describe the disease course of a woman admitted to the hospital with Covid-19 diagnosed by nasal swab. She tested negative 3 times by nasal swab before hospital release and then was readmitted days later with symptom recurrence and a positive nasal swab.

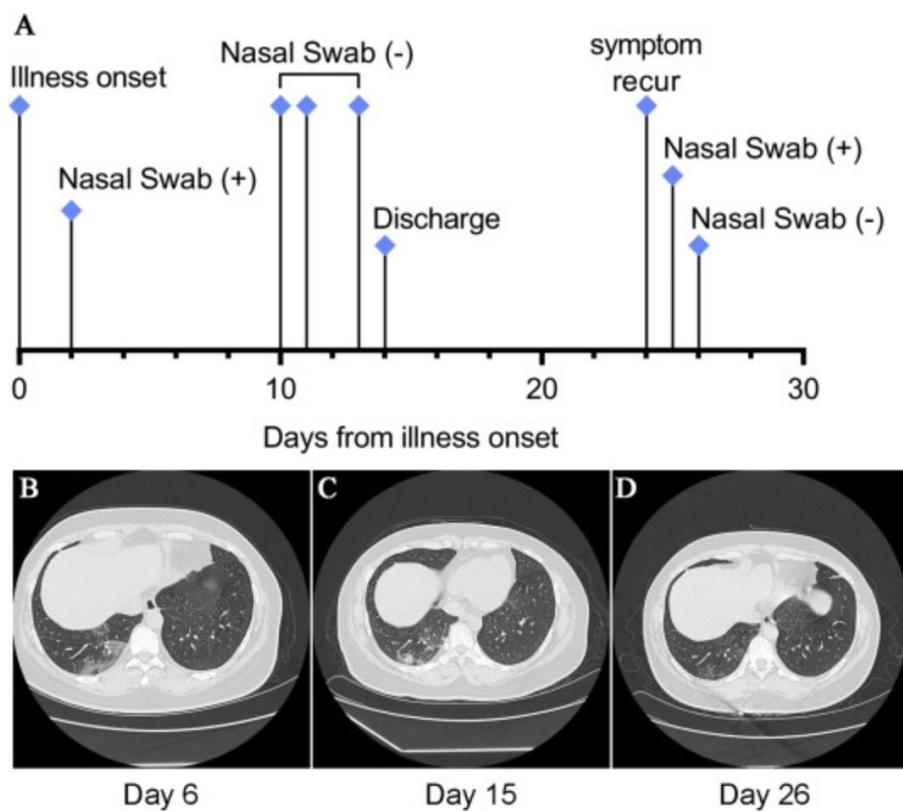


Figure 1. Clinical course of the patients. (A) Timeline for the clinical course in this patient and detection for SARS-CoV2; “+” and “-” indicates a positive or negative results for SARS-CoV2 by real-time RT-PCR assay; (B)–(D): Images of chest CT finds on day 6 (B), day 15 (C) and day 26 (D).

## Protecting against COVID-19 aerosol infection during intubation

Tseng, Jen-Yu; Lai, Hsien-Yung

J Chin Med Assoc

2020 Apr 15; PMID: 32304507

Level of Evidence: 5 - Mechanism-Based Reasoning

Type of Article: Letter

### **Summary:**

In a letter to the editor, authors detail the “aerosol box”, a device to be used during intubation. There is no evidence this is effective, but the authors suggest using measures such as this to decrease COVID-19 transmission during high-risk procedures.

## Environmental virus surveillance in the isolation ward of COVID-19.

Wang H, Mo P, Li G, Chen P, Liu J, Wang H, Wang F, Zhang Y, Zhao Q.

J Hosp Infect

2020 Apr 15, PMID: 32304725

Level of Evidence: 5 - Expert Opinion

Article Type: Research

**Summarizing Excerpt:** "[] to avoid apparent and occult SARS-CoV-2 infections in the medical staff, daily disinfection should be strengthened in both contaminated zone and clean zone of the isolation ward."

## Special Article: Risk Communication During COVID-19.

Abrams EM, Greenhawt M.  
J Allergy Clin Immunol Pract  
2020 Apr 15; PMID: 32304834  
Level of Evidence: 5 - Expert Opinion  
Article Type: Commentary

**BLUF:** Appropriate communication about COVID-19 through social media could educate the public and avoid fear that leads to hoarding of personal protective equipment and medications.

**Abstract:** During the unprecedented times caused by the novel coronavirus COVID-19, there is rapidly evolving information and guidance. However, a focus must also be on **proper and effective risk communication**. This is especially the case during pandemics that have high rates of infection, significant morbidity, lack of therapeutic measures, and rapid increases in cases, all of which apply to the current COVID-19 pandemic. A consequence of poor risk communication and heightened risk perception is hoarding behavior, which can lead to lack of medications and personal protective equipment. One potential way to ensure appropriate risk communication is **utilizing social media channels, and ensuring an ongoing consistent media presence**. Another important step is to include all stakeholders including members of the allergy community in broader public health messaging. As we continue to face unprecedented times in the allergy community, an understanding and appreciation of risk communication will be essential as we communicate with, and inform, our patients, and our colleagues, moving forward.

## **SARS-CoV-2 and COVID-19**

Sheng, Wang-Huei; Ko , Wen-Chien; Huang, Yhu-Chering; Hsueh, Po-Ren  
Clin Exp Dermatol  
2020 Apr 3; PMID: 32303481  
Level of Evidence: 6  
Type of Article: Correspondence

### **Summary:**

The virus causing COVID-19 transmits more effectively compared to previous strains of coronavirus, including SARS-CoV and MERS-CoV. While most infections lead to respiratory symptoms and transmit by inhalation or contact with respiratory secretions or droplets, it can also lead to gastrointestinal symptoms and involve fecal viral shedding. In order to decrease transmission within the hospital and between hospitals and the community protecting healthcare professionals through use of PPE.

## **Symptom Screening at Illness Onset of Health Care Personnel With SARS-CoV-2 Infection in King County, Washington**

Chow, Eric J.; Schwartz, Noah G; Tobolowsky, Farrell A; Zacks, Rachael L T; Huntington-Frazier, Melinda; Reddy, Sujan C; Rao, Agam K  
JAMA  
2020 Apr 17; PMID: 32301962  
Level of evidence: 3 - Cohort Study  
Type of Article: Research

**BLUF:** In a cohort of 50 healthcare personnel (HCP), screening with current COVID-19 guidelines and subsequent testing revealed that **not including myalgias and chills in screening guidelines lead to missing 7% of cases**, suggesting a need for expansion of screening criteria.

**Abstract:**

As the coronavirus disease 2019 (COVID-19) pandemic continues, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) exposures among US health care personnel (HCP) during health care delivery and from community contacts will increase. Results from real-time reverse transcriptase–polymerase chain reaction suggest that high viral loads may be detected soon after illness onset, including in minimally symptomatic persons.<sup>1</sup> Current COVID-19 HCP screening guidance<sup>2</sup> includes assessing fever and respiratory symptoms (cough, shortness of breath, or sore throat) with clinical discretion for evaluation for other symptoms (eg, myalgias). We assessed the spectrum of symptoms at onset of COVID-19 among HCP and evaluated current screening criteria for identifying COVID-19 cases early in illness course.

**Prevention and Control Measures in Radiology Department for COVID-19**

Ding, Jinli; Fu, Haihong; Liu, Yaou; Gao, Jianbo; Li, Zhenlin; Zhao, Xin; Zheng, Junhui; Sun, Wenge; Ni, Hongyan; Ma, Xinwu; Feng, Ji; Wu, Aiqin; Liu, Jie; Wang, Yun; Geng, Pengfei; Chen, Yong  
Eur Radiol

2020 Apr 16; PMID: 32300968

Level of Evidence: 5 - Mechanism-Based Reasoning

Type of Article: Guideline Statement

**BLUF:** Societal recommendations for radiology department staff and physicians on preventing COVID-19 spread based upon prevention and control measures reported.

**Abstract:**

Since a novel coronavirus was discovered from a cluster of patients with emerging pneumonia of unknown etiology in Wuhan, China, it has spread rapidly through droplet and contact transmission. Recently, the novel coronavirus pneumonia which was named COVID-19 by the World Health Organization (WHO) has been raised as a worldwide problem. Radiological examinations were confirmed as effective methods for the screening and diagnosis of COVID-19. It is reported that some radiologists and radiological technologists were infected when giving examinations to the patients with COVID-19. In order to reduce the infection risk of medical staff in radiology department, we summarized the experience on prevention and control measures in radiology department for COVID-19, aiming to guide the prevention and practical work for radiologists and radiological technologists.

**The Utah Model: Mental Bandwidth and Strategic Risk Generation in COVID-19 Airway Management**

Runnels, Sean; Ferranti, David A; Davis, Allison N; Pollard, J  
Anaesthesia

2020 Apr 16; PMID: 32298462

Level of Evidence: 5 - Mechanism-Based Reasoning

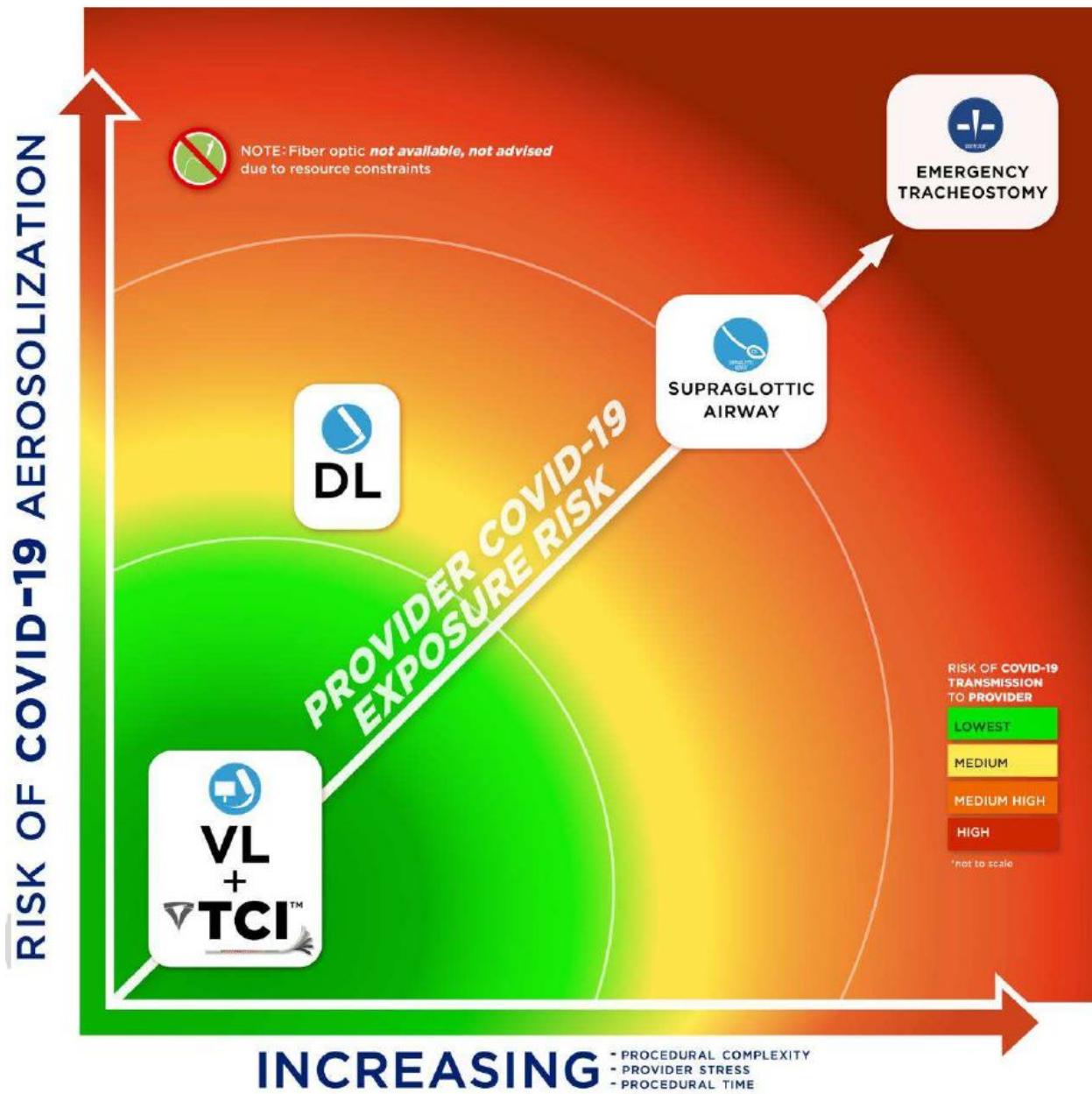
Type of Article: Correspondence

**BLUF:** Authors share a mental model for airway safety when performing endotracheal intubations

**Abstract:**

Airway management in the COVID-19 patient is a point of risk concentration for providers, patients and medical systems. Time is of the essence if medical systems are to turn the tide of collapse seen in Wuhan, Italy, Spain and now New York. We would like to highlight two points arising from our

reading of these guidelines; first, failure to minimise aggregate airway management risk poses a strategic threat to our medical systems, and two, it is critical to include the risk of mental bandwidth saturation as a risk for contamination. In addition, we offer a simple, qualitative, mental model that explains how the risk of provider exposure is generated during airway management.



## **COVID-19 putting patients at risk of unplanned extubation and airway providers at increased risk of contamination**

Berkow, Lauren; Kanowitz, Arthur  
Anest Analg  
2020 Apr 16; PMID: 32304463

Level of Evidence: 5 - Mechanism-Based Reasoning

Type of Article: Letter

**Summary:** In this letter to the editor, authors discuss the numerous concerns and safety pitfalls surrounding managing critically ill COVID-19 patients, particularly those that could require emergent intubation or extubation. Donning PPE beforehand, whether for an emergent procedure or not, is recommended to all providers.

## Artificial Intelligence (AI) applications for COVID-19 pandemic

Vaishya, Raju; Javaid, Mohd; Khan, Ibrahim Haleem; Haleem, Abid

Diabetes Metab Syndr

2020 Apr 14; PMID: 32305024

Level of Evidence: 5 - Mechanism-Based Reasoning

Type of Article: Research

**BLUF:** Authors detail the use of AI in the COVID-19 pandemic, such as with early diagnosis of infections or developing treatment algorithms.

### **Abstract:**

Healthcare delivery requires the support of new technologies like Artificial Intelligence (AI), Internet of Things (IoT), Big Data and Machine Learning to fight and look ahead against the new diseases. We aim to review the role of AI as a decisive technology to analyze, prepare us for prevention and fight with COVID-19 (Coronavirus) and other pandemics. **Methods:** The rapid review of the literature is done on the database of Pubmed, Scopus and Google Scholar using the keyword of COVID-19 or Coronavirus and Artificial Intelligence or AI. Collected the latest information regarding AI for COVID-19, then analyzed the same to identify its possible application for this disease. **Results:** We have identified seven significant applications of AI for COVID-19 pandemic. This technology plays an important role to detect the cluster of cases and to predict where this virus will affect in future by collecting and analyzing all previous data. **Conclusions:** Healthcare organizations are in an urgent need for decision-making technologies to handle this virus and help them in getting proper suggestions in real-time to avoid its spread. AI works in a proficient way to mimic like human intelligence. It may also play a vital role in understanding and suggesting the development of a vaccine for COVID-19. This result-driven technology is used for proper screening, analyzing, prediction and tracking of current patients and likely future patients. The significant applications are applied to tracks data of confirmed, recovered and death cases.

## Challenges and solutions for addressing critical shortage of supply chain for personal and protective equipment (PPE) arising from Coronavirus disease (COVID19) pandemic - Case study from the Republic of Ireland.

Rowan NJ, Laffey JG. Rowan NJ, et al.

Sci Total Environ.

2020 Apr 6; PMID: 32304970

Level of Evidence: Level 4 - Case Study

Type of Article: Research

**Summary:** In response to shortages of PPE, the authors discuss solutions being utilized in the Republic of Ireland including improved tracking and communication of existing stockpiles,

production of made-to-order PPE, and reprocessing of single-use PPE with hydrogen peroxide or UV radiation.

## Abstract:

Coronavirus (COVID-19) is highly infectious agent that causes fatal respiratory illnesses, which is of great global public health concern. Currently, there is no effective vaccine for tackling this COVID19 pandemic where disease countermeasures rely upon preventing or slowing person-to-person transmission. Specifically, there is increasing efforts to prevent or reduce transmission to front-line healthcare workers (HCW). However, **there is growing international concern regarding the shortage in supply chain of critical one-time-use personal and protective equipment (PPE)**. PPE are heat sensitive and are not, by their manufacturer's design, intended for reprocessing. Most conventional sterilization technologies used in hospitals, or in terminal medical device sterilization providers, cannot effectively reprocess PPE due to the nature and severity of sterilization modalities. Contingency planning for PPE stock shortage is important. **Solutions in the Republic of Ireland include use of smart communication channels to improve supply chain, bespoke production of PPE to meets gaps, along with least preferred option, use of sterilization or high-level disinfection for PPE reprocessing.** Reprocessing PPE must consider material composition, functionality post treatment, along with appropriate disinfection. Following original manufacturer of PPE and regulatory guidance is important. Technologies deployed in the US, and for deployment in the Republic of Ireland, are eco-friendly, namely vaporised hydrogen peroxide (VH<sub>2</sub>O<sub>2</sub>), such as for filtering facepiece respirators and UV irradiation and High-level liquid disinfection (Actichlor+) is also been pursued in Ireland. Safeguarding supply chain of PPE will sustain vital healthcare provision and will help reduce mortality.

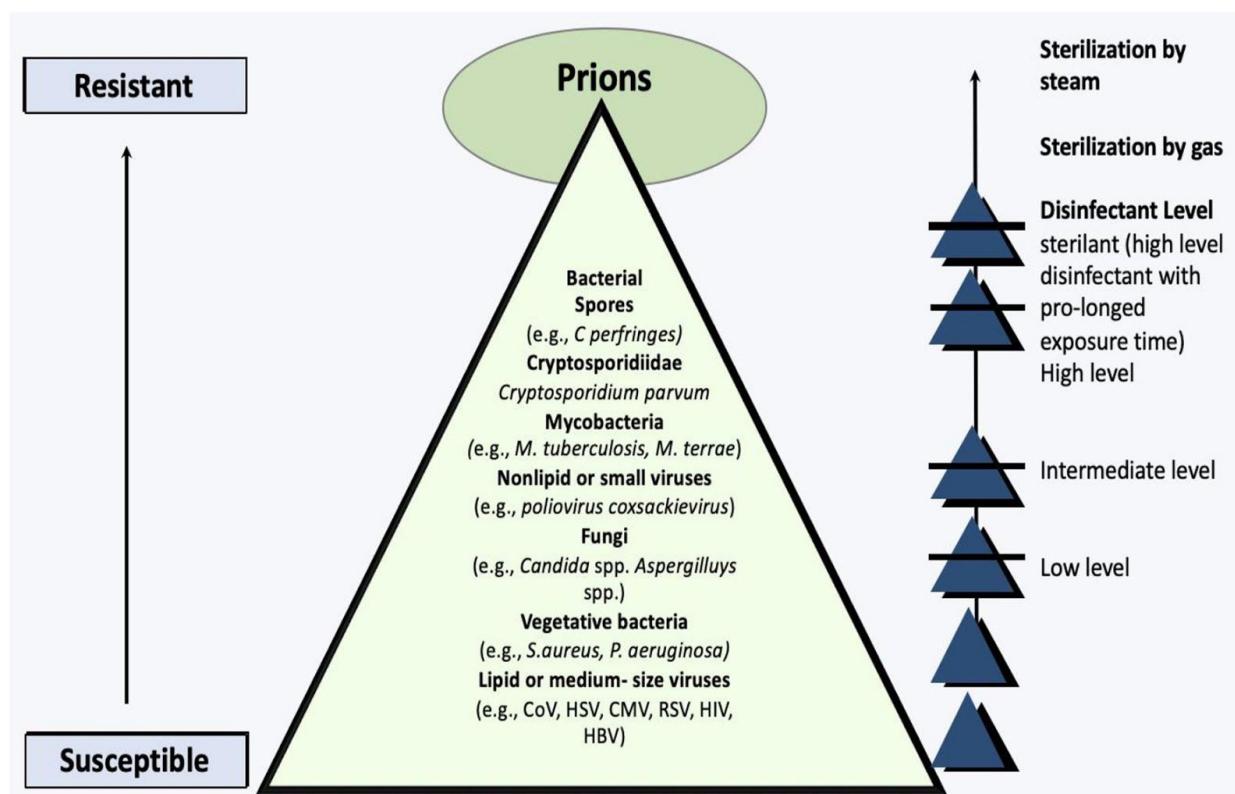


Fig. 4. Pyramid of resistance of increasing resistance to disinfection and sterilization.

## **Homeless mentally ill people and COVID-19 pandemic: The two-way sword for LMICs.**

Kar SK, Arafat SMY, Marthoenis M, Kabir R

Asian J Psychiatr

2020 Apr 10; PMID: 32305034

Level of Evidence: 5-Expert opinion

Type of Article: Letter

**Summary:** People who are both living homeless and living with mental illness may be at increased risk of contracting and spreading Covid-19 in their communities as a result of an inability to isolate and perform appropriate hygiene measures, common medical comorbidities, lack of access to educational information on best practices for prevention, and “poor help-seeking behavior.” The authors worry about this challenge in low and middle income countries which may lack the resources to appropriately follow up with this population. They argue, “Early and adequate treatment of mental illnesses in these patients is likely to improve their general physical health and degree of adherence to the precautionary measures required during this COVID-19 pandemic.” They suggest online consultation as a potential solution to scarce access to psychiatric care.

## **A report of three COVID-19 cases with prolonged viral RNA detection in anal swabs.**

Hu Y, Shen L, Yao Y, Xu Z, Zhou J, Zhou H

Clin Microbiol Infect

2020 Apr 15; PMID: 32304746

Level of Evidence: 4- Case series

Type of Article: Letter

**Summary:** The authors describe three patients in China with mild Covid-19 illness with no gastrointestinal symptoms who tested positive for viral RNA by anal swab even after 2 of the 3 had begun testing negative by nasopharyngeal swab. They caution that “RNA detection by PCR does not correlate with the risk of transmission.” As yet, “there is no conclusive evidence that SARS-CoV-2 virus can be transmitted through oral-fecal route.”

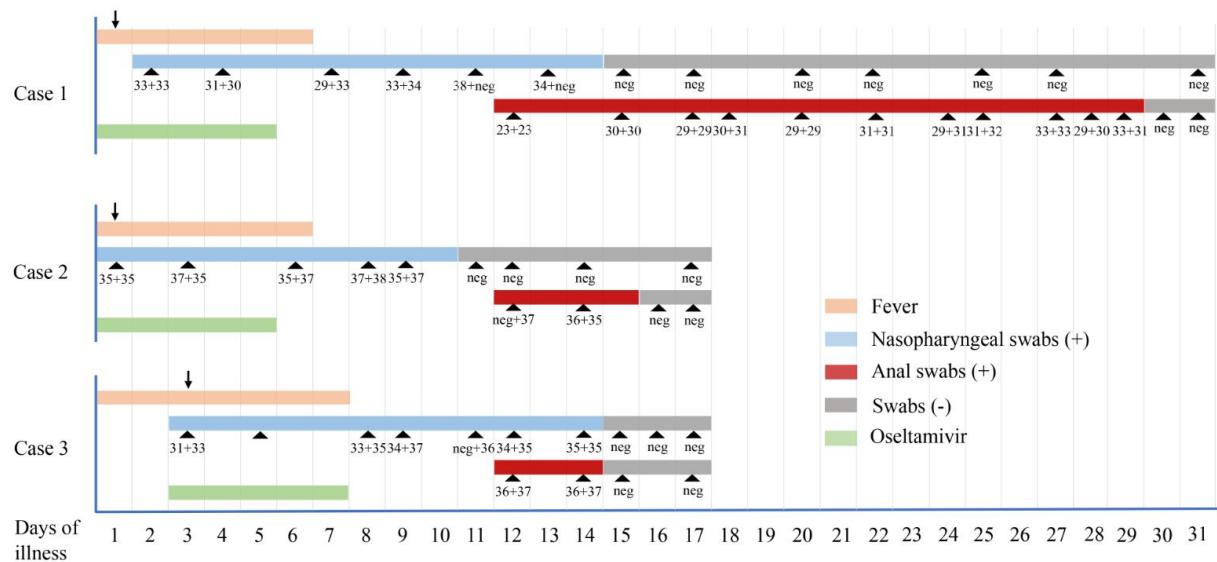


Figure 1. Diagram of viral detection, fever, and oseltamivir administration of the three cases. The time when SARS-CoV-2 nucleic acids turned negative was 15 and 5 days later in the anal swabs than in the nasopharyngeal swabs in cases 1 and 2, respectively. Illness day represents the patients with clear clinical symptoms such as fever which is labelled. The black arrows point to the admission day of each case. Virus nucleic acids were tested by real-time RT-PCR. Ct values are shown as Orf1ab+N genes. Oseltamivir was administered in an oral dose of 75 mg twice daily.

## **Severe COVID-19 during Pregnancy and Possible Vertical Transmission.**

Alzamora MC, Paredes T, Caceres D, Webb CM, Valdez LM, La Rosa M. Alzamora MC, et al.  
Am J Perinatol

2020 Apr 18; PMID: 32305046  
Level of Evidence: 5 - Case Report  
Type of Article: Short Communication

**Bluff:**

- We report a severe presentation of COVID-19 in pregnancy requiring invasive ventilatory support.
- This is a case of positive RT-PCR [in the first] day of life, suggesting possible vertical transmission.
- There were no detectable maternal antibodies for COVID-19 until after delivery

**Abstract:** There are few cases of pregnant women with novel corona virus 2019 (COVID-19) in the literature, most of them with a mild illness course. **There is limited evidence about in utero infection and early positive neonatal testing.** A 41-year-old G3P2 with a history of previous cesarean deliveries and diabetes mellitus presented with a 4-day history of malaise, low-grade fever, and progressive shortness of breath. A nasopharyngeal swab was positive for COVID-19, COVID-19 serology was negative. The patient developed respiratory failure requiring mechanical ventilation on day 5 of disease onset. The patient underwent a cesarean delivery, and neonatal isolation was implemented immediately after birth, without delayed cord clamping or skin-to-skin contact. **The neonatal nasopharyngeal swab, 16 hours after delivery, was positive for severe acute respiratory syndrome–coronavirus 2 (SARS-CoV-2) real-time polymerase chain reaction (RT-PCR), and immunoglobulin (Ig)-M and IgG for SARS-CoV-2 were negative.** Maternal IgM and IgG were positive on postpartum day 4 (day 9 after symptom onset). **We report a severe presentation of COVID-19 during pregnancy. To our knowledge, this is the earliest reported positive PCR in the neonate, raising the concern for vertical transmission. We suggest pregnant women should be considered as a high-risk group and minimize exposures for these reasons.**

**Covid-19: Countermeasure for N95 mask-induced pressure sore.**

Yin Z.  
J Eur Acad Dermatol Venereol.  
2020 Apr 17; PMID: 32302449  
Level of Evidence: 6 - Expert Opinion  
Type of Article: Letter to the Editor

**Summary:** The author suggests a benzalkonium “band-aid” be placed over an existing pressure sore before an adhesive hydrocolloid dressing is placed as an improvement on using a hydrocolloid dressing alone for pressure sores from N95 mask use.



**Figure 1. A:** N95 health care respirator and surgical mask. **B:** Pressure sore on nose bridge. **C:** Application of benzalkonium chloride patch on nose bridge.

## Fecal-Oral Transmission of SARS-CoV-2 in Children: Is it Time to Change Our Approach?

Donà D, Minotti C, Costenaro P, Da Dalt L, Giaquinto C.

Pediatr Infect Dis J.

2020 Apr 16; PMID: 32304466

Level of Evidence: 5 - Expert opinion

Type of Article: Editorial

**Summarizing excerpt:** “Rectal swabs should be considered especially in children for diagnosis as well as to better define the duration of isolation, along with findings from nasopharyngeal swabs...A negativity in both nasopharyngeal and stool samples might be considered as a standard requirement for cessation of mandatory isolation, especially in those settings where there is a risk of infecting vulnerable populations (eg, retirement homes).”

## Management

### Extubation of patients with COVID-19.

D'Silva DF, McCulloch TJ, Lim JS, Smith SS, Carayannis D

Br J Anaesth

2020 Apr 9; PMID: 32303376

Level of Evidence: 5 - Expert opinion

Type of Article: Letter

**Summary Excerpt:** “a summary of our extubation guidelines for COVID-19 patients, including description of an extubation technique aimed at minimising staff exposure to SARS-CoV-2.”

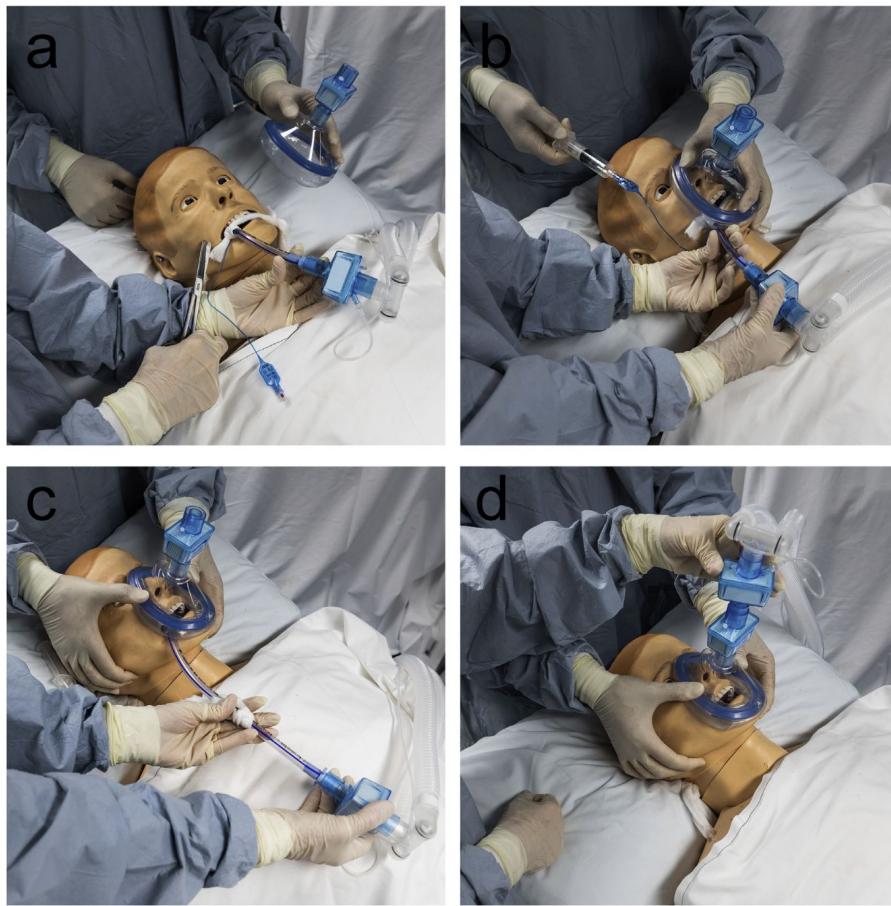


Fig 1. Mask-Over Tube Extubation Technique. (a) Tracheal tube positioned at one corner of the mouth with ties cut. (b) Facemask with airway filter positioned to create a seal over the face and tracheal tube. (c) The assistant withdraws the tracheal tube from under the side of the facemask using a two-handed technique to control the tracheal tube. (d) Tracheal tube has been detached and circuit has been connected to the second airway filter on the facemask.

## Considerations for Drug Interactions on QTc in Exploratory COVID-19 (Coronavirus Disease 2019) Treatment.

Roden DM, Harrington RA, Poppas A, Russo AM

Heart Rhythm

2020 Apr 14; PMID: 32302703

Level of Evidence: 5 - Expert opinion

Type of Article: Practice guideline

**BLUF:** Guidelines are presented to reduce the risk of arrhythmia in Covid-19 patients, given that several drugs being used to combat the virus increase the risks of arrhythmias.

**Summary Excerpt:** “Hydroxychloroquine and azithromycin have been touted for potential prophylaxis or treatment for COVID-19 (coronavirus disease 2019) infection. Both drugs are listed as definite causes of torsade de pointes at crediblemeds.org. ...

Mechanisms to minimize arrhythmia risk include:

- Electrocardiographic/QT interval monitoring

- Withhold the drugs in patients with baseline QT prolongation (eg, QTc  $\geq$  500 msec) or with known congenital long QT syndrome.
- Monitor cardiac rhythm and QT interval; withdrawal of the drugs if QTc exceeds a preset threshold of 500 msec.

- In patients critically ill with COVID-19 infection, frequent caregiver contact may need to be minimized, so optimal electrocardiographic interval and rhythm monitoring may not be possible.
- Correction of hypokalemia to levels of >4 mEq/L and hypomagnesemia to levels of >2 mg/dL. •Avoid other QTc prolonging agents whenever feasible.”

## **Thrombocytopenia and Its Association with Mortality in Patients with COVID-19.**

Yang X, Yang Q, Wang Y, Wu Y, Xu J, Yu Y, Shang Y

J Thromb Haemost

2020 Apr 17; PMID: 32302435

Level of Evidence: Article not able to be accessed to be verified.

Type of Article: Article not able to be accessed to be verified.

**BLUF: Article not able to be accessed to be verified.**

### **Abstract**

**Background:** Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which causes novel coronavirus disease 2019 (COVID-19), is spreading rapidly around the world. Thrombocytopenia in patients with COVID-19 has not been fully studied.

**Objective:** To describe thrombocytopenia in patients with COVID-19.

**Methods:** For each of 1476 consecutive patients with COVID-19 from Jinyintan Hospital, Wuhan, China, nadir platelet count during hospitalization was retrospectively collected and categorized into (0, 50], (50, 100], (100 - 150] or (150 - ) group after taking the unit ( $\times 10^9/L$ ) away from the report of nadir platelet count. Nadir platelet counts and in-hospital mortality were analyzed.

**Results:** Among all patients, 238 (16.1%) patients deceased and 306 (20.7%) had thrombocytopenia. Compared with survivors, non-survivors were older, were more likely to have thrombocytopenia and had lower nadir platelet counts. The in-hospital mortality was 92.1%, 61.2%, 17.5% and 4.7% for (0, 50], (50, 100], (100 - 150] and (150 - ) group, respectively. With (150 - ) as the reference, nadir platelet counts of (100 - 150], (50, 100] and (0, 50] group had a relative risk of 3.42 (95% CI 2.36 - 4.96), 9.99 (95% CI 7.16 - 13.94) and 13.68 (95% CI 9.89 - 18.92), respectively.

**Conclusions:** Thrombocytopenia is common in patients with COVID-19, and it is associated with increased risk of in-hospital mortality. The lower the platelet count is, the higher the mortality becomes.

## **Summary of 20 tracheal intubation by anesthesiologists for patients with severe COVID-19 pneumonia: retrospective case series.**

Zhang L, Li J, Zhou M, Chen Z.

J Anesth.

2020 Apr 17, PMID: 32303885

Level of Evidence: 4 - Case series

Article Type: Research

**BLUF:** Patients critically ill from Covid-19 pneumonia are more likely to have a better outcome with early tracheal intubation before blood gas data deterioration.

**Abstract:** SARS-CoV-2 pandemic is announced and it is very important to share our experience to the critical care community in the early stage. Urgent intubation team was organized by anesthesiologists and was dispatched upon request. We have retrospectively reviewed medical charts of 20 **critically ill patients with Covid-19 pneumonia who required tracheal intubation** from February 17 to March 19 in Wuhan No.1 hospital, China. We collected their demographics, vital signs, blood gas analysis before and after tracheal intubation, and 7-day outcome after tracheal intubation. Out of 20 patients, 90% were over 60 years old and 15 were with at least one comorbidity. All meet the indication for tracheal intubation announced by treatment expert group. We had successfully intubated all patients using personal protective equipment without circulatory collapse during tracheal intubation. During the observational period, none of 17 anesthesiologists were infected. Although intubation improved SPO<sub>2</sub>, reduced PaCO<sub>2</sub> and blood lactate, seven of 20 patients died within 7-days after tracheal intubation. Non-survivors showed significantly lower SPO<sub>2</sub> and higher PaCO<sub>2</sub> and blood lactate compared to survivors. For those who are **anticipated to deteriorate severe pneumonia with poor prognosis**, earlier respiratory support with **tracheal intubation** may be advised to **improve outcome**.

## The Use of UV Fluorescent Powder for COVID-19 Airway Management Simulation Training

Gardiner, Casey; Veall, J; Lockhart, Steven

Anaesthesia

2020 Apr 16; PMID: 32298467

Level of Evidence: 5 - Mechanism-Based Reasoning

Type of Article: Correspondence

**BLUF:** Authors specify intubation procedure using UV fluorescent powder, of particular concern due to the aerosolization of COVID-19 during endotracheal intubations.

### **Abstract:**

The COVID-19 pandemic has made it imperative to rapidly implement changes to typical medical practice in order to minimise spread of the SARS-CoV-2 virus. Many of these changes are non-intuitive or differ significantly from normal practice. For this reason, we read with great appreciation the timely article by Fregene et al. [1], which describes translational simulation leading to increased preparedness at their institution. With the recognition that aerosol generating procedures are of particular importance to practice due to their high risk of virus transmission, we offer an additional tool for COVID-19 airway simulation training that helped consolidate learning and motivate change to practice in hospitals across Vancouver.

## The Essential Role of Home- and Community-Based Physical Therapists During the COVID-19 Pandemic.

Falvey JR, Krafft C, Kornetti D. Falvey JR, et al.

Phys Ther.

2020 Apr 17; PMID: 32302404

Level of Evidence: Level 5 - expert opinion

Type of Article: Comment

**Summary:** The author argues that physical therapists are essential healthcare providers during the COVID-19 pandemic that improve patient outcomes and public health by (1) reducing risk for

avoidable hospitalizations, (2) helping offload emergency department volume, and (3) meeting postdischarge rehabilitation demand for survivors of COVID-19.

## **Considerations for Obstetric Care during the COVID-19 Pandemic**

Dotters-Katz SK, Hughes BL. Dotters-Katz SK, et al.

Am J Perinatol

2020 Apr 17; PMID: 32303077

Level of Evidence: 5- Expert Opinion

Type of Article: Review

**Bluf:** Based on the current research, this article talks about inpatient and outpatient management for pregnant women.

**Abstract:** The novel coronavirus disease 2019 (COVID-19) is a growing pandemic that is impacting daily life across the globe. Though disease is often mild, in high-risk populations, severe disease often leads to intubation, intensive care admission (ICU) admission, and in many cases death. **The implications for pregnancy remain largely unknown. Early data suggest that COVID-19 may not pose increased risk in the pregnant population.** Vertical transmission has not been confirmed. Because no treatment, no vaccine and no herd immunity exist, social distancing is the best mechanism available to protect patients and health care workers from infection. **This review will discuss what is known about the virus as it relates to pregnancy and then consider management considerations based on these data.** **KEY POINTS:** · COVID-19 severity in pregnancy is unclear.. · Social distancing is the best protective mechanism.. · No clear evidence of vertical transmission exists.. · Mother/baby separation avoids transmission..

## **The application of strong matrix management and PDCA cycle in the management of severe COVID-19 patients**

Li, Yuanchao; Wang, Hongliang; Jiao, Jundong

Crit Care

2020 Apr 17; PMID: 32303245

Level of Evidence: 5 - Mechanism-Based Reasoning

Type of Article: Editorial

**BLUF:** Authors detail the management strategy they used to handle the influx of severe COVID-19 patients and support its use for other health systems.

### **Abstract:**

In late December 2019, an outbreak of 2019 novel coronavirus (COVID-19) was reported in Wuhan, Hubei province [1], with a rapid transmission [2]. As of 24:00 March 19, there were still 6569 confirmed cases including 2136 severe patients. A total of 80,967 confirmed cases and 3248 deaths were reported [3]. The intensive medical staffs from Heilongjiang province came to Wuhan Union Hospital, Tongji Medical College of Huazhong University of Science and Technology, to support. **We did well with this emergency strong matrix management (SMM) mode and Plan-Do-Check-Act (PDCA) cycle in the management of severe COVID-19 patients for more than 50 days.** Therefore, we summarized the application of this emergency management mode. We hope it can be helpful in dealing with the outbreak of COVID-19 and managing severe patients.

## **Which intravascular access should we use in patients with suspected/confirmed COVID-19?**

PMID: 32304800

Publication Date: April 15, 2020

Smereka J, Szarpak L, Filipiak KJ, Jaguszewski M, Ladny JR.

Resuscitation.

Level of Evidence: Level 3 - Literature review

Type of Article: Letter to the Editor

**Summary:** "Medical personnel dressed in full protective gear as the preferred method of gaining **intravascular access in patients with suspected/confirmed COVID-19 should choose intraosseous access.**"

## **Skin Reactions to Non-glove Personal Protective Equipment: An Emerging Issue in the COVID-19 Pandemic.**

Gheisari M, Araghi F, Moravvej H, Tabary M, Dadkhahfar S, Gheisari M, et al.

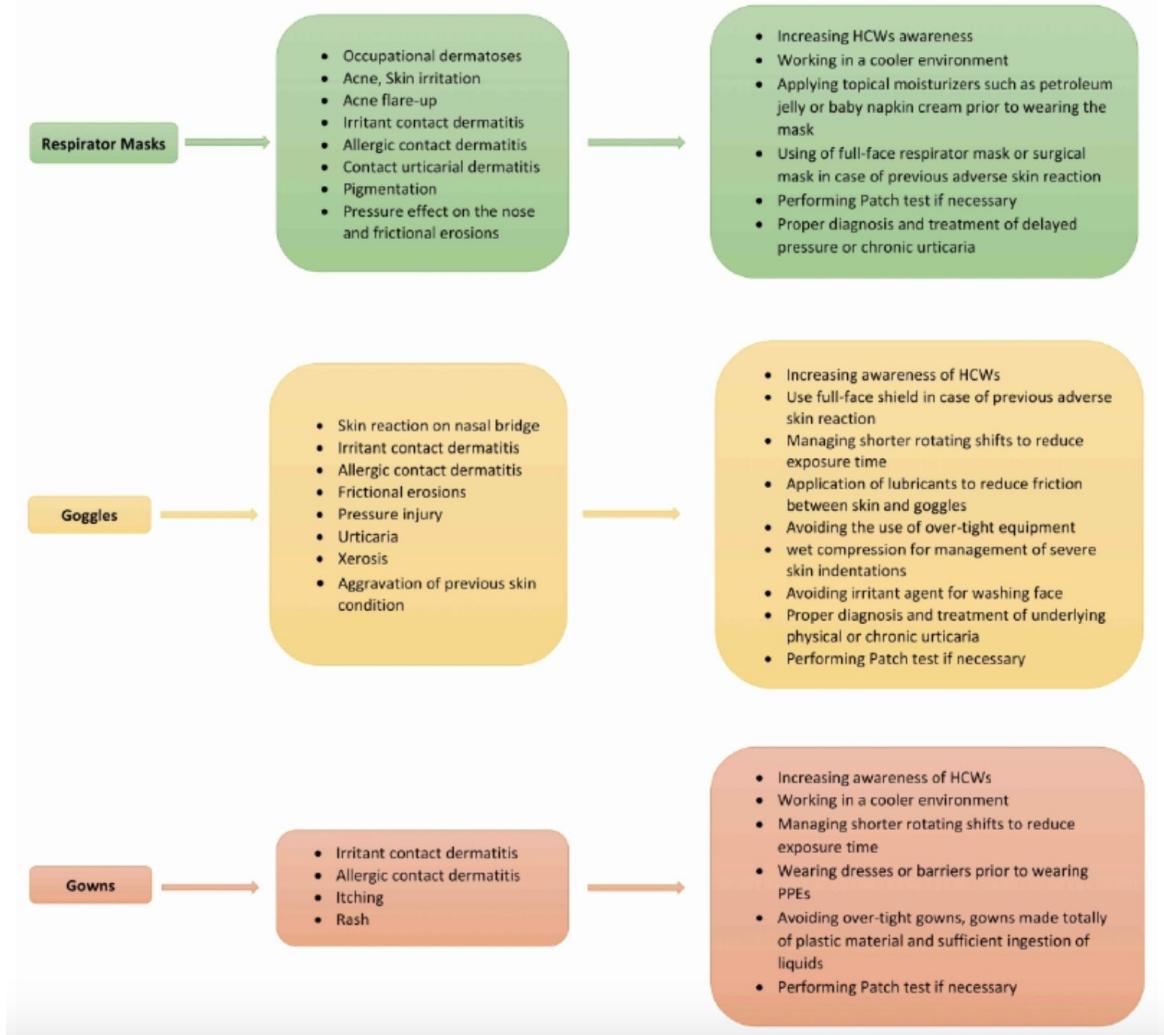
J Eur Acad Dermatol Venereol

2020 Apr 17; PMID: 32302444

Level of Evidence: Level 5 - Expert Opinion

Type of Article: Letter to the Editor

**Summary:** The authors review skin reactions in PPE other than gloves including respirators, gowns and goggles. **Figure 1 below lists these adverse reactions and provides management strategies.**



## Laryngeal Oedema Associated With COVID-19 Complicating Airway Management

PMID: 32302417

Publication Date: April 17, 2020

McGrath, B; Wallace, S; Goswamy, J

Anaesthesia

Level of Evidence: **Unable to Verify. Full text article only included the abstract.**

Type of Article: Correspondence

**Abstract:** We would like to highlight the apparent potential of the SARS-CoV-2 virus in causing airway oedema and laryngitis; particularly of relevance when managing the airways of critically ill patients suffering from COVID-19. This is relevant to colleagues intubating and extubating the tracheas of critically ill patients and also to colleagues from ENT who may be asked to provide opinions on airway oedema around the time of tracheal extubation. In our tertiary UK hospital, staff have intubated the tracheas of more than 30 patients to date and we have experienced one failed intubation due to airway oedema and two (of eight) patients have developed stridor following trachea extubation. Both stridulous patients required tracheal re-intubation; one was successfully extubated 48 h later, and one required subsequent tracheostomy. A further patient with suspected laryngeal oedema underwent a period of review and then proceeded to tracheostomy without an extubation trial.

## **Changes in Blood Coagulation in Patients with Severe Coronavirus Disease 2019 (COVID-19): a Meta-Analysis.**

Xiong M, Liang X, Wei YD. Xiong M, et al. Br

J Haematol.

2020 Apr 18; PMID: 32304581

Level of Evidence: Article unable to be accessed to be verified.

Type of Article: Article unable to be accessed to be verified.

**Summary:** Article unable to be accessed to be verified.

## **Rapid Development of Telehealth Capabilities within Pediatric Patient Portal Infrastructure for COVID-19 Care: Barriers, Solutions, Results.**

Patel PD, Cobb J, Wright D, Turer R, Jordan T, Humphrey A, Kepner AL, Smith G, Rosenbloom ST. J Am Med Inform Assoc.

2020 Apr 17; PMID: 32302395

Level of Evidence: 4 - Cases series

Type of Article: Research

**BLUF:** The authors discuss how they used the status of Vanderbilt University Medical Center as a "...large, private, nonprofit, academic medical center with telehealth capabilities integrated into its patient portal" to their advantage to increase their telehealth capabilities by developing processes for remote enrollment, utilizing allowable video conferencing tools, and using both of these methods to confirm identities.

### **Abstract:**

The COVID-19 national emergency has led to surging care demand and the need for unprecedented telehealth expansion. Rapid telehealth expansion can be especially complex for pediatric patients. From the experience of a large academic medical center, **this report describes a pathway for efficiently increasing capacity of remote pediatric enrollment for telehealth** while fulfilling privacy, security, and convenience concerns. **The design and implementation of the process took two days. Weekly enrollment subsequently increased 10-fold for children (age 0-12 years) and 1.2-fold for adolescents (age 13-17 years). Weekly telehealth visits increased 200-fold for children and 90-fold for adolescents.** The obstacles and solutions presented in this report can provide guidance to health systems for similar challenges during the COVID-19 response and future disasters.

## **Coronavirus Outbreak: Is Radiology Ready? Mass Casualty Incident Planning.**

Myers L, Balakrishnan S, Reddy S, Gholamrezanezhad A.

J Am Coll Radiol.

2020 Apr 3; PMID: 32304643

Level of Evidence: 5 - Expert opinion

Type of Article: Editorial

**BLUF:** The ACR does not recommend CT for screening for COVID-19. Use portable imaging equipment for patients suspected of COVID-19. Daily intradepartmental and interdepartmental communication is necessary for ongoing policy changes and needs for mobilization of resources.

**Abstract:** On March 11, 2020, the World Health Organization declared a coronavirus disease 2019 (COVID-19) pandemic. Health care systems worldwide should be prepared for an unusually high volume of patients in the next few weeks to months. Even the most efficient radiology department will undergo tremendous stress when victims of a mass casualty flood the emergency department and in turn the radiology department. A significant increase is expected in the number of imaging studies ordered for the initial diagnosis and treatment follow-up of cases of COVID-19. Here, we highlight recommendations for developing and implementing a mass casualty incident (MCI) plan for a viral outbreak, such as the current COVID-19 infection. The MCI plan consists of several steps, including **preparation, mobilization of resources, imaging chain, adjusting imaging protocols, and education, such as MCI plan simulation and in-service training.** Having an MCI plan in place for a viral outbreak will protect patients and staff and ultimately decrease virus transmission. The use of simulations will help identify throughput and logistical issues.

**Table 1.** Imaging chain: from order to communication with questions to provoke discussion

Imaging Chain (CT)	Considerations
Order	<p>Who will order examinations for suspected COVID-19?</p> <p>Is there an algorithm used to determine which patients get a CT scan?</p> <p>Recommend indication or reason for examination to include the term “coronavirus precautions.”</p>
Protocol	Will you use a standard chest CT or low-dose chest CT coronavirus protocol?
Scheduling	Who determines the next patient and when imaging is available?
Transport to and from radiology	Is there a dedicated transport team?
Imaging	Image acquisition is based on protocol; see “Adjusting Imaging Protocols” section.
CT scanner cleaning	Determine if facilities management, ancillary staff, or CT technologist will clean the scanner.
Interpretation and communication	<p>Determine communication of findings of COVID-19 cases: written or verbal communication.</p> <p>Consider templates specific for coronavirus.</p>

COVID-19 = coronavirus disease 2019.

**Table 2.** Suggested questions to answer during MCI simulation

Questions for MCI Simulation (CT)	Considerations
What is the turnaround time from order to communication?	Provides information on efficiency and throughput
Where does the patient wait to be imaged?	Determines if the radiology department needs a waiting area that meets the CDC recommendations
What is the waiting area capacity?	Determines how many patients can wait in the radiology department
Who determines if a patient can come to radiology and who decides priority?	Radiology nurse, radiology nursing assistant, EM representative
Who transports the patient to and from radiology?	Dedicated versus general transporter, EM staff
Does the radiologist give a “wet read”?	Can decrease time to diagnosis, potentially more errors
Do coronavirus patients have priority over other patients?	Important to have an algorithm in place for patient priority

CDC = Centers for Disease Control and Prevention; EM = emergency medicine; MCI = mass casualty incident.

## Management of other conditions during COVID-19

### Telemedicine and support groups in order to improve the adherence to treatment and health related quality of life in patients affected by inflammatory skin conditions during COVID-19 emergency.

Marasca C, Ruggiero A, Fontanella G, Ferrillo M, Fabbrocini G, Villani A.

Clin Exp Dermatol.

2020 Apr 18; PMID: 32304587

Level of Evidence: Level 5

Type of Article: Correspondence

**BLUF:** Telemedicine and support groups are reliable mediums for communication during the COVID-19 pandemic.

#### **Abstract:**

We have read with great interest the article by Deepak et al. which reported the measures applied during the COVID-19 emergency in order to answer to the request of consultations. Particularly they described the growing importance that telemedicine is having during this emergency, focusing on the use of mobile technology (particularly the use of WhatsApp) as a method to communicate via text messages, voice messages, photos and videos, which is rapidly expanding within the field of telemedicine.

### Miller Fisher Syndrome and Polyneuritis Cranialis in COVID-19

Gutiérrez-Ortiz, Consuelo; Méndez, Antonio; Rodrigo-Rey, Sara; San Pedro-Murillo, Eduardo; Bermejo-Guerrero, Laura; Gordo-Mañas, Ricardo; de Aragón-Gómez, Fernando; Benito-León, Julián  
Neurology

2020 Apr 17; PMID: 32303650

Level of Evidence: 5 - Case Study (2)

Type of Article: Research

**BLUF:** Two patients who tested positive for SARS-CoV-2 by RT-PCR also acutely presented with rare disorders Miller Fisher syndrome and polyneuritis cranialis, respectively, and made complete neurological recoveries. Neurological manifestations may be due to an aberrant immune response.

#### **ABSTRACT:**

**Objective:** To report two patients infected with severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) who acutely presented with **Miller Fisher syndrome** and **Polyneuritis cranialis**, respectively.

**Methods:** Patient data were obtained from medical records from the University Hospital "Príncipe de Asturias", Alcalá de Henares, Madrid, Spain and from the University Hospital "12 de Octubre", Madrid, Spain.

**Results:** The first patient was a **50-year-old man** who presented with **anosmia, ageusia, right internuclear ophthalmoparesis, right fascicular oculomotor palsy, ataxia, areflexia, albuminocytologic dissociation and positive testing for GD1b-IgG antibodies**. Five days before, he had developed a **cough, malaise, headache, low back pain, and a fever**. The second patient was a **39-year-old man** who presented with **ageusia, bilateral abducens palsy, areflexia and albuminocytologic dissociation**. Three days before, he had developed **diarrhea**,

**a low-grade fever, and a poor general condition.** The oropharyngeal swab test for coronavirus disease 2019 (COVID-19) by qualitative real-time reverse-transcriptase-polymerase-chain-reaction assay was positive in both patients and negative in the cerebrospinal fluid. The first patient was treated with intravenous immunoglobulin and the second, with acetaminophen. Two weeks later, both patients made a **complete neurological recovery**, except for residual anosmia and ageusia in the first case.

**Conclusions:** Our two cases highlight the **rare occurrence of Miller Fisher syndrome and polyneuritis cranialis** during the COVID-2 pandemic. **Neurological manifestations may occur because of an aberrant immune response to COVID-19.** The full clinical spectrum of neurological symptoms in patients with COVID-19 remains to be characterized.

### A COVID-19 Patient Who Underwent Endonasal Endoscopic Pituitary Adenoma Resection: A Case Report.

Zhu, Wende; Huang, Xing; Zhao, Hongyang; Jiang, Xiaobing

Neurosurgery

2020 Apr 18; PMID: 32302399

Level of Evidence: 5 - Case Study

Type of Article: Research

**BLUF:** A 70-year-old man underwent endonasal endoscopic pituitary adenoma resection was confirmed positive for COVI-19 via nasal swab 12 days later and died of respiratory failure 4 weeks after surgery. 14 medical staff members were diagnosed with COVID-19, not including any of the operating staff, and the epidemic was limited by patient quarantine, proper PPE, and social distancing.

#### **ABSTRACT:**

**Background and importance:** A pituitary adenoma patient who underwent surgery in our department was diagnosed with COVID-19 and 14 medical staff were confirmed infected later. This case has been cited several times but without accuracy or entirety, we feel obligated to report it and share our thoughts on the epidemic among medical staff and performing endonasal endoscopic surgery during COVID-19 pandemic.

**Clinical presentation:** The patient developed a fever 3 d post endonasal endoscopic surgery during which cerebrospinal leak occurred, and was confirmed with SARS-CoV-2 infection later. Several **medical staff outside the operating room were diagnosed with COVID-19**, while the **ones who participated in the surgery were not.**

**Conclusion:** The deceptive nature of COVID-19 results from its most frequent onset symptom, fever, a cliché in neurosurgery, which makes it hard for surgeons to differentiate. The COVID-19 epidemic among medical staff in our department was deemed as postoperative rather than intraoperative transmission, and **attributed to not applying sufficient personal airway protection.** Proper personal protective equipment and social distancing between medical staff contributed to limiting epidemic since the initial outbreak. **Emergency endonasal endoscopic surgeries are feasible** since COVID-19 is still supposed to be containable when the surgeries are performed in negative pressure operating rooms with personal protective equipment and the patients are kept under quarantine postoperatively. However, **we do not encourage elective surgeries** during this pandemic, which might put patients in conditions vulnerable to COVID-19.

### Approaches to the management of patients in oral and maxillofacial surgery during COVID-19 pandemic.

Zimmermann M, Nkenke E.Zimmermann M, et al.

J Craniomaxillofac Surg.

2020 Apr 4; PMID: 32303420

Level of Evidence: Level 5 – Expert Opinion

Type of Article: Recommendations

**Summary:** Oral and maxillofacial surgery is correlated with a high risk of SARS-COV-2 transmission. The authors discuss recommendations pertaining to the triage and prioritization of procedures in oral and maxillofacial surgery, and personal protective equipment. In times of resource-limitations, close collaboration between oral and maxillofacial surgery, ENT surgery and general dentistry is needed to save healthcare resources. Refer to Table 1 for management of surgical procedures in oral and maxilla facial surgery during the COVID-19 pandemic.

## **Home Hospice Services During COVID-19: Ensuring Comfort in Unsettling Times in Singapore**

Khatri, Priyanka; Seetharaman, Santhosh; Jamie Phang, Chia May; Andy Lee, Bin Xuan

J Palliat Med

2020 Apr 15; PMID: 32298195

Level of Evidence: 5 - Mechanism-Based Reasoning

Type of Article: Letter

**Summary:**

Authors present recommendations for hospice care in the setting of COVID-19 based upon their practice in Singapore. Regarding home visits, they recommend restricting this for those with high disease burden, to the most senior practitioner, and to previsit screen all visitors. Regarding staff safety, authors recommend working from home and for staff to avoid public transit after home visits. These are some of the changes that these authors believe will make hospice management during the COVID-19 outbreak feasible and safe for the staff, families involved.

## **Neonatal COVID-19: Little Evidence and the Need for More Information**

Prochanoy, Renato S; Silveira, Rita C; Manzoni, Paolo; Sant'Anna, Guilherme

J Pediatr (Rio J)

2020 Apr 11; PMID: 32298645

Level of Evidence: 5 - Mechanism-based Reasoning

Type of Article: Editorial

**Summary:** In this article regarding neonatal care and COVID-19, authors point out that knowledge on neonatal health in this pandemic is limited due to the number of case reports but at this point neonates do not seem to be severely impacted by this pandemic. At this point they recommend 1) not intubating neonatal patients solely based on COVID-19 positive labs, 2) to follow practice recommendations for suspected or positive COVID-19 patients during delivery and care with PPE use, 3) as well as careful monitoring and isolation of suspected COVID-19 infected neonates. In addition, they do recommend careful use of viral filters and bubble CPAP due to the potential harm with prolonged use.

## **Neuroanesthesia Practice During the COVID-19 Pandemic: Recommendations From Society for Neuroscience in Anesthesiology & Critical Care (SNACC)**

Flexman, Alana M; Abcejo, Arnoley; Avitisan, Rafi; Sloovere De, Veerle; Highton, David; Juul, Niels; Li, Shu; Meng, Lingzhong; Paisansathan, Chanannait; Rath, Girija P; Rozet, Irene

Journal of Neurosurgery Anesthesiology  
2020 Apr 15; PMID: 32301764  
Level of Evidence: 5 - mechanism-based reasoning  
Type of Article: Guideline Statement  
**BLUF:** Authors publish updated guidelines specific to neuroanesthesiology in the setting of COVID-19.

**Abstract:**

The pandemic of coronavirus disease 2019 (COVID-19) has several implications relevant to neuroanesthesiologists, including neurologic manifestations of the disease, impact of anesthesia provision for specific neurosurgical procedures and electroconvulsive therapy, and healthcare provider wellness. The Society for Neuroscience in Anesthesiology and Critical Care appointed a task force to provide timely, consensus-based expert guidance for neuroanesthesiologists during the COVID-19 pandemic. The aim of this document is to provide a focused overview of COVID-19 disease relevant to neuroanesthesia practice. This consensus statement provides information on the neurological manifestations of COVID-19, advice for neuroanesthesia clinical practice during emergent neurosurgery, interventional radiology (excluding endovascular treatment of acute ischemic stroke), transnasal neurosurgery, awake craniotomy and electroconvulsive therapy, as well as information about healthcare provider wellness. Institutions and healthcare providers are encouraged to adapt these recommendations to best suit local needs, considering existing practice standards and resource availability to ensure safety of patients and providers.

**Symptoms, Stress, and HIV-Related Care Among Older People Living with HIV During the COVID-19 Pandemic, Miami, Florida.**

Algarin AB, Varas-Rodríguez E, Valdivia C, Fennie KP, Larkey L, Hu N, Ibañez GE.

AIDS Behav

2020 Apr 17; PMID: 32303923

Level of Evidence: 5 - Preliminary survey data

Type of Article: Note from the field

**Summary:** The authors describe their own response to a study protocol disrupted by the Covid-19 pandemic and recommend weekly phone calls as a way to maintain contact with participants. They call for clearer guidelines to be formulated on adjusting HIV care during an epidemic.

**French consensus on management of head and neck cancer surgery during COVID-19 pandemic.**

Fakhry N, Schultz P, Morinière S, Breuskin I, Bozec A, Vergez S, de Garbory L, Hartl D, Temam S, Lescanne E, Couloigner V, Barry B

French Society of Otorhinolaryngology

Eur Ann Otorhinolaryngol Head Neck Dis.

2020 Apr 11, PMID: 32303485

Level of Evidence: 5 - Expert Opinion

Article Type: Commentary

**BLUF:** It is recommended to limit the number of patients seen for head and neck cancer surgery unless they have a life threatening emergency or postponing surgery impacts prognosis.

**Abstract:** In the context of the current pandemic, there is a need for specific advice concerning treatment of patients with Head and Neck cancers. The rule is to limit as much as possible the number of patients in order to reduce the risks of contamination by the SARS-CoV-2 virus for both patients and the caregivers, who are particularly exposed in ENT. The aim is to minimize the risk of loss of opportunity for patients and to anticipate the increased number of cancer patients to be treated at the end of the pandemic, taking into account the degree of urgency, the difficulty of the surgery, the risk of contaminating the caregivers (tracheotomy) and the local situation (whether or not the hospital and intensive care departments are overstretched).

### Angiotensin Receptor Blockers and 2019-nCoV.

Saavedra JM.

Pharmacol Res.

2020 Apr 15; PMID: 32304747

Level of Evidence: 5 - Expert Opinion

Type of Article: Letter

**Summarizing Excerpt:** “The protective effect of ACE2 is enhanced by ARB administration. For these reasons ARB therapy must be continued for patients affected by hypertension, diabetes and renal disease, comorbidities of the current 2019-nCoV pandemic. Controlled clinical studies should be conducted to determine whether ARBs may be included as additional therapy for 2019-nCoV patients.” Figure 1 has the complete list of proposed protective mechanisms of ARB therapy.

Reduction of lung edema and vascular permeability, epithelial and endothelial cell injury	Maintenance of insulin sensitivity and energy metabolism
Decreased apoptosis, pulmonary edema and pulmonary fibrosis	Protects mitochondrial function
Reduction of pro-fibrotic Transforming Growth Factor Beta (TGF- $\beta$ )	Overall and effective AT1R blockade
Inhibition of the coagulation cascade	Antihypertensive effects
Enhanced activity of mesoderm-derived mesenchymal stem cells (MSCs)	Enhanced ACE2/Ang1-7/Mas activity
Involved the repair of injured lung	Reduction of lung edema and vascular permeability, epithelial and endothelial cell injury
Reduction of pro-inflammatory cytokines and chemokines, reactive oxygen species (ROS), inflammatory macrophage infiltration	Decreased apoptosis, pulmonary edema and pulmonary fibrosis
Downregulation of pro-inflammatory kinase cascades and NF $\kappa$ B pathway	Reduction of pro-fibrotic Transforming Growth Factor Beta (TGF- $\beta$ )
Macrophage M2 polarization and decreased macrophage infiltration	Inhibition of the coagulation cascade
Reduction of late mediators of inflammation (high mobility Group box 1 (HMGB1)	Enhanced activity of mesoderm-derived mesenchymal stem cells (MSCs)
	Involved the repair of injured lung

### Multiple sclerosis and the risk of infection: considerations in the threat of the novel coronavirus, COVID-19/SARS-CoV-2.

Willis MD, Robertson NP. Willis MD, et al.

J Neurol.

2020 Apr 17; PMID: 32303837

Level of Evidence: Level 4 - Case-control or historically controlled studies

Type of Article: Review

**BLUF:** Three case-control studies reviewed by the authors found higher rates of infections (data collected prior to COVID-19) among individuals with MS, and some evidence of increased risk of infection among those treated with second generation disease modifying therapies. The authors advocate consideration of risks and benefits in treatment approach during current pandemic.

**Summary:** The article reviews three observational studies that examine the relationship between individuals with multiple sclerosis (MS), disease-modifying therapies (DMTs), and risk of infection. The first article found “**The incidence of infection was higher in MS patients compared with non-MS patients: [United States Dept. of Defense database] (IRR 1.76; 95% CI 1.72–1.80) and [United Kingdom Clinical Practice Research database] (IRR 1.25; 95% CI 1.21–1.29). Compared to patients without MS, the rate of infections causing hospitalisation in MS patients was higher in both databases (US-DOD IRR 2.43; 95% CI 2.23–2.63 and UK-CPRD IRR 2.00; 95% CI 1.84–2.17).**” The second paper examined the risk of serious infection requiring hospitalization associated with use of several commonly used MS DMTs. “**In the most adjusted model taking into account potential confounders and when comparing against [interferon beta] and [glatiramer], only rituximab had a statistically significant increased risk (HR, 1.70 [95% CI 1.11–2.61])** although point estimates for fingolimod and natalizumab were still greater than 1.00 (HRs, 1.30 [95% CI 0.84–2.03] and 1.12 [95% CI 0.71–1.77], respectively).” The third paper “investigated the association between MS DMTs [(either first generation interferon beta or glatiramer or second generation natalizumab, fingolimod, or dimethyl fumarate)] and risk of infections in a population-based retrospective cohort study...**In comparison to first generation DMTs, the second generation drugs showed a 53% greater hazard for infection (aHR 1.53; CI 1.21–1.95).**”

### Parkinson's disease and COVID-19: Perceptions and implications in patients and caregivers.

Prasad S, Holla VV, Neeraja K, Surisetty BK, Kamble N, Yadav R, Pal PK. Prasad S, et al. Mov Disord. 2020 Apr 17; PMID: 32304118

Level of Evidence: 3 - Local non-random sample  
Type of Article: Letter

**Summary:** Though there is no evidence that patients with Parkinson's disease have a higher risk of contracting COVID-19 or have worse outcomes, a survey in India found that a small percentage of patients (8%) and caregivers (4%) perceived Parkinson's as conferring higher risk. In addition, 11% of patients reported new or worsening symptoms that they attributed to the pandemic.

### British Society of Gastroenterology guidance for management of inflammatory bowel disease during the COVID-19 pandemic.

Kennedy NA, Jones GR, Lamb CA, Appleby R, Arnott I, et al.

Gut. Jnl

2020 Apr 17; PMID: 32303607

Level of Evidence: Level 5 - Expert Opinion  
Type of Article: Commentary

**Summarizing excerpt:** “The British Society of Gastroenterology has set the following recommendations for patients with Irritable Bowel Disease:

- 1)Patients with IBD are advised not to stop or reduce their medication without discussing with their IBD team.
- 2) IBD centers are encouraged to identify an experienced person to oversee blood tests, initiation of biologics and prescribing of biologics, and support patients accordingly.
- 3)Administrative support should be identified to ensure prescriptions for subcutaneous biologics are forwarded to home care in a timely manner.
- 4)Patients should be given helpline details to arrange contact for advice regarding delayed deliveries.
- 5)Maintaining a functional infusion service throughout the pandemic should be a priority.”

## **Orthopaedic Surgical Selection and Inpatient Paradigms During the Coronavirus COVID-19 Pandemic.**

Massey PA, McClary K, Zhang AS, Savoie FH, Barton RS. Massey PA, et al.

J Am Acad Orthop Surg.

2020 Apr 15; PMID: 32304401

Level of Evidence: Literature Review

Type of Article: Recommendations

**Summary:** Determining which orthopedic surgeries may be delayed is complicated. See table 1 for categorization of major orthopedic surgeries by how they can be safely delayed based on previous data. For physical distancing of medical staff, the authors discuss use of individual workstations and rotating team schedules with built-in self-quarantine time of 2 weeks.

## **First Successful Treatment of COVID-19 Induced Refractory Cardiogenic Plus Vasoplegic Shock by Combination of pVAD and ECMO - A Case Report**

Bemtgen X, Krüger K, Supady A, Dürschmied D, Schibilsky D, Bamberg F, Bode C, Wengenmayer T, Staudacher DL

ASAIO J

2020 Apr 16; PMID: 32304394

Level of Evidence: Level 5 – Case Report

Type of Article: Research

**BLUF:** This article discusses the first case report of **treatment of refractory mixed cardiogenic and vasoplegic shock** in a patient who **later developed COVID-19-associated ARDS**. The authors suggest that **ECMO and pVAD** might be useful to manage cardiogenic and vasoplegic shock, respectively, **secondary to COVID-19 disease**.

### **Abstract:**

The novel coronavirus SARS-CoV-2 is infecting hundreds of thousands of humans around the globe. The coronavirus disease COVID-19 is known to generate mild as well as critical courses. Complications on the intensive care units include acute respiratory distress syndrome, acute cardiac and kidney injury as well as shock. Here, we present the **first case report of a successful treatment of a COVID-19 patient presenting with ARDS plus refractory combined cardiogenic and vasoplegic shock**, which could be successfully stabilized after implantation of a percutaneous ventricular assist device (**pVAD**) plus an extracorporeal membrane oxygenation (**ECMO**). While such intense treatment **might not be feasible** in case of a health care disaster as

described for the **hot spots of the COVID-19 pandemic**, it might encourage treatment of younger patients on intensive care units not overcrowded by critically ill patients.

## **A Framework for Prioritizing Head and Neck Surgery during the COVID-19 Pandemic.**

Topf MC, Shenson JA, Holsinger FC, Wald SH, Cianfichi LJ, Rosenthal EL, Sunwoo JB.

Head Neck

2020 Apr 16; PMID: 32298036

Level of Evidence: Level 6 - No Evidence

Type of Article: Expert Opinion

**BLUF:** The author suggests the following prioritization for otolaryngologic surgery: urgent - proceed with surgery, less urgent - consider postpone >30 days, less urgent - consider postpone 30-90 days, and case-by-case basis.

**Abstract:** Unique considerations for the head and neck patient are examined including risk to the oncology patient, outcomes following delay in head and neck cancer therapy, and risk of transmission during otolaryngologic surgery. Our case prioritization criteria consist of four categories: urgent - proceed with surgery, less urgent - consider postpone >30 days, less urgent - consider postpone 30-90 days, and case-by-case basis. Finally, we discuss our preoperative clinical pathway for transmission mitigation including defining low-risk and high-risk surgery for transmission and role of preoperative COVID-19 testing

## **Letter: COVID-19 Infection Affects Surgical Outcome of Chronic Subdural Hematoma.**

Panciani PP, Saraceno G, Zanin L, Renisi G, Signorini L, Fontanella MM. Panciani PP, et al.

Neurosurgery.

2020, Apr 18; PMID: 32304213

Level of Evidence: Level 4 - Case Series

Article Type: Letter to Editor

**BLUF:** This case series of 5 COVID-19 positive patients with chronic subdural hematomas observed severe interstitial pneumonia in patients who received endovascular or surgical treatment. Only one patient who received conservative treatment survived without observed respiratory failure post-surgery.

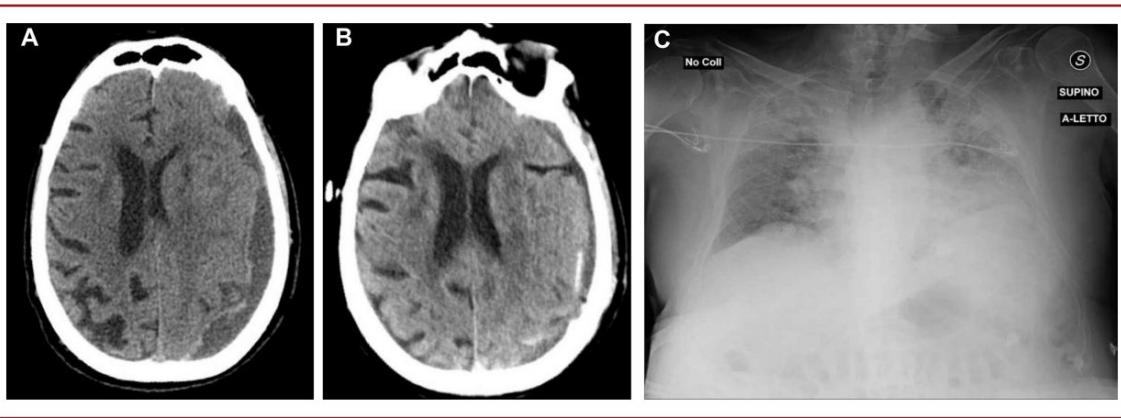
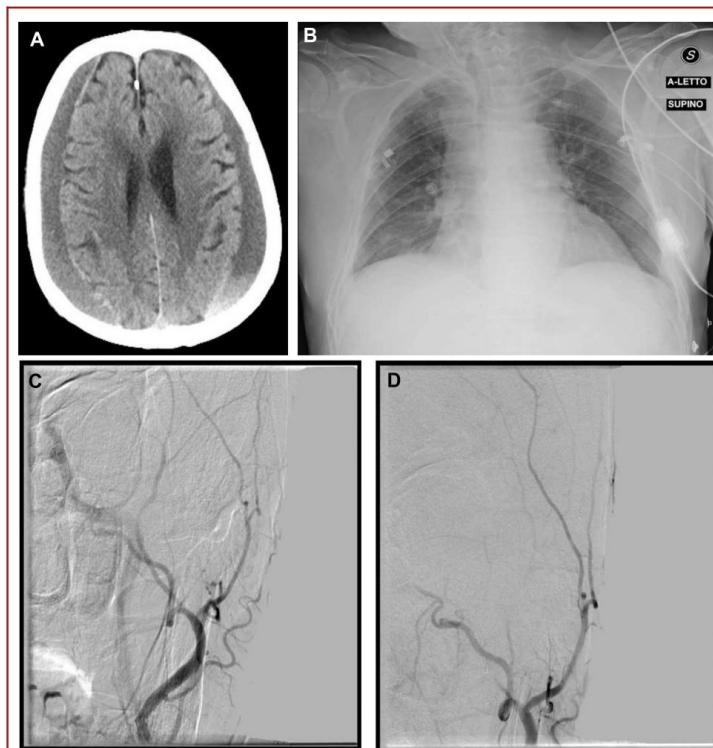
**Summary:** The authors relate their surgical experience of chronic subdural hematomas (CSDH) in 5 COVID-19 positive patients (Table, February 21, 2020 to March 23, 2020) at the Neurosurgical Department of Brescia University Hospital. Surgery or endovascular treatment was performed in 4 COVID-19 patients once the CSDH was symptomatic and the maximum thickness was greater than 1 cm (Figures 1-4). One patient did not present severe neurological impairment and was treated conservatively (Figure 5). Post-procedure complications and findings include mild thrombocytopenia with rebleeding in 2 patients, dyspnoea and fatigue in all patients, and severe interstitial pneumonia (IP) in four cases (Figure 1-4). The conservative-treated patient did not have respiratory failure, observed a normal chest x-ray (Figure 5), and was the only patient to survive. The authors compare this case series' mortality rate of 80% to their previous 3.7% mortality rate in their prior case series of 142 pre-COVID-19 CSDH (May 2018 and September 2019). Since overloaded intensive care units in Lombardy have influenced resuscitation possibilities of elderly patients, the authors cannot exclude that these results could be affected by the health emergency status. The authors propose that conservative treatment should be performed whenever surgery can be postponed.

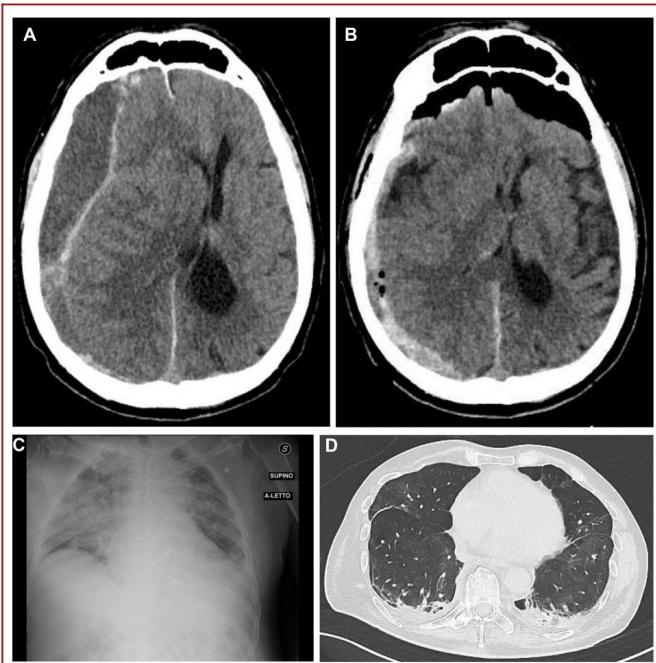
**TABLE.** Clinical Features of our Cohort

Sex	Age	CIRS	AT	Side	COVID-19	IP	TP*	Surgery	Time to death(d)
M	82	13	Yes	Left	+	+	No	Burr-hole	14
M	86	18	No	Bilateral	+	+	No	MMA embolization	10
M	77	20	No	Right	+	+	Yes	Craniotomy	5
M	85	22	Yes	Left	+	+	Yes	Burr-hole	5
M	78	19	Yes	Left	+	-	No	NO	Alive

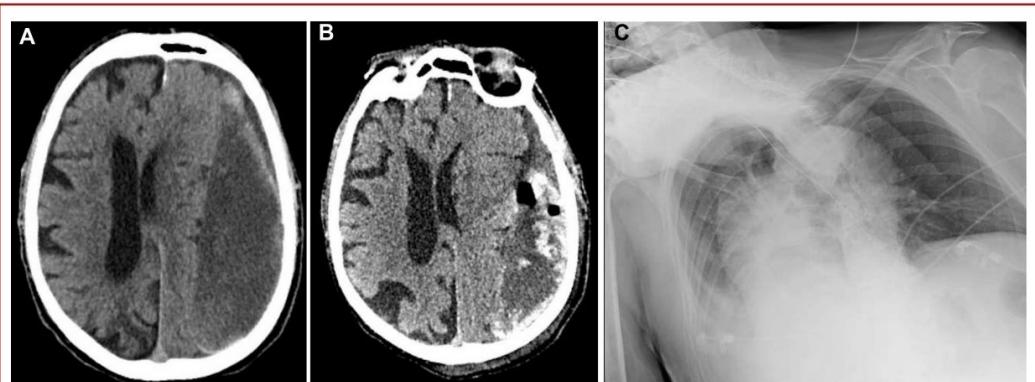
\*TP (Thrombocytopenia): 100.000&lt;PLTs&lt;150.000

All patients developed IP after surgery. Thrombocytopenia was observed in 2 cases (40%). The patients suffered rebleeding and showed a shorter time to death. CIRS (Cumulative Illness Rating Scale), AT (antithrombotic drugs), IP (Interstitial Pneumonia), COVID-19 (Coronavirus Disease 2019).

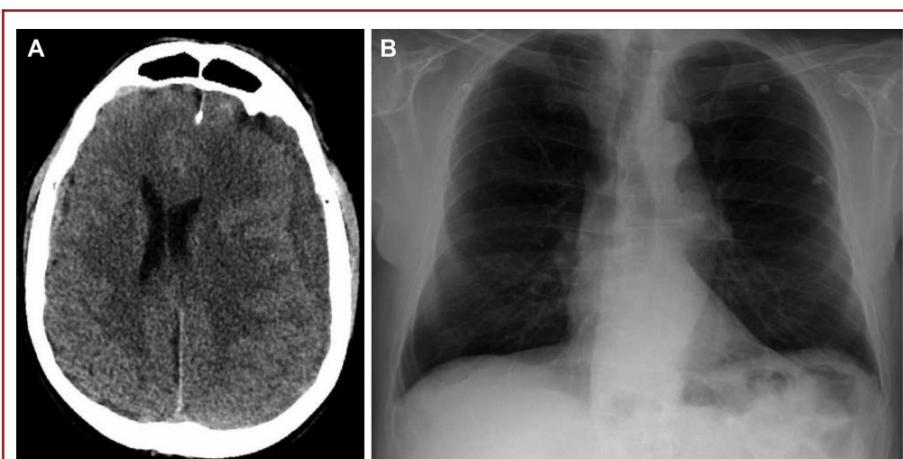
**FIGURE 1.** **A** and **B**, Head CT scan, axial view: pre- and postoperative CDSH. **C**, CXR showing bilateral and diffuse IP.**FIGURE 2.** **A**, Head CT scan, axial view: bilateral CSDH. **B**, CXR showing bilateral and diffuse IP. **C** and **D**, MMA embolization procedure.



**FIGURE 3.** **A**, Head CT scan, axial view: preoperative CSDH. **B**, Head CT scan, axial view: postoperative CSDH with signs of recent rebleeding. **C**, CXR showing bilateral and IP. **D**, Chest CT scan, axial view, showing ground glass opacity.



**FIGURE 4.** **A**, Head CT scan, axial view: preoperative left CSDH. **B**, Head CT scan, axial view: postoperative CSDH with signs of recent rebleeding. **C**, CXR showing bilateral IP.



**FIGURE 5.** **A**, Head CT scan, axial view: left CSDH. **B**, normal CXR.

## Why we should not stop giving aspirin to pregnant women during the COVID-19 pandemic.

Kwiatkowski S, Borowski D, Kajdy A, Poon LC, Rokita W, WielgoŚ M. Kwiatkowski S, et al. Ultrasound Obstet Gynecol.

2020 Apr 18; PMID: 32304612

Level of Evidence: Level 5 - Expert Opinion

Article Type: Letter to the Editor

**BLUF:** The authors weigh in on the current international debate on whether it is safe for pregnant women to use aspirin during the COVID-19 pandemic. Currently, there is no evidence to suggest that low-dose aspirin increases risk of COVID-19 progression. On the other hand, there is evidence that low-dose aspirin can reduce placental complications, namely pre-eclampsia and fetal growth restriction. With this current knowledge, the author argues that “the benefits of placental complications prevention outweigh the potential risks of adverse outcomes of COVID-19 infection related to the usage of low-dose aspirin.

**Abstract:** With the current outbreak and spread of the coronavirus disease 2019 (COVID-19) worldwide many questions arise. There have been issued precautions regarding the use of anti-inflammatory medications, including aspirin. To our knowledge, there is insufficient data to suggest an increased risk between prophylactic use of low-dose aspirin and progression of COVID-19 infection in pregnant women at risk of placental complications.

## Pediatric Endoscopy in the Era of Coronavirus Disease 2019: A North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition Position Paper.

Walsh CM, Fishman DS, Lerner DG; NASPGHAN Endoscopy and Procedures Committee J Pediatr Gastroenterol Nutr.

2020 Apr 14; PMID: 32304561

Level of Evidence: 5 - Expert Opinion

Article Type: Commentary

**BLUF:** NASPGHAN Endoscopy and Procedures Committee offers guidelines, specifically PPE recommendations, risk stratification to procedures, and practical considerations for pre-, intra-, and post-procedures, in order to minimize COVID-19 transmission.

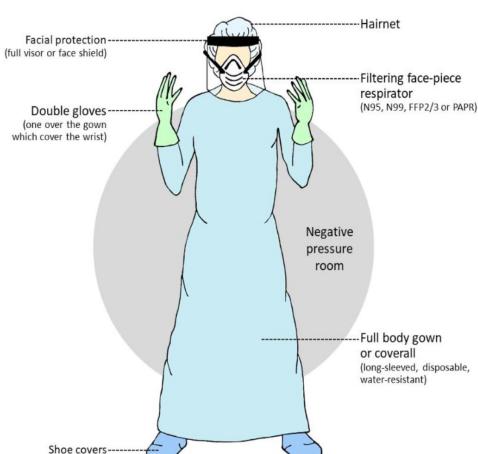
**Abstract:** The delivery of endoscopic care is changing rapidly in the era of Coronavirus Disease 2019 (COVID-19). The North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition (NASPGHAN) Endoscopy and Procedures Committee has formulated this statement to offer practical guidance to help standardize endoscopy services for pediatric patients with the aim of minimizing COVID-19 transmission to staff, patients, and caregivers and to conserve personal protective equipment (PPE) during this critical time. Appropriate use of PPE is essential to minimize transmission and preserve supply. Pediatric endoscopic procedures are considered at high risk for COVID-19 transmission. We recommend that all pediatric endoscopic procedures are done in a negative pressure room with all staff using proper airborne, contact, and droplet precautions regardless of patient risk stratification. This includes appropriate use of a filtering face-piece respirator (N95, N99, FFP2/3, or PAPR), double gloves, facial protection (full visor and/or face shield), full body water-resistant disposable gown, shoe covers and a hairnet. In deciding which endoscopic procedures should proceed, it is important to weigh the risks and benefits to optimize healthcare delivery and minimize risk. To inform these decisions, we propose a framework for stratifying procedures as emergent (procedures that need to PROCEED), urgent (PAUSE, weigh the

benefits and risks in deciding whether to proceed) and elective (POSTPONE procedures). This statement was based on emerging evidence and is meant as a guide. It is important that all endoscopy facilities where pediatric procedures are performed follow current recommendations from public health agencies within their jurisdiction regarding infection prevention and control of COVID-19.

**Table 2:** Risk stratification of pediatric endoscopic procedures. Voted on by 31 members of the NASPGHAN Endoscopy and Procedures Committee

Emergent → Proceed	
<p>➤ Endoscopic procedure for intervention and/or diagnosis of potentially life-threatening conditions and/or for conditions where if left untreated has significant morbidity/mortality.</p> <p>➤ <i>Need to continue.</i></p> <ul style="list-style-type: none"> <li>Potentially life-threatening gastrointestinal bleeding</li> <li>Small bowel endoscopy for ongoing transfusion dependent bleeding</li> <li>Foreign bodies classified by NASPGHAN clinical report as emergent (e.g., esophageal button battery, multiple magnet ingestions)<sup>39</sup></li> <li>Bowel obstruction amenable to endoscopic therapy</li> <li>Evaluation of caustic injury, if unable to tolerate oral intake and/or placement of NG required under direct visualization</li> <li>Tissue sampling required to diagnose a life-threatening disease, including graft-versus-host disease, post-transplant lymphoproliferative disorders and suspected intestinal graft rejection</li> <li>Volvulus decompression</li> <li>Endoscopic vacuum therapy for perforations/leaks</li> <li>Acute biliary obstruction/decompression secondary to stone, lesion or cholangitis</li> <li>Endoscopic ultrasound for infected pancreatic necrosis or walled off necrosis</li> <li>Liver biopsy ± PTC for neonatal cholestasis, suspicious for biliary atresia</li> <li>Liver biopsy ± PTC for acute liver failure, or impending acute liver failure (e.g., hepatitis with rising INR)</li> </ul>	<ul style="list-style-type: none"> <li>Removal or exchange of temporary stent</li> <li>EUS for symptomatic pancreatic fluid collection</li> <li>Urgent initial nutrition support (e.g., PEG/NJ)</li> <li>Urgent replacement PEG/NJ</li> <li>Suspected gastrointestinal malignancy</li> <li>Planned polypectomy, EMR/ESD for complex/high-risk lesions</li> <li>Inflammatory bowel disease (IBD): (a) high suspicion of new IBD diagnosis; (b) guide treatment decisions (including flare) in patient with moderate to severe activity; (c) guide treatment decisions for complications of established/new diagnosis IBD (e.g., partial bowel obstruction)</li> <li>Severe and progressive failure to thrive, unresponsive to medical management</li> <li>Severe chronic diarrhea, unresponsive to medical management</li> <li>Severe <i>Clostridioides difficile</i> colitis refractory to medical therapy for fecal transplant*</li> <li>Anorectal manometry or suction rectal biopsy for suspected Hirschsprung's disease</li> <li>Liver biopsy for hepatitis of uncertain cause with one of elevated aminotransferases (persisting or rising), jaundice, rising INR, and/or serological evidence for autoimmune hepatitis; liver transplant rejection; or suspected malignant tumor</li> </ul>
Elective → Postpone	
<p>➤ Endoscopic procedure that can be postponed and/or managed alternatively; encompasses conditions not considered emergent or urgent.</p> <p>➤ <i>Postpone.</i></p>	<ul style="list-style-type: none"> <li>Staged ligation of esophageal varices</li> <li>Foreign bodies classified by NASPGHAN clinical report as elective<sup>39</sup></li> <li>Mild dysphagia</li> <li>Upper GI endoscopy for eosinophilic esophagitis diagnosis or re-evaluation</li> <li>Staged dilation of gastrointestinal stricture</li> <li>Staged ERCP with stent exchange (e.g., q3mo planned exchange)</li> <li>ERCP cases - stones where there has been no recent cholangitis and a stent is in place; therapy for chronic pancreatitis; ampullectomy follow up</li> <li>EUS for suspected autoimmune pancreatitis or EUS for 'benign' indications - biliary dilatation, possible stones, submucosal lesions, pancreatic cysts without high-risk features</li> <li>Non-urgent initial nutritional support or replacement (e.g., PEG, NJ)</li> <li>Polyposis surveillance</li> <li>Polypectomy; considered to be at low risk for malignancy</li> <li>Inflammatory bowel disease; to guide therapy in patients with mild disease activity</li> <li>Endoscopy and/or biopsy for clinical trials or other research diseases</li> <li>Upper GI endoscopy to diagnose suspected celiac disease or to re-stage</li> <li>Upper GI endoscopy for <i>Helicobacter pylori</i> culture/sensitivity (non-bleeding)</li> <li>Upper GI endoscopy for abdominal pain with reasonable medical alternatives available and/or low suspicion of organic disease, routine symptomatic referrals, low risk follow-up and repeat endoscopy (e.g., re-assessment of eosinophilic esophagitis)</li> <li>Esophageal manometry with concern for primary motility disorder (e.g., achalasia), or prior to fundoplication</li> <li>Anorectal manometry for patients with fecal incontinence</li> <li>Colonic manometry</li> <li>POEM</li> <li>Bariatric endoscopy</li> </ul>
	<ul style="list-style-type: none"> <li>pH impedance, breath tests</li> <li>Liver biopsy for NAFLD/ NASH or to assess histologic remission in AIH</li> </ul>

**Figure 1:** Enhanced personal protective equipment (PPE) recommended for pediatric endoscopic procedures to ensure airborne, contact and droplet precautions



\*donor stool should be tested

EMR: endoscopic mucosal resection; ERCP: endoscopic retrograde cholangiopancreatography; ESD: endoscopic surgical dissection; EUS: Endoscopic ultrasound; IBD: Inflammatory bowel disease; INR: International normalized ratio; NAFLD: non-alcoholic fatty liver disease; NASH: non-alcoholic steatohepatitis; NASPGHAN: North American Society of Pediatric Gastroenterology, Hepatology and Nutrition; NJ: nasojejunal; PEG: Percutaneous endoscopic gastrostomy; POEM: per-oral endoscopic myotomy; PTC: percutaneous transhepatic cholangiography.

## Covid-19 and immunomodulation in IBD.

Neurath MF.Neurath MF.

Gut.

2020 Apr 17; PMID: 32303609

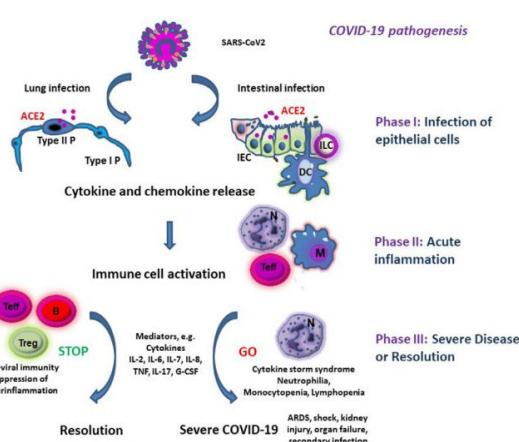
Level of Evidence: 2 - Literature Review

Article Type: Commentary

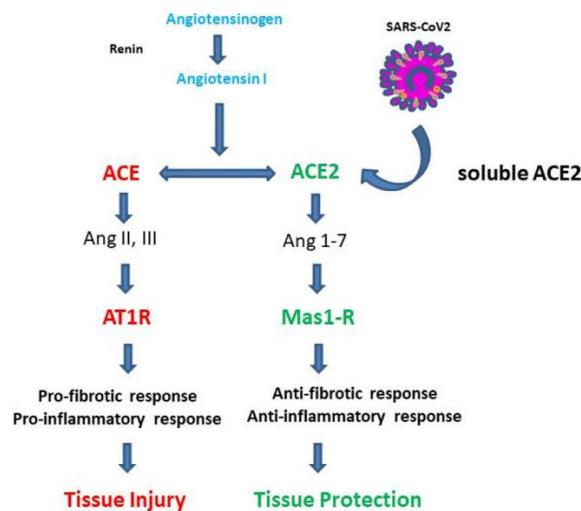
**BLUF:** The author reviews the recent advances in basic science regarding COVID-19 pathophysiology and the potential implications this may have for immunomodulation and biological therapy in IBD. The author highlights the key messages of his review as follows:

- “Severe patients with covid-19 may suffer from progressive pneumonia, acute respiratory distress syndrome and multiorgan failure due to hyperinflammation and a cytokine storm syndrome; the interleukin-6R antibody” (Figure 1, 2)
- **“The receptor ACE2 is highly expressed in ileal and colonic tissue and ACE2 IBD.”**
- **“There is currently no evidence for an increased frequency of covid-19 cases in IBD;** a recent study suggesting decreased disease activity in IBD requires further investigations.”
- **“Based on the currently available limited data, immunomodulatory and biological therapies can be continued in patients with IBD in remission;** however, close attention to new results should be paid in the dynamic pandemic situation.” (Boxes 1 and 2 demonstrate recommendations for IBD management during COVID19 pandemic)

**Abstract:** The current coronavirus pandemic is an ongoing global health crisis due to covid-19, caused by severe acute respiratory syndrome coronavirus 2. Although covid-19 leads to little or mild flu-like symptoms in the majority of affected patients, the disease may cause severe, frequently lethal complications such as progressive pneumonia, acute respiratory distress syndrome and organ failure driven by hyperinflammation and a cytokine storm syndrome. This situation causes various major challenges for gastroenterology. In the context of IBD, several key questions arise. For instance, it is an important question to understand whether patients with IBD (eg, due to intestinal ACE2 expression) might be particularly susceptible to covid-19 and the cytokine release syndrome associated with lung injury and fatal outcomes. Another highly relevant question is how to deal with immunosuppression and immunomodulation during the current pandemic in patients with IBD and whether immunosuppression affects the progress of covid-19. Here, the current understanding of the pathophysiology of covid-19 is reviewed with special reference to immune cell activation. Moreover, the potential implications of these new insights for immunomodulation and biological therapy in IBD are discussed.



**Figure 1** Hypothetical pathogenesis of covid-19. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV2) infects ACE2 expressing epithelial cells in the lung and/or the intestine. This is followed by production of mediators causing immune cell activation. Overwhelming immune cell activation may lead to severe complications including acute respiratory distress syndrome (ARDS), shock and kidney or multiorgan failure. B, B lymphocytes; IEC, intestinal epithelial cell; ILC, innate lymphoid cell; M, monocyte/macrophage; N, neutrophils; Teff, effector T cells; Treg, regulatory T cell; Type I P, type I pneumocytes; Type II P, type II pneumocytes.



**Figure 2** The ACE/ACE2 receptor system (modified according to Zhang et al<sup>52</sup>). The classical renin-angiotensin-aldosterone system ACE/angiotensin II/angiotensin type 1/2 receptor (AT1-R) and ACE2/Ang 1-7/MAS-1 receptor (MAS1-R) systems are shown.<sup>49-52</sup> The ACE/AT1-R system has been mainly implicated in pro-inflammatory immune responses and tissue injury. In contrast, the ACE2/MasR system appears to play a key role in many anti-inflammatory pathways controlling tissue protection.

#### Box 1 Recommendations for managing patients with IBD during the covid-19 pandemic

**Consider potential risk situations for severe acute respiratory syndrome coronavirus 2 infection**

- Patients with inflammatory bowel disease (IBD) on immunosuppressive agents.
- Patients with active-stage IBD with malnutrition
- Elderly patients with IBD
- Patients with IBD frequently visiting medical clinic
- Patients with IBD with underlying health conditions, such as hypertension and diabetes mellitus
- Patients with IBD who are pregnant
- Patients receiving experimental COVID-19 therapy plus IBD specific medications (potential drug drug interactions).

#### Medication for patients with IBD

- Continue current treatment if disease is stable and discuss suitable medicine if disease has flared.
- Use of mesalamine should be continued and should not increase the risk of infection.
- Corticosteroid use can be continued, but be cautious of possible side effects.
- A new prescription of immunosuppressant or increase in dose of an ongoing immunosuppressant is not recommended in epidemic areas.
- Use of biologics such as the antitumour necrosis factors infliximab or adalimumab should be continued.
- If infliximab infusion is not accessible, switching to adalimumab injection at home should be considered.
- Vedolizumab use can be continued due to the specificity of the drug for the intestine.
- Ustekinumab use can be continued, but starting ustekinumab requires infusion centre visits and therefore should be discussed before initiation of therapy.
- Enteral nutrition might be used if biologics are not accessible.
- Tofacitinib should not be newly prescribed in epidemic areas unless there are no other alternatives.

#### Surgery and endoscopy

- Postpone elective surgery and endoscopy.
- Consider screening for covid-19 (complete blood count, nucleic acid detection and chest CT) before surgery.

#### Patients with IBD and fever

- Fever is the most common reported symptom in covid-19.
- Contact your IBD doctor about potential option to visit outpatient clinic with personal protection provisions if temperature continues over 38°C.
- Suspend the use of immunosuppressant and biological agents after consultation with your IBD doctor, and follow appropriate local guidance for suspected covid-19 if covid-19 cannot be ruled out.

Modified according to Mao et al.<sup>56</sup>

#### Box 2 Recommendations for IBD centres in covid-19 risk situations

##### Advise patients to strictly follow the WHO recommendations for covid-19 prevention

- Wash your hands regularly.
- Keep potentially contaminated surfaces clean.
- Respect social distancing.
- Avoid to touch eyes, nose and mouth.
- Stay home if you feel unwell.
- Wear a mask to avoid infecting other people.
- Reduce the risk of hand contamination (eg, by wearing gloves).
- Avoid to use public toilets.

##### Consider to restructure your IBD patient care under consideration of the local situation

- Strictly separate areas for care of patients with suspected/proven covid-19 and patients with IBD in the hospital.
- Assign-specific physicians to inpatient care, endoscopy and remote monitoring.
- Convert multidisciplinary team meetings into virtual meetings.
- Consider to avoid elective surgery.
- Avoid crowding in the waiting area of the outpatient unit.
- Consider to wear personal protective equipment and follow the WHO recommendations to prevent any contamination.
- Consider to limit the number of patients in the outpatient clinic by focusing on infusion treatment.
- Secure home delivery and adequate drug supply to all patients given subcutaneous and oral drugs.
- Provide help in individual cases by using emails and telephone calls.
- Send newsletters or information material by email.
- Secure communication between local gastroenterologists and primary care doctors with your centre.
- Consider alternative and safer ways of administration and remote monitoring of patients with IBD.

Modified according to Danese et al and Fiorino et al.<sup>57,58</sup>

## Pharmacologic treatment of transplant recipients infected with SARS-CoV-2: considerations regarding therapeutic drug monitoring and drug-drug interactions.

Elens, Laure; Langman, Loralie J; Hesselink, Dennis A; Bergan, Stein; Moes, Dirk Jan A R; Molinaro, Mariadelfina; Venkataramanan, Raman; Lemaitre, Florian

Therapeutic Drug Monitoring

2020 Apr 19; PMID: 32304488

Level of Evidence: 5 - Mechanism-based Reasoning

Type of Article: Research

**BLUF:** In the context of hospitalized transplant patients with COVID-19, management of drug-drug interactions between immunosuppressant drug therapies (ISD) and investigational anti-SARS-CoV-2 drugs is complicated. Recommendations regarding therapeutic drug monitoring and dose adjustments were given with attention to the following classes of drugs: hydroxychloroquine, protease inhibitors, calcineurin inhibitors/mTORi, mycophenolate mofetil, glucocorticoids, remdesivir, and tocilizumab.

### **Abstract:**

#### Background:

COVID-19 is a novel infectious disease caused by the severe acute respiratory distress (SARS)-corona virus-2 (SARS-CoV-2). Several therapeutic options are currently emerging but none with universal consensus or proven efficacy. Solid organ transplant recipients are perceived to be at increased risk of severe COVID-19 because of their immunosuppressed conditions due to chronic use of immunosuppressive drugs. It is therefore likely that solid organ transplant recipients will be treated with these experimental antivirals.

#### Methods:

This article is not intended to provide a systematic literature review on investigational treatments tested against COVID-19; rather, the authors aim to **provide recommendations for therapeutic drug monitoring of immunosuppressive drugs in transplant recipients infected with SARS-CoV-2 based on a review of existing data in the literature.**

#### Results:

Management of drug-drug interactions between investigational anti-SARS-CoV-2 drugs and immunosuppressants is a complex task for the clinician. Adequate immunosuppression is necessary to prevent graft rejection while, if critically ill, the patient may benefit from pharmacotherapeutic interventions directed at limiting SARS-CoV-2 viral replication. Maintaining immunosuppressive drug concentrations within the desired therapeutic range requires a highly individualized approach that is complicated by the pandemic context and lack of hindsight.

#### Conclusions:

With the present manuscript, the authors **inform the clinician about the potential interactions of experimental COVID-19 treatments with immunosuppressive drugs used in transplantation.** Recommendations regarding **therapeutic drug monitoring and dose adjustments** in the context of COVID-19 are provided.

## **Managing New-Onset Type 1 Diabetes During the COVID-19 Pandemic: Challenges and Opportunities.**

[PMID: 32302499](#)

[Publication date: April 17, 2020](#)

Garg SK, Rodbard D, Hirsch IB, Forlenza GP.

Diabetes Technol Ther.

Level of Evidence: Level 4 - Case study

Type of Article:

**BLUF:** In this article, the authors make an argument based on two case studies that concludes that telemedicine would provide adequate and cost effective care for patients with Type I Diabetes.

**Abstract:** The current COVID-19 pandemic provides an incentive to expand considerably the use of telemedicine for high-risk patients with diabetes, and especially for the management of type 1 diabetes (T1D). Telemedicine and digital medicine also offer critically important approaches to improve access, efficacy, efficiency, and cost-effectiveness of medical care for people with diabetes. Two case reports are presented where telemedicine was used effectively and safely after day 1 in person patient education. These aspects of the management of new-onset T1D patients (adult and pediatric) included ongoing diabetes education of the patient and family digitally. The patients used continuous glucose monitoring with commercially available analysis software (Dexcom Clarity and Glooko) to generate ambulatory glucose profiles and interpretive summary reports. The adult subject used multiple daily insulin injections; the pediatric patient used an insulin pump. The subjects were managed using a combination of e-mail, Internet via Zoom, and telephone calls. These two cases show the feasibility and effectiveness of use of telemedicine in applications in which we had not used it previously: new-onset diabetes education and insulin dosage management. **The present case reports illustrate how telemedicine can be used safely and effectively for new-onset T1D training and education for both pediatric and adult patients and their families.** The COVID-19 pandemic has acutely stimulated the expansion of the use of telemedicine and digital medicine. We conclude that telemedicine is an effective approach for the management of patients with new-onset T1D.

## Should SARS-CoV-2 influence immunosuppressive therapy for autoimmune blistering diseases?

[PMID: 32302437](#)

[Publication date: April 17, 2020](#)

Di Altobrando A, Patrizi A, Bardazzi F.

J Eur Acad Dermatol Venereol.

Level of Evidence: Level 5 - Expert opinion

Type of Article: Letter

**BLUF:** This article discusses the lack of evidence for the use of immunosuppressive therapies in patients infected with SARS-CoV-2 and autoimmune bullous disease. The authors stress the importance of sharing information about these patients.

**Abstract:** "In this dramatic period where the whole world is affected by the outbreak of coronavirus disease 19 (COVID-19), scientific data relating to the causative virus SARS-CoV-2 as well as the subsequent therapeutic repercussions on the management of other diseases should be divulged in order to share as much information as possible among experts in a timely manner."

## Phototherapeutic approach to dermatological patients during the 2019 Coronavirus pandemic: Real-life Data from the Italian Red Zone.

Pacifico A, Ardigò M, Frascione P, Damiani G, Morrone A. Pacifico A, et al.

Br J Dermatol

2020 Apr 17; PMID: 32302419

Level of Evidence: 6 - No Data Cited

Type of Article: Research Letter

**Summary:** A hospital in Italy, during the red-zone declaration, implemented a new internal protocol for approaching immunosuppressed at-risk dermatological patients. The protocol involved using telemedicine to pre-triage for COVID-19, then triage cleared patients in-person at the hospital, and finally treat patients with phototherapy using sanitary methods to minimize COVID-19 exposure. Providers assigned phototherapy treatment priority based on disease morbidity, severity, and risk of erythroderma.

## Endourological Stone Management in the Era of the COVID-19.

Proietti S, Gabardi F, Giusti G. Proietti S, et al.

Eur Urol

2020 Apr 14; PMID: 32303384

Level of Evidence: Level 5 - Expert Opinion

Type of Article: Editorial

**Summary with excerpts:** The authors make several recommendations for endourologic management of stones:

1. Renal colic patients should be managed conservatively if possible and patients with stones should be evaluated based on surgical priority.
2. Stenting or percutaneous nephrostomy can be used in obstructed/infected kidneys. "In the current pandemic scenario, it is advisable to take extra effort to avoid the latter because of the high risk of inadvertent removal and likely long delay to subsequent surgical lithotripsy.  
**Whenever possible, the ureteral stent or nephrostomy tube should be placed under local anesthesia, sparing a ventilator"**
3. Previously stented patients for complicated nephrolithiasis should be considered with priority in order to avoid prolonged delays in stent removal.

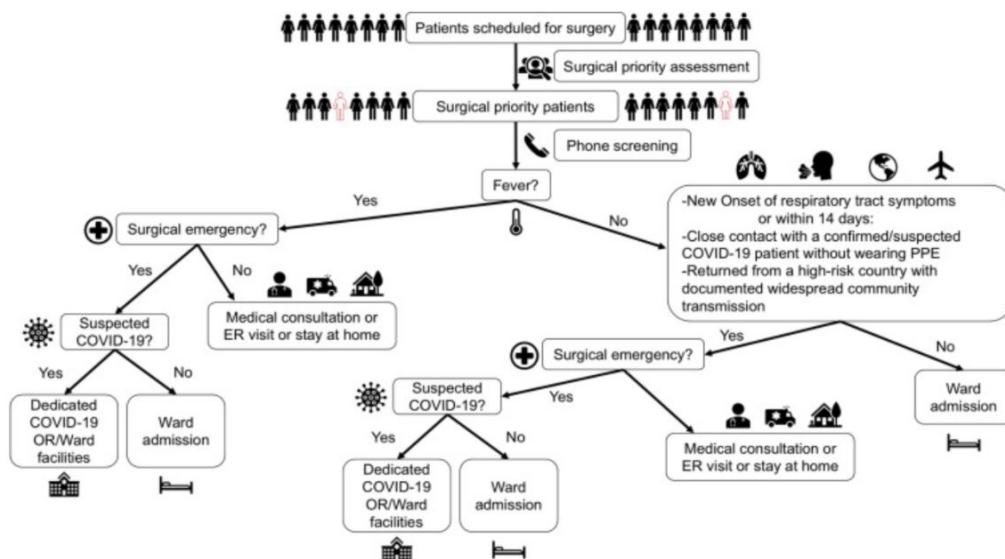
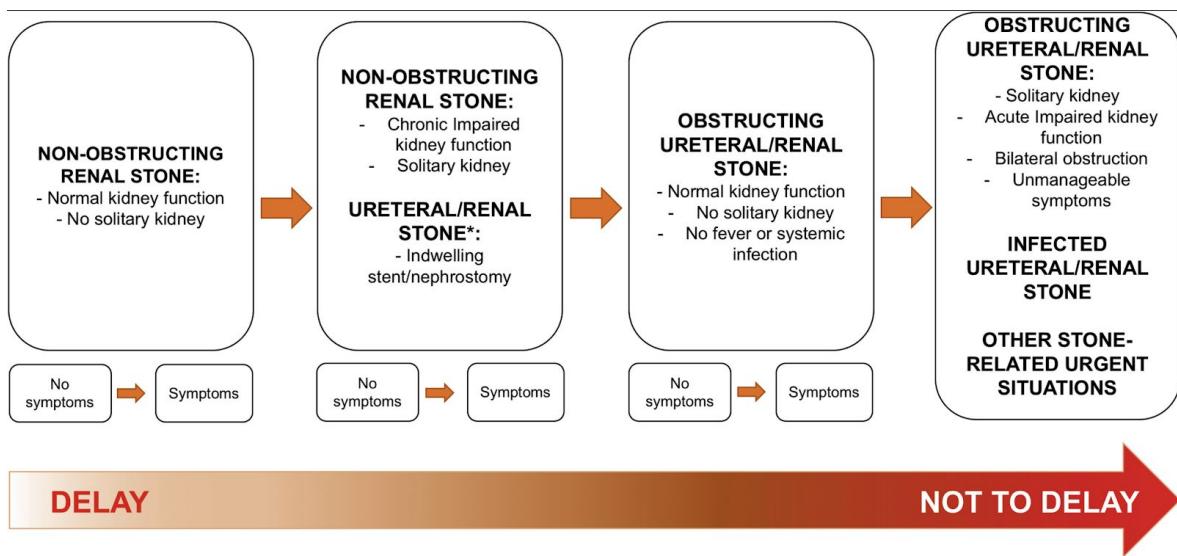


Fig. 1. Flowchart for triage of urological patients during the COVID-19 pandemic.



\*depending on stent indwelling time, urinary infections, symptoms

Fig. 2. Prioritization scheme for stone patients scheduled for surgery during the COVID-19 pandemic.

## ESGE and ESGENA Position Statement on gastrointestinal endoscopy and the COVID-19 pandemic.

Gralnek IM, Hassan C, Beilenhoff U, Antonelli G, Ebigo A, Pellisè M, Arvanitakis M, Bhandari P, Bisschops R, Van Hooft JE, Kaminski MF, Triantafyllou K, Webster G, Pohl H, Dunkley I, Fehrke B, Gazic M, Gjergek T, Maasen S, Waagenes W, de Pater M, Ponchon T, Siersema PD, Messmann H, Dinis-Ribeiro M. Gralnek IM, et al

Endoscopy.

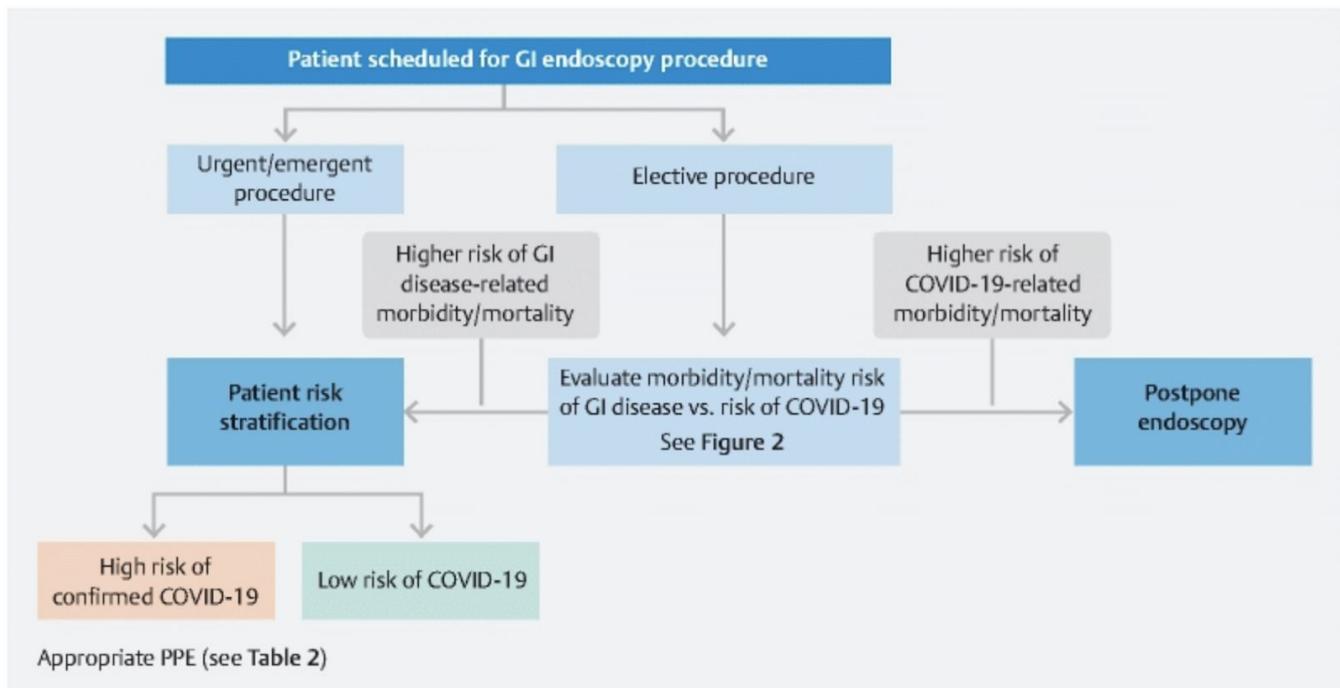
2020 Apr 17; PMID: 32303090

Level of Evidence: Level 5 - Expert Consensus

Type of Article: Review of Guidelines

**Summary:** This article provides a comprehensive review of recommendations for endoscopy compiled from the WHO, CDC and major GI societies, with risk management strategies in the pre-procedure, intra-procedure and post-procedure settings. The figures below address how to stratify patients during the COVID-19 pandemic and identify which patients need endoscopy urgently and which can be postponed to a later date.

**Abstract:** We are currently living in the throes of the COVID-19 pandemic that imposes a significant stress on health care providers and facilities. Europe is severely affected with an exponential increase in incident infections and deaths. The clinical manifestations of COVID-19 can be subtle, encompassing a broad spectrum from asymptomatic mild disease to severe respiratory illness. Health care professionals in endoscopy units are at increased risk of infection from COVID-19. Infection prevention and control has been shown to be dramatically effective in assuring the safety of both health care professionals and patients. The European Society of Gastrointestinal Endoscopy ([www.esge.com](http://www.esge.com)) and the European Society of Gastroenterology and Endoscopy Nurses and Associates ([www.esgena.org](http://www.esgena.org)) are joining forces to provide guidance during this pandemic to help assure the highest level of endoscopy care and protection against COVID-19 for both patients and endoscopy unit personnel. This guidance is based upon the best available evidence regarding assessment of risk during the current status of the pandemic and a consensus on which procedures to perform and the priorities on resumption. We appreciate the gaps in knowledge and evidence, especially on the proper strategy(ies) for the resumption of normal endoscopy practice during the upcoming phases and end of the pandemic and therefore a list of potential research questions is presented. New evidence may result in an updated statement.



| **Fig.1** Decision pathway for GI endoscopic procedures during the COVID-19 pandemic. GI, gastrointestinal; PPE, personal protective equipment.|

**Table1**  
Risk stratification for potential COVID-19 infection in patients requiring gastrointestinal endoscopy.

Low-risk patient	No symptoms (eg, cough, fever, shortness of breath or diarrhea) AND No history of contact with COVID positive individual AND No travel or residence in a location reporting community transmission of COVID-19 during previous 14 days <b>Negative testing for COVID 19</b> (with adequate accuracy and proper epidemiological setting)
High-risk patient	<b>Presence of symptoms with adequate sensitivity (eg, cough, fever, shortness of breath or diarrhea)</b> OR <b>Travel or residence in a location reporting community transmission of COVID-19 during previous 14 days</b> (eg, most European regions in April 2020) OR <b>Contact with COVID-19 positive (or very likely to be positive) individual</b>

**Table2**  
Health-professional personal protective equipment stratified by patient risk

Low-Risk Patient	High-risk or Positive patient
Surgical mask[1]	Respiratory PPE (FFP2/FFP3 mask)[2]
Gloves[3]	Two pairs of gloves[3]
Booties/shoe covers	Booties/shoe covers
Disposable hairnet	Disposable hairnet
Protective eyewear (goggles or disposable face shield)	Protective eyewear (goggles or disposable face shield)
Water-proof disposable gowns[4]	Water-proof disposable gowns[4]

<b>Perform always</b>	
<ul style="list-style-type: none"> <li>▪ Acute upper/lower GI bleeding with hemodynamic instability</li> <li>▪ Capsule/enteroscopy for urgent/emergent bleeding</li> <li>▪ Anemia with hemodynamic instability</li> <li>▪ Foreign body in esophagus and/or high-risk foreign body in the stomach</li> <li>▪ Obstructive jaundice</li> <li>▪ Acute ascending cholangitis</li> </ul>	
<b>Case by case management – high priority</b>	<b>Case by case management – low priority</b>
<ul style="list-style-type: none"> <li>▪ Endoscopic treatment of high-grade dysplasia (HGD) or early intra-mucosal cancer in the esophagus, stomach, or large colonic polyps at high-risk of submucosal invasion</li> <li>▪ Malignant stricture stenting</li> <li>▪ PEG/PEJ/NJ tube</li> <li>▪ Upper GI fistula/leakage</li> <li>▪ Dysphagia or dyspepsia with alarm symptoms present</li> <li>▪ Upper GI bleeding without hemodynamic instability</li> <li>▪ Rectal bleeding</li> <li>▪ Colonoscopy for melena after negative upper-GI endoscopy</li> <li>▪ Severe anemia with no hemodynamic instability</li> <li>▪ Tissue acquisition needed for the initiation of systemic therapy/surgery</li> <li>▪ Colonoscopy within organized FOBT+ CRC screening programme</li> <li>▪ Foreign body in the stomach, low-risk</li> <li>▪ Benign stricture requiring dilation/stenting</li> <li>▪ Radiologic evidence of mass</li> <li>▪ Lymph node EUS sampling</li> <li>▪ Gallstone-related pancreatitis</li> <li>▪ Pancreatic mass/stricture</li> <li>▪ Biliary stricture dilation</li> <li>▪ Pancreatico-biliary stent replacement for non-urgent indication</li> <li>▪ Necrosectomy</li> </ul>	<ul style="list-style-type: none"> <li>▪ Endoscopic treatment of esophageal or gastric low-grade dysplasia (LGD)</li> <li>▪ Duodenal polyp</li> <li>▪ Ampullectomy</li> <li>▪ Band ligation/non-emergency</li> <li>▪ Iron deficiency anemia</li> <li>▪ Pancreatic cyst (depending on risk features)</li> <li>▪ Biliary stricture/no urgency (no cholangitis, no jaundice, etc.)</li> <li>▪ Submucosal lesion EUS sampling</li> <li>▪ Achalasia (POEM, balloon dilatation)</li> <li>▪ gFOBT/FIT+ (outside of an organized regional/national screening program)</li> </ul>
<b>Postpone always</b>	
<ul style="list-style-type: none"> <li>▪ Surveillance for <ul style="list-style-type: none"> <li>– Barrett's Esophagus without dysplasia or Low-Grade Dysplasia or after endoscopic treatment</li> <li>– Gastric atrophy/Intestinal Metaplasia</li> <li>– Inflammatory Bowel Disease</li> <li>– Primary Sclerosing Cholangitis</li> </ul> </li> <li>▪ Post-endoscopic resection (including immediate endoscopy after resection), surgical resection of cancer or post-polypectomy surveillance</li> <li>▪ Diagnosis/surveillance of Lynch syndrome and other hereditary syndromes</li> <li>▪ Diagnosis of Irritable Bowel Syndrome-like symptoms</li> <li>▪ Diagnosis of reflux disease, dyspepsia (no alarm symptoms)</li> <li>▪ Screening in high risk patients for esophageal cancer, gastric cancer, colon cancer (primary screening endoscopy) or pancreatic cancer</li> <li>▪ Bariatric GI endoscopy procedures (e.g., intra-gastric balloons, endoscopic sleeve gastroplasty)</li> </ul>	

**Fig. 2** List of indications for endoscopic procedures according to rescheduling recommendations and priority.

## Maintaining the quality standards of care for inflammatory bowel disease patients during the COVID-19 pandemic.

Allocacca M, Fiorino G, Furfaro F, Gilardi D, Radice S, D'Amico F, Zilli A, Danese S, Allocacca M, et al.

Clin Gastroenterol Hepatol

2020 Apr 15; PMID: 32304737

Level of Evidence: 4 - Poor cohort study

Type of Article: Research

**Summarizing excerpt:** The “[a]im of this study was to report the outcomes of the restructuring of [the] IBD” team at the Humanitas Clinical and Research Center in Milan, Italy by assessing the standard of care patients were provided after the restructuring of clinical operations. As a result of the COVID-19 pandemic, outpatient visits were canceled and follow-up clinics and multidisciplinary discussions were held online. Of the 25 patients scheduled for biological therapy and the 174 patients with planned visits for interventional clinical trials, 84% received biological therapy on time and 93.1% completed visits. “All urgent endoscopic and imaging procedures were performed (100%), whereas all elective procedures were canceled due to local restrictions.” The authors found that the “[i]mplementation of virtual clinics, drug home delivery, and IBD networking” were “able to maintain

acceptable standards of care for [their] IBD patients” based on the large proportion of therapy and patient visit appointments not canceled rather than on the basis of measurable patient outcomes. “Whether the IBD unit restructuring achieves the same outcomes in other local and national contexts remains to be investigated.”

## **Pulmonary embolism in patients with COVID-19: Time to change the paradigm of computed tomography.**

Rotzinger DC, Beigelman-Aubry C, von Garnier C, Qanadli SD.

Thromb Res.

2020 Apr 11; PMID: 32302782

Level of Evidence: 5 - Expert opinion

Type of Article: Letter

**Summarizing excerpt:** “**Patients requiring hospital admission for COVID-19 pneumonia should receive prophylactic LMWH to prevent thromboembolism**, in the absence of contraindication. Furthermore, CT has quickly become a cornerstone in both the diagnostic workup and follow-up of SARS-CoV-2 infection and is usually performed without intravenous contrast agent injection. Though, patients with known COVID-19 disease may have acute pulmonary embolism. **In the case of elevated D-dimer levels on admission or sudden clinical worsening, CT pulmonary angiography should be considered since pulmonary embolism is a life-threatening but potentially treatable condition.**”

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

### **Harnessing CAR T Cell Insights to Develop Treatments for Hyperinflammatory Responses in COVID-19 patients.**

Agarwal S, June CH.

Cancer Discov.

2020 Apr 18; PMID: 32303509

Level of Evidence: Level 5

Type of Article: In Focus

**Summary:** Cytokine release, and monocyte, macrophage, and dendritic cell activation contribute to immunopathology after SARS-CoV-2 infection. Herein, approaches to reduce the morbidity and mortality in patients with COVID-19 are discussed, harnessing these immunologic mechanisms. Treatment of patients with **cyclosporine, in particular, has the potential to decrease cytokine release syndrome and inhibit viral replication.**

### **COVID-19 Associated Hepatitis Complicating Recent Living Donor Liver Transplantation.**

Lagana SM, De Michele S, Lee MJ, Emond JC, Griesemer AD, Tulin-Silver SA, Verna EC, Martinez M, Lefkowitch JH.

Arch Pathol Lab Med.

2020 Apr 17; PMID: 32302212

Level of Evidence: Level 5

Type of Article: Research

**BLUF:** Case report details the **first description of the histopathology of likely COVID-19 hepatitis identified in a liver biopsy**; likely manifests as a **moderate acute hepatitis**.

**Abstract:**

We present a case of **COVID-19 hepatitis** in a living donor liver allograft recipient whose donor subsequently tested positive for COVID-19. The patient is a female infant with biliary atresia (failed Kasai procedure). She recovered well, with improving liver function tests for 4 days. On post-operative day (POD) 4 the patient developed respiratory distress and fever. COVID-19 testing (polymerase chain reaction) was positive. Liver function tests increased approximately 5-fold. **Liver biopsy showed moderate acute hepatitis with prominent clusters of apoptotic hepatocytes and associated cellular debris. Lobular lymphohistiocytic inflammation was noted.** Typical portal features of mild to moderate acute cellular rejection were also noted.

## **Comparison of Abbott ID Now, Diasorin Simplexa, and CDC FDA EUA Methods for the Detection of SARS-CoV-2 From Nasopharyngeal and Nasal Swabs From Individuals Diagnosed With COVID-19.**

Rhoads DD, Cherian SS, Roman K, Stempak LM, Schmotzer CL, Sadri N

J Clin Microbiol

2020 Apr 17; PMID: 32303564

Level of Evidence: 2

Type of Article: Research

**Summary:** Here the authors compare the positive percentage agreement (PPA) of two *in vitro* diagnostic methods, the ID now and Simplexa, using the CDC method as their reference standard. The results show promise for these tests as use for COVID-19 diagnostics but their sample size is still low.

**Abstract:**

Dozens of *in vitro* diagnostics (IVDs) have received emergency use authorization (EUA) from the U.S. Food & Drug Administration (FDA) for the detection of SARS-CoV-2, but little has been studied to determine how well these assays perform using clinical specimens.

## **Analytical Performance of a Chemiluminescence Immunoassay for SARS-CoV-2 IgM/IgG and Antibody Kinetics**

Padoan A, Cosma C, Sciacovelli L, Faggian D, Plebani M

Clin Chem Lab Med

2020 Apr 16; PMID: 32301749

Level of Evidence: 2- Inception cohort study

Type of Article: Research

**Summary:** This is a proof of concept study using a novel chemiluminescent immunoassay for COVID-19 patients to describe the host IgM and IgG kinetics during infection. However there is a vague description of the test and not everything is properly controlled for.

**Abstract:**

Background: Coronavirus disease 2019, abbreviated to COVID-19, represents an emerging health threat worldwide as, after initial reports in China, it has continued to spread rapidly. The clinical spectrum of the disease varies from mild to severe acute respiratory distress syndrome (ARDS). Moreover, many patients can be asymptomatic, thus increasing the uncertainty of the diagnostic work-up. Laboratory tests play a pivotal role in the diagnosis and management of COVID-19, the current gold standard being real-time reverse transcription polymerase chain reaction (rRT-PCR) on respiratory tract specimens. However, the diagnostic accuracy of rRT-PCR depends on many

pre-analytical and analytical variables. **The measurement of specific COVID-19 antibodies (both IgG and IgM) should serve as an additional, non-invasive tool for disease detection and management.** Methods: The imprecision of the **MAGLUMI™ 2000 Plus 2019-nCov IgM and IgG assays** (Snibe, Shenzhen, China) was assessed by adopting the Clinical and Laboratory Standards Institute (CLSI) EP15-A3 protocol. Linearity of dilution and recovery was evaluated by means of mixes of high-level pools and low-level pools of serum samples. Immunoglobulin time kinetics were evaluated using a series of serum samples, repeatedly collected from COVID-19-positive patients at different times, from <5 days up to 26–30 days. Results: Findings at the analytical validation of the assay carried out according to the CLSI EP15-A3 guideline demonstrated that imprecision and repeatability were acceptable (repeatability was <4% and <6% for IgM and IgG, respectively, whilst intermediate imprecision was <6%). In addition, results of dilution and recovery studies were satisfactory. The kinetics of COVID-19 antibodies confirmed previously reported findings, showing a rapid increase of both IgM and IgG after 6–7 days from the symptom onset. IgG had 100% sensitivity on day 12, whilst 88% was the higher positive rate achieved for IgM after the same time interval. Conclusions: The findings of this study demonstrate the validity of the MAGLUMI 2000 Plus CLIA assay for the measurement of specific IgM and IgG in sera of COVID-19 patients, and for obtaining valuable data on the kinetics of both (IgM and IgG) COVID-19 antibodies. These data represent a pre-requisite for the appropriate utilization of specific antibodies for the diagnosis and management of COVID-19 patients.

## Utility of Hyposmia and Hypogeusia for the Diagnosis of COVID-19

Benezit, Francois; Le Turnier, Paul; Declerck, Charles; Paille, Cecile; Revest, Matthieu; Dubee, Vincent; Tattevin, Pierre

Lancet Infect Dis

2020 Apr 15; PMID: 32304632

Level of Evidence: 4

Type of Article: Correspondence

### **Summary:**

Due to the limited availability of diagnostic tests for COVID-19 and the importance of early and accurate diagnosis, the presence of hyposmia and hypoguesia alone or together makes these symptoms important tools for initial diagnostic workup in patients with suspected COVID-19. Although a preliminary study the ease of collecting this information through telemedicine and by individuals with limited medical knowledge is promising.

## Routine Blood Tests as a Potential Diagnostic Tool for COVID-19

Ferrari, Davide; Motta, Andrea; Strollo, Marta; Banfi, Giuseppe; Locatelli, Massimo

Clin Chem Lab Med

2020 Apr 16; PMID: 32301746

Level of Evidence: 3 - Cohort Study

Type of Article: Research

**BLUF:** Researchers in this study compared WBC, CRP, AST, ALT, and LDH values between 207 patients admitted for COVID-19 who were then subsequently tested with PCR. **By setting empiric cutoffs for AST and LDH, the authors were able to confirm COVID-19 positive or negative patients, suggesting a use for routine labs in settings where PCR is not readily available.**

### **Abstract:**

The outbreak of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) to date, the epidemic has gradually spread to 209 countries worldwide with more than 1.5 million infected people and 100,000 deaths. Amplification of viral RNA by rRT-PCR serves as the gold standard for confirmation of infection, yet it needs a long turnaround time (3-4 h to generate results) and shows false-negative rates as large as 15%-20%. In addition, the need of certified laboratories, expensive equipment and trained personnel led many countries to limit the rRT-PCR tests only to individuals with pronounced respiratory syndrome symptoms. Thus, there is a need for alternative, less expensive and more accessible tests. Methods We analyzed the plasma levels of white blood cells (WBCs), platelets, C-reactive protein (CRP), aspartate aminotransferase (AST), alanine aminotransferase (ALT),  $\gamma$ -glutamyl transpeptidase (GGT), alkaline phosphatase and lactate dehydrogenase (LDH) of 207 patients who, after being admitted to the emergency room of the San Raffaele Hospital (Milan, Italy) with COVID-19 symptoms, were rRT-PCR tested. Of them, 105 tested positive, whereas 102 tested negative. Results Statistically significant differences were observed for WBC, CRP, AST, ALT and LDH. **Empirical thresholds for AST and LDH allowed the identification of 70% of either COVID-19-positive or -negative patients on the basis of routine blood test results.**

Conclusions Combining appropriate cutoffs for certain hematological parameters could help in identifying false-positive/negative rRT-PCR tests. Blood test analysis might be used as an alternative to rRT-PCR for identifying COVID-19-positive patients in those countries which suffer from a large shortage of rRT-PCR reagents and/or specialized laboratory.

## Clinical Pharmacology Perspectives on the Antiviral Activity of Azithromycin and Use in COVID-19.

Damle, Bharat; Vourvahis, Manoli; Wang, Erjian; Leany, Joanne; Corrigan, Brian  
Clin Pharmacol Ther

2020 Apr 17; PMID: 32302411

Level of Evidence: 5 - Mechanism-Based Reasoning

Type of Article: Review

**BLUF:** A brief overview of the safety trials done with azithromycin (AZ) with comment upon recent studies not showing increased QT-prolongation with AZ and hydroxychloroquine. **The authors also suggest AZ may play a role in reducing overall inflammation and covering COVID-19 patients with bacterial co-infection.**

### **Abstract:**

Azithromycin (AZ) is a broad-spectrum macrolide antibiotic with a long half-life and a large volume of distribution. It is primarily used for the treatment of respiratory, enteric, and genitourinary bacterial infections. AZ is not approved for the treatment of viral infections, and there is no well-controlled, prospective, randomized clinical evidence to support AZ therapy in COVID-19 (Coronavirus Infectious Disease-2019). Nevertheless, there are anecdotal reports that some hospitals have begun to include AZ in combination with hydroxychloroquine (HCQ) or chloroquine (CQ) for treatment of COVID-19. It is essential that the clinical pharmacology (CP) characteristics of AZ be considered in planning and conducting clinical trials of AZ alone or in combination with other agents, to ensure safe study conduct and to increase the probability of achieving definitive answers regarding efficacy of AZ in the treatment of COVID-19. The safety profile of AZ used as an antibacterial agent is well-established.(1) This work assesses published in vitro and clinical evidence for AZ as an agent with antiviral properties. It also provides basic CP information relevant for planning and initiating COVID-19 clinical studies with AZ, summarizes safety data from healthy volunteer studies, and safety and efficacy from Phase 2 and Phase 2/3 studies in patients with uncomplicated malaria, including a Phase 2/3 study in pediatric patients following administration of AZ and CQ in combination. This

paper may also serve to facilitate the consideration and use of a priori-defined control groups for future research.

## **The diagnostic and predictive role of NLR, d-NLR and PLR in COVID-19 patients**

Yang, Ai-Ping; Liu, Jian-Ping; Tao, Wen-Qiang; Li, Hui-Ming

Int Immunopharmacol

2020 Apr 13; PMID: 32304994

Level of Evidence: 3 - Retrospective Study

Type of Article: Research

**BLUF:** In their analysis of 69 random non-severe and 24 severe cases, both age and neutrophil to lymphocyte ratio were independent risk factors for poor clinical outcomes.

### **Abstract:**

**Aim:** To accumulate evidence that indicated the key role played by virus-triggered inflammation in the 2019-novel coronavirus disease (COVID-19) which emerged in Wuhan City and rapidly spread throughout China. **Methods:** Age, neutrophil(NEU)-to-lymphocyte (LYM) ratio (NLR), lymphocyte-to-monocyte (MON) ratio, platelet-to-lymphocyte ratio (PLR), and C-reactive protein (CRP) of 93 patients with laboratory confirmed COVID-19 were investigated and compared. The receiver operating characteristic curve was applied to determine the thresholds for five bio-markers, and their prognostic values were assessed via the Kaplan-Meier curve and multivariate COX regression models. **Results:** The median age was 46.4 years old, and 37cases were females. A total of 27.8% of patients had been to Wuhan, and 73.1% had contacted with people from Wuhan. Fever (83.8%) and cough (70.9%) were the two most common symptoms. Elevated NLR and age were significantly associated with illness severity. The binary logistic analysis identified elevated NLR (hazard risk [HR] 2.46, 95% confidence interval [CI] 1.98-4.57) and age (HR 2.52, 95% CI 1.65-4.83) as independent factors for poor clinical outcome of COVID-19. NLR exhibited the largest area under the curve at 0.841, with the highest specificity (63.6%) and sensitivity (88%). **Conclusions:** **Elevated age and NLR can be considered independent biomarkers for indicating poor clinical outcomes.**

## **Weak Induction of Interferon Expression by SARS-CoV-2 Supports Clinical Trials of Interferon Lambda to Treat Early COVID-19**

O'Brien TR, Thomas DL, Jackson SS, Prokunina-Olsson L, Donnelly R, Hartmann R

Clin Infect Dis

2020 Apr 17; PMID: 32301957

Level of Evidence: 5- Basic Research

Type of Article: Research Article

**Summary:** Using lung tissue from six human donors authors compare interferon production in response to SARS-CoV and SARS-CoV-2 infection. Because SARS-CoV-2 seemed to very weakly induce interferon in their in-vitro studies they make a case for the use of interferon lambda as a treatment option.

**Abstract:** NA

## **Gastrointestinal Symptoms Associated With Severity of Coronavirus Disease 2019 (COVID-19): A Pooled Analysis**

Henry, Brandon Michael; de Oliveira, Maria Helena Santos; Benoit, Justin; Lippi, Giuseppe  
Intern Emerg Med

2020 Apr 17; PMID: 32303970

Level of Evidence: 4

Type of Article: Letter

**Summary:**

Based on the investigation of data from Medline and the China National Knowledge Infrastructure, early onset abdominal pain was found to be associated with an almost 4-fold increase in likelihood of severe COVID-19, with a marginally increased prevalence also for nausea and vomiting. The identification of these clinical predictors enables risk stratification and resource allocation in the COVID-19 pandemic.

**The Appropriate Use of Testing for COVID-19.**

Zitek T.Zitek T.

West J Emerg Med.

2020 Apr 13; PMID: 32302278

Level of Evidence: 4 - Review of studies

Type of Article: Expert Commentary

**BLUF:** "While the exact sensitivity and specificity of RT-PCR tests for COVID-19 are not known, it appears that a positive test is highly suggestive of true COVID-19, but a negative test does not rule out the disease"

**Summary:** The sensitivity and specificity of nasopharyngeal swabs using RT-PCR for the diagnosis of COVID-19 cannot be precisely determined with the published data to this point. However, the available in vitro data along with minimal clinical data suggest that **the test has very high specificity. On the other hand, the sensitivity is moderate (perhaps between 63-78%).** Among the various ways of performing RT-PCR, pharyngeal swabs seem to have lowest sensitivity; nasal swabs may be a bit more sensitive than pharyngeal swabs. RT-PCR analysis of BAL fluid seems to be the most accurate means of virologic confirmation, but BAL fluid can only reasonably be collected on the sickest cohort of patients.

**A Detectable Serum SARS-CoV-2 Viral Load (RNAemia) Is Closely Correlated With Drastically Elevated Interleukin 6 (IL-6) Level in Critically Ill COVID-19 Patients**

Chen X, Zhao B, Qu Y, Chen Y, Xiong J, Feng Y, Men D, Huang Q, Liu Y, Yang B, Ding J, Li F  
Clin Infect Dis

2020 Apr 17; PMID: 32301997

Level of Evidence: 3- Cohort study

Type of Article: Basic Research

**Summary:** Study of 48 patients in Wuhan, China examining serum RNA levels of SARS-CoV-2. They find a trend of higher levels of viremia and IL-6 associated with more severe disease.

**Abstract:**

Background: Although the detection of SARS-CoV-2 viral load in respiratory specimens has been widely used to diagnose coronavirus disease-19 (COVID-19), it is undeniable that serum SARS-CoV-2 nucleic acid (RNAemia) could be detected in a fraction of COVID-19 patients. However, it is not clear

whether testing for RNAaemia is correlated with the occurrence of cytokine storms or with the specific class of patients.

**Methods:** This study enrolled 48 patients with COVID-19 admitted to the General Hospital of Central Theater Command, PLA, a designated hospital in Wuhan, China. The patients were divided into three groups according to the "Diagnosis and Treatment of New Coronavirus Pneumonia (6th edition)" issued by the National Health Commission of China. The clinical and laboratory data were collected. The serum viral load and IL-6 levels were determined. .

**Results:** Clinical characteristics analysis of 48 cases of COVID-19 showed that RNAaemia was diagnosed only in the critically ill group and seemed to reflect the severity of the disease. Furthermore, the level of inflammatory cytokine IL-6 in critically ill patients increased significantly, almost 10 times that in other patients. More importantly, the extremely high IL-6 level was closely correlated with the detection of RNAaemia ( $R = 0.902$ ).

**Conclusions:** Detectable serum SARS-CoV-2 RNA(RNAaemia) in COVID-19 patients was associated with elevated IL-6 concentration and poor prognosis. Because the elevated IL-6 may be part of a larger cytokine storm which could worsen outcome, IL-6 could be a potential therapeutic target for critically ill patients with an excessive inflammatory response.

**Keywords:** Coronavirus disease-19 (COVID-19); IL-6; RNAaemia; critically ill patients; cytokine storm; pneumonia.

## **CRISPR-Cas12-based Detection of SARS-CoV-2**

Broughton JP, Deng X, Yu G, Fasching CL, Servellita V, Singh J, Miao X, Streithorst JA, Granados A , Sotomayor-Gonzalez A, Zorn K, Gopez A, Hsu E, GuW, Miller S, Pan CY, Guevara H, Wadford DA, Chen JS, Chiu CY

Nat Biotechnology

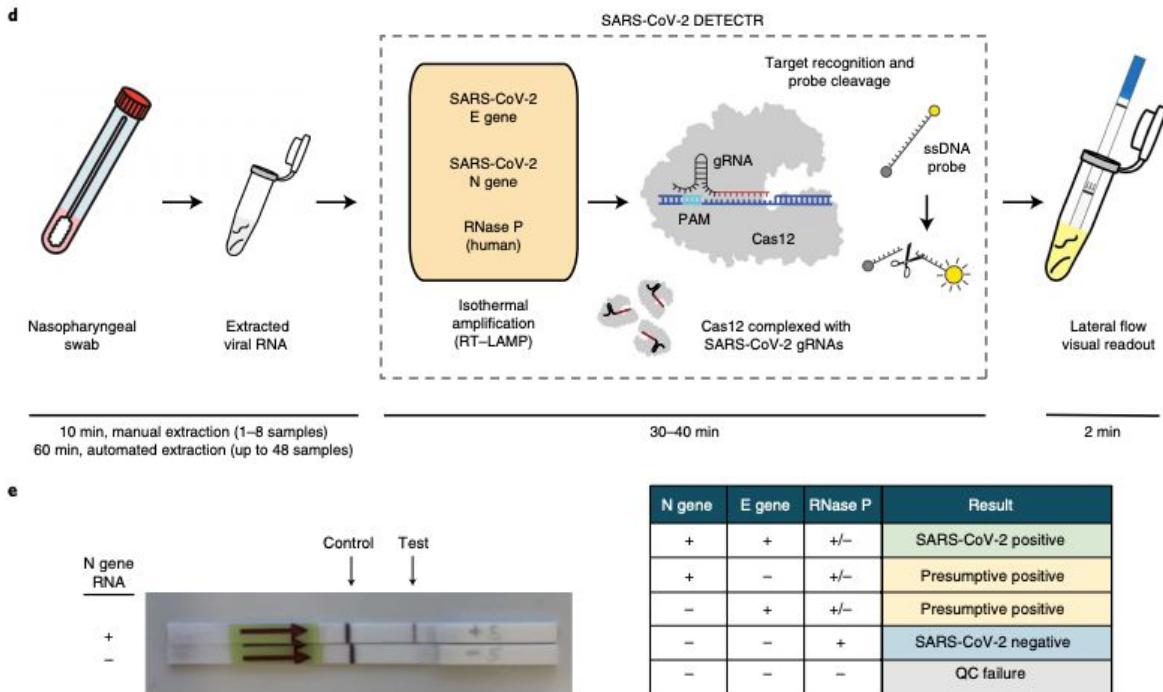
2020 Apr 16; PMID: 32300245

Level of Evidence: 5- Basic Research

Type of Article: Letter

**Summary:** Here the authors report a novel CRISPR-Cas-12 based diagnostic assay to detect SARS-CoV-2 from extracted RNA called SARS-CoV-2 DNA Endonuclease-Targeted CRISPR Trans Reporter (DETECTR). The assay is based on RT-LAMP and CAS12 mediated reporter cleavage.

**Abstract:** An outbreak of betacoronavirus severe acute respiratory syndrome (SARS)-CoV-2 began in Wuhan, China in December 2019. COVID-19, the disease associated with SARS-CoV-2 infection, rapidly spread to produce a global pandemic. We report development of a rapid (<40 min), easy-to-implement and accurate CRISPR-Cas12-based lateral flow assay for detection of SARS-CoV-2 from respiratory swab RNA extracts. We validated our method using contrived reference samples and clinical samples from patients in the United States, including 36 patients with COVID-19 infection and 42 patients with other viral respiratory infections. Our CRISPR-based DETECTR assay provides a visual and faster alternative to the US Centers for Disease Control and Prevention SARS-CoV-2 real-time RT-PCR assay, with 95% positive predictive agreement and 100% negative predictive agreement.



**Fig. 1 | A CRISPR–Cas12-based assay for detection of SARS-CoV-2.** a, Genome map showing primers, probes and gRNAs... d, Schematic of SARS-CoV-2 DETECTR workflow. Conventional RNA extraction can be used as an input to DETECTR (LAMP preamplification and Cas12-based detection for E gene, N gene and RNase P), which is visualized by a fluorescent reader or lateral flow strip. e, Lateral flow strip assay readout. A positive result requires detection of at least one of the two SARS-CoV-2 viral gene targets (N gene or E gene, as indicated in the interpretation matrix). QC, quality control.

## **Radiology Management and COVID-19 in Resource Limited Setting.**

Joob B, Wiwanitkit V. Joob B.

Acad Radiol.

2020 Apr 14; PMID 32303440

Level of Evidence: Level 6 – No Data Cited

Type of Article: Letter to Editor

**Summary:** The authors reply to the guidelines for radiology management outlined in Zhang et al. They point out that the implementation of those good policies is an enormous challenge in hospitals of poor countries with limited resources.

## **Portable chest X-ray in coronavirus disease-19 (COVID-19): A pictorial review.**

Jacobi A, Chung M, Bernheim A, Eber C

Clin Imaging

2020 Apr 8; PMID: 32302927

Level of Evidence: 5 - Expert opinion

Type of Article: Review

**BLUF:** A presentation of chest radiography findings of Covid-19 patients and comparisons to CT findings created to help facilitate the use of chest radiography in diagnosis.

## Abstract

As the global pandemic of coronavirus disease-19 (COVID-19) progresses, many physicians in a wide variety of specialties continue to play pivotal roles in diagnosis and management. In radiology, much of the literature to date has focused on chest CT manifestations of COVID-19 (Zhou et al. [1]; Chung et al. [2]). However, due to infection control issues related to patient transport to CT suites, the inefficiencies introduced in CT room de-contamination, and lack of CT availability in parts of the world, portable chest radiography (CXR) will likely be the most commonly utilized modality for identification and follow up of lung abnormalities. In fact, the American College of Radiology (ACR) notes that CT decontamination required after scanning COVID-19 patients may disrupt radiological service availability and suggests that portable chest radiography may be considered to minimize the risk of cross-infection (American College of Radiology [3]). Furthermore, in cases of high clinical suspicion for COVID-19, a positive CXR may obviate the need for CT. Additionally, CXR utilization for early disease detection may also play a vital role in areas around the world with limited access to reliable real-time reverse transcription polymerase chain reaction (RT-PCR) COVID testing.

The purpose of this pictorial review article is to describe the most common manifestations and patterns of lung abnormality on CXR in COVID-19 in order to equip the medical community in its efforts to combat this pandemic.

## Acute pulmonary embolism in a patient with COVID-19 pneumonia.

Cellina M, Oliva G. Cellina M, et al.

Diagn Interv Imaging.

2020 Apr 10; PMID: 32303472

Level of Evidence: Level 5 – Case Study

Type of Article: Case Study

**Summary:** An overweight 60-year-old man admitted for COVID-19 developed dyspnea and oxygen desaturation on day 3 of admission and was found to have CT findings of acute bilateral pulmonary embolism. Elevated D-dimer values are common in COVID-19 patients, even in the absence of thrombophlebitis and acute pulmonary embolism. The authors recommend chest CT angiography in patients with COVID-19 pneumonia presenting with worsening clinical respiratory symptoms.

## The BTK-inhibitor ibrutinib may protect against pulmonary injury in COVID-19 infected patients.

Treon SP, Castillo J, Skarbnik AP, Soumerai JD, Ghobrial IM, Guerrera ML, Meid KE, Yang G  
Blood

2020 Apr 17; PMID: 32302379

Level of Evidence: 5-Expert opinion

Type of Article: Letter

**Summary:** Early evidence from several patients diagnosed with Covid-19 while taking ibrutinib as well as mechanism based reasoning based on prior uses and mouse models suggest that ibrutinib may be a useful therapy in decreasing lung injury and hypoxia among Covid-19 patients. Clinical trials more closely examining this potential have been initiated.

## Contributory Role of Positron Emission Tomography in a Left Ventricular Assist Device Recipient at the time of COVID-19 pandemic.

PMID: 32304393

Publication Date: Apr 16, 2020

Loforte A, Glioza G, Martin Suarez S, Pacini D. Loforte A, et al.

ASAIO Journal

Level of Evidence: Level 4 - Case Report

Type of Article: Research

**BLUF:** A case report is presented where a patient with a left ventricular assist device (LVAD) was sensitive to PET scan examination that was indicative of COVID-19 even though there were no symptoms and a negative wound site swab test. Along with PET- scans, CT-scans have also been found to be sensitive in “case[s] of clinically and laboratoristically asymptomatic or less symptomatic patients.” Thus, these methods, especially the 18F-FDG PET scan, have high diagnostic value in “detecting the localization and extension of infection to internal LVAD components” and are recommended for the LVAD recipient population “during routine ambulatory outpatients.”

### **Abstract:**

We report on the role of fluorine 18-fluorodeoxyglucose (F-FDG) positron emission tomography (PET) scan examinations to contribute in the diagnosis of COVID-19 respiratory syndrome even in the case of asymptomatic left ventricular assist device (LVAD) recipients. Thus, warm caution and thoughtful approaches for timely detection should be taken for our delicate LVAD population especially if patients are currently living in a high density COVID-19 infected area and the potential intention for LVAD treatment is bridge to transplantation.

## PET imaging of COVID-19: the target and the number.

Guedj E, Verger A, Cammilleri S. Guedj E, et al.

Eur J Nucl Med Mol Imaging.

2020 Apr 17; PMID: 32303786 No abstract available.

Level of Evidence: 5 - Expert opinion

Type of Article: Letter

**Summary:** Though PET shows promise as a modality through which to better characterize disease state and progression in COVID-19 patients, concerns of viral spread in PET departments and low national PET capacities pose challenges. These challenges highlight the need to develop light PET protocols that allow broader availability and shorter procedure times.

## Optical techniques for fast screening - towards prevention of the coronavirus COVID-19 outbreak.

de Carvalho, Luis Felipe das Chagas E Silva; Nogueira, Marcelo Saito

Photodiagnosis Photodyn Ther

2020 Apr 19; PMID: 32304912

Level of Evidence: 5 - Expert Opinion

Type of Article: Letter

**BLUF:** Raman and Fourier-transform infrared (FT-IR) spectroscopy are recommended as a potential method for conducting mass screenings or biomolecular characterization.

**SUMMARIZING EXCERPT:** “Due to the portability and low-noise measurements provided by **FT-IR ATR spectroscopy**, it can be widely used for **cost-effective mass screening** at hospitals, clinics, airports, among other places. The strong molecular specificity and water-free signals of **Raman spectroscopy** allows the technique to be used for **biochemical profiling** of cells in biofluids and cell cultures. The analysis of cell biochemistry can be **relatively fast** in order to provide the intracellular changes correlated to the disease, especially **molecular-specific associations between the host cell and the virus**. These changes can be further related to the pathophysiology of the patients in the clinic and investigation of new treatment/containment modalities. [...] Once vibrational spectroscopy is applied in a large scale, the **costs can be reduced and extended to low-resource settings**, as the **minimal sample preparation** can keep operational costs low. Additional benefits of large-scale application of vibrational spectroscopy are the creation of an environment that supports the diagnosis of associated diseases.”

### **Smell and taste dysfunction in patients with COVID-19.**

Xydakis, Michael S; Dehgani-Mobaraki, Puya; Holbrook, Eric H; Geisthoff, Urban W; Bauer, Christian; Hautefort, Charlotte; Herman, Philippe; Manley, Geoffrey T; Lyon, Dina M; Hopkins, Claire

Lancet Infect Dis

2020 Apr 19; PMID: 32304629

Level of Evidence: 5 - Expert Opinion

Type of Article: Letter

**BLUF:** [P]hysicians evaluating patients with acute-onset loss of smell or taste, particularly in the context of a patent nasal airway (ie, non-conductive loss), should have a high index of suspicion for concomitant SARS-CoV-2 infection.

**SUMMARY:** The American Academy of Otolaryngology--Head and Neck Surgery and the British Association of Otorhinolaryngology recommend that anosmia with or without dysgeusia be added to the list of primary screening symptoms for COVID-19. These symptoms may be seen early in the course of infection or in patients with mild or no constitutional symptoms. The traditional nasal cavity manifestations, such as nasal congestion or rhinorrhea, seen in other upper respiratory infections are commonly absent in patients with COVID-19, suggesting that SARS-CoV-2 is a neurotropic virus with a tropism for the olfactory system.

### **COVID-19 in patients with HIV: clinical case series.**

Blanco JL, Ambrosioni J, Garcia F, Martínez E, Soriano A, Mallolas J, Miro JM; COVID-19 in HIV Investigators.

Lancet HIV

2020 Apr 15; PMID: 32304642

Level of Evidence: 4 - Case Series

Type of Article: Research

**Summary:** 5 patients from the Hospital Clinic in Barcelona who were SARS-CoV-2 and HIV-positive (4 of whom were on ART) were started on a coronavirus regimen that included various combinations of coronavirus-boosted-protease inhibitors (lopinavir-boosted-ritonavir and dopenavir-boosted-cobicistat), azithromycin, IFN beta 1-b, and hydroxychloroquine. Preliminary

results highlight the efficacy of boosted protease inhibitor treatment, but require further trials to confirm.

## **Novel Coronavirus disease (COVID-19) in children.**

Bedir Demirdağ T, Tezer H. Bedir Demirdağ T, et al.

Turk J Med Sci

2020 Apr 18; PMID: 32304191

Level of Evidence: Article unable to access to be verified

Type of Article: Article unable to access to be verified

**Abstract:** Coronavirus disease (COVID-19) was firstly reported at the end of 2019. The disease rapidly spread all around the world in a few months and was declared a worldwide pandemic by WHO in March 2020. By April 9, there were 1 436 198 confirmed COVID-19 cases in the world, nearly with 6% mortality rate. This novel infectious disease causes respiratory tract illness that may generally occur as mild upper respiratory tract disease or pneumonia. In older patients and/or patients with underlying conditions, it may result in acute respiratory distress syndrome, multi organ failure and even death. According to the current literature, **children account approximately for 1%-5% of diagnosed COVID-19 cases.** Generally, COVID-19 seems to be a less severe disease for children than adults. **Approximately 90% of pediatric patients are diagnosed as asymptomatic, mild, or moderate disease. However, up to 6.7% of cases may be severe. Severe illness is generally seen in patients smaller than 1 year of age and patients who have underlying diseases.** The epidemiological and clinical patterns of COVID-19 and treatment approaches in pediatric patients still remain unclear although many pediatric reports are published. **This review aims to summarize the current epidemics, clinical presentations, diagnosis, and treatment of COVID-19 in pediatric patients.**

## **Progress and Concept for COVID-19 Vaccine Development**

Wu SC

Biotechnol J

2020 Apr 18; PMID: 32304139

Level of Evidence: Level 5 – Expert Opinion

Type of Article: Editorial

**Summary:** In the midst of the current outbreak, there have been numerous approaches to vaccine development, including nucleic acid-, inactivated virus-, viral vector-, or **spike protein (S)-based vaccine** strategies. The author briefly comments on the lattermost strategy, and further, suggests directing focus to the **smaller S1 domain** of the S protein **may mitigate immunopathological concerns** of a future vaccine.

## **Two Known Therapies Could Be Useful as Adjuvant Therapy in Critical Patients Infected by COVID-19**

Hernández A, Papadakos PJ, Torres A, González DA, Vives M, Ferrando C, Baeza J

Rev Esp Anestesiol Reanim

2020 Apr 14; PMID: 32303365

Level of Evidence: Level 5 – Mechanism-based Reasoning

Type of Article: Review

**BLUF:** This article reviews the **clinical use of Vitamin C and ozone to treat COVID-19**. The authors discuss the antioxidative **role of Vitamin C in managing ARDS and cytokine storms**, and they generate a flexible clinical protocol for IV administration intended to **supplement COVID-19 treatment**. They also **suggest use of ozone in treatment** regimens and supply a provisional protocol, while acknowledging a **lack of medical consensus on the use of ozone** as a treatment.

**Abstract (Author translation to English from Spanish):**

Pneumonia caused by coronavirus, which originated in Wuhan, China, in late 2019, has been spread around the world already becoming a pandemic. Unfortunately, there is not yet a specific vaccine or effective antiviral drug for treating COVID-19. Many of these patients deteriorate rapidly and require intubation and are mechanically ventilated, which is causing the collapse of the health system in many countries due to lack of ventilators and intensive care beds. In this document we review **two simple adjuvant therapies to administer, without side effects, and low cost** that could be useful for the **treatment of acute severe coronavirus infection** associated with acute respiratory syndrome (**SARS-CoV-2**). Vitamin C, a potent antioxidant, has emerged as a relevant therapy due to its potential benefits when administered intravenous. The potential effect of **vitamin C in reducing inflammation in the lungs could play a key role in lung injury caused by coronavirus infection**. Another **potential effective therapy is ozone**: it has been extensively studied and used for many years and its effectiveness has been demonstrated so far in multiples studies. Nevertheless, our goal is not to make an exhaustive review of these therapies but spread the beneficial effects themselves. Obviously clinical trials are necessities, but due to the potential benefit of these two therapies we highly recommended to add to the therapeutic arsenal.

**CT of Coronavirus Disease (COVID-19) Pneumonia: A Reference Standard Is Needed**

Erturk SM

AJR Am J Roentgenol

2020 Apr 17; PMID: 32302207

Level of Evidence: Level 5 – Expert Opinion

Type of Article: Letter

**Summary:** This article is a **response** to “[Coronavirus Disease 2019 \(COVID-19\): Role of Chest CT in Diagnosis and Management](#),” which itself concludes that CT may be useful as a diagnostic for COVID-19. The author of this response **calls into question confirmation of COVID-19 by CT in the presence of negative RT-PCR results**. Further, the author suggests that **sole diagnosis by CT does not rule out other infectious agents** and therefore concludes that **CT is not an adequate diagnostic tool** for COVID-19.

**Boosting the Arsenal Against COVID-19 Through Computational Drug Repurposing**

Ciliberto G, Cardone L

Drug Discov Today

2020 Apr 15; PMID: 32304645

Level of Evidence: Level 5 – Expert Opinion

Type of Article: Editorial

**Summary:** This article highlights the potential benefits of using powerful **molecular modeling** techniques to explore the use of **drugs approved for other diseases to treat COVID-19**. The authors

discuss the abundance of biochemical and pharmacological data of existing drugs as providing an avenue to **accelerated COVID-19 drug development**, while briefly acknowledging the **current limitations** of this approach, namely the **lack of biochemical data** and divergence from other coronaviruses.

## The performance of chest CT in evaluating the clinical severity of COVID-19 pneumonia: identifying critical cases based on CT characteristics.

Lyu, Peijie; Liu, Xing; Zhang, Rui; Shi, Lei; Gao, Jianbo

Investigative Radiology

2020 Apr 19; PMID: 32304402

Level of Evidence: 4 - Retrospective Study

Type of Article: Research

**BLUF:** A combination of qualitative and quantitative indicators can be used to distinguish cases of COVID-19 at different clinical stages; this was specifically used to differentiate critical cases from severe cases. Quantitative indicators used included total severity score, total score for crazy-paving and consolidation, and mean lung density.

### **Abstract**

### **Objectives**

To assess the clinical severity of COVID-19 pneumonia using qualitative and/or quantitative chest CT indicators and identify the CT characteristics of critical cases.

### **Materials and Methods**

Fifty-one patients with COVID-19 pneumonia including ordinary cases (group A, n=12), severe cases(group B, n=15) and critical cases (group C, n=24) were retrospectively enrolled. The qualitative and quantitative indicators from chest CT were recorded and compared using Fisher's exact test, one-way ANOVA, Kruskal-Wallis H test and receiver operating characteristic analysis.

### **Results**

Depending on the severity of the disease, the number of involved lung segments and lobes, the frequencies of consolidation, crazy-paving pattern and air bronchogram increased in more severe cases. **Qualitative indicators** including **total severity score for the whole lung** and **total score for crazy-paving and consolidation** could distinguish groups B and C from A(69% sensitivity, 83% specificity and 73% accuracy) but were similar between group B and group C. **Combined qualitative and quantitative indicators could distinguish these three groups with high sensitivity(B+C vs. A, 90%; C vs. B, 92%), specificity(100%, 87%) and accuracy(92%, 90%).** Critical cases had higher total severity score(>10) and higher total score for crazy-paving and consolidation(>4) than ordinary cases, and had higher mean lung density(>-779HU) and full width at half maximum(>128HU) but lower relative volume of normal lung density( $\leq 50\%$ ) than ordinary/severe cases. In our critical cases, eight patients with relative volume of normal lung density smaller than 40% received mechanical ventilation for supportive treatment, and two of them had died.

### **Conclusion**

A rapid, accurate severity assessment of COVID-19 pneumonia based on chest CT would be feasible and could provide help for making management decisions, especially for the critical cases.

## **Potential of Heparin and Nafamostat Combination Therapy for COVID-19.**

PMID: 32302456

Publication date: April 17, 2020

Asakura H, Ogawa H.

J Thromb Haemost

Level of Evidence: Level 5 - Mechanism-based reasoning

Type of Article: Letter

**BLUF:** This letter argues against the point that Tang et al. made that heparin lowers mortality rate in COVID-19 patients with elevated D-Dimer. Instead, they argue because “**COVID-19 presents the characteristics of DIC, with enhanced fibrinolysis, recombinant human soluble thrombomodulin and nafamostat mesylate is anticipated as a promising solution.**”

**Abstract:** “Tang et al. recently reported that (Journal of Thrombosis and Haemostasis), in COVID-19 infections caused by the novel coronavirus (SARS-CoV-2), heparin anticoagulant therapy lowers the mortality rate in patients who present with markedly elevated concentrations of D-dimer 1). In other words, abnormal coagulation may influence the prognosis of COVID-19. This is extremely interesting. The article did not describe to what extent heparin improves the abnormal coagulation and further studies by this group are anticipated. The authors reported in that article 1) and a previous article 2) that the abnormal coagulation seen in non-survivors of COVID-19 clearly differs from the abnormal coagulation typically seen in other severe infectious diseases.”

## Challenges of Convalescent Plasma Therapy on COVID-19.

[PMID: 32305026](#)

Publication Date: April 10, 2020

Zhao Q, He Y.

J Clin Virol.

Level of Evidence: Level 5 - Expert opinion

Type of Article: Letter to the Editor

**Summary:** The letter discusses the use of convalescent plasma (CP) as a treatment for COVID-19 therapy. The authors praise the effectiveness of CP in treating COVID-19 but also remind us of some of the downfalls such as aggravating hyperimmune attacks and transfusion risks. Additionally, the author also mentions the shortage of CP as well as the importance of timing in administering CP.

## The Procoagulant Pattern of Patients With COVID-19 Acute Respiratory Distress Syndrome

[PMID: 32302448](#)

Publication Date: April 17, 2020

Ranucci, Marco; Ballotta, Andrea; Di Dedda, Umberto; Bayshnikova, Ekaterina; Dei Poli, Marco; Resta, Marco; Falco, Mara; Albano, Gianni; Menicanti, Lorenzo

Journal of Thrombosis and Haemostasis

Level of Evidence:

Type of Article: Brief Report

**BLUF:** Researchers performed an observational study on 16 patients admitted to the ICU with COVID-19, and followed their progress for a week after administering increasing levels of low molecular weight heparin, antithrombin concentrate to correct levels, and clopidogrel. The major finding of this study was that the **pro-coagulant profile of COVID-19 ARDS patients began to normalize with increased thromboprophylaxis** (see table 1 for exact data), although further studies are needed to confirm the benefits of anticoagulation.

**Abstract:**

**Background**

Few observations exist with respect to the pro-coagulant profile of patients with COVID-19 acute respiratory distress syndrome (ARDS). Reports of thromboembolic complications are scarce but suggestive for a clinical relevance of the problem.

## Objectives

Prospective observational study aimed to characterize the coagulation profile of COVID-19 ARDS patients with standard and viscoelastic coagulation tests, and to evaluate their changes after establishment of an aggressive thromboprophylaxis.

## Methods

Sixteen patients with COVID-19 ARDS received a complete coagulation profile at the admission in the intensive care unit. Ten patients were followed in the subsequent 7 days, after increasing the dose of low molecular weight heparin, antithrombin levels correction, and clopidogrel in selected cases.

## Results

At baseline, the patients showed a pro-coagulant profile characterized by an increased clot strength (CS, median 55 hPa, 95% interquartile range 35-63), platelet contribution to CS (PCS, 43 hPa, interquartile range 24-45), fibrinogen contribution to CS (FCS, 12 hPa, interquartile range 6-13.5 elevated D-dimer levels (5.5 µg/mL, interquartile range 2.5-6.5), hyperfibrinogenemia (794 mg/dL, interquartile range 583-933). Fibrinogen levels were associated ( $R^2=0.506$ ,  $P=0.003$ ) with interleukin-6 values. After increasing the thromboprophylaxis, there was a significant ( $P=0.001$ ) time-related decrease of fibrinogen levels, D-dimers ( $P=0.017$ ), CS ( $P=0.013$ ), PCS ( $P=0.035$ ) and FCS ( $P=0.038$ ).

## Conclusion

**The pro-coagulant pattern of these patients may justify the clinical reports of thromboembolic complications (pulmonary embolism) during the course of the disease.**

Further studies are needed to assess the best prophylaxis and treatment of this condition.

Parameters	Values			
Age (years)	61 (55-65)			
Gender (male/female)	15 / 1			
Intubation time (days) at baseline	7 (3.5-10)			
Weight (kg)	85 (72-109)			
Body mass index	26.4 (23.9-35.1)			
Obese (body mass index > 30)	5			
Standard tests				
	Normal range	Baseline	Follow-up 7 days	P
aPTT (sec)	24 - 35	36.4 (29-41.6)	44.1 (42.1-47.4)	0.012
INR		1.08 (0.98-1.11)	1.13 (1.08-1.19)	0.500
Fibrinogen (mg/dL)	200 - 400	794 (583-933)	582 (446-621)	0.001
Platelet count (x1,000 cells/µL)	150 - 450	271 (192-302)	320 (308-393)	0.463
Antithrombin (%)	80 - 120	85 (65-91)	107 (81-130)	0.018
D-dimer (µg/mL)	< 0.5	3.5 (2.5-6.5)	2.5 (1.6-2.8)	0.017
Interleukin-6 (pg/mL)	0 - 10	218 (116-300)	-	-

Table 1: Demographics and coagulation parameters of the patient population at baseline and follow-up

## Paradigm Shift for COVID-19 Response: Identifying High-risk Individuals and Treating Inflammation

PMID: 32302283

Publication Date: April 13, 2020

Kivela, P.

Western Journal of Emergency Medicine

Level of Evidence: Level 5 - Expert opinion

Type of Article: Expert Commentary

**Summary:** The author speculates that adverse outcomes in COVID-19 patients are not from the virus itself, but from the inflammatory immune response to the virus. **The author reasons that patients can limit inflammation proactively by decreasing intake of sugary/fatty foods, exercising, and taking supplements to decrease IL-6 (a key inflammatory cytokine).** Additionally, it is suggested that providers use inflammatory markers as a screening tool, categorize patients based on their risks, use supportive therapy while also managing the immune response, and finally research the effectiveness of anti-inflammatory measures.

## Mental Health & Resilience

### COVID-19 Pandemic and Impending Global Mental Health Implications.

PMID: 32303027

Publication Date: Apr 17, 2020

Shuja KH, Aqeel M, Jaffar A, Ahmed A. Shuja KH, et al.

Psychiatria Danubina.

Level of Evidence: Level 5 - Opinion

Type of Article: Review

**BLUF:** There are multiple mental health and psychiatric disorders that are found in health workers and general public survivors of pandemics, and it can be speculated there will be for the COVID-19 pandemic as well. For example, anxiety, obsessive compulsive disorder, aggression, frustration, and post-traumatic stress disorders have manifested along with stigmatization, medical mistrust, and conspiracy theories are either already being witnessed during this pandemic or are speculated to be seen once studies begin. Therefore, there is a need to implement proper mental health precautions, in addition to physical health precautions.

#### **Abstract:**

The increase in organisms transference and infectious pandemics across the globe have been accelerated by an increase in travel, international exchange and global changes in earth's climate. COVID-19, a virus caused by the novel coronavirus that was initially identified on December 2019, in Wuhan city of China is currently affecting 146 territories, states and countries raising distress, panic and increasing anxiety in individuals exposed to the (actual or supposed) peril of the virus across the globe. Fundamentally, these concerns ascend with all infections, including those of flu and other agents, and the same worldwide safeguards are compulsory and suggested for protection and the prevention of further diffusion. However, media has underlined COVID-19 as rather an exclusive threat, which has added to panic and stress in masses which can lead to several mental health issues like anxiety, obsessive compulsive disorder and post-traumatic stress disorder which should be contained immediately in its initial phases.

### Mental Health Nurses locked out while Australia locks down.

PMID: 32302447

Publication Date: Apr 17, 2020

Lakeman R. Lakeman R.

Journal of Psychiatric and Mental Health Nursing

Level of Evidence: Article is not able to be accessed to be verified.

Type of Article: Letter to the Editor

**BLUF:** Article is not able to be accessed to be verified.

#### **Abstract:**

Australia is currently in lockdown, its State, and National borders closed, gatherings of more than two people in public are banned, and a raft of other unprecedented measures have been implemented in response to the COVID-19 pandemic. This comes on the back of apocalyptic fires, floods and cyclones. Those that have been involved in recovery efforts in any of these events will have been witness to the resilience of the Australian community. These adventitious crises tend to bring communities together. This pandemic poses quite a different existential, psychological and social threat to Australians.

## **Grief During the COVID-19 Pandemic: Considerations for Palliative Care Providers.**

Wallace, Cara L; Wladkowski, Stephanie P; Gibson, Alison; White, Patrick.

J Pain Symptom Manage

2020 Apr 13; PMID: 32298748

Level of Evidence: 5 - mechanism-based reasoning

Type of Article: Speciality Guidelines

**BLUF:** Authors make guideline considerations specific to grief management and palliative care for COVID-19, as well as share resources for practitioners. COVID-19 is unique in that social distancing and isolation change how grief is experienced by those at the end of life.

### **Abstract:**

The COVID-19 pandemic is anticipated to continue spreading widely across the globe throughout 2020. To mitigate the devastating impact of COVID-19, social distancing and visitor restrictions in healthcare facilities have been widely implemented. Such policies and practices, along with the direct impact of the spread of COVID-19, complicate issues of grief that are relevant to medical providers. We describe the relationship of the COVID-19 pandemic to anticipatory grief, disenfranchised grief, and complicated grief for individuals, families, and their providers. Further, we provide discussion regarding countering this grief through communication, advance care planning, and self-care practices. We provide resources for healthcare providers, in addition to calling on palliative care providers to consider their own role as a resource to other specialties during this public health emergency.

## **Addressing mental health care for bereavements during COVID-19 pandemic.**

Sun, Yankun; Bao, Yanping; Lu, Lin

Psychiatry Clin Neurosci

2020 Apr 17; PMID: 32303110

Level of Evidence: 5 - Mechanism-Based Reasoning

Type of Article: Letter

### **Summary:**

Authors in this letter detail the need to address the mental health of society in the setting of COVID-19, particularly towards bereavement. Not being able to comfort dying loved ones, or be in their presence, and additional worry about personal safety when someone in recent contact has passed are all cited as some of the biggest concerns unique to COVID-19.

## **Impact Of Sars-Cov-2 And Its Reverberation In Global Higher Education And Mental Health.**

Araújo FJO; de Lima, LSA; Cidade, PIM; Nobre, CB; Neto, MLR;

Psychiatry Res

2020 Apr 12; PMID: 32302818

Level of Evidence: 5 - Mechanism-Based Reasoning

Type of Article: Letter

**BLUF:** In this letter, authors predict that mental pain and suffering in students and faculty, manifesting as anxiety and depression, will intensify in the setting of COVID-19 and the large flow of information that surrounds it as higher education is disrupted by the pandemic.

### **Abstract:**

**Background:** According to UNESCO's monitoring, more than 160 countries implemented nationwide closures, which impacted over 87% of the world's student population. Several other countries implemented localized school closures; should these closures become nationwide, millions of additional learners will experience education disruption. Universities from around the world have been uncertain about how long the coronavirus crisis will last and how it might affect the mental health of students and faculty. The psychological impact has been a critical disruptor, creating anxiety and uncertainty. **Method:** The data were cross-checked with information from the main international newspapers. **Results:** By discussing online and distance education, the coronavirus opens an important and urgent issue that affects mental health - these are virtually unexplored topics, and their results have not been validated yet. Online education is not limited to distance education, as it regards a grouping of learning/teaching procedures completed in cyberspace. Blended learning was, thus, introduced as a tool in personalized learning to adjust to new realities. These are unprecedented circumstances, and we understand they create stress, favoring anguish and a fierce search for new knowledge acquisition. **Conclusions:** Current research highlights that anxiety and depression, exacerbated by uncertainties and intensification of the information flow, will grow extensively. Negative physiological consequences of stress will manifest. For instance, loneliness, which will increase under these circumstances, seems to have a negative impact on education and, therefore, on psychological pain and suffering.

## **People experiencing homelessness: Their potential exposure to COVID-19.**

Lima NNR, de Souza RI, Feitosa PWG, Moreira JLS, da Silva CGL, Neto MLR.

Psychiatry Res.

2020 Apr 11; PMID: 32302813

Level of Evidence: 5 - Expert Opinion

Type of Article: Letter

**Summary:** Without easy access to basic health care, shelter, hygiene, the half a million people in the United States who experience homelessness are at a markedly increased risk of COVID-19 infection. It is also important highlight the role mental health plays as another risk factor for this population who is often encumbered with isolation, depression, or other psychological conditions.

## **Crisis Psychodrama in the Era of COVID-19.**

Mindoljević Drakulić A, Radman V. Mindoljević Drakulić A, et al.

Psychiatr Danub.

2020 Apr 10; PMID: 32303025

Level of Evidence: Level 5 – Expert Opinion

Type of Article: Letter

**Abstract:** "This work gives an overview of the methods of scenic expression which can be used to help cope with the crisis caused by the global threat of the coronavirus pandemic... In the following lines some modified elements of psychodrama interventions are presented including the ways of preventing the retraumatization of the patient (protagonist). This can be achieved by conscious reliving of the trauma and by activating new, transformative roles to guide the protagonist on his way to recovery."

## **Psychological status of surgical staff during the COVID-19 outbreak.**

Xu J, Xu QH, Wang CM, Wang J. Xu J

Psychiatry Res.

2020 Apr 11; PMID: 32302815

Level of Evidence: Level 4 – Cohort Study

Type of Article: Letter to Editor

**Summary:** Surgical medical staff of a hospital in Shanghai was found to have significantly increased rates of depression and anxiety during an epidemic outbreak period compared to a non-epidemic outbreak period. The author attributes this to the frequent need to deliver urgent/emergent medical care at the risk of infection. The author emphasizes the importance of protecting the mental health of surgical personnel.

## **The Importance of Psychodynamic Approach during COVID-19 Pandemic.**

Marčinko D, Jakovljević M, Jakšić N, Bjedov S, Mindoljević Drakulić A. Marčinko D, et al.

Psychiatr Danub.

2020 April 8; PMID: 32303024

Level of Evidence: 6 - No Evidence

Article Type: Commentary

**BLUF:** The author predicts that the number of individuals requiring psychiatric help will increase as a consequence of the COVID-19 pandemic. In order to mitigate this increase, the author proposes that national public and mental health emergency systems implement the psychodynamic approach, a therapeutic model that focuses on defence mechanisms and unconscious processes.

**Abstract:** The coronavirus (COVID-19) outbreak was labeled a global pandemic by the WHO in March of 2020. Understanding how crisis influences an individual's reactions to stressful events (and vice versa) is important in order to create meaningful and effective interventions. Our literature search has revealed lack of the papers related to psychodynamic approach to recent crisis. Psychodynamic places a large emphasis on defense mechanisms and unconscious mind, where upsetting feelings, urges, and thoughts that are too painful for us to directly look at are housed. Even though these painful feelings and thoughts are outside of our awareness, they still influence our behavior in many ways. Optimal application of psychodynamic approach offers the frame for acceptance of psychological stress in a more positive way and benefits psychological growth. We believe that including psychodynamic approach in the national public and mental health emergency system will empower Croatia and the world during (and after) COVID-19 pandemic crisis.

## **COVID-19 Pandemic and Public and Global Mental Health from the Perspective of Global Health Security.**

Jakovljević M, Bjedov S, Jaksic N, Jakovljević I. Jakovljević M, et al.

Psychiatr Danub.

2020 April 10; PMID: 32303023

Level of Evidence: No evidence - 6

Article Type: Commentary

**BLUF:** “The crucial message of this paper is that we should reexamine and improve our basic understanding of how human society and global world operate from the multidisciplinary and trans-disciplinary scientific approach. Mental health sciences could help to make progress in building compassionate society and empathic civilization which would be more effective in preventing and overcoming epidemics and other global threats to humankind.”

**Abstract:** The Coronavirus disease 2019 (COVID-19) pandemic emerged in Wuhan, China and has spread all over the world and has caused huge threats to health and lives. It has affected different frontiers of lives

and induced many psychiatric individual and collective problems such as panic, anxiety, depression, post-traumatic stress disorders, suspiciousness, infodemia, cacophony, xenophobia, racisms, etc. The COVID-19 outbreak has induced public and global mental health crisis as well as a huge psycho-social experiment. Psychiatry and other mental health sciences can play very useful role in supporting the well-being of COVID-19 patients and their families, healthcare personnel and the society. For successful fighting with present and future pandemics, we have to learn more about psychiatric and psychological aspects of COVID-19 from the perspectives of public and global mental health.

## **Mental health effects of school closures during COVID-19.**

Lee J

Lancet Child Adolesc Health.

2020 Apr 14; PMID: 32302537

Level of Evidence: Level 5 - Expert Opinion

Type of Article: Commentary

**Summary with excerpts:** The current pandemic and subsequent school closures have created extra constraints on children and adolescents with mental illness, who have reported worsening of symptoms during this time. This applies to children with autism and special needs as well, who do not have their typical support systems and therapy in place, though some of these essential services may be sought online. “There is also a need to monitor young people’s mental health status over the long term, and to study how prolonged school closures, strict social distancing measures, and the pandemic itself affect the wellbeing of children and adolescents.”

## **The differential psychological distress of populations affected by the COVID-19 pandemic.**

Zhang J, Lu H, Zeng H, Zhang S, Du Q, Jiang T, Du B.Zhang J, et al.

Brain Behav Immun.

2020 Apr 15; PMID: 32304883

Level of Evidence: Level 4 - Cross-sectional Study

Type of Article: Commentary

**Summary:** This cross-sectional study identifies the characteristics of psychological distress across populations affected by the COVID-19 pandemic in Zhongshan, China. The survey revealed varying levels of psychological distress in patients who experienced COVID-19 infection, individuals under quarantine, and the general public. The vulnerability to psychological distress across populations in the COVID-19 pandemic was attributable to various factors, including gender, social support, specific experiences with COVID-19 infection, length of isolation, and amount of exposure to the media. These preliminary findings suggest timely identification of psychological distress and precise classifying of the mental health needs across populations can facilitate development of targeted psychological interventions.

## **COVID 19: Impact of lock-down on mental health and tips to overcome.**

Hiremath P, Suhas Kowshik CS, Manjunath M, Shettar M.Hiremath P, et al.

Asian J Psychiatr.

2020 Apr 10; PMID: 32302964

Level of Evidence: Level 6- No evidence

Type of Article: Commentary

**Summary:** The authors explain how the Government of India has taken several steps to preserve the mental health and morale of its citizens. First, they have promoted information sharing through a government website to reduce ambiguity and panic. The Ministry of Health and Family Welfare has provided health

advisories, videos, posters and conducted webinars on handling mental health issues of individuals and children. They have attempted to reduce financial strain through optional moratorium on EMIs of loans.

### **Dealing with Corona virus anxiety and OCD.**

Kumar A, Somani A.Kumar A, et al

Asian J Psychiatr.

2020 Apr 10; PMID: 32302962

Level of Evidence: Level 6 - No Evidence

Type of Article: Commentary

**Summary:** The authors discuss the impact COVID-19 may have on patients with OCD. Print, electronic and social media are flooded with numerous advisories issued by governments and other national & international agencies. While all this is being done with best of intentions so as to contain the spread of this viral disease, this is causing a significant negative impact on mental health of people specially people of obsessive-compulsive disorder with fear of contamination and excessive washing of hands. The authors suggest using alternative channels of care like telephonic helplines and online consultations for patients with OCD to ease their disease state.

### **COVID-19 and mental health: A review of the existing literature.**

Rajkumar RP

Asian J Psychiatr

2020 Apr 10; 32302935

Level of Evidence: Level 2 - Literature Review

Type of Article: Commentary

**Summarizing excerpt:** “Preliminary evidence suggests that symptoms of anxiety and depression (16-28%) and self-reported stress (8%) are common psychological reactions to the COVID-19 pandemic, and may be associated with disturbed sleep. The available literature has emerged from only a few of the affected countries, and may not reflect the experience of persons living in other parts of the world. In conclusion, subsyndromal mental health problems are a common response to the COVID-19 pandemic. There is a need for more representative research from other affected countries, particularly in vulnerable populations.”

### **COVID-19 in older adults: clinical, psychosocial, and public health considerations.**

Mills JP, Kaye KS, Mody L.Mills JP, et al.

JCI Insight

2020 Apr 17; PMID: 32302293

Level of Evidence: Level 5 - Expert Opinion

Type of Article: Review

**Summarizing excerpt:** “A clear lesson from the COVID-19 pandemic is that nursing homes are an important, high risk target for emerging pathogens due to the presence of vulnerable patients, frequent sharing of medical staff and patients with multiple other institutions, and frequent visitors [14]. Proactive **pandemic planning in nursing homes** includes active symptom screening for illness among healthcare workers and staff, including **temperature checks, strict visitor limitations, limiting group activities, and practicing universal masking and droplet precautions** once local community transmission of COVID-19 has been identified (Table 1) [21].”

**Abstract:** Complications of COVID-19 have been particularly severe among older adults, who are the focus of this article. Public policy goals should prioritize pandemic preparedness in nursing homes, as well as civic and local government-based support programs for community-dwelling older adults, to ensure that risk of infection is mitigated while promoting wellness during a period of stress and uncertainty.

**Table 1: COVID-19 response plan components for nursing homes**

COVID-19 response plan components	Comments
Rapid identification and management of ill residents	<ul style="list-style-type: none"> <li>- Temperature check and symptom screen at least once daily</li> <li>- Immediate testing of symptomatic residents</li> <li>- Rapid implementation of appropriate transmission-based precautions</li> <li>- Determine threshold for active surveillance (testing all residents), if available, to detect asymptomatic carriers</li> </ul>
Consideration for visitors and consultant staff	<ul style="list-style-type: none"> <li>- Strict limitation of visitors</li> <li>- Symptom screen (and consider temperature check) for all staff daily upon arrival</li> </ul>
Optimizing supplies and resources	<ul style="list-style-type: none"> <li>- Anticipate PPE, hand sanitizer, and environmental cleaning supply needs</li> <li>- Anticipate potential supply chain interruptions</li> <li>- Use PPE burn calculators</li> <li>- Partner with regional institutions and health department for resources</li> </ul>
Sick leave policies and other occupational health considerations	<ul style="list-style-type: none"> <li>- Anticipate staffing shortages</li> <li>- Consider hazard pay</li> <li>- Normalize sick leave/discourage presenteeism (working while ill)</li> </ul>
Education and training	<ul style="list-style-type: none"> <li>- Focus on hand hygiene, PPE donning and doffing, and recognition of COVID-19 signs and symptoms</li> <li>- Open and frequent communication with health department, local hospitals, families, patients and staff to foster trust and collaboration</li> </ul>
Surge capacity for staffing, equipment and supplies, and postmortem care	<p>Consider plan for managing COVID-19 cases including:</p> <ul style="list-style-type: none"> <li>- unit and staff cohorting</li> <li>- attention to and monitoring nutrition, function, psychosocial health utilizing technology</li> <li>- communication with health department</li> <li>- Advanced care planning and end-of-life care</li> <li>- post-mortem infection control plan</li> </ul>

## 15 Smartphone Apps for Older Adults to Use While in Isolation During the COVID-19 Pandemic.

Banskota S, Healy M, Goldberg EM. Banskota S, et al.

West J Emerg Med

2020 Apr 14; PMID: 32302279

Level of Evidence: 6 - No Data Cited

Type of Article: Review

**BLUF:** The use of the 15 apps summarized in the review may be valuable in decreasing loneliness, improving access to food and medical care, and maintaining independence in older adults over 65 years of age during the COVID-19 pandemic.

### **Abstract:**

The maintenance of well-being, healthcare, and social connection is crucial for older adults (OA) and has become a topic of debate as much of the world faces lockdown during the coronavirus disease 2019 (COVID-19) pandemic. OAs have been advised to isolate themselves because they are at higher risk for developing serious complications from severe acute respiratory syndrome coronavirus. Additionally, nursing homes and assisted-living facilities across the country have closed their doors to visitors to protect their residents. Mobile technology such as applications (apps) could provide a valuable tool to help families stay connected, and to help OAs maintain mobility and link them to resources that encourage physical and mental well-being. Apps could address cognitive, visual, and hearing impairments. Our objective was to

narratively summarize 15 apps that address physical and cognitive limitations and have the potential to improve OAs' quality of life, especially during social distancing or self-quarantine.

## **Calculate the COVID-19 equation with the people's energy as key variable.**

PMID: 32304464

Publication Date: April 16, 2020

Boggs SD

Anesthesia and Analgesia Journal

Level of Evidence: Level 5 - Expert opinion

Type of Article: Letter to the Editor

**Summary:** The author explains how taking necessary protective measures, such as social distancing from coworkers and interacting with patients through extensive PPE, takes a psychological toll on healthcare workers. In addition, there is a heightened sense of anxiety about bringing infections home. The author emphasizes the importance of being vigilant in noticing signs of burnout, and uses the buddy-system with daily check-ins as an example of how to help combat this issue.

## **When health professionals look death in the eye: the mental health of professionals who deal daily with the 2019 coronavirus outbreak.**

Neto MLR, Almeida HG, Esmeraldo JD, Nobre CB, Pinheiro WR, de Oliveira CRT, Sousa IDC, Lima OMML, Lima NNR, Moreira MM, Lima CKT, Júnior JG, da Silva CGL.

Psychiatry Res.

2020 Apr 13; PMID: 32302817

Level of Evidence: 5 - Expert opinion

Type of Article: Correspondence

**Summary:** The authors discuss the increased levels of stress on healthcare professionals and patients during the COVID-19 pandemic, and recommend:

- "...use of psychotropic drugs, prescribed by psychiatrists for severe psychiatric comorbidities
- Specialized psychiatric treatments and appropriate mental health services and facilities for patients with comorbid mental disorders
- Psychiatric treatment plans, psychiatric illness progress reports, and health status updates for professionals in the Intensive Care Unit
- Regular updates to address their sense of uncertainty and fear
- Psychological counseling using electronic devices and applications (such as smartphones and WeChat)
- Provision of emotional and behavioral responses to extraordinary stress, and psychotherapy techniques such as those based on the stress adaptation mode."

## **Psychological symptoms of ordinary Chinese citizens based on SCL-90 during the level I emergency response to COVID-19.**

Tian F, Li H, Tian S, Yang J, Shao J, Tian C.

Psychiatry Res.

2020 Apr 11; PMID: 32302816

Level of Evidence: 4 - Survey

Type of Article: Research

**BLUF:** The study used the Symptom Checklist 90 to analyze the psychological symptoms of Chinese citizens through a voluntary survey distributed on an online survey platform. Data was analyzed from 1060 responders and demonstrated an increase in obsessive compulsion, interpersonal sensitivity, phobic anxiety, and psychoticism and found minors and healthcare workers to be at a higher risk.

### **Abstract:**

The World Health Organization (WHO) has declared that the Corona Virus (COVID-19) has become a global pandemic. This study aimed to investigate the psychological symptoms of ordinary Chinese citizens during the Level I Emergency Response throughout China. From January 31 to February 2 2020, an online questionnaire, Symptom Checklist 90 (SCL-90) was designed, and differences in GSI T-scores among subgroups were examined by ANOVA. Based on a cut-off point of the GSI T-scores of 63, the overall sample was divided into high and low-risk groups. **Of the 1,060 participants investigated in China, more than 70% of them have moderate and higher levels of psychological symptoms, specifically elevated scores for obsessive compulsion, interpersonal sensitivity, phobic anxiety, and psychoticism.** There were no significant differences between males and females. **Those who were of over 50 years old, had an undergraduate education and below, were divorced or widowed, and agricultural workers had significantly more symptoms. However, significantly more minors and medical staff were in the high-risk group.** These results show that COVID-19 has a significant adverse socio-psychological influence on ordinary citizens. Therefore, governments should equip psychological health departments and pay attention to the people who are in high-risk groups, providing psychological interventions and assistance.

## **Resources**

### **COVID-19 in children: Current status.**

Jeng MJ.Jeng MJ.  
J Chin Med Assoc.

2020 Apr 15; PMID: 32304509

Level of Evidence: 5 - Expert Opinion

Type of Article: Special Invitation

**Bluf:** Article reviews the common presentation of COVID-19 in children, current positive children cases in various countries, and suggests preventative recommendations in children and infants

**Abstract:** Coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), emerged from China in December 2019. The outbreak further exploded in Europe and America in mid-March 2020 to become a global health emergency. **We reviewed recent published articles and on-line open messages on SARS-CoV-2-positive infants and children younger than 20 years of age. Symptoms are usually less severe in children than in adults.** Twelve critically or mortally ill children were found in the published or news reports before April 6, 2020. Vertical transmission from the mother to her fetus or neonate has not been proven definitively. However, six early-onset (<7 days) and 3 late-onset neonatal SARS-CoV-2 infections were found in the literature. We also summarized the presentations and contact information of 24 SARS-CoV-2-positive children announced by the Taiwan Centers for Disease Control. **Early identification and isolation, adequate management, prevention, and vaccine development are the keys to controlling the disease spread.** Clinical physicians should be alert to asymptomatic children with COVID-19. Multi-directional investigations are crucial in the global fight against COVID-19.

## Acknowledgements

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