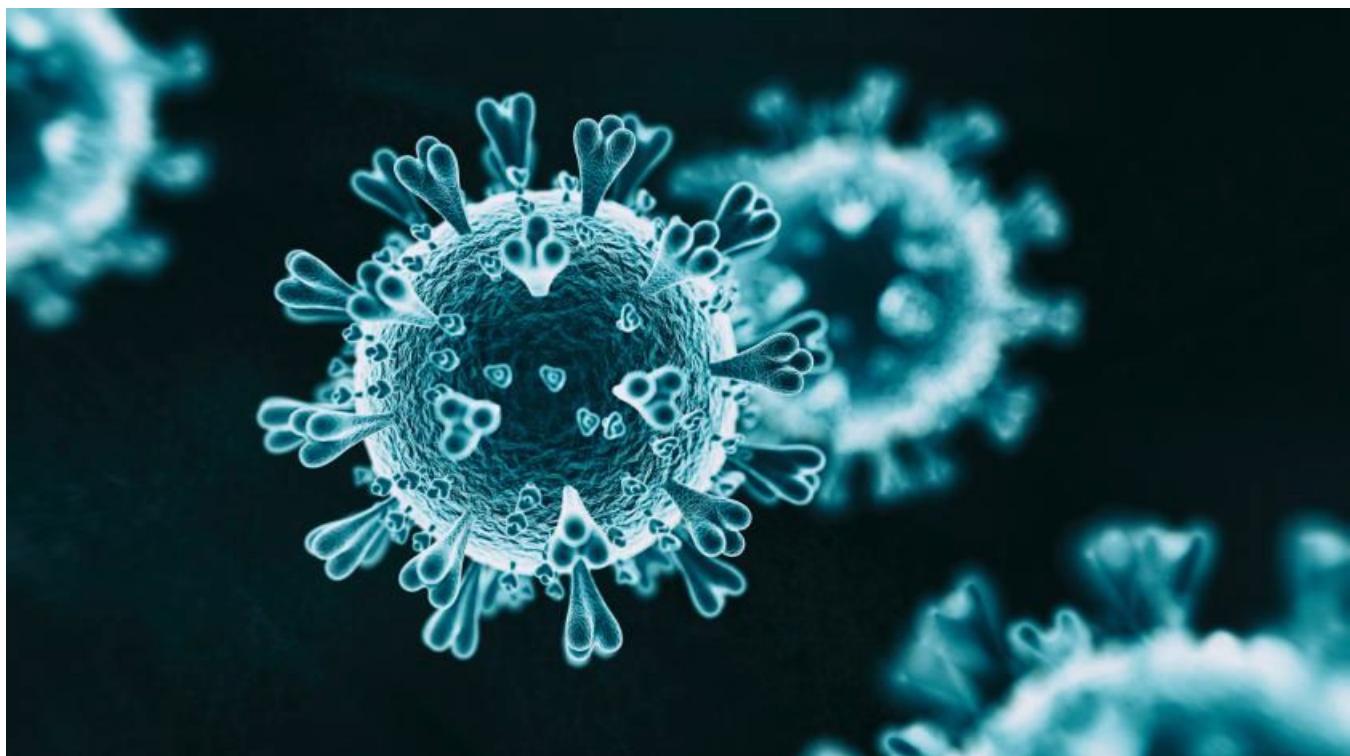


# April 11-12, 2020

## 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.

# Executive Summary

## Climate:

- It has become increasingly clear how interdependent we are within our society. The curve seems to be flattening, at least here in the United States, yet our most vulnerable and underserved populations still bear a disproportionate burden of disease.
- Concerns about a [second spike](#) begin to worry China as they consider lifting their restrictions- [it is clear now that containment has to be a global effort](#).
- Meanwhile we can learn a lot from Italy, China and S. Korea
  - Italy: in the creation of [hub centers](#) in less central regions where staff and beds can be made available for urgent surgerys, radiation, dialysis and emergencies unrelated to COVID-19, leaving major centers for inpatient care for patients with COVID-19.
  - China/S. Korea:
    - [Use technology](#)- to facilitate contact tracing once a patient tests positive for COVID-19 to counter the [“silent infections”](#). But not before a discussion about when privacy and individual American civil liberties can be restricted for the benefit of all.
    - Anticipate the increased need for [mental health support](#) for not only the general public and elders, but also medical professionals at this time.

## Epidemiology:

- COVID-19 continues to [disproportionally affect the underserved and the aging](#) population while children and pregnant women, surprisingly seem less affected
- Concerns for [“invisible” or asymptomatic spreading](#) appears to be appropriate

## Transmission & Prevention:

- Chinese studies support [aerosol concentrations of viral particles to be significantly increased up to 4m of infected patients](#) and that ICU air contain higher burdens of viral particulates
- Previously encouraging theories of allowing seropositive/seroconverted health care workers to return to work seems problematic given new evidence that [many patients seroconvert and become asymptomatic almost a week before they stop shedding infectious particles](#).

## Management:

- New guidelines for providing [enteral nutrition](#), [cardiopulmonary resuscitation](#), [thrombophylaxis](#), [AKI](#), transaminitis and [crisis symptom management](#) in patients with COVID-19
- Guidelines for treating chronic conditions in the era of COVID-19

## Therapeutics

- Mechanism based ideas for therapies continue to emerge. This week, [plasminogen](#), [type 1 interferons](#) and [remdesivir](#) were noted.

## Mental Health and Resilience

- Increasing evidence to suggest that our [workforce may be particularly vulnerable](#) to mental illness as a result of COVID-19.

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Face masks for the public during the covid-19 crisis.

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Clinicians are leading service reconfiguration to cope with covid-19.

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Modified SEIR and AI prediction of the epidemics trend of COVID-19 in China under public health interventions.

Clinical Characteristics of Patients Who Died of Coronavirus Disease 2019 in China.  
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COVID-19 with Different Severity: A Multi-center Study of Clinical Features.  
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SARS-CoV-2 and COVID-19 in older adults: what we may expect regarding pathogenesis, immune responses, and outcomes.  
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Analysis of Characteristics in Death Patients with COVID-19 Pneumonia without Underlying Diseases.  
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COVID-19: community CPAP and NIV should be stopped unless medically necessary to support life.  
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Abdominal and testicular pain: An atypical presentation of COVID-19.

Lung Involvement Found on Chest CT Scan in a Pre-Symptomatic Person with SARS-CoV-2 Infection: A Case Report.

Clinical and CT imaging features of 2019 novel coronavirus disease (COVID-19).

Clinical and Imaging features of COVID-19 Patients: Analysis of Data from High-Altitude Areas.

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Recommendations on cardiopulmonary resuscitation strategy and procedure for novel coronavirus pneumonia.

Classification system and case definition for SARS-CoV-2 infection in pregnant women, fetuses, and neonates.

Thromboprophylaxis and laboratory monitoring for in-hospital patients with Covid-19 - a Swiss consensus statement by the Working Party Hemostasis.

COVID-19 and Kidney Failure in the Acute Care Setting: Our Experience From Seattle.

Epigenetic dysregulation of ACE2 and interferon-regulated genes might suggest increased COVID-19 susceptibility and severity in lupus patients.

COVID-19 and Liver Dysfunction: Current Insights and Emergent Therapeutic Strategies.

Conservative management of Covid-19 patients - emergency palliative care in action.

Crisis Symptom Management and Patient Communication Protocols Are Important Tools for All Clinicians Responding to COVID-19.

Point-of-care lung ultrasound in patients with COVID-19 - a narrative review.

Predictors for imaging progression on chest CT from coronavirus disease 2019 (COVID-19) patients.

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COVID-19 in a Kidney Transplant Patient.

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Corticosteroid Guidance for Pregnancy during COVID-19 Pandemic.

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- If a coronavirus vaccine arrives, can the world make enough?
- Inhibitors of the renin-angiotensin system and SARS-CoV-2 infection.
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- Type 1 interferons as a potential treatment against COVID-19.
- Compassionate Use of Remdesivir for Patients with Severe Covid-19.

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- Suicide Mortality and Coronavirus Disease 2019-A Perfect Storm?
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# 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			
<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

### Our Thanks to ALL Healthcare Workers on the Frontlines Caring for Our Most Vulnerable.

[PMID: 32274794, Apr 11, 2020](#)

Malchesky, Paul

Artif Organs

Level of evidence: 5

Type of Article: Editorial

**Summarizing Excerpt:** “The Covid-19 pandemic has touched the lives of nearly every person in the world. No person living today has ever witnessed such a crisis. We strongly request that you follow the guidance in your area and be safe in all your activities. We are so thankful and proud of the medical persons and caregivers for diligently carrying out their duties. We hope and pray that you remain strong for those in need, in particular the elderly, those with medical problems, and those with compromised immune systems.”

### Six ways to juggle science and childcare from home.

[PMID: 32273622, Apr 11, 2020](#)

Lloyd, Robin

Nature

Level of Evidence: : 5 - Expert opinion

Type of Article: News

**Summary:** A variety of tools to negotiate the new landscape of completing scientific work at home, while balancing the need to care and educate children out of school.

### Thousands of coronavirus tests are going unused in US labs.

[PMID: 32273619, Apr 11, 2020](#)

Maxmen, Amy

Nature

Level of Evidence: : 5 - Expert opinion

Type of Article: News

**BLUF:** Testing needs to be improved in the US to enable a better response to the pandemic. Federal oversight that is flexible and utilizes input from scientists in the center of testing is needed.

**Summary:** Laboratories that can run COVID-19 tests are not operating at capacity. Logistics and bureaucracy have kept some of hospitals from utilizing university labs available to them. Supply shortages are also factoring into this lack of utilization of laboratories that spent thousands to equip their labs to transfer over to COVID-19 testing. Scientists have called for government intervention to organize the issues they are facing, so that they can use their full ability to decrease pandemic spread. It should also be noted that the Center for Disease Control did not utilize a World Health Organization COVID-19 test earlier on in the pandemic. These tests were the only ones allowed to be used in the country and were often in short supply and not reliable. This also contributed to the poor response in testing to the virus. Greater flexibility and cooperation is necessary to improve testing in the US.

## **Editorial. Neurosurgery in the storm of COVID-19: suggestions from the Lombardy region, Italy (ex malo bonum).**

[PMID: 32276261, Apr 11, 2020](#)

Cenzato, Marco; DiMeco, Francesco; Fontanella, Marco; Locatelli, Davide; Servadei, Franco  
J Neurosurg

Level of Evidence: Level 5

Type of Article: Editorial

**Summarizing excerpt:** In an effort to increase critical care capacity and to shift the anesthesiologists to the care of COVID-19 patients, all surgeries were canceled. To meet the demands of the true neurosurgical emergencies, Lombardy neurosurgeons began to cluster all urgent neurosurgeries to hub hospitals dedicated to managing non-COVID-19 emergencies. “In our albeit preliminary experience, opening the hospital doors to neurosurgeons coming from other institutions has offered an unprecedented opportunity of collaboration and integration of teams, which will ultimately serve as a model not only to cope with catastrophic events but also to establish a basis for a higher level of rationalization of neurosurgical patient care. Even though originating from ominous circumstances, it will definitely remain a learning experience for a better future: ex malo bonum!”

## **Caring for Patients With Cancer During the COVID-19 Outbreak in Italy.**

[PMID: 32275294, Apr 11, 2020](#)

Pietrantonio, Filippo; Garassino, Marina Chiara

JAMA Oncol

Level of Evidence: N/A

Type of Article: Editorial:

**Summarizing excerpt:**

“In this time of fear and anger, the most important thing is sharing. We have found ourselves united across borders. We have felt the love of so many people for us and for our country. How do we survive then? With love for our patients, for our professions, and thanks to the sharing that has been created between us. We do not know if we will ever go back to how we were before this ordeal. We want to thank everyone who has been with us every step of the way, but we will never forget the loneliness we were left in while fighting this war. In a different way but similar to someone who has died of COVID-19.”

## **Vademecum for the treatment of people with COVID-19. Edition 2.0, 13**

**March 2020.**

[PMID: 32275256, Apr 11, 2020](#)

Lombardy Section Italian Society Infectious And Tropical Diseases, -

Le Infekzioni in Medicina

Level of Evidence: N/A

Type of Article: Vademecum/Guideline

**Summarizing Excerpt:** “The spread of COVID-19 epidemic in Italy, and particularly in Lombardy determined the need to standardize the therapeutic approach in order to offer the same indications for all hospitals in Lombardy. However, no specific drug has been previously approved for the COVID-19 treatment. The Lombardy Section of the Italian Society of Infectious and Tropical Diseases provided this <>vademecum</> with the aim to explore the current evidence about the drugs likely to be efficacious in the treatment of COVID-19. Moreover, a multidisciplinary group including critical care specialists has been created in order to provide indications about supporting measures and the

use of steroids. A new grading scale has been proposed to help patients' stratification according to the severity of the respiratory conditions. Lastly, a collaborating group with immunologists and rheumatologists has been built with the aim of providing some guidance about the use of tocilizumab, a promising option for the treatment of the hyperinflammatory state occurring in most patients affected by COVID-19.”

## Bolstering the Surgical Response to COVID-19: How Virtual Technology will Save Lives and Safeguard Surgical Practice.

[PMID: 32275795](#), Apr 11, 2020

Karim, Jamila S; Hachach-Haram, Nadine; Dasgupta, Prokar

BJU Int

Level of Evidence: N/A

Type of Article: Letter

**Summary:** The author endorses use of telemedicine.

## Methanol Poisoning Emerging as the Result of COVID-19 Outbreak; Radiologic Perspective.

[PMID: 32273134](#), Apr 11, 2020

Iranpour, Pooya; Firooz, Homa; Haseli, Sara

Acad Radiol

Level of Evidence: Level 5- Expert Opinion

Type of Article: Letter

**Summary:** The false rumor that ethanol can cure COVID-19 has begun to circulate. In conjunction with the draconian laws surrounding alcohol use in Iran, many have begun purchasing illicit liquor that contain alcohol. This can present with decreased level of consciousness, headache, vertigo and visual disturbances. On CT, you may see bilateral necrosis of basal ganglia on and enhanced signal intensity in the basal ganglia on a T2 weighted MRI. Treatment of methanol poisoning includes ethanol or fomepizole with a potential but unclear role for hemodialysis.

## If the world fails to protect the economy, COVID-19 will damage health not just now but also in the future.

[PMID: 32273610](#), Apr 11, 2020

McKee, Martin; Stuckler, David

Nat Med

Level of Evidence: Level 5- Expert opinion

Type of Article: Comment

**Summarizing excerpt:** “The world is at a crossroads. The COVID-19 pandemic could encourage people to realize that they all depend on each other on this small planet and, whether it is global heating, inequality, or environmental degradation, will either swim or sink together. On the other hand, populist politicians and the vested interests that support them, especially in the mass media, could use this crisis to sow divisions, creating cleavages between the young and old, rich and poor, sick and healthy, ethnic minorities and population majorities, immigrants and domestic groups, weakening the collective bonds and support for essential public good”

## **When COVID-19 meets centralized, personalized power.**

[PMID: 32273583](#), Apr 11, 2020

Ang, Yuen Yuen

Nat Hum Behav

Level of Evidence:

Type of Article: Comment

**Summary:** The author critically evaluates the role of politics and notes points for improvement in Xi and Trump's leadership throughout the crisis.

## **Will COVID-19 become the next neglected tropical disease?**

[PMID: 32275667](#), Apr 11, 2020

Hotez, Peter J; Bottazzi, Maria E; Singh, Sunit K; Brindley, Paul J; Kamhawi, Shaden

PLoS Negl Trop Dis

Level of Evidence: Level 5- Expert opinion

Type of Article: Editorial

**Summary:** COVID-19 has shown that it can devastate even robust health care systems, however, SARS-CoV-2 has demonstrated that it may be influenced seasonally. Given that this outbreak is beginning to affect the southern hemisphere where health systems are not as robust and where summer is turning into fall; the author expresses concern for increased global morbidity and mortality and potentially a second spike in the northern hemisphere.

## **COVID-19 the showdown for mass casualty preparedness and management: the Cassandra Syndrome.**

[PMID: 32272957](#), Apr 11, 2020

Coccolini, Federico; Sartelli, Massimo; Kluger, Yoram; Pikoulis, Emmanouil; Karamagioli, Evika; Moore, Ernest E; Biffl, Walter L; Peitzman, Andrew; Hecker, Andreas; Chirica, Mircea; Damaskos, Dimitrios; Ordonez, Carlos; Vega, Felipe; Fraga, Gustavo P; Chiarugi, Massimo; Di Saverio, Salomone; Kirkpatrick, Andrew W; Abu-Zidan, Fikri; Mefire, Alain Chicom; Leppaniemi, Ari; Khokha, Vladimir; Sakakushev, Boris; Catena, Rodolfo; Coimbra, Raul; Ansaloni, Luca; Corbella, Davide; Catena, Fausto

World J Emerg Surg

Level of Evidence: Level 5- Expert Opinion

Type of Article:

**Summary:** The authors ask the global governing bodies to promote and improve MCI preparedness in general with a focus on pandemic disease.

## **Introduction. On pandemics: the impact of COVID-19 on the practice of neurosurgery.**

[PMID: 32276259](#), Apr 11, 2020

Kondziolka, Doug; Couldwell, William T; Rutka, James T

J Neurosurg

Level of evidence: N/A

Type of article: Editorial

**Summary:** Neurosurgeons also hope for better infectious disease containment in the future.

## **Cannabidiol as prophylaxis for SARS-CoV-2 and COVID-19? Unfounded claims versus potential risks of medications during the pandemic.**

[PMID: 32273254](#), Apr 11, 2020

Brown, Joshua D

Res Social Adm Pharm

Level of Evidence:- Level 5- Expert opinion, mechanism based reasoning

Article type: Letter to the Editor

**Summary:** Studies of cannabidiol for seizure disorders have demonstrated that infections were 30% more common in patients who used cannabidiol over placebo. The author cautions against patients using cannabinoids for COVID-19.

## **Joint International Collaboration to Combat Mental Health Challenges During the Coronavirus Disease 2019 Pandemic.**

[PMID: 32275289](#), Apr 11, 2020

Xiang, Yu-Tao; Jin, Yu; Cheung, Teris

JAMA Psychiatry

Level of Evidence: Level 5- Expert opinion

Type of Article: Recommendation

**Summarizing excerpt:** “First, China should take a proactive lead to share its protocol of emergency mental health services with other countries affected by the COVID-19 pandemic. Second, international academic organizations, such as the World Psychiatric Association and the Pacific Rim College of Psychiatrists, should develop guidelines on crisis psychological interventions, organize expert teams to coordinate mental health resources, and provide timely advice to different countries affected by the COVID-19 pandemic. Large-scale epidemiological surveys should be conducted to examine the prevalence of mental health problems associated with the COVID-19 pandemic in different subpopulations (eg, elderly individuals, survivors of COVID-19 infections, and frontline health care professionals) to inform the development of appropriate mental health services. Third, leading academic organizations equipped with mental health expertise on crisis mental health interventions (eg, the American Psychiatric Association in the US) should readily share their experiences and guidelines with low- and middle-income countries that are also affected by the COVID-19 pandemic. With a timely and close collaboration with different nations and institutions, the mental health challenges caused by the COVID-19 pandemic can be adequately addressed.”

## **The Effect of Quarantine and Isolation for COVID-19 in General Population and Dermatologic Treatments.**

[PMID: 32276298](#), Apr 11, 2020

Sharma, Aseem; Folster-Holst, Regina; Kassir, Martin; Szepietowski, Jacek; Jafferany, Mohammad; Lotti, Torello; Goldust, Mohamad

Dermatoologic Therapy

Level of Evidence: 5 – Expert opinion

Type of Article: Letter

**Summary:** The authors describe the current trend of universal quarantine restrictions as overzealous and an impingement on human rights. They state that dermatologists, plastic surgeons, and other professionals who work in aesthetics were doing well before the pandemic and they are concerned that the current state will lead to an impingement on the economy.

## Covid-19: Doctors and nurses donate samples to study disease.

[PMID: 32273284](#), Apr 11, 2020

Wise, Jacqui

BMJ

Level of evidence: N/A

Article Type: News

**Summary:** More than 400 healthcare workers in London have signed up for a study that will build a library of blood and swab samples in order to study transmission of and immunity to covid-19, and hopes to provide data that could lead to more efficient testing or vaccine development.

## Covid-19: Antibody tests will not be rolled out in UK until at least May, MPs hear.

[PMID: 32273283](#), Apr 11, 2020

Iacobucci, Gareth

BMJ

Level of evidence: N/A

Article Type: News

**Summary:** The NHS does not plan to have antibody tests for covid-19 until May 2020 because current tests are not reliable enough, and the NHS is expecting development of more accurate tests.

## Face masks for the public during the covid-19 crisis.

[PMID: 32273267](#), Apr 11, 2020

Greenhalgh, Trisha; Schmid, Manuel B; Czypionka, Thomas; Bassler, Dirk; Gruer, Laurence

BMJ

Level of evidence: N/A

Article Type: Editorial

**Summary:** The authors discuss possible risks and benefits of encouraging public mask wear, and suggest that in the absence of stronger data, the potential to reduce transmission is greater than the risk of harm, so they advocate for advising everyone to wear masks in public

## Covid-19: Japan declares state of emergency as Tokyo cases soar.

[PMID: 32273382](#), Apr 11, 2020

Looi, Mun-Keat

BMJ

Level of evidence: N/A

Article Type: News

**Summary Statement:** “Japan has declared a month long state of emergency in seven major prefectures after a spike in the number of covid-19 cases. The largest rises are in the Tokyo metropolitan area, which saw the number of cases double in five days to over 1000 (now standing at nearly 1400)”

## Clinicians are leading service reconfiguration to cope with covid-19.

[PMID: 32273263](#), Apr 11, 2020

Thornton, Jacqui

BMJ

Level of evidence: N/A

Article Type: News

**Summary:** With minimal central guidance, clinicians in NHS hospitals are spearheading integration of medicine and surgical services to meet the challenges posed by covid-19. Innovations include a respiratory advice line staffed round-the-clock by senior physicians specializing in pulmonary care advising other doctors and paramedics. Hospitals have also created video clinics, adapted for support staff to work from home, and are repurposing wards and clinics to increase intensive care capacity.

## Covid-19: Quarantine works when introduced early alongside other measures, finds review.

[PMID: 32273285](#), Apr 11, 2020

Mahase, Elisabeth

BMJ

Level of evidence: N/A

Article Type: News

**Summary:** A Cochrane rapid review sponsored by the WHO reviewed 10 modeling studies on covid-19, 4 observational studies, and 15 modeling studies on SARS and MERS. The review concluded that if implemented early and with public health measures, quarantine would effectively reduce covid-19 transmission of mortality. However, because of the different types of studies done meta-analysis was impossible and the quality of evidence was “rated as low to very low.” The reviewers also suggest that 58-76% of transmissions must be prevented to stop covid-19.

## Covid-19: Staff at Nightingale Hospital in London get wellbeing area courtesy of John Lewis.

[PMID: 32273262](#), Apr 11, 2020

Rimmer, Abi

BMJ

Level of evidence: N/A

Article Type: News

**Summary:** The British company John Lewis Partnership has sponsored creation of a wellbeing area “where staff can take time out away from an extremely challenging workplace.” The company is also planning delivery of care packages including toiletries, tea, food, socks, and leaflets with information on mental health services.

## Covid-19: should the public wear face masks?

[PMID: 32273278](#), Apr 11, 2020

Javid, Babak; Weekes, Michael P; Matheson, Nicholas J

BMJ

Level of evidence: N/A

Article Type: Editorial

**Summary:** This editorial cites the editorial by Greenhalgh et al. above, and encourage public cloth mask wear as better than nothing at all on the grounds that “population benefits are plausible and harms unlikely.”

## The serostatus approach to fighting COVID-19.

[PMID: 32276044](#), Apr 11, 2020

Kenyon, Chris

Int J Infect Dis

Level of evidence: N/A

Article Type: Editorial

**Summary:** This author argues that society should organize and conduct widespread serologic testing and allow individuals with prior exposure (and presumed “short to medium term” immunity) to return to their previous work and routines. He argues that such an approach would reduce covid-19 transmission and positive affect the economy and the general population’s mental health.

## COVID-19: Hygiene and Public Health to the front.

[PMID: 32275261](#), Apr 11, 2020

Signorelli, Carlo; Fara, Gaetano Maria

Acta Biomed

Level of Evidence: N/a

Type of Article: Editorial

**Summary:** Hygiene is now in the spotlight due to the COVID-19 pandemic, and the outcome of this global crisis will influence the future of the study and discipline of hygiene.

## Slowdown of urology residents' learning curve during COVID-19 emergency.

[PMID: 32274879](#), Apr 11, 2020

Porpiglia, Francesco; Checcucci, Enrico; Amparore, Daniele; Verri, Paolo; Campi, Riccardo; Claps, Francesco; Esperto, Francesco; Fiori, Cristian; Carrieri, Giuseppe; Ficarra, Vincenzo; Scarpa, Roberto Mario; Dasgupta, Prokar

BJU Int

Level of Evidence: N/a

Type of Article: Comment

**Summary:** As COVID-19 has significantly hindered urology resident training in Italy, the authors suggest the use of web-based teaching platforms such as podcasts, videos, simulation training, and social media as a strategy to curb this deficit.

# Epidemiology

## Why daily death tolls have become unusually important in understanding the coronavirus pandemic.

[PMID: 32273624](#), Apr 11, 2020

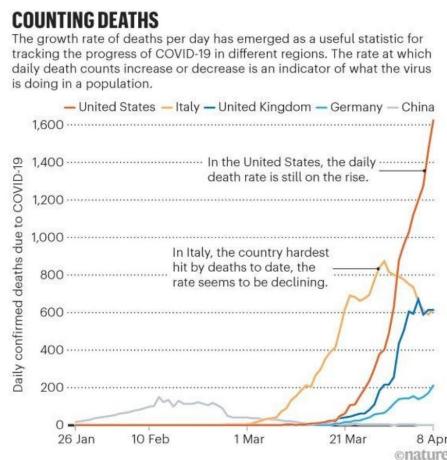
Subbaraman, Nidhi

Nature

Level of Evidence: : 5 - Expert opinion

Type of Article: News

**Summary:** Daily death tolls have been used to track COVID-19 and containment procedure effectiveness due to difficulties related to wide-spread testing and the rate of asymptomatic infected individuals. However, uncounted deaths and the definition of a COVID-19 death vary and can affect the data. Tools are needed to more accurately count a death toll in communities with different resources.



## Characteristics of health worker fatality in China during the outbreak of COVID-19 infection.

[PMID: 32277966](#), Apr 12, 2020

Li, Wei; Zhang, Jie; Xiao, Shifu; Sun, Lin

Journal of Infection

Level of Evidence: 4 – Case series

Type of Article: Research

**Summary:** Analysis of epidemiological factors of 24 deceased healthcare workers in China who responded to the COVID-19 pandemic. The cause of death was COVID-19 infection in 54.2%, sudden death (cardiac or otherwise) in 33.3%, and traffic accident in 12.5%. Average age was 50.5 years old and the majority were male. Sex did not factor into disease category, however men had a significant increase in case fatality.

# First-wave COVID-19 transmissibility and severity in China outside Hubei after control measures, and second-wave scenario planning: a modelling impact assessment.

[PMID: 32277878](#), Apr 12, 2020

Leung, Kathy; Wu, Joseph T; Liu, Di; Leung, Gabriel M  
Lancet

Level of Evidence: N/A, epidemiological modeling

Type of Article: Research

**Summarizing excerpt:** “In regions outside Hubei, the instantaneous reproduction number ( $R_t$ ) of COVID-19 substantially decreased after aggressive control measures were implemented on Jan 23, 2020, and have since remained below 1. Control measures should be relaxed gradually so that the resulting  $R_t$  would not sustainably exceed 1. Otherwise, the cumulative case count would increase exponentially with the relaxation duration... Although the first wave of COVID-19 in Chinese provinces outside Hubei has abated because of the aggressive non-pharmaceutical interventions, close monitoring of  $R_t$  and cCFR is needed to inform strategies against a potential second wave, given the increasing risk of viral reintroduction from overseas importation.”

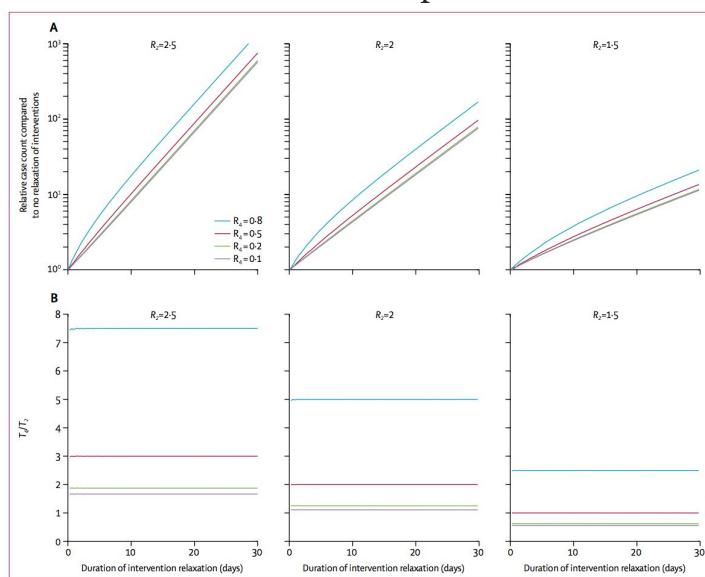


Figure 5: The effect of relaxation of interventions for different scenarios of reproduction numbers.  $R_s$  and  $R_t$  refer to the reproduction number when stage 2 and 4 began, respectively. (A) Relative case count compared with no relaxation of interventions. (B) The duration of aggressive interventions required to push prevalence back to pre-relaxation level ( $T_f$ ) relative to the duration of interventions relaxation ( $T_r$ ).

# Modified SEIR and AI prediction of the epidemics trend of COVID-19 in China under public health interventions.

[PMID: 32274081](#), Apr 11, 2020

Yang, Zifeng; Zeng, Zhiqi; Wang, Ke; Wong, Sook-San; Liang, Wenhua; Zanin, Mark; Liu, Peng; Cao, Xudong; Gao, Zhongqiang; Mai, Zhitong; Liang, Jingyi; Liu, Xiaoqing; Li, Shiyue; Li, Yimin; Ye, Feng; Guan, Weijie; Yang, Yifan; Li, Fei; Luo, Shengmei; Xie, Yuqi; Liu, Bin; Wang, Zhoulang; Zhang, Shaobo; Wang, Yaonan; Zhong, Nanshan; He, JianxingJ Thorac Dis

Level of Evidence: N/A, epidemiologic forecasting

Type of article: Research

**Summary:** SEIR model matches the current available epidemiological data in China and predicts a second spike of COVID-19 if strict containment, monitoring and detection policies are lifted before April.

## Clinical Characteristics of Patients Who Died of Coronavirus Disease 2019 in China.

[PMID: 32275319](#), Apr 11, 2020

Xie, Jianfeng; Tong, Zhaohui; Guan, Xiangdong; Du, Bin; Qiu, Haibo

JAMA Network Open

Level of Evidence: Level 4 – Case series

Type of Article: Research

**Summarizing Excerpt:** “The results of this case series show that only approximately one-fifth of patients who died of COVID-19 received invasive mechanical ventilation and further aggressive respiratory support prior to death, indicating that many patients had delayed intubation. [...] [H]ypertension was the most common chronic comorbidity among patients who died.”

## Clinical and demographic characteristics of patients dying from COVID-19 in Italy versus China.

[PMID: 32275075](#), Apr 11, 2020

Lippi, Giuseppe; Mattiuzzi, Camilla; Sanchis-Gomar, Fabian; Henry, Brandon M

Journal of Medical Virology

Level of Evidence: 4 – Case series

Type of Article: Research

**BLUF:** COVID-19 fatality rates differ around the world. All known factors contributing to greater risk of morbidity from COVID-19 had an increased impact in Italy compared to China in death rate.

**Summarizing Excerpt:** “Coronavirus disease 2019 (COVID-19), an infectious outbreak caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2),(1) has now progressed to global pandemic.(2) Besides the compelling need to understand the novel biological pathways underlying the virulence and pathogenicity of SARS-CoV-2 in humans to enable the development of appropriate interventions and therapies,(3,4) the noticeable difference in mortality rates between Asian and European populations is one of the most significant issues demanding the attention of biologists, epidemiologists and clinicians around the world.”

## COVID-19 with Different Severity: A Multi-center Study of Clinical Features.

[PMID: 32275452](#), Apr 11, 2020

Feng, Yun; Ling, Yun; Bai, Tao; Xie, Yusang; Huang, Jie; Li, Jian; Xiong, Weining; Yang, Dexiang; Chen, Rong; Lu, Fangying; Lu, Yunfei; Liu, Xuhui; Chen, Yuqing; Li, Xin; Li, Yong; Summah, Hanssa Dwarka; Lin, Huihuang; Yan, Jiayang; Zhou, Min; Lu, Hongzhou; Qu, Jieming

Am J Respir Crit Care Med

Level of Evidence: Level 3 - Cohort study

Type of Article: Research

**Summarizing excerpt:** “In our study, we found that adults with COVID-19 aged  $\geq 75$  years have poor outcomes and the in-hospital mortality rate of critical patients was 41.1%. Multiple pulmonary lobes involvement and pleural effusion were associated with a higher disease severity, while anti-hypertensive medication usage was not. These clinical features help clinicians to identify high-risk patients.”

## **Abstract:**

**RATIONALE:** COVID-19 pandemic is now a global health concern.

**OBJECTIVES:** We compared the clinical characteristics, laboratory examinations, CT images and treatment of COVID-19 patients from three different cities in China.

**METHODS:** 476 patients were recruited from Jan 1 to Feb 15, 2020 at three hospitals in Wuhan, Shanghai and Anhui. Patients were divided into four groups according to age and into three groups (moderate, severe, and critical group) according to the fifth version of the guidelines issued by the National Health Commission of China on Diagnosis and Treatment of COVID-19.

**MEASUREMENTS AND MAIN RESULTS:** Compared with moderate group (37.8%), the incidence of comorbidities was higher in severe (46.3%) and critical groups (67.1%). Compared with severe and critical groups, there were more patients taking ACEI/ARB in moderate group. More patients had multiple lung lobe involvement and pleural effusion in the critical group as compared to moderate group. Compared with the moderate group, more patients received antiviral agents within first 4 days than in severe group, and more patients received antibiotics and corticosteroids in critical and severe groups. Patients over 75 years old had significantly lower survival rate than the younger patients.

**CONCLUSION:** Multiple organ dysfunction and impaired immune function were the typical characteristics of severe and critical patients. There was a significant difference in angiotensin-converting enzyme inhibitors/angiotensin II receptor blockers usage among patients with different severities. Involvement of multiple lung lobes and pleural effusion were associated with the severity of COVID-19. Advanced age (>/=75 years) was a risk factor for mortality.

## **The Relationship between the Migrant Population's Migration Network and the Risk of COVID-19 Transmission in China—Empirical Analysis and Prediction in Prefecture-Level Cities**

**DOI:** <https://doi.org/10.3390/ijerph17082630> (registering DOI), Apr 11, 2020

Chenjing Fan; Tianmin Cai; Zhenyu Gai; Yuerong Wu

International Journal of Environmental Research and Public Health

Level of Evidence: Level 5 – Mechanism based reasoning

Type of Article: Research

**BLUF:** Based on a residence-birthplace matrix constructed of China's migrant populations to calculate COVID-19 outbreak scenarios in 22 immigrant cities in China, cities in Henan province, Anhui province, and Municipalities in China will have a high risk level of disease carriers due to a high influx or outflow of migrant populations.

## **Abstract:**

The outbreak of COVID-19 in **China** has attracted wide attention from all over the world. The impact of COVID-19 has been significant, raising concerns regarding public health risks in China and worldwide. Migration may be the primary reason for the long-distance transmission of the disease. In this study, the following analyses were performed. (1) Using the data from the China migrant population survey in 2017 (Sample size = 432,907), a matrix of the residence–birthplace (R-B matrix) of migrant populations is constructed. The matrix was used to **analyze the confirmed cases of COVID-19 at Prefecture-level Cities from February 1–15, 2020 after the outbreak in Wuhan, by calculating the probability of influx or outflow migration**. We obtain a satisfactory **regression analysis result ( $R^2 = 0.826$ – $0.887$ ,  $N = 330$ )**. (2) We use this R-B matrix to simulate an outbreak scenario in 22 immigrant cities in China, and propose risk prevention measures after the outbreak. If similar scenarios occur in the cities of Wenzhou, Guangzhou, Dongguan, or Shenzhen, the disease transmission will be wider. (3) We also use a matrix to determine that **cities in Henan province, Anhui province, and Municipalities (such as Beijing,**

**Shanghai, Guangzhou, Shenzhen, Chongqing) in China will have a high risk level of disease carriers after a similar emerging epidemic outbreak scenario due to a high influx or outflow of migrant populations.**

## The Role of Phylogenetic Analysis in Clarifying the Infection Source of a COVID-19 Patient.

[PMID: 32277969](#), Apr 12, 2020

Wang, Jann-Tay; Lin, You-Yu; Chang, Sui-Yuan; Yeh, Shiou-Hwei; Hu, Bor-Hsian; Chen, Pei-Jer; Chang, Shan-Chwen

Journal of Infection

Level of Evidence: 4 – Case report

Type of Article: Research

**Summary:** Case report of a patient in Taiwan with an initially unknown source of infection.

Infection source was identified by phylogenetic analysis. The patient had traveled to Dubai and Egypt the month before. Based on analysis, the patient was infected out of Taiwan, possibly in Egypt.

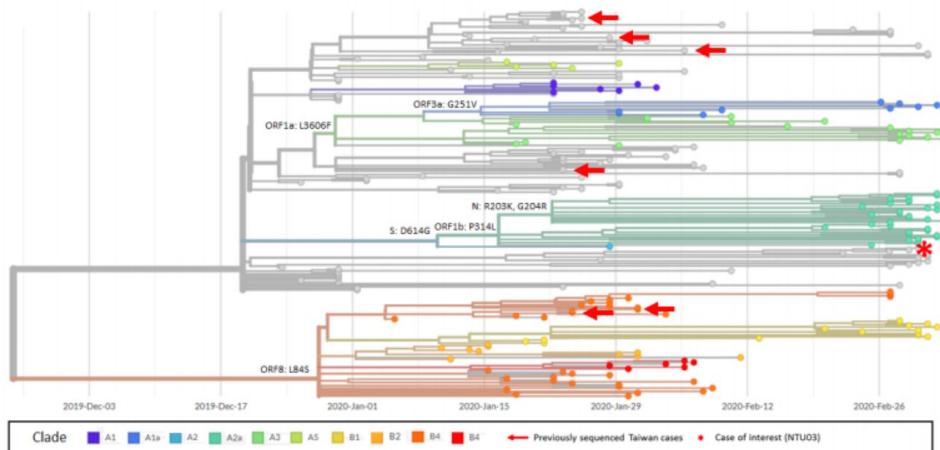


Figure. Phylogenetic analysis of the full-length SARS-CoV-2 sequences. The phylogeny tree analysis was conducted to determine the clade of NTU03 (red asterisk) and its relationship to other viral sequences derived from case patients identified in Taiwan (red arrows). The phylogenetic tree was generated and modified for display purposes from Nextstrain (<https://nextstrain.org/ncov>) [9], which uses genetic sequences and metadata from GISAID (<https://www.gisaid.org/CoV2020/>) and sequence submission date for the horizontal axis [10]. The phylogenetic tree was generated at 2020/03/09 6PM (GMT+8) with a total of 240 viral genomes sampled.

## Strategies to trace back the origin of COVID-19.

[PMID: 32277970](#), Apr 12, 2020

Zhang, Xu; Chen, Xiaoyuan; Zhang, Zhipeng; Roy, Ayan; Shen, Yongyi

Journal of Infection

Level of Evidence: 5 – Expert opinion

Type of Article: Letter

**Summary:** Initial studies suggested that COVID-19 originated in the Huanan seafood market in Wuhan, China and that transfer was from animal to human initially. This has been disputed by another study claiming the first patient was not connected with the market. Tracing of the viral origin may be possible by thorough inventory of the Huanan market using vendor records, sampling from wild animals in the region, and serum antibody analysis in patients from before December 2019 in Hubei to determine who was likely the first infected.

## COVID-19: A Relationship to Climate and Environmental Conditions?

[PMID: 32276290](#), Apr 11, 2020

Kroumpouzos, George; Gupta, Mrinal; Jafferany, Mohammad; Lotti, Torello; Sadoughifar, Roxanna; Sitkowska, Zuzanna; Goldust, Mohamad

Dermatologic Therapy

Level of Evidence: 5 – Expert opinion

Type of Article: Letter

**Summary:** Studies have shown that SARS-CoV can have reduced viral viability at high temperatures and relative humidity. Current weather patterns of COVID-19 have a similar distribution to cooler climates as SARS-CoV. Other factors play a role in transmission and can alter climates (such as air conditioning and poor hygiene), but the environmental factors of transmission should be still considered and tracked.

## Weathering the pandemic: How the Caribbean Basin can use viral and environmental patterns to predict, prepare and respond to COVID-19.

[PMID: 32275090, Apr 11, 2020](#)

de Angel Sola, David E; Wang, Leyao; Vazquez, Marietta; Mendez Lazaro, Pablo A

Journal of Medical Virology

Level of Evidence: 5 – Expert opinion, mechanism-based reasoning

Type of Article: Research

**BLUF:** Tropical environments may be protective against pandemic spread based on current outbreak areas. However, Caribbean nations do not have the resources to address a major pandemic if it arises. Other viral illnesses have high viral transmissions in regions like the Caribbean, so continued evaluations of the risk of a COVID-19 pandemic in these areas need to be carried out.

**Abstract:** The 2020 coronavirus pandemic is developing at different paces throughout the world. Some areas, like the **Caribbean Basin**, have yet to see the virus strike at full force. When it does, there is reasonable evidence to suggest the consequent COVID-19 outbreaks will **overwhelm healthcare systems and economies**. This is particularly concerning in the Caribbean as **pandemics can have disproportionately higher mortality impacts on lower and middle income countries**. Preliminary observations from our team and others suggest that **temperature and climatological factors could influence the spread of this novel coronavirus**, making spatiotemporal predictions of its infectiousness possible. This review studies geographic and time-based distribution of known respiratory viruses in the Caribbean Basin in an attempt to foresee how the pandemic will develop in this region. This review is meant to aid in planning short- and long-term interventions to manage outbreaks at the international, national and sub-national levels in the region.

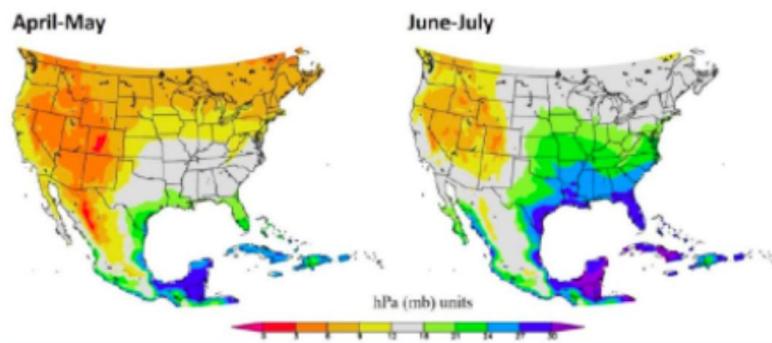


Figure 1. Based on temperature, relative humidity, and the impact of each on the transmission of known viruses, a forecast can be produced regarding areas where SARS-CoV-2 infectivity will be relatively high or low. Environmental conditions favoring higher infectivity are represented towards the red side of the spectrum and those favoring lower infectivity toward the purple end on the right side. Note that the Northern Caribbean favors the latter while most of the continental United States does not. Source: Climate Explorer. CRUv4 vapor pressure in blocks of two months averaged 2000–2018, based on station reports summarized to monthly averages. Interpretation in personal communication with Professor Mark Jury, PhD, from the University of Puerto Rico. Available at: <https://climexp.knmi.nl/start.cgi>. Accessed 22 March 2020

# COVID-19 in Italy: impact of containment measures and prevalence estimates of infection in the general population.

[PMID: 32275287](#), Apr 11, 2020

Signorelli, Carlo; Scognamiglio, Thea; Odone, Anna

Acta Biomedica

Level of Evidence: Level 5 – Mechanism based reasoning

Type of Article: Research

**BLUF:** They looked at specific containment efforts and analyzed which had substantial, conditional, or no effect on Italy's spread of COVID-19 and created predictions of number of death in various regions of Italy.

## Abstract:

Since the beginning of the COVID-19 epidemic in Italy, the **Italian Government implemented several restrictive measures to contain the spread of the infection**. Data shows that, among these measures, the lockdown implemented as of 9 March had a **positive impact**, in particular the **central and southern regions of Italy**, while other actions appeared to be less effective. When the true prevalence of a disease is unknown, it is possible estimate it, based on mortality data and the assumptive case-fatality rate of the disease. Given these assumptions, the **estimated period-prevalence of COVID-19 in Italy varies from 0.35% in Sicily to 13.3% in Lombardy**.

**Table 2.** Population, Number of deaths and estimates of infection period prevalence in the Italian Regions and Autonomous Provinces

Regions and Autonomous Provinces	Population M (mil)	N. of deaths	Period Prevalence
Piemonte (Piedmont)	4.4	1.319	4.3%
V.d'Aosta (Aosta Valley)	0.13	100	11.2%
Lombardia (Lombardy)	10.1	9.484	13.3%
Prov. Aut. Bolzano	0.52	174	4.7%
Prov. Aut. Trento	0.54	244	6.4%
Veneto	4.9	695	2.0%
Friuli-Venezia Giulia	1.3	164	1.8%
Liguria	1.6	620	5.6%
Emilia-Romagna	4.5	2.180	6.9%
Toscana (Tuscany)	3.7	369	1.4%
Umbria	0.88	49	0.78%
Marche	1.5	630	5.8%
Lazio	5.9	238	0.57%
Abruzzo	1.3	172	1.9%
Molise	0.31	13	0.60%
Campania	5.8	216	0.53%
Puglia (Apulia)	4.0	209	0.73%
Basilicata	0.56	14	0.35%
Calabria	1.9	60	0.43%
Sicilia (Sicily)	5.0	125	0.35%
Sardegna (Sardinia)	1.6	52	0.45%
<b>Total Italy</b>	<b>60.4</b>	<b>17.127</b>	<b>4.0%</b>

## SARS-CoV-2 in Romania - situation update and containment strategies.

[PMID: 32274354, Apr 11, 2020](#)

Streinu-Cercel, Adrian

Germs

Level of evidence: Level 5- epidemiological survey without presentation of data

Type of Article: Editorial

**Summary:** How Romania has responded to COVID-19:

1. Nominated 5 university clinics to increased diagnostic capacity and streamline communication with their national public health agency
2. 475 PCRs completed
  - a. 3 confirmed cases in recent visitors of Italy
    - i. 1 asymptomatic
    - ii. 2 symptomatic
      1. 1 minor disease
      2. Medium-severe disease: presentation suggested ARDS but ultimately improved
    - iii. Rapid identification, 14 day quarantine and testing of persons who contacted those 3 patients
  - b. Travelers returning from any area in which there was community transmission of the virus were placed in institutional quarantine (42 persons)
    - i. These individuals are tested on the first, 12th and 13th day of quarantine
    - ii. If both tests from the 12th and 13th are negative, they are released from quarantine on the 14th day.
  - c. Travelers returning from other locations were placed in voluntary home isolation for 14 days (9012 persons)
    - i. These individuals were tested if they began to exhibit symptoms during the 14 days

## Severe Acute Respiratory Syndrome Coronavirus 2 Infection among Returnees to Japan from Wuhan, China, 2020.

[PMID: 32275498, Apr 11, 2020](#)

Arima, Yuzo; Shimada, Tomoe; Suzuki, Motoi; Suzuki, Tadaki; Kobayashi, Yusuke; Tsuchihashi, Yuuki; Nakamura, Haruna; Matsumoto, Kaoru; Takeda, Asuka; Kadokura, Keisuke; Sato, Tetsuro; Yahata, Yuichiro; Nakajima, Noriko; Tobiume, Minoru; Takayama, Ikuyo; Kageyama, Tsutomu; Saito, Shinji; Nao, Naganori; Matsui, Tamano; Sunagawa, Tomimasa; Hasegawa, Hideki; Ohnishi, Makoto; Wakita, Takaji

Emerg Infect Dis

Level of Evidence: Level 4 - Case series

Type of Article: Research

**Summarizing excerpt:** “When confronted with an emerging pathogen, quarantined populations can generate critical epidemiologic information. As with the First Few X study, our design is protected from the usual biases of passively reported surveillance data. Aggregating high-quality data from these types of investigations can build a larger severity pyramid, enabling reliable estimation of various severity measures (e.g., symptomatic proportion of infected case-patients, case severity proportion among those who are symptomatic). We recommend use of similar assessments to help elucidate the epidemiology of SARS-CoV-2 and inform public health response.”

**Abstract:** In early 2020, Japan repatriated 566 nationals from China. Universal laboratory testing and 14-day monitoring of returnees detected 12 cases of severe acute respiratory syndrome coronavirus 2 infection; initial screening results were negative for 5. Common outcomes were remaining asymptomatic (n = 4) and pneumonia (n = 6). Overall, screening performed poorly.

## The clinical feature of silent infections of novel coronavirus infection (COVID-19) in Wenzhou.

[PMID: 32275074](#), Apr 11, 2020

He, Guiqing; Sun, Wenjie; Fang, Peipei; Huang, Jianping; Gamber, Michelle; Cai, Jing; Wu, Jing  
Journal of Medical Virology

Level of Evidence: 4 – Case series

Type of Article: Research

**BLUF:** Asymptomatic patients are more likely to be healthy and young and likely acquire the virus through community spread with symptomatic individuals.

**Abstract:** Here were reported clinical features of **silent infected COVID-19 patients**. Our study showed that the **prevalence of the silent infection of COVID-19 is 5.8%** (95% CI: 3.4-9.9%), which is much higher than 1.2% which from the report in China CDC. The silent infection patients were more likely to be **young adults**, the patients without chronic disease. All of the cases in the presented study was found because they were traced as **close contact of confirmed cases**. Our study indicated that traced the close contract of confirmed case, long time self-quarantine, and screening is necessary to prevent the secondary cases in community.

## Which Melbourne metropolitan areas are vulnerable to COVID-19 based on age, disability and access to health services? Using spatial analysis to identify service gaps and inform delivery.

[PMID: 32276097](#), Apr 11, 2020

Lakhani, Ali

J Pain Symptom Manage

Level of Evidence: Level 4: Case study, proof of construct

Type of Article: Case study

**BLUF:** Census data can be used to identify areas of significant need by the density of elders, persons with disability and poor access to primary health.

### Abstract:

Ageing adults (65+) with disability are especially vulnerable to COVID-19 and upon contracting, are a cohort most likely to require palliative care. Therefore, it is very important that health services - particularly health services providing palliative care - are proximately available. Treating the Melbourne metropolitan area as a case-study, a spatial analysis was conducted to clarify priority areas with a significantly high percentage and number of ageing adults (65+) with disability, and high barriers to accessing primary health services. After, travel times from priority areas to (i) palliative medicine, and (ii) hospital services were calculated. The geographic dispersion of areas with people vulnerable to COVID-19 with poor access to palliative care and health services are clarified. Unique methods of health service delivery are required to ensure that vulnerable populations in under-serviced metropolitan areas receive prompt and adequate care. The spatial methodology

employed can be implemented in different contexts to support evidence-based COVID-19 and pandemic palliative care service decisions.

## SARS-CoV-2 and Europe: timing of containment measures for outbreak control.

[PMID: 32274649](#), Apr 11, 2020

Li, Chenyu; Romagnani, Paola; von Brunn, Albrecht; Anders, Hans-Joachim  
Infection

Level of Evidence: Level 5- Expert opinion

Type of Article: Letter

**Summarizing excerpt:** “Assuming that the time point of installing drastic containment measures is a central determinant of when a country will deviate from the exponential increase in numbers of infected people, the authors advocate an immediate lockdown to all countries that have not done so to limit any further transmission and exponential spreading of SARS-CoV-2 and its devastating consequences. Beyond physical distancing, generous testing to identify and isolate individuals with asymptomatic SAS-Cov-2 infections, are equally important to control the pandemic.”

## Association of Public Health Interventions With the Epidemiology of the COVID-19 Outbreak in Wuhan, China.

[PMID: 32275295](#), Apr 11, 2020

Pan, An; Liu, Li; Wang, Chaolong; Guo, Huan; Hao, Xingjie; Wang, Qi; Huang, Jiao; He, Na; Yu, Hongjie; Lin, Xihong; Wei, Sheng; Wu, Tangchun

JAMA

Level of Evidence: Level 3- Retrospective cohort study

Type of Article: Research

**BLUF:** A large cohort study of lab confirmed COVID-19 patients show that social distancing measures were temporally correlated with the reduced effective reproduction number of SARS-CoV-2.

### Abstract:

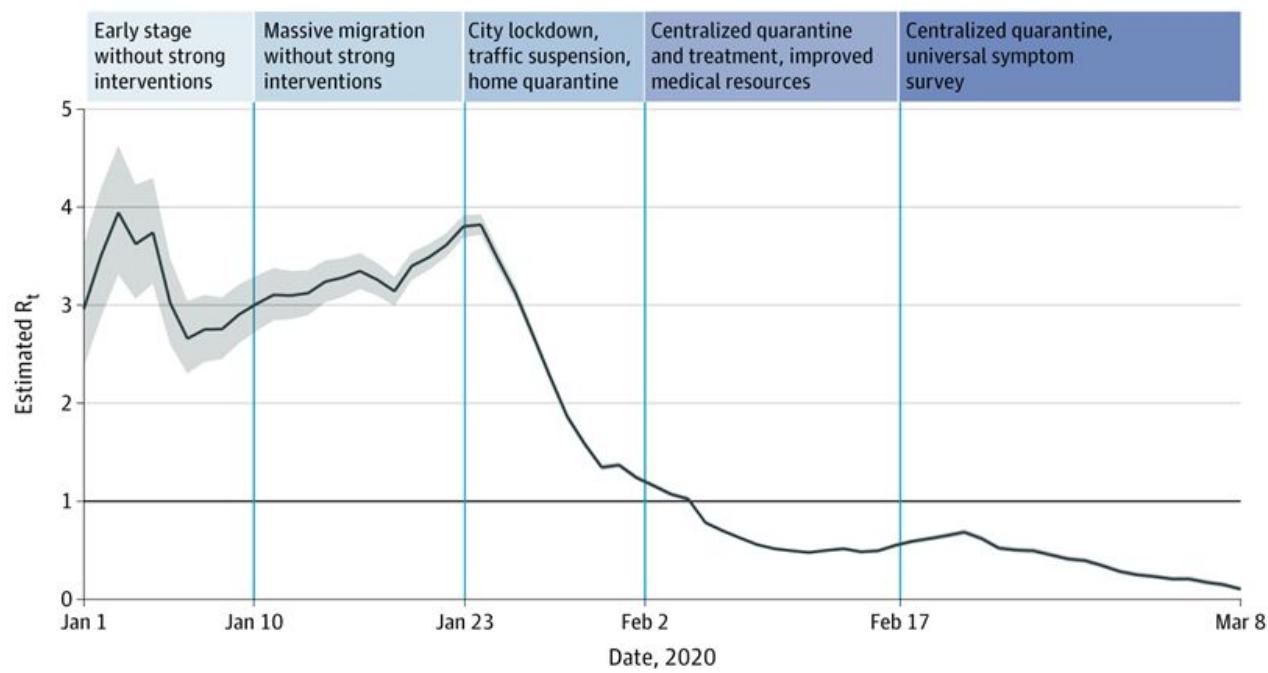
Coronavirus disease 2019 (COVID-19) has become a pandemic, and it is unknown whether a combination of public health interventions can improve control of the outbreak.

**Objective:** To evaluate the association of public health interventions with the epidemiological features of the COVID-19 outbreak in Wuhan by 5 periods according to key events and interventions. **Design, Setting, and Participants:** In this cohort study, individual-level data on 32583 laboratory-confirmed COVID-19 cases reported between December 8, 2019, and March 8, 2020, were extracted from the municipal Notifiable Disease Report System, including patients' age, sex, residential location, occupation, and severity classification.

**Exposures:** Nonpharmaceutical public health interventions including cordons sanitaire, traffic restriction, social distancing, home confinement, centralized quarantine, and universal symptom survey. **Main Outcomes and Measures:** Rates of laboratory-confirmed COVID-19 infections (defined as the number of cases per day per million people), across age, sex, and geographic locations were calculated across 5 periods: December 8 to January 9 (no intervention), January 10 to 22 (massive human movement due to the Chinese New Year holiday), January 23 to February 1 (cordons sanitaire, traffic restriction and home quarantine), February 2 to 16 (centralized quarantine and treatment), and February 17 to March 8 (universal symptom survey). The effective reproduction number of SARS-CoV-2 (an indicator of secondary transmission) was also calculated over the periods.

**Results:** Among 32 583 laboratory-confirmed COVID-19 cases, the median patient age was 56.7 years (range, 0-103; interquartile range, 43.4-66.8) and 16 817 (51.6%) were women. The daily confirmed case rate peaked in the third period and declined afterward across geographic regions and sex and age groups, except for children and adolescents, whose rate of confirmed cases continued to increase. The daily confirmed case rate over the whole period in local health care workers (130.5 per million people [95% CI, 123.9-137.2]) was higher than that in the general population (41.5 per million people [95% CI, 41.0-41.9]). The proportion of severe and critical cases decreased from 53.1% to 10.3% over the 5 periods. The severity risk increased with age: compared with those aged 20 to 39 years (proportion of severe and critical cases, 12.1%), elderly people ( $>/=80$  years) had a higher risk of having severe or critical disease (proportion, 41.3%; risk ratio, 3.61 [95% CI, 3.31-3.95]) while younger people ( $<20$  years) had a lower risk (proportion, 4.1%; risk ratio, 0.47 [95% CI, 0.31-0.70]). The effective reproduction number fluctuated above 3.0 before January 26, decreased to below 1.0 after February 6, and decreased further to less than 0.3 after March 1.

**Conclusions and Relevance:** A series of multifaceted public health interventions was temporally associated with improved control of the COVID-19 outbreak in Wuhan, China. These findings may inform public health policy in other countries and regions.



The effective reproduction number  $R_t$  is defined as the mean number of secondary cases generated by a typical primary case at time  $t$  in a population, calculated for the whole period over a 5-day moving average. Results are shown since January 1, 2020, given the limited number of diagnosed cases and limited diagnosis capacity in December 2019. The darkened horizontal line indicates  $R_t = 1$ , below which sustained transmission is unlikely so long as antitransmission measures are sustained, indicating that the outbreak is under control. The 95% credible intervals (CrIs) are presented as gray shading. Daily estimates of  $R_t$  with 95% CrIs are shown in eTable 3 in the Supplement.

## A framework for identifying regional outbreak and spread of COVID-19 from one-minute population-wide surveys.

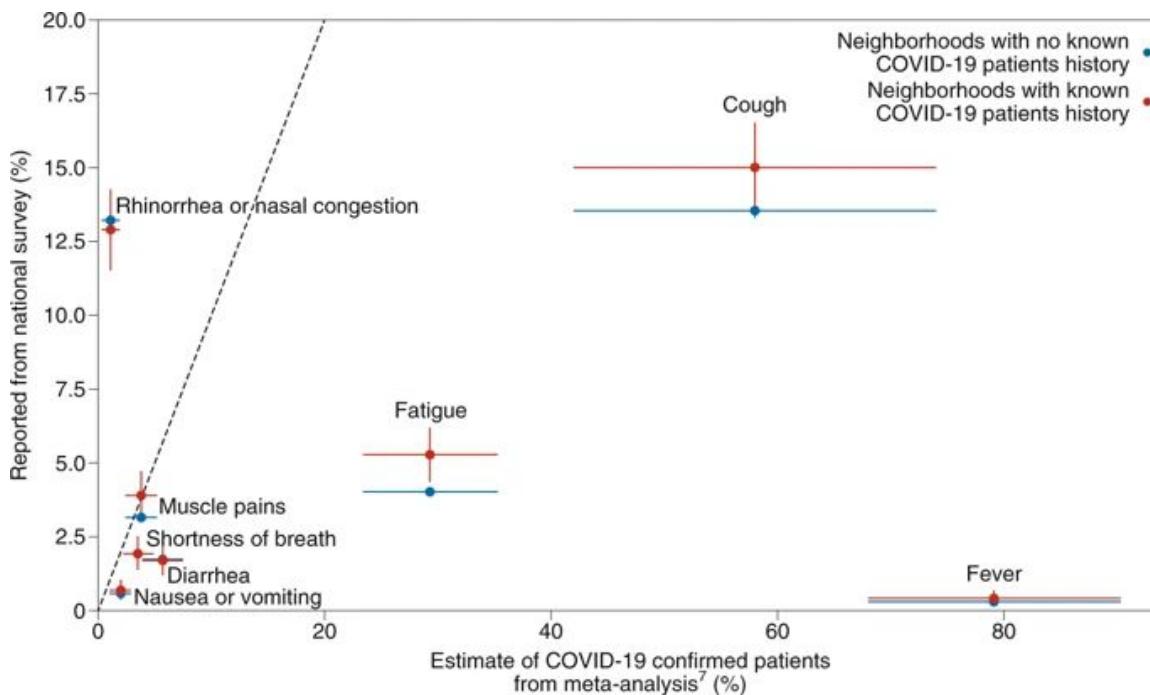
[PMID: 32273611, Apr 11, 2020](#)

Roszman, Hagai; Keshet, Ayya; Shilo, Smadar; Gavrieli, Amir; Bauman, Tal; Cohen, Ori; Shelly, Esti; Balicer, Ran; Geiger, Benjamin; Dor, Yuval; Segal, Eran  
Nat Med

Level of Evidence: Level 5 or below

Type of Article: Research

**Summarizing excerpt:** “We have developed a short survey based on symptoms associated with COVID-19 with the primary goal of early detection of clusters of COVID-19 outbreak. At the time of this writing, only 10 days after the survey was first distributed, 74,256 responses had been received. As expected, we also detected a higher percentage of symptoms among people who were in home isolation than among those who were not (0.06 and 0.05, respectively;  $P = 5 \times 10^{-14}$  (two-sample t-test)).”



Prevalence of symptoms for survey responses from neighborhoods in which confirmed cases were present (red) or no confirmed cases were present (blue), presented as estimates and 95% confidence intervals of patients with COVID-19 from a published meta-analysis<sup>8</sup> (x axis) plotted against prevalence from survey data and bootstrap estimates of 95% confidence intervals (y axis); dashed diagonal line,  $y = x$ .

## SARS-CoV-2 and COVID-19 in older adults: what we may expect regarding pathogenesis, immune responses, and outcomes.

[PMID: 32274617](#), Apr 11, 2020

Nikolich-Zugich, Janko; Knox, Kenneth S; Rios, Carlos Tafich; Natt, Bhupinder; Bhattacharya, Deepta; Fain, Mindy J

Geroscience

Level of Evidence: Level 3- Review

Type of Article: Review

**Summarizing excerpt:** “SARS-2 has emerged as an exceptionally hardy and contagious virus. The brunt of its pathology is shouldered by older adults, for reasons incompletely understood. Current successful anti-pandemic measures have included extensive testing, contact tracking, and quarantining; where that was delayed or impossible, drastic and widespread efforts enforcing social isolation were effective. Prevention is the most important strategy for older adults; the added strain of social distancing on this vulnerable population should be acknowledged and managed. Fever and pulmonary symptoms predominate; cough and dyspnea may resolve or progress to a multifocal pneumonia with characteristic radiographic findings. Patients with severe disease may succumb to ARDS; regardless of disease severity, supportive care is the mainstay of therapy. Older adults often present atypically, employ a low threshold for suspicion and testing, and manage in alignment with patients’ goals of care.”

Coronaviruses are recognized by TLR7, RIG-I/MDA, and cGAS/STING innate immune sensors; all result in early IFN-I responses necessary for control of infection. Neutralizing antibodies directed at the spike (S) protein binding site for the ACE2 receptor are likely key to protection, although the much higher affinity of SARS-2 S protein for ACE2 (relative to SARS-1) may pose a challenge. Immune responses in older adults are slower, less coordinated, and less efficient, making older adults more susceptible to emerging infections. There is evidence that immune responses to SARS-1 and suggestion that responses to SARS-2, in our most vulnerable patients, do not effectively switch from innate to adaptive (little to no antibody production) immunity, a topic needing immediate study and offering potential for immune modulation. Future vaccination strategies will need to elicit strong protective antibody responses in older adults, using age-appropriate adjuvants; anti-viral and immunomodulatory treatments are currently an area of intense study.

## Cluster of coronavirus disease 2019 (Covid-19) in the French Alps, 2020.

[PMID: 32277759](#), Apr 12, 2020

Danis, Kostas; Epaulard, Olivier; Benet, Thomas; Gaymard, Alexandre; Campoy, Sephora; Bothelo-Nevers, Elisabeth; Bouscambert-Duchamp, Maude; Spaccaferri, Guillaume; Ader, Florence; Mailles, Alexandra; Boudalaa, Zoubida; Tolsma, Violaine; Berra, Julien; Vaux, Sophie; Forestier, Emmanuel; Landelle, Caroline; Fougere, Erica; Thabuis, Alexandra; Berthelot, Philippe; Veil, Raphael; Levy-Bruhl, Daniel; Chidiac, Christian; Lina, Bruno; Coignard, Bruno; Saura, Christine  
Clinical Infectious Diseases

Level of Evidence: 4 – Case series

Type of Article: Research

**BLUF:** Children may have different transmission patterns than adults.

### Abstract:

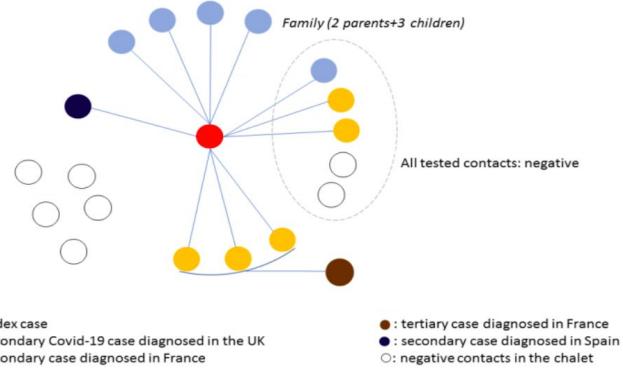
**BACKGROUND:** On 07/02/2020, French Health authorities were informed of a confirmed case of SARS-CoV-2 coronavirus in an Englishman infected in Singapore who had recently stayed in a chalet in the French Alps. We conducted an investigation to identify secondary cases and interrupt transmission.

**METHODS:** We defined as a confirmed case a person linked to the chalet with a positive RT-PCR sample for SARS-CoV-2.

**RESULTS:** The index case stayed 4 days in the chalet with 10 English tourists and a family of 5 French residents; SARS-CoV-2 was detected in 5 individuals in France, 6 in England (including the index case), and 1 in Spain (overall attack rate in the chalet: 75%). **One pediatric case, with picornavirus and influenza A coinfection, visited 3 different schools while symptomatic.** One case was asymptomatic, with similar viral load as that of a symptomatic case. Seven days after the first cases were diagnosed, one tertiary case was detected in a symptomatic patient with a positive endotracheal aspirate; all previous and concurrent nasopharyngeal specimens were negative. Additionally, 172 contacts were monitored, including 73 tested negative for SARS-CoV-2.

**CONCLUSIONS:** The occurrence in this cluster of one asymptomatic case with similar viral load as a symptomatic patient, suggests transmission potential of asymptomatic individuals. **The fact that an infected child did not transmit the disease despite close interactions within schools suggests potential different transmission dynamics in children.** Finally, the dissociation between upper and lower respiratory tract results underscores the need for close monitoring of the clinical evolution of suspect Covid-19 cases.

Figure 1



## Invisible spread of SARS-CoV-2.

[PMID: 32275868, Apr 11, 2020](#)

Xiong, Nian; Wang, Tao; Lin, Zhicheng

Lancet Infectious Disease

Level of Evidence: 5 – Expert opinion

Type of Article: Comment

**Summary:** Referring to “Early dynamics of transmission and control of COVID-19: a mathematical modelling study” by Kucharski et al. The authors state concerns over the separated analytical groups and that they likely have similar contagious potential which could skew the study. Concerns regarding epidemiological modelling reliability were also cited. They also expressed concern over the generalizability of the proposed model.

## Invisible spread of SARS-CoV-2 - Authors' reply.

[PMID: 32275870, Apr 11, 2020](#)

Kucharski, Adam J; Eggo, Rosalind M

Lancet Infectious Disease

Level of Evidence: 5 – Expert opinion

Type of Article: Comment

**Summary:** Referring to “Invisible spread of SARS-CoV-2” by Xiong et al. The authors state that the concerns regarding analytical groups skewing data are unlikely due to similar conclusions relating to patients becoming infectious later on that correlated their findings with the proposed groups. They state they varied epidemiological factors overtime to account for variability. They state that more data regarding lockdown procedure and its effect on transmission will further enable a predictive model.

## Understanding the Pathology

### How does COVID-19 kill? Uncertainty is hampering doctors' ability to choose treatments.

[PMID: 32273618](#), Apr 11, 2020

Ledford, Heidi

Nature

Level of Evidence: : 5 - Expert opinion

Type of Article: News

**Summary:** Lack of a definitive disease pattern and immunological knowledge regarding COVID-19 prevent directed treatment in the critically ill. There is a risk of doing more harm than good when treatments are not evidence based or fully understood. Randomized clinical trials are needed to provide clear guidelines and to enable a better response.

### A review on the cleavage priming of the spike protein on coronavirus by angiotensin-converting enzyme-2 and furin.

[PMID: 32274964](#), Apr 11, 2020

Hasan, Anwarul; Paray, Bilal Ahamad; Hussain, Arif; Qadir, Fikry Ali; Attar, Farnoosh; Aziz, Falah Mohammad; Sharifi, Majid; Derakhshankhah, Hossein; Rasti, Behnam; Mehrabi, Masoumeh; Shahpasand, Koorosh; Saboury, Ali Akbar; Falahati, Mojtaba

J Biomol Struct Dyn

**BLUF:** Understanding the relationship between ACE-2, furin and the spike protein on the SARS-CoV-2 virus may elucidate and identify potential therapies.

#### Abstract:

The widespread antigenic changes lead to the emergence of a new type of coronavirus (CoV) called as severe acute respiratory syndrome (SARS)-CoV-2 that is immunologically different from the previous circulating species. Angiotensin-converting enzyme-2 (ACE-2) is one of the most important receptors on the cell membrane of the host cells (HCs) which its interaction with spike protein (SP) with a furin-cleavage site results in the SARS-CoV-2 invasion. Hence, in this review, we presented an overview on the interaction of ACE-2 and furin with SP. As several kinds of CoVs, from various genera, have at their S1/S2 binding site a preserved site, we further surveyed the role of furin cleavage site (FCS) on the life cycle of the CoV. Furthermore, we discussed that the small molecular inhibitors can limit the interaction of ACE-2 and furin with SP and can be used as potential therapeutic platforms to combat the spreading CoV epidemic. Finally, some ongoing challenges and future prospects for the development of potential drugs to promote targeting specific activities of the CoV were reviewed. In conclusion, this review may pave the way for providing useful information about different compounds involved in improving the effectiveness of CoV vaccine or drugs with minimum toxicity against human health.

### Structural and Functional Basis of SARS-CoV-2 Entry by Using Human ACE2.

[PMID: 32275855](#), Apr 11, 2020

Wang, Qihui; Zhang, Yanfang; Wu, Lili; Niu, Sheng; Song, Chunli; Zhang, Zengyuan; Lu, Guangwen; Qiao, Chengpeng; Hu, Yu; Yuen, Kwok-Yung; Wang, Qisheng; Zhou, Huan; Yan, Jinghua; Qi, Jianxun  
Cell

Level of evidence: 5-Basic Research

Type of Article: Research Article

**BLUF:** Determine important region in the SARS-CoV-2 mediating binding to its cellular receptor (ACE2) which is important for the development of therapeutics and vaccines. They suggest a specific domain of the S protein to be a potential immunogen for vaccine design.

### **Abstract:**

The recent emergence of a novel coronavirus (SARS-CoV-2) in China has caused significant public health concerns. Recently, ACE2 was reported as an entry receptor for SARS-CoV-2. In this study, we present the crystal structure of the C-terminal domain of SARS-CoV-2 (SARS-CoV-2-CTD) spike (S) protein in complex with human ACE2 (hACE2), which reveals a hACE2-binding mode similar overall to that observed for SARS-CoV. However, atomic details at the binding interface demonstrate that key residue substitutions in SARS-CoV-2-CTD slightly strengthen the interaction and lead to higher affinity for receptor binding than SARS-RBD. Additionally, a panel of murine monoclonal antibodies (mAbs) and polyclonal antibodies (pAbs) against SARS-CoV-S1/receptor-binding domain (RBD) were unable to interact with the SARS-CoV-2 S protein, indicating notable differences in antigenicity between SARS-CoV and SARS-CoV-2. **These findings shed light on the viral pathogenesis and provide important structural information regarding development of therapeutic countermeasures against the emerging virus.**

## **Evaluate Severe Acute Respiratory Syndrome Coronavirus 2 Infectivity by Pseudoviral Particles.**

[PMID: 32275081](#), Apr 11, 2020

Pu, Tao; Ding, Chen; Li, Yadong; Liu, Xiaojuan; Li, Haiwei; Duan, Jinmei; Zhang, Heng; Bi, Yanwei; Cun, Wei

J Med Virol

Level of Evidence: 5- Basic Research

Type of Article: Research

**BLUF:** Establishment of a biosafety level 2 (BSL-2) appropriate psuedovirus system to study many different aspects of the virus and resulting disease.

**Abstract:** Since the outbreak of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection in humans in late 2019, it has rapidly spread worldwide. **To identify the biological characteristics of SARS-CoV-2 in a normal laboratory environment (BSL-2), a lentiviral-based nucleocapsid was used to carry the spike protein of SARS-CoV-2 onto the surface of pseudoviral particles as a surrogate model to evaluate the infective characterization of SARS-CoV-2.** This study indicated that SARS-CoV-2 has extensive tissue tropism for humans and may infect monkeys and tree shrews but not rodents. More importantly, the use of pseudoviral particles in this study **allows rapid assessment of neutralizing antibodies in serum in a BSL-2 laboratory.** This study will provide a quick and easy tool for evaluating neutralizing antibodies in the serum of recovering patients and assessing the potency of candidate vaccines.

## **Analysis of Characteristics in Death Patients with COVID-19 Pneumonia without Underlying Diseases.**

[PMID: 32273135](#), Apr 11, 2020

Hu, Yiqi; Deng, He; Huang, Lu; Xia, Liming; Zhou, Xin

Acad Radiol

Level of Evidence: Level 5- Case report

Type of Article: Letter

**Summary:** The authors assess the cases of two patients; one presented with multifocal ground glass opacities bilaterally- he progressed to right upper lobe consolidation and fibrosis, rapid elevation of inflammatory markers and death. The second patient had smaller areas of ground glass opacities (<1cm) that grew over the following week. He was then admitted into the hospital as his condition quickly declined with a concomitant elevation of plasma cytokines and inflammatory markers. They conclude that if the CT is suggestive of ARDS, it is predictive of poor prognosis. However, if it is not, and exhibits only minor pulmonary inflammation, the proinflammatory cytokines and other inflammatory markers should be monitored carefully.

## **Neurologic Manifestations of Hospitalized Patients With Coronavirus Disease 2019 in Wuhan, China.**

[PMID: 32275288](#), Apr 11, 2020

Mao, Ling; Jin, Huijuan; Wang, Mengdie; Hu, Yu; Chen, Shengcui; He, Quanwei; Chang, Jiang; Hong, Candong; Zhou, Yifan; Wang, David; Miao, Xiaoping; Li, Yanan; Hu, Bo

JAMA Neurol

Level of Evidence: Level 4- Retrospective case series

Type of Article: Research

**Summary:** “In a case series of 214 patients with coronavirus disease 2019, neurologic symptoms were seen in 36.4% of patients and were more common in patients with severe infection (45.5%) according to their respiratory status, which included acute cerebrovascular events, impaired consciousness, and muscle injury.”

### **Abstract:**

Importance: The outbreak of coronavirus disease 2019 (COVID-19) in Wuhan, China, is serious and has the potential to become an epidemic worldwide. Several studies have described typical clinical manifestations including fever, cough, diarrhea, and fatigue. However, to our knowledge, it has not been reported that patients with COVID-19 had any neurologic manifestations.

Objective: To study the neurologic manifestations of patients with COVID-19. Design, Setting, and Participants: This is a retrospective, observational case series. Data were collected from January 16, 2020, to February 19, 2020, at 3 designated special care centers for COVID-19 (Main District, West Branch, and Tumor Center) of the Union Hospital of Huazhong University of Science and Technology in Wuhan, China. The study included 214 consecutive hospitalized patients with laboratory-confirmed diagnosis of severe acute respiratory syndrome coronavirus 2 infection.

Main Outcomes and Measures: Clinical data were extracted from electronic medical records, and data of all neurologic symptoms were checked by 2 trained neurologists. Neurologic manifestations fell into 3 categories: central nervous system manifestations (dizziness, headache, impaired consciousness, acute cerebrovascular disease, ataxia, and seizure), peripheral nervous system manifestations (taste impairment, smell impairment, vision impairment, and nerve pain), and skeletal muscular injury manifestations. Results: Of 214 patients (mean [SD] age, 52.7 [15.5] years; 87 men [40.7%]) with COVID-19, 126 patients (58.9%) had nonsevere infection and 88 patients (41.1%) had severe infection according to their respiratory status. Overall, 78 patients (36.4%) had neurologic manifestations. Compared with patients with nonsevere infection, patients with severe infection were

older, had more underlying disorders, especially hypertension, and showed fewer typical symptoms of COVID-19, such as fever and cough. Patients with more severe infection had neurologic manifestations, such as acute cerebrovascular diseases (5 [5.7%] vs 1 [0.8%]), impaired consciousness (13 [14.8%] vs 3 [2.4%]), and skeletal muscle injury (17 [19.3%] vs 6 [4.8%]).

**Conclusions and Relevance:** Patients with COVID-19 commonly have neurologic manifestations. During the epidemic period of COVID-19, when seeing patients with neurologic manifestations, clinicians should suspect severe acute respiratory syndrome coronavirus 2 infection as a differential diagnosis to avoid delayed diagnosis or misdiagnosis and lose the chance to treat and prevent further transmission.

## COVID-19 Autopsies, Oklahoma, USA.

[PMID: 32275742](#), Apr 11, 2020

Barton, Lisa M; Duval, Eric J; Stroberg, Edana; Ghosh, Subha; Mukhopadhyay, Sanjay  
Am J Clin Pathol

Level of Evidence: Level 4- Case Study

Type of Article: Case Report

**Summary:** The first ever complete autopsy report of 2 patients with COVID-19. They had diffuse alveolar damage and airway inflammation but no viral inclusions, mucus plugging, eosinophils or myocarditis.

### Abstract

**Objectives:** To report the methods and findings of two complete autopsies of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) positive individuals who died in Oklahoma (United States) in March 2020.

**Methods:** Complete postmortem examinations were performed according to standard procedures in a negative-pressure autopsy suite/isolation room using personal protective equipment, including N95 masks, eye protection, and gowns. The diagnosis of coronavirus disease 2019 (COVID-19) was confirmed by real-time reverse transcriptase polymerase chain reaction testing on postmortem swabs.

**Results:** A 77-year-old obese man with a history of hypertension, splenectomy, and 6 days of fever and chills died while being transported for medical care. He tested positive for SARS-CoV-2 on postmortem nasopharyngeal and lung parenchymal swabs. Autopsy revealed diffuse alveolar damage and chronic inflammation and edema in the bronchial mucosa. A 42-year-old obese man with a history of myotonic dystrophy developed abdominal pain followed by fever, shortness of breath, and cough. Postmortem nasopharyngeal swab was positive for SARS-CoV-2; lung parenchymal swabs were negative. Autopsy showed acute bronchopneumonia with evidence of aspiration. Neither autopsy revealed viral inclusions, mucus plugging in airways, eosinophils, or myocarditis.

**Conclusions:** SARS-CoV-2 testing can be performed at autopsy. Autopsy findings such as diffuse alveolar damage and airway inflammation reflect true virus-related pathology; other findings represent superimposed or unrelated processes.

## Myocardial localization of coronavirus in COVID-19 cardiogenic shock.

[PMID: 32275347](#), Apr 11, 2020

Tavazzi, Guido; Pellegrini, Carlo; Maurelli, Marco; Belliato, Mirko; Sciutti, Fabio; Bottazzi, Andrea; Sepe, Paola Alessandra; Resasco, Tullia; Camporotondo, Rita; Bruno, Raffaele; Baldanti, Fausto; Paolucci, Stefania; Pelenghi, Stefano; Iotti, Giorgio Antonio; Mojoli, Francesco; Arbustini, Eloisa  
Eur J Heart Fail

Level of Evidence: Level 4 - Case Report

Type of Article: Research

**Summarizing excerpt:** “This unique case demonstrates that COVID-19 can localize in organs/tissues other than the lung. Either transient viraemia or infected macrophage migration from the lung likely occurs in COVID-19 patients with non-ischaemic acute myocardial injury. Identification of the cause of acute myocardial injury may contribute to explain the different evolution of the severe SARS-CoV-2 infection and to plan treatments according to the type of myocardial injury.”

**Abstract:** We describe the first case of acute cardiac injury directly linked to myocardial localization of severe acute respiratory syndrome coronavirus (SARS-CoV-2) in a 69-year-old patient with flu-like symptoms rapidly degenerating into respiratory distress, hypotension, and cardiogenic shock. The patient was successfully treated with venous-arterial extracorporeal membrane oxygenation (ECMO) and mechanical ventilation. Cardiac function fully recovered in 5 days and ECMO was removed. Endomyocardial biopsy demonstrated low-grade myocardial inflammation and viral particles in the myocardium suggesting either a viraemic phase or, alternatively, infected macrophage migration from the lung.

## Transmission & Prevention

### Aerosol and Surface Distribution of Severe Acute Respiratory Syndrome Coronavirus 2 in Hospital Wards, Wuhan, China, 2020.

[PMID: 32275497](#), Apr 11, 2020

Guo, Zhen-Dong; Wang, Zhong-Yi; Zhang, Shou-Feng; Li, Xiao; Li, Lin; Li, Chao; Cui, Yan; Fu, Rui-Bin; Dong, Yun-Zhu; Chi, Xiang-Yang; Zhang, Meng-Yao; Liu, Kun; Cao, Cheng; Liu, Bin; Zhang, Ke; Gao, Yu-Wei; Lu, Bing; Chen, Wei

Emerg Infect Dis

Level of Evidence: Level 5 - Mechanism based reasoning

Type of Article: Research

**Summarizing excerpt:** “This study led to 3 conclusions. First, SARS-CoV-2 was widely distributed in the air and on object surfaces in both the ICU and GW, implying a potentially high infection risk for medical staff and other close contacts. Second, the environmental contamination was greater in the ICU than in the GW; thus, stricter protective measures should be taken by medical staff working in the ICU. Third, the SARS-CoV-2 aerosol distribution characteristics in the GW indicate that the **transmission distance of SARS-CoV-2 might be 4 m.**”

**Abstract:** To determine distribution of severe acute respiratory syndrome coronavirus 2 in hospital wards in Wuhan, China, we tested air and surface samples. Contamination was greater in intensive care units than general wards. Virus was widely distributed on floors, computer mice, trash cans, and sickbed handrails and was detected in air approximately 4 m from patients.

### Super-spreading events and contribution to transmission of MERS, SARS, and COVID-19.

[PMID: 32277963](#), Apr 12, 2020

Al-Tawfiq, J A; Rodriguez-Morales, A J

J Hosp Infect

Level of Evidence: Level 5 - Expert opinion

Type of Article: Correspondence

**Summary:** The authors define super-spreading events in relation to MERS, SARS, and COVID-19. They state that immune suppression, increased disease severity and viral load, asymptomatic individuals, and social interactions all play a role in the occurrence of these events.

### What Does COVID-19 Mean for the Pathology-Urology Interaction?

[PMID: 32273180](#), Apr 11, 2020

Comperat, Eva

Eur Urol

Level of Evidence: Level 5 - Expert opinion

Type of Article: Editorial

**Summary:** This author provides important strategies for pathologists to safely handle urologic specimens and most importantly, states **submitting fresh frozen samples for evaluation should be avoided** during the COVID-19 pandemic.

## Testing for coverage from personal protective equipment: Public Health England's guidance does not protect healthcare workers from droplet spray.

[PMID: 32277486, Apr 12, 2020](#)

Heij, R; Steel, A G; Young, P J

Anaesthesia

Level of evidence: Level 4- case study

Type of Article: Case study

**Summarizing excerpt:** “Despite complying with Public Health England guidance, healthcare workers remain vulnerable to droplet contamination of exposed skin. To reduce droplet-associated transmission of SARS-CoV-2 from exposed skin, healthcare workers require additional neck, face and hair protection such as a high-neck hooded overall suit and full-face visor”



## Sterilization of disposable face masks by means of standardized dry and steam sterilization processes; an alternative in the fight against mask shortages due to COVID-19.

[PMID: 32277964, Apr 12, 2020](#)

van Straten, B; de Man, P; van den Doppelstein, J; Koeleman, H; van der Eijk, A; Horeman, T  
J Hosp Infect

Level of Evidence: Level 5 - Mechanism based reasoning

Type of Article: Letter

**Summarizing excerpt:** “The results of our experiences and experiments indicate that our sterilization process did not influence the functionality of the masks tested. In case of an acute shortage of FFP2 masks, steam sterilization (e.g. in laminate sterilization wrappings) of used masks at 121 °C in laminated bags, is a simple, useful cost-effective and quick procedure that can be used to make used masks available for safe reuse.”

## Disinfection of N95 respirators by ionized hydrogen peroxide in pandemic coronavirus disease 2019 (COVID-19) due to SARS-CoV-2.

[PMID: 32277965, Apr 12, 2020](#)

Cheng, V C C; Wong, S-C; Kwan, G S W; Hui, W-T; Yuen, K-Y

J Hosp Infect

Level of Evidence: Level 5 - Mechanism based reasoning

Type of Article: Letter

**Summary:** Authors use ionized hydrogen peroxide to successfully disinfect N95 respirators inoculated with Influenza A, suggesting possible utility in times of low PPE supply. Overall, the authors call for further investigation of N95 disinfection methods.

## Handling and Processing of Blood Specimens from Patients with COVID-19 for Safe Studies on Cell Phenotype and Cytokine Storm.

[PMID: 32275124](#), Apr 11, 2020

Cossarizza, Andrea; Gibellini, Lara; De Biasi, Sara; Lo Tartaro, Domenico; Mattioli, Marco; Paolini, Annamaria; Fidanza, Lucia; Bellinazzi, Caterina; Borella, Rebecca; Castaniere, Ivana; Meschiari, Marianna; Sita, Marco; Manco, Gianrocco; Clini, Enrico; Gelmini, Roberta; Girardis, Massimo; Guaraldi, Giovanni; Mussini, Cristina

Cytometry A

Level of evidence: Level 5- expert opinion and level 4- research

Type of Article: Recommendations and research

**BLUF:** All laboratory staff should wear a mask. All staff handling, processing or testing blood of COVID-19 positive patients should be trained and operating in a BLS-2 lab with Class II biological safety cabinets that are equipped with an internal waste with 0.5% bleach. Caution advised for vortexing, mixing, sonication or centrifugation - procedures that are likely to generate aerosols or droplets. After work, the area should be sanitized with 0.5% bleach followed by 70% ethanol.

### Abstract:

The pandemic caused by severe acute respiratory syndrome coronavirus 2 heavily involves all those working in a laboratory. Samples from known infected patients or donors who are considered healthy can arrive, and a colleague might be asymptomatic but able to transmit the virus. Working in a clinical laboratory is posing several safety challenges. Few years ago, International Society for Advancement of Cytometry published guidelines to safely analyze and sort human samples that were revised in these days. We describe the procedures that we have been following since the first patient appeared in Italy, which have only slightly modified our standard one, being all human samples associated with risks..

## Virological assessment of SARS-CoV-2.

[PMID: 32273607](#), Apr 11, 2020

Stower, Hannah

Nat Med

Level of Evidence: Level 2-Cross sectional study with consistent reference standard and blinding

Type of Article: Research

**BLUF:** Seroconversion does not mean immune or non-contagious. Infectious viral particles were found in patients sputum, throat and nasopharynx up to a week after seroconversion and symptom resolution. Viral RNA was consistently found in stool longest, but no evidence of infectious particles were found from stool samples.

### Abstract:

Coronavirus disease 2019 (COVID-19) is an acute respiratory tract infection that emerged in late 2019. Initial outbreaks in China involved 13.8% cases with severe, and 6.1% with critical courses. This severe presentation corresponds to the usage of a virus receptor that is expressed predominantly in the lung. By causing an early onset of severe symptoms, this same receptor tropism is thought to have determined pathogenicity, but also aided the control of severe acute respiratory syndrome (SARS) in

2003 . However, there are reports of COVID-19 cases with mild upper respiratory tract symptoms, suggesting the potential for pre- or oligosymptomatic transmission . There is an urgent need for information on body site-specific virus replication, immunity, and infectivity. Here we provide a detailed virological analysis of nine cases, providing proof of active virus replication in upper respiratory tract tissues. Pharyngeal virus shedding was very high during the first week of symptoms (peak at  $7.11 \times 10^8$  RNA copies per throat swab, day 4). Infectious virus was readily isolated from throat- and lung-derived samples, but not from stool samples, in spite of high virus RNA concentration. Blood and urine never yielded viruses. Active replication in the throat was confirmed by viral replicative RNA intermediates in throat samples. Sequence-distinct virus populations were consistently detected in throat and lung samples from the same patient, proving independent replication. Shedding of viral RNA from sputum outlasted the end of symptoms. Seroconversion occurred after 7 days in 50% of patients (14 days in all), but was not followed by a rapid decline in viral load. COVID-19 can present as a mild upper respiratory tract illness. Active virus replication in the upper respiratory tract puts the prospects of COVID-19 containment in perspective.

## Safety Considerations in the Laboratory Testing of Specimens Suspected or Known to Contain the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2).

[PMID: 32275309, Apr 11, 2020](#)

Iwen, Peter C; Stiles, Karen L; Pentella, Michael A  
Lab Med

Level of Evidence: Level 5- Expert opinion

Type of Article: Letter

### Summarizing excerpt:

“The risk group classification of SARS-CoV-2 has not been officially designated at the time of this writing. The consensus, however, is to classify SARS-CoV-19 as a risk group 3 pathogen, similar to SARS-CoV and MERS-CoV. With this classification, the interim guidance from the CDC suggests that the following practices may be performed in the standard BSL-2 laboratory when handling a specimen that might contain SARS-CoV-2: pathologic examination and processing of formalin-fixed or otherwise inactivated tissues, molecular analysis of extracted nucleic acid preparations, electron microscopic studies with glutaraldehyde-fixed grids, routine examination of bacterial and mycotic cultures, routine staining and microscopic analysis of fixed smears, final packaging of specimens for transport, and inactivation of specimens such as the placing of specimens in a nucleic acid extraction buffer.<sup>1</sup> The CDC guidance further suggests that some of the standard practices used in the laboratory during the manipulation of potentially infected specimens be, at a minimum, performed in a certified class II BSC within the BSL-2 laboratory. These included aliquoting and/or diluting specimens, inoculating bacterial or mycological culture media, performing diagnostic tests that do not involve propagation of viral agents in vitro or in vivo, nucleic acid extraction procedures involving potentially infected specimens, and preparation of chemical or heat fixing of smears for microscopic analysis. For virus isolation in cell culture and initial characterization of viral agents recovered in cultures of SAR2-CoV specimens, the CDC also suggests that this work be performed in a BSL-3 laboratory while using BSL-3 practices (to include fit-tested N95 respirators or powered air-purifying respirators). In general, while working within the laboratory environment, regulatory standards require that all health care facilities provide the appropriate personal protective equipment (PPE) for the laboratorians, that personnel be instructed in the proper use of this PPE, that the equipment being used in the laboratory be maintained and safe, and that written procedures for the procurement, transportation, and handling of patient specimens be available.”

## **POCUS in COVID-19: pearls and pitfalls.**

[PMID: 32275856](#), Apr 11, 2020

Cheung, Jonathan Chun-Hei; Lam, Koon Ngai

Lancet Respir Med

Level of Evidence: Level 5 - Expert opinion

Type of Article: Correspondence

**Summary:** In order to reduce exposure risks during COVID-19, the authors explain strategies and shortcomings for safely and effectively using point-of-care ultrasound (POCUS).

Pearls:

- Designate one machine to each COVID-19 patient, especially in the ICU
- Use individually packaged, single use ultrasound gel
- Wireless models that can also be charged wirelessly are preferable
- Use units with multiple probe functionalities to cover various clinical tasks
- Departments should adopt agreed upon scanning protocols, and operators should annotate cine loops accordingly to ease the review of images

Pitfalls:

- Certain clinical situations may require different imaging modality
- Lung ultrasound is often unable to determine disease/lesion chronicity
- COVID-19 patients with underlying asthma may have respiratory wheeze not visible with ultrasound

## **COVID-19: community CPAP and NIV should be stopped unless medically necessary to support life.**

[PMID: 32273335](#), Apr 11, 2020

Barker, Joseph; Oyefeso, Oluwatobiloba; Koeckerling, David; Mudalige, Nadeesha Lakmal; Pan, Daniel

Thorax

Level of Evidence: Level 5- Expert Opinion

Type of Article: Letter to the Editor

**Summarizing excerpt:** “We believe the risk of high-dose viral transmission of SARS-CoV-2, from community NIV and CPAP users to household members, to be highly plausible and with potentially severe consequences. In the interests of patients’ families and their carers we call for a consensus opinion on clearer instructions for patients and their physicians—how to isolate while using NIV or CPAP at home, safety provisions for household members and risk–benefit analysis of temporary NIV or CPAP cessation.”

## **COVID-19 in a patient with long-term use of glucocorticoids: A study of a familial cluster.**

[PMID: 32276139](#), Apr 11, 2020

Han, Yuanyuan; Jiang, Mao; Xia, Da; He, Lichao; Lv, Xin; Liao, Xiaohua; Meng, Jie

Clin Immunol

Level of Evidence: Level 4- Case series

Type of Article: Case series

**Summary:** Patients with a long history of glucocorticoid use may have longer incubation and shedding periods after infection with SARS-CoV-2, suggesting a longer period of quarantine may be required in these individuals.

## **Vaginal Delivery Report of a Healthy Neonate Born to a Convalescent Mother with COVID-19.**

[PMID: 32275072, Apr 11, 2020](#)

Xiong, Xiali; Wei, Hong; Zhang, Zhihong; Chang, Jing; Ma, Xiaopeng; Gao, Xiang; Chen, Qiang; Pang, Qiumei

J Med Virol

Level of Evidence: Level 4- Case study

Type of article: Case study

**BLUF:** A mother who had recovered completely from COVID-19 gives birth vaginally to a child who tested negative once at time of birth.

## **Protecting Labor and Delivery Personnel from COVID-19 during the Second Stage of Labor.**

[PMID: 32276282, Apr 11, 2020](#)

Palatnik, Anna; McIntosh, Jennifer J

Am J Perinatol

Level of Evidence: Level 5- Expert opinion

Type of Article: Recommendation

**Summary:** Labor and delivery personnel spend up to 4 hours in close contact with patients during the second phase of labor. At this time, patients are exerting extreme effort and frequently breathe deeply, cough, shout and vomit and engage in other activities that similarly produce aerosol. The author argues that L&D staff should be provided full PPE including N95s.

# Diagnosis

## Development of Reverse Transcription Loop-mediated Isothermal Amplification (RT-LAMP) Assays Targeting SARS-CoV-2.

[PMID: 32276051](#), Apr 11, 2020

Park, Gun-Soo; Ku, Keunbon; Baek, Seung-Hwa; Kim, Seong-Jun; Kim, Seung Il; Kim, Bum-Tae; Maeng, Jin-Soo

J. Molecular Diagnostics

Level of Evidence: 5- Basic Research

Type of Article: Research Article

**BLUF:** Development of a cost-effective isothermal amplification RT-PCR method for SARS-CoV-2 diagnostics (essentially eliminates the traditional RNA extraction step). Implications for use at point of care or in resource limited laboratories.

### Abstract:

Epidemics of Coronavirus Disease 2019 (COVID-19) now have more than 100,000 confirmed cases worldwide. Diagnosis of COVID-19 is currently performed by RT-qPCR methods, but the capacity of RT-qPCR methods is limited by its requirement of high-level facilities and instruments. **Here, we developed and evaluated RT-LAMP assays to detect genomic RNA of SARS-CoV-2**, the causative virus of COVID-19. RT-LAMP assays in this study **can detect as low as 100 copies of SARS-CoV-2 RNA**. Cross-reactivity of RT-LAMP assays to other human Coronaviruses was not observed. We also adapted a colorimetric detection method for our RT-LAMP assay so that the tests potentially performed in higher throughput.

## SARS-CoV-2 may be related to conjunctivitis but not necessarily spread through the conjunctiva SARS-CoV-2 and conjunctiva.

[PMID: 32275079](#), Apr 11, 2020

Guo, Dongyu; Xia, Jianhua; Shen, Ye; Tong, Jianping

Journal of Medical Virology

Level of Evidence: 5 – Expert opinion

Type of Article: Comment

**Summary:** Referring to comments on the authors' previous study. The authors believe that the low incidence of viral conjunctivitis in COVID-19 patients is due to lack of reporting and that this can impact statistical analysis. However, due to studies referencing ophthalmologist conjunctivitis diagnosis they believe there is a correlation. The authors also believe there are many false negative PCR tests impacting values. The authors also reference a study showing conjunctival systemic infectivity in monkeys.

## Self-screening to reduce medical resource consumptions facing the COVID-19 pandemic.

[PMID: 32273299](#), Apr 11, 2020

Chiu, I-Min; Cheng, Chi-Yung; Zhang, Huan; Lin, Chun-Hung Richard

Emergency Medicine Journal

Level of Evidence: 5 – Expert opinion, mechanism-based reasoning

Type of Article: Comment

**Summary:** A website was developed in Taiwan in March to accommodate the increased flood of anxious citizens looking for information regarding COVID-19 and their likelihood of having the virus based on reporting criteria. Quarantine guidelines were also accessible. The website was designed for clinicians as well. It is updated continuously with the latest clinical guidelines.

Items	
Identity	<input type="checkbox"/> Ordinary person <input type="checkbox"/> Medical staff
Symptoms	<input type="checkbox"/> Fever <input type="checkbox"/> Cough <input type="checkbox"/> Sore throat <input type="checkbox"/> Rhinorrhea <input type="checkbox"/> Myalgia <input type="checkbox"/> None of above
Occupation	<input type="checkbox"/> Medical staff <input type="checkbox"/> Non-medical staff
Travel history in past 14 days	<input type="checkbox"/> No <input type="checkbox"/> Yes → Country lists for selection
Contact history for whom travel abroad	<input type="checkbox"/> No <input type="checkbox"/> Yes → Country lists for selection → Symptom lists for persons who traveled abroad
*Contact history for suspected or confirmed cases	<input type="checkbox"/> No <input type="checkbox"/> Yes
*Sign of pneumonia in chest image	<input type="checkbox"/> No <input type="checkbox"/> Yes
Result	
<input checked="" type="checkbox"/> *Report for COVID-19 <input checked="" type="checkbox"/> Hospital registration for further evaluation <input checked="" type="checkbox"/> Incompatible for bulletin	
Tracking mechanism	
<input checked="" type="checkbox"/> Home (Self) isolation <input checked="" type="checkbox"/> Home Quarantine Notice <input checked="" type="checkbox"/> Self-Health Management <input checked="" type="checkbox"/> None	

Figure 1: The content of the clinical website (<https://1922.net.nsysu.edu.tw/>). \*For medical staff. The content of the clinical website was translated from Chinese to English in this figure.

## Conjunctiva is not a preferred gateway of entry for SARS-CoV-2 to infect respiratory tract.

[PMID: 32275082](#), Apr 11, 2020

Liu, Zhe; Sun, Chuan-Bin

Journal of Medical Virology

Level of Evidence: 5 – Expert opinion

Type of Article: Comment

**Summary:** Referring to “Evaluation of coronavirus in tears and conjunctival secretions of patients with SARS-CoV-2 infection” by Xia et al. The authors state that the conjunctiva is unlikely a route for COVID-19 transmission due to data reporting rare incidents of conjunctival presence of COVID-19 RNA. The authors reference the likelihood that ACE2 expression is less, COVID-19 binding capability lower, and antimicrobial agents in tears are all present in the conjunctiva.

## Abdominal and testicular pain: An atypical presentation of COVID-19.

[PMID: 32273141](#), Apr 11, 2020

Kim, Jesi; Thomsen, Todd; Sell, Naomi; Goldsmith, Andrew J

Am J Emerg Med

Level of Evidence: Level 4- Case study

Type of Article: Case report

**BLUF:** COVID-19 can present with testicular pain.

**Summary:** 42 year old male initially presented to the Emergency Department with intermittent,

waxing and waning abdominal, testicular and back pain that progresses into a constant stabbing pain from the groin with radiation into the abdomen, flank, back and chest. His chest xray was clear but his abdominal CT caught some ground glass opacification in the lower lung segments and possible colitis of the distal descending and sigmoid colon. He then tested positive for COVID-19 at his follow up visit with his PCP.

## Lung Involvement Found on Chest CT Scan in a Pre-Symptomatic Person with SARS-CoV-2 Infection: A Case Report.

[PMID: 32272630](#), Apr 11, 2020

Asadollahi-Amin, Ali; Hasibi, Mehrdad; Ghadimi, Fatemeh; Rezaei, Hosnieh; SeyedAlinaghi, SeyedAhmad

Trop Med Infect Dis

Level of Evidence: Level 4- Case report

Type of Article: Case report

**Summary:** A pt presented to the ED with a history, signs and symptoms consistent with a rib fracture received CT imaging which revealed patchy ground glass opacities consistent with COVID-19. They present that pathological lung changes may be captured on CT prior to the onset of symptoms.

### Abstract:

The novel coronavirus SARS-CoV-2 infection is spreading worldwide, and there are many reports of acute respiratory distress syndrome caused by this infection. However, asymptomatic lung involvement has not been reported. We hereby present the case of a 44-year-old health-care worker, who was found to be infected with the SARS-CoV-2 virus after a CT-scan performed for an unrelated condition revealed a lesion in the lung field compatible with COVID-19 infection. His condition deteriorated initially, but eventually improved with supportive treatment and the compassionate use of antivirals and antimalarials and is now in a stable condition.

## Clinical and CT imaging features of 2019 novel coronavirus disease (COVID-19).

[PMID: 32277968](#), Apr 12, 2020

Zhu, Ying; Gao, Zhen-Hua; Liu, Yang-Li; Xu, Dan-Yang; Guan, Tian-Ming; Li, Zi-Ping; Kuang, Jian-Yi; Li, Xiang-Min; Yang, You-You; Feng, Shi-Ting

Journal of Infection

Level of Evidence: 4 – Case series

Type of Article: Research

**Summary:** CT findings in confirmed COVID-19 patients and extrapolation when compared with clinical findings to predict disease diagnosis ability. Results showed a variety of CT findings. Early on patients had centrally located, round, nodular ground glass opacities. New lesions appeared to be migratory, absorbing prior lesions later on in the disease. The authors also note a slight decrease in eosinophil counts in 12/14 patients. The authors suggest increased stress levels contributed the sudden death in healthcare workers.

## Clinical and Imaging features of COVID-19 Patients: Analysis of Data from High-Altitude Areas.

[PMID: 32275925](#), Apr 11, 2020

Zeng, Jie; Peng, Shengkun; Lei, Yu; Huang, Jianxin; Guo, Yang; Zhang, Xiaoqin; Huang, Xiaobo; Pu, Hong; Pan, Lingai

Journal of Infection

Level of Evidence: 4 – Case series

Type of Article: Research

**Summary:** Addressing COVID-19 pathophysiology in high-altitude patients in Sichuan province. Patients did not have specific COVID-19 symptoms and COVID-19 testing confirmation was clearly specified, however it can be inferred it was conducted. Lung imaging was reviewed and findings classified. The majority of lesions had one or more of the following factors: subpleural, in the right lower lobe, or 2+ lobe involvement. Lung performance was seen to be similar to those from low-altitude areas in prior studies.

# Management

## Attitudes of Anesthesiology Specialists and Residents Toward Patients Infected with the Novel Coronavirus (COVID-19): A National Survey Study.

[PMID: 32275463](#), Apr 11, 2020

Dost, Burhan; Koksal, Ersin; Terzi, Ozlem; Bilgin, Sezgin; Ustun, Yasemin Burcu; Arslan, Hatice Nilden

Surgical Infections

Level of Evidence: 5 – Expert opinion, qualitative research survey

Type of Article: Research

**BLUF:** The majority of specialists surveyed had not received training or had a specific protocol for COVID-19 patients. Universal guidelines and training are necessary to maintain safety.

**Abstract:** Background: The novel coronavirus (COVID-19) emerged in Wuhan, China, in December 2019. This study aims to **evaluate the knowledge of anesthesiology specialists and residents in Turkey about COVID-19 and their attitudes toward the strategies and application methods to be used for a suspected/confirmed COVID-19 case** that needs to be operated on or followed up in an intensive care unit, as well as to raise awareness about this issue. Methods: This descriptive study comprised anesthesiology specialists and residents working in various health institutions in Turkey. The data used in this study were obtained online between March 13, 2020 and March 25, 2020 through the website SurveyMonkey (SurveyMonkey, San Mateo, CA) by using a survey form. We contacted members of the Turkish Anaesthesiology and Reanimation Society through the social media platforms Twitter, LinkedIn, and WhatsApp, as well as through their e-mail addresses and invited them to participate in the study. Those who agreed to participate responded to the aforementioned survey. We used SPSS 22.0 (IBM, Armonk, NY) to analyze the survey data statistically. Results: A total of 346 anesthesiology specialists and residents participated in the study. Although the majority of the participants exhibited the correct attitudes toward airway management, **research assistants with little professional experience were observed to be undecided or had the tendency to make incorrect decisions.** Conclusions: The COVID-19 pandemic is spreading rapidly worldwide. The incidence of COVID-19 cases is increasing daily, and this disease can cause patient death. **Anesthesiology specialists and residents who perform emergency operations on these patients in settings other than intensive care units should follow simple and easy-to-understand algorithms to ensure safety.** The provision of theoretical and practical training to healthcare providers before they meet patients will help ensure patient-healthcare provider safety and prevent panic, which can cause distress among healthcare providers.

## The COVID-19 pandemic: Important considerations for contact lens practitioners.

[PMID: 32273245](#), Apr 11, 2020

Jones, Lyndon; Walsh, Karen; Willcox, Mark; Morgan, Philip; Nichols, Jason

Contact Lens & Anterior Eye

Level of Evidence: Level 5 – Expert Opinion

Type of Article: Research

**BLUF:** This article current understanding, suggested guidelines, and future research questions regarding COVID-19 and its effect on contact lenses.

**Abstract:**

A novel coronavirus (CoV), the Severe Acute Respiratory Syndrome Coronavirus - 2 (SARS-CoV2), results in the coronavirus disease 2019 (COVID-19). As information concerning the COVID19 disease continues to evolve, patients look to their eye care practitioners for accurate eye health guidance. There is **currently no evidence to suggest an increased risk of contracting COVID-19 through contact lens (CL) wear compared to spectacle lens wear and no scientific evidence that wearing standard prescription spectacles provides protection against COVID-19 or other viral transmissions**. During the pandemic there will potentially be significant changes in access to local eyecare. Thus, it is imperative CL wearers are reminded of the steps they should follow to minimise their risk of complications, to reduce their need to leave isolation and seek care. Management of adverse events should be retained within optometric systems if possible, to minimise the impact on the wider healthcare service, which will be stretched. **Optimal CL care behaviours should be the same as those under normal circumstances, which include appropriate hand washing (thoroughly with soap and water) and drying (with paper towels) before both CL application and removal.** Daily CL cleaning and correct case care for reusable CL should be **followed according to appropriate guidelines**, and CL exposure to water must be avoided. Where the availability of local clinical care is restricted, practitioners should consider advising patients to reduce or eliminate sleeping in their CL (where patients have the appropriate knowledge about correct daily care and access to suitable lens-care products) or consider the option of moving patients to daily disposable lenses (where patients have appropriate lens supplies available). Patients should also avoid touching their face, including their eyes, nose and mouth, with unwashed hands and avoid CL wear altogether if unwell (particularly with any cold or flu-like symptoms).

## SAA is a biomarker to distinguish the severity and prognosis of Coronavirus Disease 2019 (COVID-19).

[PMID: 32277967](#), Apr 12, 2020

Li, Huan; Xiang, Xiaochen; Ren, Hongwei; Xu, Lingli; Zhao, Lisha; Chen, Xiaoqiong; Long, Hui; Wang, Qiang; Wu, Qingming

Journal of Infection

Level of Evidence: 4 – Case series

Type of Article: Research

**BLUF:** Serum amyloid A may be a prognostic factor in the clinical course of COVID-19 and is most sensitive in its inverse relationship to lymphocyte count.

**Abstract:**

**BACKGROUND:** To explore **the significance of SAA in evaluating the severity and prognosis of COVID-19.**

**METHODS:** A total of 132 patients with confirmed COVID-19 who were admitted to a designated COVID-19 hospital in Wuhan, China from January 18, 2020 to February 26, 2020 were collected. The dynamic changes of blood SAA, CRP, PCT, WBC, Lymphocyte (L), PLT, CT imaging, and disease progression were studied. All patients completed at least twice laboratory data collection and clinical condition assessment at three time points indicated for this study; The length of hospital stay was longer than 14 days prior to February 26, 2020.

**RESULTS:** **COVID-19 patients had significantly increased SAA and CRP levels, while L count decreased, and PCT, WBC, and PLT were in the normal range. As disease progressed from mild to critically severe, SAA and CRP gradually increased, while L decreased, and PLT, WBC, and PCT had no significant changes;** ROC curve analysis suggests that

SAA/L, CRP, SAA, and L count are valuable in evaluating the severity of COVID-19 and distinguishing critically ill patients from mild ones; **Patients with SAA consistently trending down during the course of disease have better prognosis, compared with the patients with SAA continuously rising**; The initial SAA level is positively correlated with the dynamic changes of the serial CT scans. Patient with higher initial SAA level are more likely to have poor CT imaging. **CONCLUSIONS:** SAA and L are sensitive indicators in evaluating the severity and prognosis of COVID-19. Monitoring dynamic changes of SAA, combined with CT imaging could be valuable in diagnosis and treatment of COVID-19.

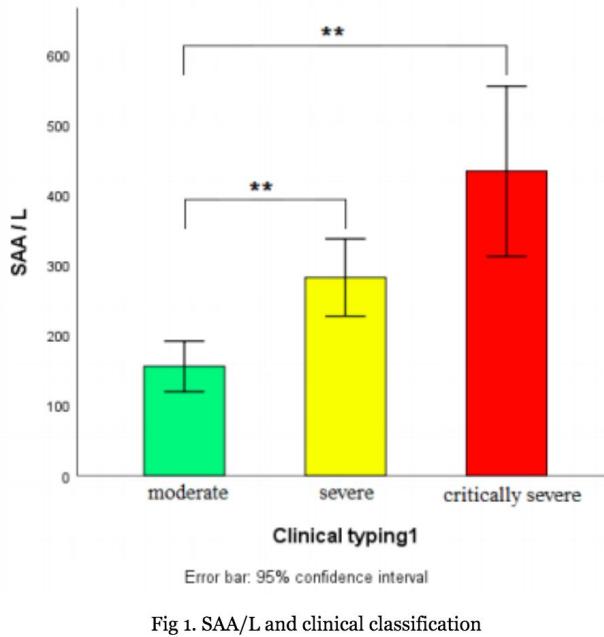


Fig 1. SAA/L and clinical classification

### **Individual risk management strategy and potential therapeutic options for the COVID-19 pandemic.**

[PMID: 32276137](#), Apr 11, 2020

Gasmi, Amin; Noor, Sadaf; Tippairote, Torsak; Dadar, Maryam; Menzel, Alain; Bjorklund, Geir  
Clin Immunol

Level of Evidence: Level 5- Expert opinion

Type of Article: Review Article

**Summary:** Individuals with COVID-19 should be risk stratified based on metabolic status, which determines the severity of their disease. One must consider diet, nutrition, age, sex, health, lifestyle and environment.

### **Respiratory health in athletes: facing the COVID-19 challenge.**

[PMID: 32277869](#), Apr 12, 2020

Hull, James H; Loosemore, Mike; Schwellnus, Martin  
Lancet Respir Med

Level of Evidence: Level 5 - Expert opinion

Type of Article: Comment

**Summary:** The authors argue for more data to be collected on the effects of COVID-19 in athletes, as well as the relationship between general fitness and susceptibility to the virus. For athletes recovering from infection, they recommend avoiding the use of the neck check strategy and to allow for more rest time before returning to activity to avoid respiratory complications and/or myocardial damage.

## Nutrition support in the time of SARS-CoV-2 (COVID-19).

[PMID: 32276799, Apr 12, 2020](#)

Laviano, Alessandro; Koverech, Angela; Zanetti, Michela

Nutrition

Level of Evidence: Level 5- Expert opinion

Type of Article: Recommendation

**Summary:** Enteral nutrition is preferred, but may be practically challenging in patients who may later need to be proned. Then, early and comprehensive rehabilitation of postventilation acquired dysphagia and ICU acquired weakness is recommended.

## How to Handle a COVID-19 Patient in the Angiographic Suite.

[PMID: 32277272, Apr 12, 2020](#)

Ierardi, Anna Maria; Wood, Bradford J; Gaudino, Chiara; Angileri, Salvatore Alessio; Jones, Elizabeth C; Hausegger, Klaus; Carrafiello, Gianpaolo

Cardiovasc Intervent Radiol

Level of Evidence: Level 5- Expert opinion

Type of Article: Recommendation

### Abstract

This is a single-center report on coordination of staff and handling of patients during the outbreak of the COVID-19 (coronavirus disease 2019) in a region with high incidence and prevalence of disease. The selection of procedures for interventional radiology (IR), preparation of staff and interventional suite before the arrival of patients, the facility ventilation systems and intra- and post-procedural workflow optimization are described. The control measures described may increase the cost of the equipment, prolong procedural times and increase technical difficulties. However, these precautions may help control the spread of COVID-19 within the healthcare facility.

Recommendations	
1	Different routes for Covid-19 patients and non-Covid-19 patients. In IR services not equipped with physically separate facilities, temporal segregation of services to different groups of patients needs to be explored
2	Every patient and healthcare worker, has been underwent to rRT-PCR test. Uncertain cases should be managed as infected in both case
3	Non-urgent procedures must be postponed
4	Ultrasound-guided interventions should be performed at the patient's bedside
5	Non-essential and mobile equipment should be moved out of the angiographic suite. Fixed and essential contact surfaces need to be covered with clear drapes
6	Careful hand hygiene, correct wearing of protective equipment, N95 or FFP2 masks and gowns, gloves, eye protection, aprons and shoe covers, are recommended
7	Reduce at minimum secretaries, office workers and employers in the administrative areas of the IR service to limit their exposition is strongly suggested
8	Likewise, interventional radiologists rotations (possibly per week) are necessary to limit their exposition
9	Locations where the operators should dress and undress are separate
1	All non-intubated patients who arrive in the IR service must wear a FFP2 mask
0	
1	Used PPE must be collected in dedicated disposal bags
1	
1	70% ethanol or chlorhexidine-ethanol must be used to clean up all exposed surfaces. Immediately after, the room needs to be ventilated for at least 30 min.
2	Waiting 30 min with door closed is recommended before the next patient can access

# Recommendations on cardiopulmonary resuscitation strategy and procedure for novel coronavirus pneumonia.

PMID: 32276002 Apr 11, 2020

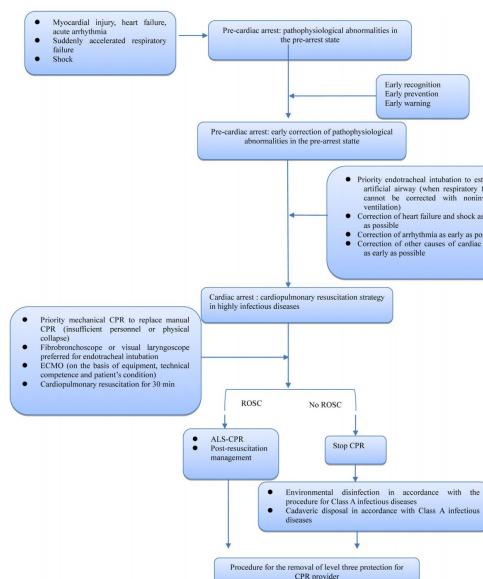
Song, Wei; Liu, Yuanshui; Ouyang, Yanhong; Chen, Wenteng; Li, Min; Xianyu, Shuming; Yi, Shengyang  
Resuscitation

Level of Evidence: Level 3- Review

Type of Article: Commentary and concepts

## Summary:

1. The most common causes of death from the coronavirus includes
  - a. Multi-organ failure
    - i. Mostly in heart, lung, kidney
  - b. Sudden cardiac arrest despite having stable vital signs or failed resuscitation
  - c. Rapid deterioration leading to a or b
2. Manage
  - a. Monitor pulmonary CT, signs of myocardial injury, arrhythmia, vitals and blood gas to recognize, treat and prevent exacerbation of lung injury
3. Recommendations for:
  - a. Prehospital cardiopulmonary resuscitation
    - i. Chest compression + defibrillation
    - ii. Chest compression + active abdominal compression-decompression + defibrillation
  - b. During transport
    - i. Use mechanical cardiopulmonary resuscitation instead of chest compression
  - c. For in hospital Code Blue
    - i. 3 level PPI including full face protection
    - ii. ET intubation ASAP under fibrobronchoscopy or video laryngoscopy guidance
    - iii. Chest compress or mechanical cardiopulmonary resuscitation
    - iv. Be aware of pathogenic sweat into conjunctiva or mucosa of resuscitation provider
    - v. Resuscitate for 30 min and discontinue resuscitation if no ROSC



## **Classification system and case definition for SARS-CoV-2 infection in pregnant women, fetuses, and neonates.**

[PMID: 32277845, Apr 12, 2020](#)

Shah, Prakesh S; Diambomba, Yenge; Acharya, Ganesh; Morris, Shaun K; Bitnun, Ari  
Acta Obstet Gynecol Scand

Level of Evidence: Level 5- Expert opinion

Type of Article: Recommendations

### **Summary:**

The authors argue a need for a classification system that takes into consideration the results of maternal COVID-19 testing, clinical status of the neonate, and the results of neonatal testing based on current data.

## **Thromboprophylaxis and laboratory monitoring for in-hospital patients with Covid-19 - a Swiss consensus statement by the Working Party Hemostasis.**

[PMID: 32277760, Apr 12, 2020](#)

Casini, Alessandro; Alberio, Lorenzo; Angelillo-Scherrer, Anne; Fontana, Pierre; Gerber, Bernhard; Graf, Lukas; Hegemann, Inga; Korte, Wolfgang; Kremer Hovinga, Johanna; Lecompte, Thomas; Martinez, Maria; Nagler, Michael; Studt, Jan-Dirk; Tsakiris, Dimitrios; Wuillemin, Walter; Asmis, Lars

Swiss Med Wkly

Level of Evidence: Level 5- expert opinion

### **Summarizing excerpt:**

“Based on the available literature and published recommendations from the International Society of Thrombosis and Hemostasis (<https://www.isth.org>), from the American Society of Hematology (<https://www.hematology.org/covid-19>) and from the Society for Thrombosis and Haemostasis Research (<http://gth-online.org>), the Working Party on Hemostasis (Swiss Society of Hematology) proposes the following recommendations for pharmacological thromboprophylaxis in COVID-19 patients in the acute setting. Suggestions will be regularly updated:

- All in-hospital COVID-19 patients should receive pharmacological thromboprophylaxis according to a risk stratification score, unless contraindicated.
- In patients with creatinine clearance >30 ml/min, low molecular weight heparin (LMWH) should be administered according to the prescribing information. An increased dose should be considered in overweight patients (>100 kg).
- In patients with creatinine clearance <30 ml/min, unfractionated heparin (UHF) subcutaneously twice or three times daily or intravenously should be administered according to the prescribing information. An increased dose should be considered in overweight patients (>100 kg).
- Anti-Xa activity should be monitored when indicated (e.g., evidence of renal dysfunction).
- Antithrombin need not be monitored but this could be considered on an individual basis in cases of disseminated intravascular coagulation or sepsis-induced coagulopathy or heparin resistance.
- We suggest regularly monitoring prothrombin time, D-dimers, fibrinogen, the platelet count, lactate dehydrogenase (LDH), creatinine and alanine aminotransferase (ALT) (daily or at least 2–3 times per week).
- In patients in intensive care with a large increase in D-dimers, severe inflammation, or signs of hepatic or renal dysfunction or imminent respiratory failure, intermediate or therapeutic

- dosing of LMWH or UHF should be considered, according to the bleeding risk.
- Heparin-induced thrombocytopenia (HIT) should be considered in patients with fluctuations in platelet counts or signs of heparin resistance.
  - In patients undergoing extracorporeal membrane oxygenation (ECMO) treatment we suggest maintaining UFH at doses bringing anti-Xa activity into the therapeutic range.
  - There are no data on the use of direct oral anticoagulants.”
- “

## **COVID-19 and Kidney Failure in the Acute Care Setting: Our Experience From Seattle.**

[PMID: 32276031, Apr 11, 2020](#)

Durvasula, Raghu; Wellington, Tracy; McNamara, Elizabeth; Watnick, Suzanne

Am J Kidney Dis

Level of Evidence: Level 3- Review, case study, expert opinion

Type of Article: Q&A

### **Summary:**

1. Variable prevalence of AKI in patients with COVID-19 ranging from 3% to 15%
  - a. Likely thought to be result of cytokine storm related hypoperfusion and tubular injury.
2. ACE2 is highly expressed in the podocytes and epithelial cells of the renal tubules; suggesting possible viral tropism
3. How to manage kidney failure in COVID-19 patients
  - a. Largely supportive
  - b. 5% of patients will need dialysis usually around 2nd week of infection
4. Significant risk for “kidney disaster”, where those with kidney failure may not be able to access dialysis.
  - a. Need to have a contingency plan
  - b. Example plan from Seattle
    - i. contact - droplet precautions
    - ii. Universal screening
    - iii. Consider partnering with pediatric renal dialysis clinics to borrow CRRT machines given lower clinical impact of COVID-19 in children
    - iv. Pay attention and trend resource availability and inpatient COVID-19 census and plan for evolving needs
    - v. Consider
      1. Reducing community hemodialysis to 3 hours where clinically appropriate to accommodate demands.
      2. Restrict the amount of time CRRT available for inpatient use to 10 hours and augmenting flow rates to 40-50ml/kg/hr if needed
      3. Consider acute peritoneal dialysis
      4. Transitioning from 1:1 care to allow for concurrent care of multiple patients
      5. Prepare stock of dialysate bath and potassium binding resins in case of reduction in CRRT use.

## **Epigenetic dysregulation of ACE2 and interferon-regulated genes might suggest increased COVID-19 susceptibility and severity in lupus patients.**

[PMID: 32276140, Apr 11, 2020](#)

Sawalha, Amr H; Zhao, Ming; Coit, Patrick; Lu, Qianjin

Clin Immunol

Level of Evidence: Level 5- Mechanism based reasoning

Type of Article: Research

**Summarizing excerpt:** “ACE2 encodes a key viral entry receptor for SARS-CoV-2 and is methylation sensitive. ACE2 is hypomethylated and overexpressed in lupus T cells suggesting an increased possibility of disseminated disease during SARS-CoV-2 infection. ACE2 demethylation might be exacerbated after SARS-CoV-2 infection due to increased oxidative stress. Demethylation in interferon-regulated and key cytokine genes might predispose lupus patients to cytokine storm in COVID-19. Maintaining remission in lupus is critical to prevent further demethylation and overexpression of ACE2”

### **Abstract**

Infection caused by SARS-CoV-2 can result in severe respiratory complications and death. Patients with a compromised immune system are expected to be more susceptible to a severe disease course. In this report we suggest that patients with systemic lupus erythematosus might be especially prone to severe COVID-19 independent of their immunosuppressed state from lupus treatment. Specially, we provide evidence in lupus to suggest hypomethylation and overexpression of ACE2, which is located on the X chromosome and encodes a functional receptor for the SARS-CoV-2 spike glycoprotein. Oxidative stress induced by viral infections exacerbates the DNA methylation defect in lupus, possibly resulting in further ACE2 hypomethylation and enhanced viremia. In addition, demethylation of interferon-regulated genes, NF $\kappa$ B, and key cytokine genes in lupus patients might exacerbate the immune response to SARS-CoV-2 and increase the likelihood of cytokine storm. These arguments suggest that inherent epigenetic dysregulation in lupus might facilitate viral entry, viremia, and an excessive immune response to SARS-CoV-2. Further, maintaining disease remission in lupus patients is critical to prevent a vicious cycle of demethylation and increased oxidative stress, which will exacerbate susceptibility to SARS-CoV-2 infection during the current pandemic. Epigenetic control of the ACE2 gene might be a target for prevention and therapy in COVID-19.

## **COVID-19 and Liver Dysfunction: Current Insights and Emergent Therapeutic Strategies.**

[PMID: 32274342, Apr 11, 2020](#)

Feng, Gong; Zheng, Kenneth I; Yan, Qin-Qin; Rios, Rafael S; Targher, Giovanni; Byrne, Christopher D; Poucke, Sven Van; Liu, Wen-Yue; Zheng, Ming-Hua

J Clin Transl Hepatol

Level of Evidence: Level 4- review of case series and mechanism based reasoning

Type of article: research

**Summary:** Patients with COVID-19 often present with elevations in AST. This is more common in adults than in children and men more than women. The authors urge clinicians to monitor hepatic function in COVID-19 patients with previously existing liver conditions.

## **Conservative management of Covid-19 patients - emergency palliative care in action.**

[PMID: 32276101Apr 11, 2020](#)

Tanja, Fusi-Schmidhauser; Nancy, Preston; Keller, Nikola; Claudia, Gamondi

J Pain Symptom Manage

Level of evidence: Level 5- expert opinion

Type of Article: Recommendation

### Summarizing excerpt:

"Palliative care teams, intensivists and internal medicine specialists all work side by side as palliative care is recognised to be at the forefront of this crisis, as it can offer symptom management, support to families and spiritual care. Most patients with Covid-19 need palliative care input due to the large symptom burden and need for clear and open communication with patients and their families. However, due to the potential for rapid deterioration, decisions need to be made quickly, and treatment plans need to be clear and simple to follow for the generalist staff caring for them. Care of patients with Covid-19 results in huge ethical dilemmas and a toll on the health care teams caring for them, not least from shortages in resources, both staffing and pharmaceutical. Palliative care needs to adapt to an emergency style of palliative care and be at the forefront to help make the best decisions, give care to families and find spiritual support"

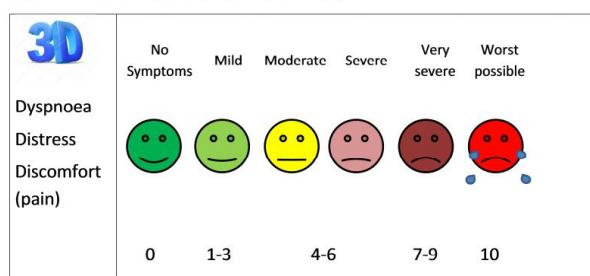
Table 1: Recommendations for conservative and palliative care management of Covid-19 patients

Phases of illness	Monitoring (nursing)	Drugs for symptom control
<b>Stable:</b> EWR <sup>1</sup> : ≤ 7 RR: ≤ 25/min O2 Sat: > 88% (with Venturi mask up to 60%)	<ul style="list-style-type: none"> <li>3D assessment and vital signs once per shift</li> <li>Evaluate pressure areas &amp; need for pressure relieving mattress</li> <li>Intensify communication with the family and prepare that sick enough to die</li> </ul>	<b>Dyspnea/pain:</b> Morphine orally 2-5 mg, 4 hrly with rescue doses (10% of the total daily dose) or PRN  <b>Anxiety:</b> Lorazepam sub-lingual 1-2.5 mg, 8 hrly or PRN or Levomepromazine PO 7.5 mg PRN  <b>Fever:</b> Paracetamol PO 1 g or rectal 600 mg, 6 hrly or PRN  <b>Shivers:</b> Morphine 2-5 mg PO PRN or Pethidine 25 mg SC PRN  Prescribing in Renal Insufficiency and opioidoids: choose Hydrocodone (accordingly to palliative care consultation) Temporary de-prescribing of usual drugs
<b>Unstable:</b> EWR <sup>1</sup> : > 7 RR: > 25/min O2 Sat: < 88%	<ul style="list-style-type: none"> <li>3D assessment twice per shift if patient alert</li> <li>O2 delivery max. 4 L</li> <li>Observe respiratory effort</li> <li>Inform the family now terminal and propose visit</li> </ul>	<b>Dyspnea/pain:</b> Morphine IV/SC 5 mg, 4 hrly with rescue doses (10% of the total daily dose) or PRN  <b>Anxiety/delirium/distress:</b> Diazepam 2.5-5 mg IV or rectal 10 mg 8-12 hrly with rescue doses PRN or Chlorpromazine 12.5-25 mg IV PRN or Levomepromazine 6.25-12.5 mg SC PRN  <b>Fever:</b> Diclofenac 75 mg IV PRN (max. BD) or Paracetamol rectal 600 mg PRN (max. 4/day)  <b>Shivers:</b> Morphine 5 mg IV PRN or Pethidine 25 mg SC PRN  Hydration max. 250 ml/day Suspend futile treatments
<b>End-of-Life:</b> ARDS	<ul style="list-style-type: none"> <li>3D assessment twice per shift if patient alert</li> </ul>	<b>Terminal dyspnea – Respiratory distress:</b> <ul style="list-style-type: none"> <li>Morphine IV/SC 5 mg, 4 hrly with rescue doses (10%</li> </ul>
O2 Sat: < 70%	<ul style="list-style-type: none"> <li>Assess ABDT<sub>2</sub> once per shift if patient does not communicate</li> <li>Stop O2</li> <li>Inform the family and re-evaluate for family visits</li> <li>Basic care and mouth care</li> </ul>	of the total daily dose) or PRN <ul style="list-style-type: none"> <li>Diazepam 2.5-5 mg IV or rectal 10 mg 8-12 hrly with rescue doses PRN</li> </ul> <b>Hyperventilatory delirium:</b> <ul style="list-style-type: none"> <li>Diazepam 2.5-5 mg IV or rectal 10 mg 8-12 hrly with rescue doses PRN</li> <li>Chlorpromazine 12.5-25 mg IV PRN or Levomepromazine 6.25-12.5 mg SC PRN</li> </ul> <b>Fever:</b> Diclofenac 75 mg IV PRN (max. BD) or Paracetamol rectal 600 mg PRN (max. 4/day)  <b>Shivers:</b> Morphine 5 mg IV PRN or Pethidine 25 mg SC PRN

#### Abbreviations:

- EWR<sup>1</sup>: Early Warning Score and Rules for 2019-nCov Infected Patients
- RR: Respiratory rate
- O2 Sat: Saturazione ossigeno
- 3D: Dyspnea, Distress, Discomfort/Pain (from Italian:Dyspnea, Distress, Dolori)
- Vital signs: blood pressure, oxygen saturation, pulse, body temperature
- ABDT<sub>2</sub>: agitation, shivering (hyperthermia), distress, tachycardia and tachypnea (from Italian: Agitazione, Brividi (ipertermia), Distress, Tachicardia e Tachipneia)

Figure 1: 3D-Ticino 2019-nCov Score (3D-TiCoS)



## Crisis Symptom Management and Patient Communication Protocols Are Important Tools for All Clinicians Responding to COVID-19.

[PMID: 32276102](#), Apr 11, 2020

Bowman, Brynn A; Esch, Andrew E; Back, Anthony L; Marshall, Nadine

J Pain Symptom Manage

Level of Evidence: 5- Expert opinion

Type of Article: Recommendation

## **Summarizing excerpt:**

“Palliative care teams are encouraged to work with their organization’s leadership to ensure that all clinicians receive symptom education, prioritizing 1) dyspnea, 2) pain (and opioid-induced constipation), and 3) delirium. The Center to Advance Palliative Care (CAPC) has developed a series of symptom protocols in response to the COVID-19 pandemic that provide stepwise symptom guidance for all clinicians. The protocols account for care provided in all settings including oral, sublingual (SL), intravenous (IV), and subcutaneous (SQ) medication administration. Importantly, these tools are specific to COVID-19. They will be continuously updated as the global medical community learns more about the pathophysiology of the virus (for example, recent evidence suggesting that NSAIDs are contraindicated for patients with COVID-19)(8), as well as to account for potential drug shortages and common formulary restrictions. These clinical tools are publicly available at <https://www.capc.org/toolkits/covid-19-response-resources>.”

## **Point-of-care lung ultrasound in patients with COVID-19 - a narrative review.**

**PMID: 32275766, Apr 11, 2020**

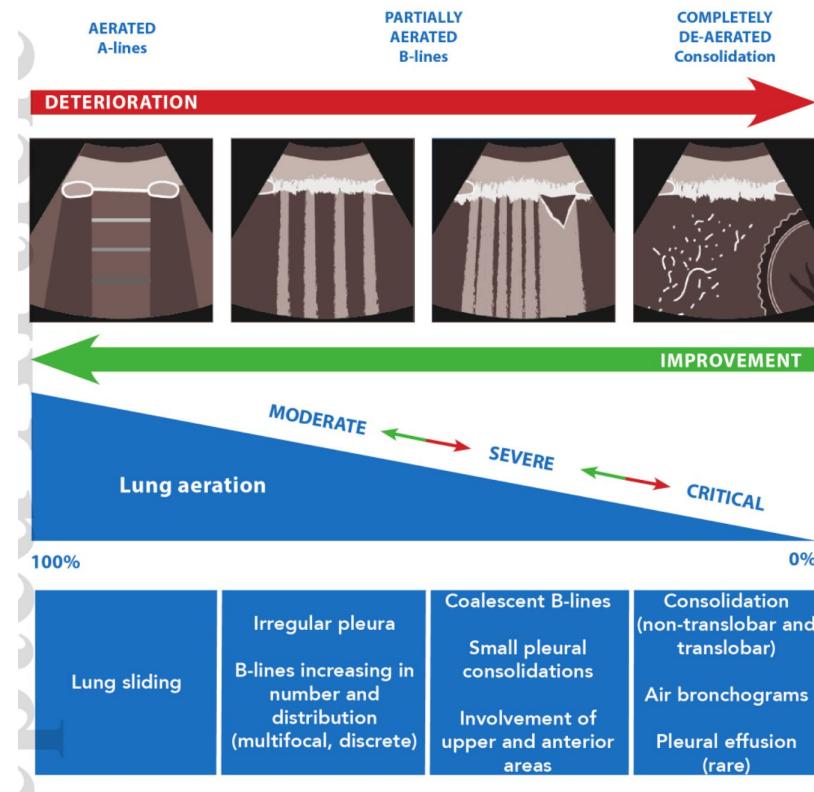
Smith, M J; Hayward, S A; Innes, S M; Miller, A  
Anaesthesia

Level of Evidence: Level 2- systematic review + expert opinion

Type of Article: Recommendation

**Summary:** B-lines are hard to identify. Authors recommend a 12 zone lung ultrasound score to objectively measure the amount of diseased lung tissue.

Severity of COVID-19 related lung injury	Typical sonographic characteristics	Typical clinical characteristics
Pre-disease to moderate	Development of B-lines which begin to increase in number and distribution. The pleural line begins to become irregular. Areas with B-lines are adjacent to normal areas of lung sliding and A-lines. These are ‘skip lesions’ or ‘spared areas’. Small (~1 cm) consolidations.	Respiratory rate > 30 min <sup>-1</sup> . Oxygen saturations ≤93% on room air. The need for supplemental oxygen. Lung tissue begins to lose aeration.
Severe	B-lines continue to increase in number and distribution, and begin to affect the upper and anterior areas of the lungs. B-lines become coalescent/confluent. Small consolidations increase in number and size.	Oxygen saturations ≤93% on supplementary oxygen. Clinical signs of respiratory distress. The need for additional supplemental oxygen or respiratory support. Lung tissue is becoming progressively de-aerated.
Critical	Extensive coalescent B-lines affect the upper and anterior areas of the lungs. Significant small consolidations affect the upper and anterior areas of the lungs. Postero-basal sections of the lungs have significant bilateral alveolar interstitial syndrome progressing to consolidation with or without air bronchograms. Pleural effusions are small or rare unless the patient’s fluid balance is high.	Likely to be or require invasive mechanical ventilation. The need for a high fraction of inspired oxygen. Dependent areas of lung tissue have become non-aerated.



## Predictors for imaging progression on chest CT from coronavirus disease 2019 (COVID-19) patients.

[PMID: 32275643, Apr 11, 2020](#)

Yang, Zongguo; Shi, Jia; He, Zhang; Lu, Ying; Xu, Qingnian; Ye, Chen; Chen, Shishi; Tang, Bozong; Yin, Keshan; Lu, Yunfei; Chen, Xiaorong

Aging

Level of Evidence: Level 3 – prospective cohort study

Type of Article: Research

**BLUF:** This study outlines the baseline characteristics of and found age, MLR, homocysteine, and period from onset to admission as potential predictive parameters for imaging progression on chest CT scans at first week after admission of COVID-19 patients.

### Abstract:

**Objective:** This study aimed to investigate the potential parameters associated with imaging progression on chest CT from coronavirus disease 19 (COVID-19) patients.

**Results:** The average age of 273 COVID-19 patients enrolled with imaging progression were older than those without imaging progression ( $p = 0.006$ ). The white blood cells, platelets, neutrophils and acid glycoprotein were all decreased in imaging progression patients (all  $p < 0.05$ ), and monocytes were increased ( $p = 0.025$ ). The parameters including homocysteine, urea, creatinine and serum cystatin C were significantly higher in imaging progression patients (all  $p < 0.05$ ), while eGFR decreased ( $p < 0.001$ ). Monocyte-lymphocyte ratio (MLR) was significantly higher in imaging progression patients compared to that in imaging progression-free ones ( $p < 0.001$ ). **Logistic models revealed that age, MLR, homocysteine and period from onset to admission were factors for**

## **predicting imaging progression on chest CT at first week from COVID-19 patients (all p < 0.05).**

Conclusion: Age, MLR, homocysteine and period from onset to admission could predict imaging progression on chest CT from COVID-19 patients.

Methods: The primary outcome was imaging progression on chest CT. Baseline parameters were collected at the first day of admission. Imaging manifestations on chest CT were followed-up at (6±1) days.

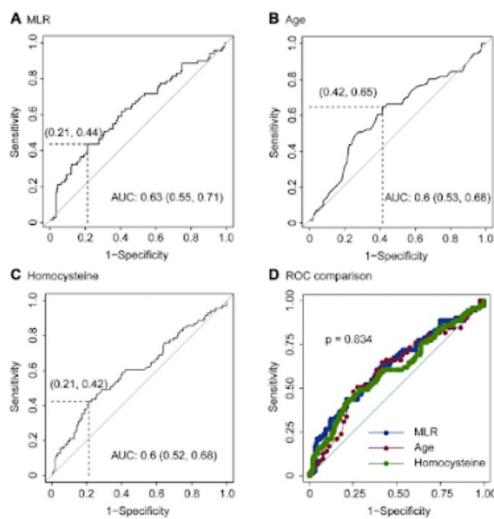


Figure 3. ROC of MLR (A), age (B), homocysteine (C) and ROC comparison (D) for imaging progression in chest CT from COVID-19 patients.

Table 4. Predictive values of MLR model, age and homocysteine for imaging progression on chest CT from COVID-19 patients.		
	Estimate	95%CI
MLR		
Cutoff	0.51	-
Sensitivity	0.44	0.32 – 0.56
Specificity	0.79	0.72 – 0.84
Positive predictive value	0.42	0.34 – 0.54
Negative predictive value	0.80	0.71 – 0.85
Age, years		
Cutoff	51	-
Sensitivity	0.65	0.53 – 0.76
Specificity	0.58	0.51 – 0.65
Positive predictive value	0.35	0.29 – 0.48
Negative predictive value	0.83	0.74 – 0.86
Homocysteine, $\mu\text{mol/L}$		
Cut off	10.58	
Sensitivity	0.42	0.31 – 0.55
Specificity	0.79	0.72 – 0.84
Positive predictive value	0.41	0.33 – 0.53
Negative predictive value	0.80	0.70 – 0.85

## **The Role of Chest Imaging in Patient Management during the COVID-19 Pandemic: A Multinational Consensus Statement from the Fleischner Society.**

[PMID: 32275978](#), Apr 11, 2020

Rubin, Geoffrey D; Ryerson, Christopher J; Haramati, Linda B; Sverzellati, Nicola; Kanne, Jeffrey P; Raoof, Suhail; Schluger, Neil W; Volpi, Annalisa; Yim, Jae-Joon; Martin, Ian B K; Anderson, Deverick J; Kong, Christina; Altes, Talissa; Bush, Andrew; Desai, Sujal R; Goldin, Jonathan; Goo, Jin Mo; Humbert, Marc; Inoue, Yoshikazu; Kauczor, Hans-Ulrich; Luo, Fengming; Mazzone, Peter J; Prokop, Mathias; Remy-Jardin, Martine; Richeldi, Luca; Schaefer-Prokop, Cornelia M; Tomiyama, Noriyuki; Wells, Athol U; Leung, Ann N

Chest

Level of Evidence: Level 5 - Expert Consensus

Type of Article: Statement

### **Summarizing Excerpt:**

#### **“Essentials**

- Imaging is not indicated in patients with suspected COVID-19 and mild clinical features unless they are at risk for disease progression
- Imaging is indicated in a patient with COVID-19 and worsening respiratory status
- In a resource-constrained environment, imaging is indicated for medical triage of patients with suspected COVID-19 who present with moderate-severe clinical features and a high pre-test probability of disease”

## **Abstract:**

With more than 900,000 confirmed cases worldwide and nearly 50,000 deaths during the first three months of 2020, the COVID-19 pandemic has emerged as an unprecedented healthcare crisis. The spread of COVID-19 has been heterogeneous, resulting in some regions having sporadic transmission and relatively few hospitalized patients with COVID-19 and others having community transmission that has led to overwhelming numbers of severe cases. For these regions, healthcare delivery has been disrupted and compromised by critical resource constraints in diagnostic testing, hospital beds, ventilators, and healthcare workers who have fallen ill to the virus exacerbated by shortages of personal protective equipment. While mild cases mimic common upper respiratory viral infections, respiratory dysfunction becomes the principal source of morbidity and mortality as the disease advances. Thoracic imaging with chest radiography (CXR) and computed tomography (CT) are key tools for pulmonary disease diagnosis and management, but their role in the management of COVID-19 has not been considered within the multivariable context of the severity of respiratory disease, pre-test probability, risk factors for disease progression, and critical resource constraints. To address this deficit, a **multidisciplinary panel comprised principally of radiologists and pulmonologists from 10 countries with experience managing COVID-19 patients across a spectrum of healthcare environments evaluated the utility of imaging within three scenarios representing varying risk factors, community conditions, and resource constraints.** Fourteen key questions, corresponding to 11 decision points within the three scenarios and three additional clinical situations, were rated by the panel based upon the anticipated value of the information that thoracic imaging would be expected to provide. The results were aggregated, resulting in five main and three additional recommendations intended to guide medical practitioners in the use of CXR and CT in the management of COVID-19.

# Hospital pharmacists' pharmaceutical care for hospitalized patients with COVID-19: Recommendations and guidance from clinical experience.

[PMID: 32273253](#), Apr 11, 2020

Song, Zaiwei; Hu, Yang; Zheng, Siqian; Yang, Li; Zhao, Rongsheng

Journal of Neuro-Oncology

Level of Evidence: 5 – Expert opinion, mechanism-based reasoning

Type of Article: Comment

**BLUF:** Hospital pharmacists are a key clinical partner in treating patients with COVID-19 and should be incorporated as much as possible into the care team.

## Abstract:

**OBJECTIVE:** To discuss **hospital pharmacists' role in providing pharmaceutical care** for hospitalized patients with COVID-19 to promote patient care and management during the pandemic.

**METHOD:** Based on the method of evidence-based pharmacy, clinical evidence of therapeutical drugs for COVID-19 were retrieved and summarized. Based on clinical experience Chinese hospital pharmacists gained from providing pharmaceutical care services during COVID-19 pandemic, taking COVID-19 hospitalized patients' needs into consideration, the methods and strategies hospital pharmacists shall use to provide pharmaceutical care were analyzed and summarized.

**RESULTS:** Hospital pharmacists shall support pharmaceutical care services by participating in making evidence-based decisions for medication, monitoring and evaluation of medication safety and efficacy, providing strengthened care for special population and patients with combined underlying diseases, monitoring and management of convalescent plasma therapy, providing emotional counselling and psychological support, and providing scientific information about COVID-19 vaccines.

**CONCLUSION:** The need of pharmaceutical care services in COVID-19 hospitalized patients during this pandemic was quite distinguished from the past. **Hospital pharmacists shall join the collaborative multidisciplinary team** to improve COVID-19 patients' outcome and reduce mortality, and to facilitate the pandemic control.

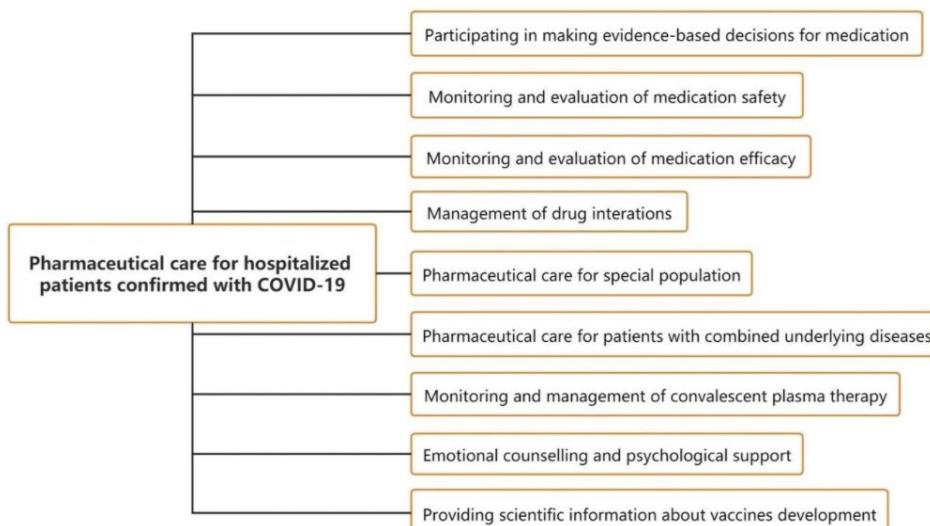


Fig. 1. Framework of pharmaceutical care for hospitalized patients confirmed with COVID-19.

# Managing other conditions during COVID-19

## Seasonal Influenza Activity During the SARS-CoV-2 Outbreak in Japan.

[PMID: 32275293](#), Apr 11, 2020

Sakamoto, Haruka; Ishikane, Masahiro; Ueda, Peter

JAMA

Level of Evidence: Level 4: Local nonrandom sample during COVID-19 pandemic

Type of Article: Research letter

**Summary:** There was less seasonal influenza in the year 2020 in Japan when compared to previous years. This is likely due to concerns related to SARS-CoV2 resulting in decreased access to medical care and social distancing.

## Strategic Dermatology Clinical Operations During COVID-19 Pandemic.

[PMID: 32277972](#), Apr 12, 2020

Price, Kyla N; Thiede, Rebecca; Shi, Vivian Y; Curiel-Lewandrowski, Clara

J Am Acad Dermatol

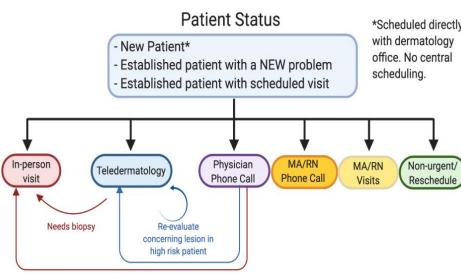
Level of Evidence: Level 5- Expert opinion

Type of Article: Recommendation

**Summary:** The authors recommend prioritizing in person clinic time to patients with lesions that are potentially life threatening and to provide ongoing care with existing patients with teledermatology.

Table 1. Visit types and associated visit categories

Visit Type	Visit Categories	Visit Type	Visit Categories
In-Person Visit	Blistering skin condition	RN/MA Calls	Path results information
	Diffuse rash (BSA >80%); acute onset within 1-2 weeks	Labs – notifying of normal/abnormal	
	Erythrodermic	RN/MA Visit	Isotretinoin refill (female urine test)*
	Mucosal involvement		6-12 month follow-up
	Rapidly enlarging non-healing lesion (including bleeding) that has been present for at least 4 weeks		Lesion for monitoring in patient with NO personal or family history of melanoma
	Painful lesion(s)/rash		Lesion for concern present < 4 weeks
Telemedicine	Patients with high number of skin cancers		Acne, rosacea visits
	Any rash in immunocompromised patient or patient on chemotherapy		Hidradenitis suppurativa follow-up
	Concerning lesion for melanoma diagnosis or other high-risk skin cancer		Seborrheic dermatitis
	Condition worsening; need to make changes to therapeutic plan		Skin tag/ seborrheic keratoses
	< 3-month follow-up scheduled at last visit		Lipoma/cyst
	Lesion for monitoring in patient with history of melanoma or high-risk skin cancer		Hair loss
Provider Phone Call	New lesion of concern present for > 4 weeks		Irritating lesion
	Follow-up on chronic rashes (psoriasis, etc.)		Patch testing
	Isotretinoin monthly discussion (RN/MA visit for urine in female patients)		All other visits
	High risk medication monitoring (including biologics and immunomodulators)		New patient visit unless specific to something already listed in "Red"
	Dx of melanoma or other high-risk skin cancer in the last year		



## Telemedicine in Liver Disease and Beyond: Can the COVID-19 Crisis Lead to Action?

[PMID: 32275784](#), Apr 11, 2020

Serper, Marina; Cubell, Allen W; Deleener, Mary Elisabeth; Casher, Tara K; Rosenberg, Dale J;

Whitebloom, Dale; Rosin, Roy M

Hepatology

Level of Evidence: 4 – Case series

Type of Article: Research

**BLUF:** Telemedicine has become a popular resource for patient care during the pandemic. It has great utility in a non-pandemic situation as well, however obstacles are often faces to widely implement it in the health-care system. Its use during the pandemic may help to mitigate this in the future.

**Abstract:** Evidence strongly supports that **access to specialty gastroenterology or hepatology care in cirrhosis is associated with higher adherence to guideline-recommended care and improves clinical outcomes.** Presently, only about one half of acute care hospitalizations for cirrhosis-related complications result in inpatient specialty care and the current hepatology workforce cannot meet the demand of patients with liver disease nationwide, particularly in less densely populated areas and in community-based practices not affiliated with academic centers.

**Telemedicine**, defined as the delivery of health care services at a distance using electronic means for diagnosis and treatment, holds tremendous promise to **increase access to broadly specialty care. The technology is cheap and easy to use, however, is presently limited in scale by interstate licensing restrictions and reimbursement barriers.** The outbreak of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and Coronavirus Disease 2019 (COVID-19) has, in the short-term, accelerated the growth of telemedicine delivery as a public health and social distancing measure. Herein, we examine whether this public health crisis can accelerate the national conversation about **broader adoption of telemedicine for routine medical care in non-crisis situations** using a case series from our telehepatology program as a pragmatic example.

## Challenges with the management of older patients with cancer during the COVID-19 pandemic.

[PMID: 32273247, Apr 11, 2020](#)

Falandry, Claire; Filteau, Cynthia; Ravot, Christine; Le Saux, Olivia

Journal of Geriatric Oncology

Level of Evidence: 5 – Expert opinion

Type of Article: Comment

**Summary:** Balancing the ethical dilemmas of cancer care, especially in older patients during this pandemic can be challenging. The authors propose an algorithm to determine the best course of care.

## ILROG Emergency Guidelines for Radiation Therapy of Hematological Malignancies During the COVID-19 Pandemic.

[PMID: 32275740, Apr 11, 2020](#)

Yahalom, Joachim; Dabaja, Bouthaina S; Ricardi, Umberto; Ng, Andrea; Mikhaeel, N George;

Vogelius, Ivan Richter; Illidge, Tim M; Qi, Shunan; Wirth, Andrew; Specht, Lena

Blood

Level of Evidence: Level 5- Expert opinion

Type of Article: Recommendation

**Summary:** Given the resource constraints during this pandemic, there are three simple strategies to reduce demand for radiation: omitting, delaying and shortening the course of treatment. “Clinicians need to carefully assess disease factors and individuals risk in case of COVID-19 infection to decide on most appropriate action in patients with hematologic malignancies”.

## Abstract:

The ILROG guidelines for using radiation therapy in hematological malignancies are widely used in many countries. The emergency situation created by the COVID-19 pandemic may result in limitations of treatment resources. Furthermore, in recognition of the need to also reduce the exposure of patients and staff to potential infection with COVID-19, the ILROG task force has made recommendations for alternative radiation treatment schemes. The emphasis is on maintaining clinical efficacy and safety by increasing the dose per fraction while reducing the number of daily treatments. The guidance is informed by adhering to acceptable radiobiological parameters and clinical tolerability. The options for delaying or omitting RT in some hematological categories are also discussed.

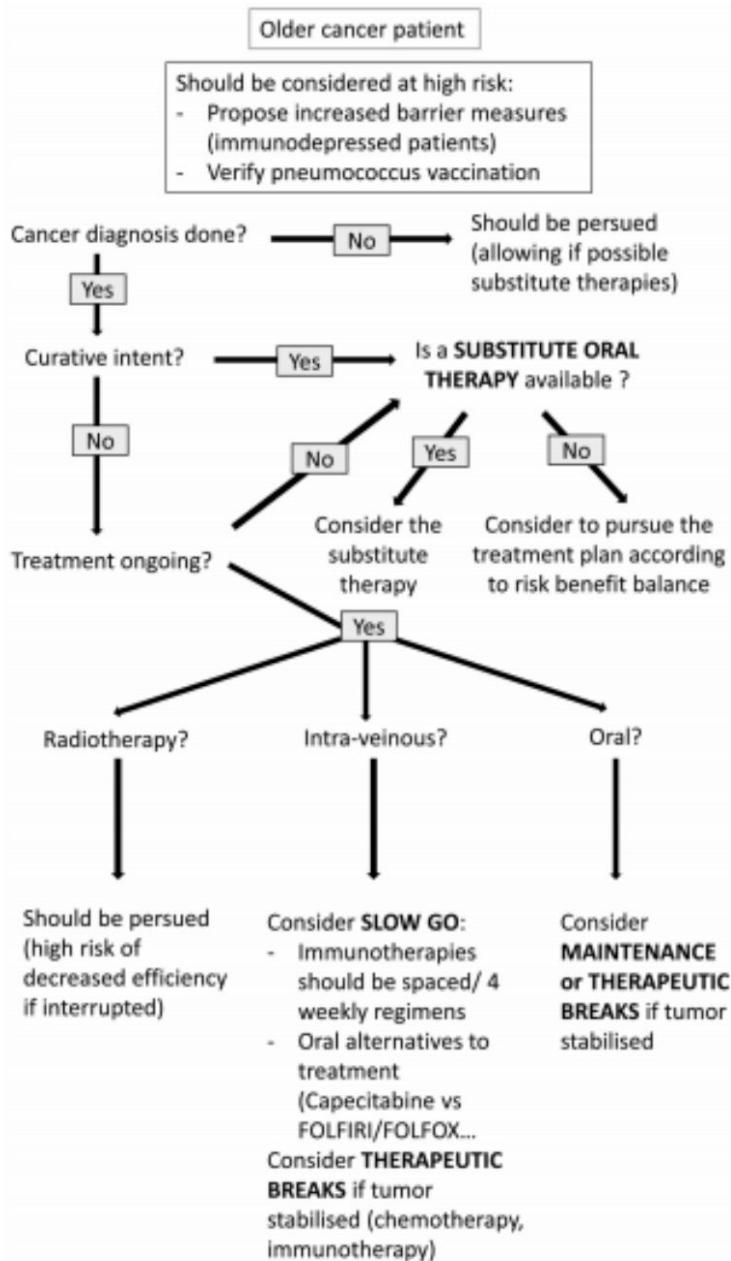


Figure 1: Proposed algorithm for treatment decisions for older patients with cancer.

	Standard		Comments	Emergency COVID-19 Crisis Alternative Dose-Fractionation			BED Calculations	
	Total Dose	No. Fractions		Total Dose	No. Fractions	Dose/Fraction*	EQD2 $\alpha/\beta = 3 \text{ Gy}$	EQD2 $\alpha/\beta = 10 \text{ Gy}$
<b>HL favorable, chemosensitive</b>	20 Gy	10	Consider hypofractionation only in critical resource shortage situation	18 Gy	6	3 Gy	22 Gy	20 Gy
<b>HL unfavorable, chemosensitive</b>	30.6	17	Consider hypofractionation only in critical resource shortage situation	27 Gy	9	3 Gy	32 Gy	29 Gy
<b>NLPHL RT alone</b>								
<b>HL, chemorefractory</b>	40 Gy	20	Consider hypofractionation only in critical resource shortage situation	36-39 Gy	12-13	3 Gy	43-47 Gy	39-42 Gy
<b>Aggressive NHL, chemosensitive</b>	30 Gy	15	No significant cardiac and/or lung exposure and no overlapping critical organs	25 Gy	5	5 Gy	40 Gy	32 Gy
			Some cardiac/ lung exposure or overlapping critical organs	27 Gy	9	3 Gy	32 Gy	29 Gy
<b>Aggressive NHL, chemorefractory disease</b>	40-50 Gy	20-25	No significant cardiac and/or lung exposure and no overlapping critical organs	30 Gy	6	5 Gy	48 Gy	38 Gy
<b>Localized aggressive NHL, primary RT alone (not chemo candidate)</b>			Some cardiac/ lung exposure or overlapping critical organs	36-39 Gy	12-13	3 Gy	43-47 Gy	39-42 Gy
<b>Indolent lymphoma, limited stage</b>	24 Gy	12	Start with 4 Gy x1, reevaluate after 2-3 months→ If insufficient response, proceed to definitive RT	4 Gy	1	4 Gy	6 Gy	5 Gy
				20 Gy	5	4 Gy	28 Gy	23 Gy
<b>NK/T-cell lymphoma</b>	45 Gy#	25	In patients treated with effective chemotherapy regimen#	36 Gy	9	4 Gy	50 Gy	42 Gy
<b>Cutaneous T-cell lymphoma, TSEBT</b>	10-12 Gy	6-10	Give 2-3 treatments, 1 per week, evaluate response after each	8-12 Gy	2-3	4 Gy	11-17 Gy	9-14 Gy
<b>Solitary bone plasmacytoma or Solitary extramedullary plasmacytoma</b>	40-45 Gy	20-25	Non-spine, non-H&N sites	30 Gy	6	5 Gy	48 Gy	38 Gy
			Spine or H&N sites	36 Gy	12	3 Gy	43 Gy	39 Gy

Curative:

PALLIATIVE								
Symptomatic aggressive	30 Gy	10	Life expectancy ≥ 3 months	25 Gy	5	5 Gy	40 Gy	31 Gy
<b>NHL (no chemo options)</b>			Life expectancy < 3 months	8 Gy	1	8 Gy	18 Gy	12 Gy
<b>Symptomatic multiple myeloma</b>	20 Gy	5	No cord compression	8 Gy	1	8 Gy	18 Gy	12 Gy
			Cord compression	20 Gy	5	4 Gy	28 Gy	23 Gy
<b>Symptomatic indolent lymphoma</b>	4 Gy	2	No cord compression	4 Gy	1	4 Gy	6 Gy	5 Gy
			Cord compression	20 Gy	5	4 Gy	28 Gy	23 Gy
<b>Myeloid sarcoma/leukemia</b>	24 Gy	12	Cranial leptomeningeal disease	8 Gy	2	4 Gy	11 Gy	9 Gy
			Focal leptomeningeal spine disease, and symptomatic chloroma outside the CNS	12 Gy	3	4 Gy	17 Gy	14 Gy

## Rapid De-Escalation and Triaging Patients in Community-Based Palliative Care.

PMID: 32276099 Apr 11, 2020

Tran, David; Lai, Steve; Salah, Ramy; Wong, Angela; Bryon, Jill; McKenna, Meghan; Chan, Yvonne  
J Pain Symptom Manage

Level of Evidence: Level 5- Expert opinion

Type of article: Guidelines

BLUF: A presentation of guidelines by the Palo Alto Medical Foundation Palliative Care and Support Services for triaging patients for outpatient and community palliative care.

Abstract:

**CONTEXT:** The COVID-19 pandemic created a rapid and unprecedented shift in our medical system. Medical providers, teams, and organizations have needed to shift their visits away from face-to-face visits and toward telehealth (both by phone and through video). Palliative care teams who practice in the community setting are faced with a difficult task: How do we actively triage the most urgent visits while keeping our vulnerable patients safe from the pandemic?

**MEASURES:** The following are recommendations created by the Palo Alto Medical Foundation Palliative Care and Support Services team to help triage and coordinate for timely, safe, and effective palliative care in the community and outpatient setting during the ongoing COVID-19 pandemic. Patients are initially triaged based on location followed by acuity. Interdisciplinary care is implemented using strict infection control guidelines in the setting of limited personal protective equipment (PPE) resources. We implement thorough screening for COVID-19 symptoms at multiple levels before a patient is seen by a designated provider.

**CONCLUSIONS/LESSONS LEARNED:** We recommend active triaging, communication, frequent screening for COVID-19 symptoms for palliative care patients been evaluated in the community setting. An understanding of infection risk, mutual consent between designated providers, patients, and their families are crucial to maintaining safety while delivering community-based palliative care during the COVID-19 pandemic.

## COVID-19 in a Kidney Transplant Patient.

PMID: 32273181 Apr 11, 2020

Wang, Junpeng; Li, Xin; Cao, Guanghui; Wu, Xiaoqiang; Wang, Zhiwei; Yan, Tianzhong  
Eur Urol

Level of Evidence: Level 4- Case study

Type of article: Research

Summarizing excerpt: “Organ transplant patients with COVID-19 infection might have poorer prognosis because of their systemic immunosuppressive state. However, this severe case was cured even without discontinuing or reducing his immunosuppressant therapy. There are two possible reasons that might help to explain this result. First, it has been reported that overwhelming inflammation and cytokine release could lead to multiple organ dysfunction and death in patients with COVID-19 [1]. However, his immunosuppressive state could have protected this kidney transplant patient from severe immune injury. Second, as a potent immunosuppressive agent, CsA is able to inhibit the replication of diverse coronaviruses, including severe acute respiratory syndrome coronavirus, Middle East respiratory syndrome coronavirus, human coronavirus NL63, and feline coronavirus [2,3]. Whether CsA has an antiviral effect for the coronavirus causing COVID-19 requires further study.”

# Operating Room Guide for Confirmed or Suspected COVID-19 Pregnant Patients Requiring Cesarean Delivery.

PMID: 32274771 Apr 11, 2020

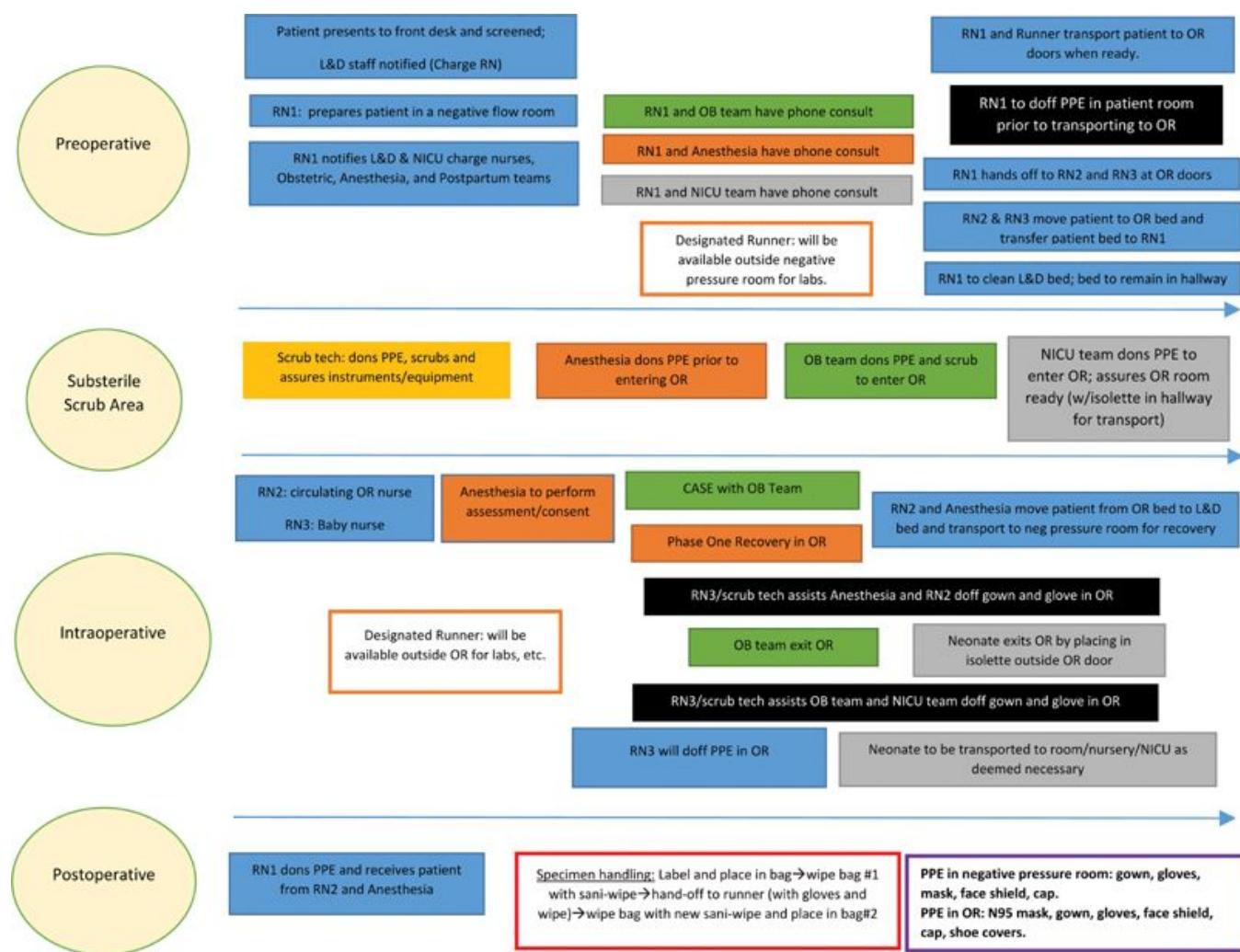
Gonzalez-Brown, Veronica M; Reno, Joseph; Lortz, Heather; Fiorini, Kasey; Costantine, Maged M  
Am J Perinatol

Level of Evidence: Level 5- Expert opinion

Type of Article: Recommendation

## Abstract

We sought to provide a clinical practice protocol for our labor and delivery (L&D) unit, to care for confirmed or suspected COVID-19 patients requiring cesarean delivery. A multidisciplinary team approach guidance was designed to simplify and streamline the flow and care of patient with confirmed or suspected COVID-19 requiring cesarean delivery. A protocol was designed to improve staff readiness, minimize risks, and streamline care processes. This is a suggested protocol which may not be applicable to all health care settings but can be adapted to local resources and limitations of individual L&D units. Guidance and information are changing rapidly; therefore, we recommend continuing to update the protocol as needed.



| Fig. 1 Algorithm for suspected or confirmed COVID-19 patient necessitating cesarean. COVID-19, novel coronavirus disease 2019. L&D, labor and delivery; NICU, neonatal intensive care unit; OB, obstetrician team; OR, operating room; PPE, personal protective equipment; RN, registered nurse. Colored box indicators: blue box, nursing; orange box, anesthesia; green box, OB; gray box, pediatrics. Note: This protocol and other guidance should be adapted to your specific situation. No guideline can encompass every clinical scenario. Use clinical judgment as needed. |

## Corticosteroid Guidance for Pregnancy during COVID-19 Pandemic.

PMID: 32274772 Apr 11, 2020

McIntosh, Jennifer Jury

Am J Perinatol

Level of Evidence: Level 5- Expert opinion

Type of Article: Recommendations

**Summary:** Corticosteroid use can increase morbidity and mortality in patients with COVID-19. The author recommends that no pregnant woman with concern for COVID-19 be given steroids after 32 weeks. They recommend consulting MFM regarding steroid use in ladies <32 weeks with risk of preterm delivery and PUI for more nuanced approach. Furthermore, because tocolytics are ultimately used in these patients to prevent labor until steroids are on board, they recommend against tocolytics in COVID-19 positive patients.

## Management of ovarian cancer during the COVID-19 pandemic.

PMID: 32275775 Apr 11, 2020

Dario Mandato, Vincenzo; Aguzzoli, Lorenzo

Int J Gynaecol Obstet

Level of Evidence: Level 5- Expert opinion

Type of Article: Letter

**Summary:** Author encourages use of peripheral centers as cancer treatment hubs to allow major hospitals to preserve ICU space for COVID-19 patients and to help patients with cancer access surgical treatment.

# Therapeutics

## Ongoing Clinical Trials for the Management of the COVID-19 Pandemic

DOI: <https://doi.org/10.1016/j.tips.2020.03.006>, Apr 11, 2020

Lythgoe, Mark P; Middleton, Paul.

Trends in Pharmacological Sciences

Level of evidence: 1- Systematic Review

Type of Article: Review

**BLUF:** Collection of clinical trial (vaccine and therapeutic) information from four worldwide databases. Great resource to see what is currently in the pipeline for drug and vaccine development.

**Abstract:** COVID-19 has rapidly developed into a worldwide pandemic with a significant health and economic burden. There are currently no approved treatments or preventative therapeutic strategies. Hundreds of clinical studies have been registered with the intention of discovering effective treatments. **Here, we review currently registered interventional clinical trials for the treatment and prevention of COVID-19 to provide an overall summary and insight into the global response.**

## If a coronavirus vaccine arrives, can the world make enough?

PMID: 32273621, Apr 11, 2020

Khamsi, Roxanne

Nature

Level of Evidence: : 5 - Expert opinion

Type of Article: News

**Summary:** A vaccine may be available in the next one to two years, but a supply to meet world demand will be likely impossible. Funding is a challenge and other illnesses as well need the focus of vaccine manufacturers. Providing enough production capability is difficult to predict, because the type of vaccine that will work best against COVID-19 is not known at this time. Total cost of vaccine investigation, production, and distribution is estimated at US\$3 billion.

## Plasminogen improves lung lesions and hypoxemia in patients with COVID-19.

PMID: 32275753, Apr 11, 2020

Wu, Yuanyuan; Wang, Ting; Guo, Chunying; Zhang, Dongmei; Ge, Xiaojing; Huang, Zhaoxing; Zhou, Xianshan; Li, Yiping; Peng, Qingzhen; Li, Jinan

QJM

Level of Evidence: 4 – Cohort study without controls

Type of Article: Research

**BLUF:** Plasminogen showed varying improvement in lung lesions, oxygen saturation, and heart rate in critical and moderately ill patients. It could be an effective tool in lung disease in COVID-19.

### Abstract:

**BACKGROUND:** Lungs from patients with coronavirus disease 2019 (COVID-19) have shown typical signs of acute respiratory distress syndrome (ARDS), formation of hyaline membrane mainly

composed of fibrin, and 'ground-glass' opacity. Previously, we showed plasminogen itself is a key regulator in fibrin degradation, wound healing and infection.

**AIM:** We aimed to investigate whether plasminogen can improve lung lesions and hypoxemia of COVID-19. **DESIGN:** Thirteen clinically moderate, severe or critical COVID-19 patients were treated with atomization inhalation of freeze-dried plasminogen.

**METHODS:** Levels of their lung lesions, oxygen saturation and heart rates were compared before and after treatment by CT scanning images and patient monitor.

**RESULTS:** After plasminogen inhalation, conditions of lung lesions in 5 clinically moderate patients have quickly improved, shown as the decreased range and density of 'ground glass' opacity.

Improvements of oxygen saturation were observed in 6 clinically severe patients. In the 2 patients with critical conditions, the oxygen levels have significantly increased from 79-82% to 91% just about 1 hour after the first inhalation. In 8 of 13 patients the heart rates had slowed down. For the 5 clinically moderate patients, the difference is even statistically significant. Furthermore, a general relief of chest tightness was observed.

**CONCLUSION:** Whereas it is reported that plasminogen is dramatically increased in adults with ARDS, this study suggests that additional plasminogen may be effective and efficient in treating lung lesions and hypoxemia during COVID-19 infections. Although further studies are needed, this study highlights a possible hope of efficiently combating this rapid epidemic emergency.

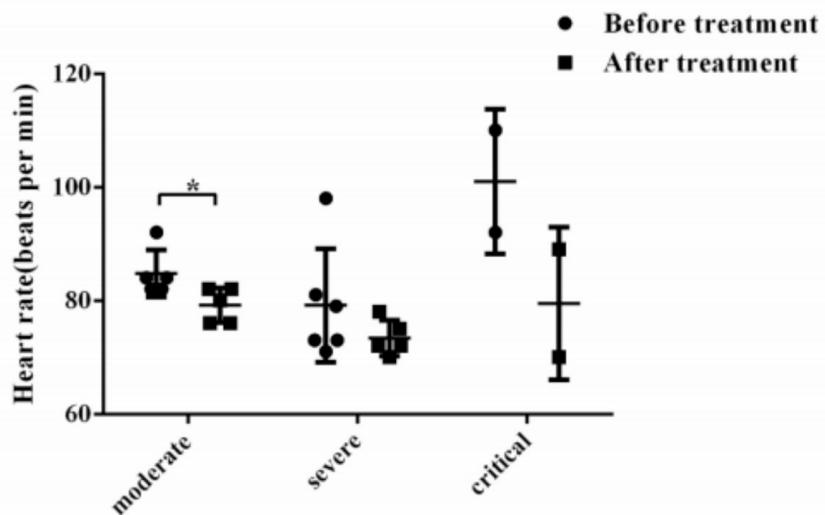


Fig 2 Heart rates of clinically moderate, severe, and critical COVID-19 patients before (●) and after (■) inhalation treatment of plasminogen. All values are presented as means  $\pm$  SDs. \*, P

## The Role of Tissue Engineering in COVID-19 and Future Viral Outbreaks.

[PMID: 32272857](#), Apr 11, 2020

Tatara, Alexander M

Advances in Tissue Engineering

Level of Evidence: 5 – Expert opinion, mechanism-based reasoning

Type of Article: Comment

**BLUF:** Tissue engineers have vital skills than can enable them to make important contributions to COVID-19 research.

**Abstract:** In light of the current novel coronavirus (COVID-19) pandemic as well as other viral outbreaks in the 21st century, there is a **dire need for new diagnostic and therapeutic**

**strategies to combat infectious diseases** worldwide. As a convergence science, tissue engineering has traditionally focused on application of engineering principles to biological systems, collaboration across disciplines, and rapid translation of technologies from the benchtop to the bedside. Given these strengths, **tissue engineers are particularly well-suited to apply their skillset to the current crisis and viral outbreaks in general**. This work introduces the basics of virology and epidemiology for tissue engineers and highlights important developments in the field of tissue engineering relevant to the current pandemic, including in vitro model systems, vaccine technology, and small molecule drug delivery. COVID-19 serves as a call to arms for scientists across all disciplines and tissue engineers are well-trained to be leaders and contributors in this time of need.

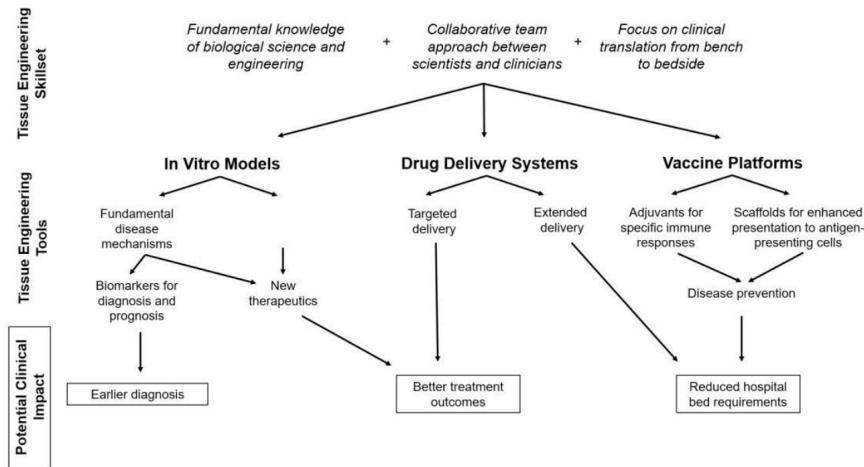


Figure 1. Examples of how tissue engineering skills and tools may be leveraged to have impact on clinical practice in the setting of a viral outbreak

## Inhibitors of the renin-angiotensin system and SARS-CoV-2 infection.

[PMID: 32274522](#), Apr 11, 2020

Kessler, Thorsten; Schunkert, Heribert Herz

Level of Evidence: Level 5 - Mechanism based reasoning

Type of Article: Letter

**Summarizing excerpt:** “ACE2 seems to have protective cardiac and pulmonary effects by counteracting RAAS, i.e., Ang-2 (Fig. 1). However, given that an influence of ACEI and ARB on ACE2 in the pathophysiology of COVID-19 cannot be neglected, data on such treatment in COVID-19 patients and investigation of outcomes are urgently needed. In particular, one could speculate that ARB in particular, which limits the detrimental effects of Ang-2 without altering the beneficial effects of Ang-(1–7), might not increase risk or may even improve outcomes.”

## Type 1 interferons as a potential treatment against COVID-19.

[PMID: 32275914](#), Apr 11, 2020

Sallard, Erwan; Lescure, Francois-Xavier; Yazdanpanah, Yazdan; Mentre, France; Peiffer-Smadja, Nathan

Antiviral Res

Level of Evidence: Level 5 - Mechanism based reasoning

Type of Article: Review

**BLUF:** Despite mixed efficiency of interferon treatment against MERS and SARS, SARS-CoV-2 is likely more sensitive to interferon and further investigation on its use in treatment should be pursued, as it might be safe and effective.

**Abstract:** Type 1 interferons have a broad antiviral activity in vitro and are currently evaluated in a clinical trial to treat MERS-CoV. In this review, we discuss preliminary data concerning the potential activity of type 1 interferons on SARS-CoV-2, and the relevance of evaluating these molecules in clinical trials for the treatment of COVID-19.

## The COVID-19 vaccine development landscape.

[PMID: 32273591, Apr 11, 2020](#)

Thanh Le, Tung; Andreadakis, Zacharias; Kumar, Arun; Gomez Roman, Raul; Tollefsen, Stig; Saville, Melanie; Mayhew, Stephen

Nature Reviews Drug Discovery

Level of Evidence: N/A

Type of Article: Research

**Summary:** The article outlines the current vaccine development efforts and progress against various measures.

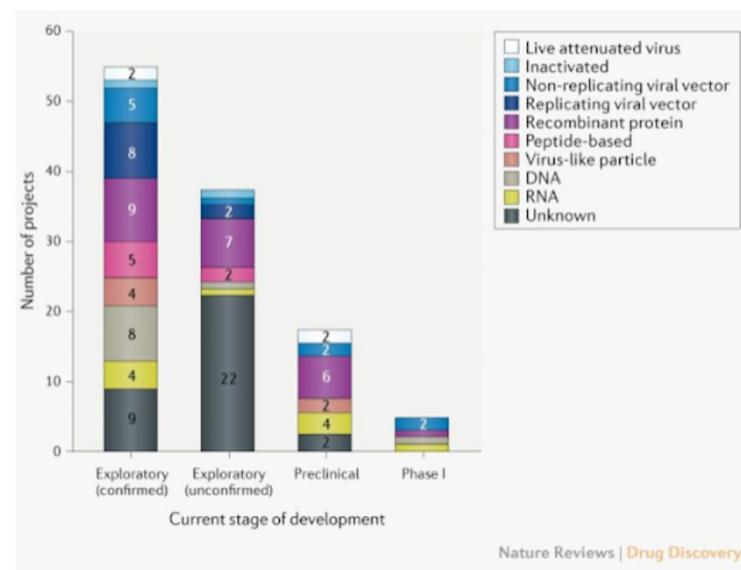


Fig. 1 | Pipeline of COVID-19 vaccine candidates by technology platform. Exploratory projects (split into confirmed and unconfirmed) are in the early planning stage with no in-vivo testing, and preclinical projects are at the stage of in-vivo testing and/or manufacturing clinical trials material.

**TABLE 1 | CLINICAL-PHASE VACCINE CANDIDATES FOR COVID-19**

Candidate	Vaccine characteristics	Lead developer	Status
mRNA-1273	LNP-encapsulated mRNA vaccine encoding S protein	Moderna	Phase I (NCT04283461)
Ad5-nCoV	Adenovirus type 5 vector that expresses S protein	CanSino Biologicals	Phase I (NCT04313127)
INO-4800	DNA plasmid encoding S protein delivered by electroporation	Inovio Pharmaceuticals	Phase I (NCT04336410)
LV-SMENP-DC	DCs modified with lentiviral vector expressing synthetic minigene based on domains of selected viral proteins; administered with antigen-specific CTLs	Shenzhen Geno-Immune Medical Institute	Phase I (NCT04276896)
Pathogen-specific aAPC	aAPCs modified with lentiviral vector expressing synthetic minigene based on domains of selected viral proteins	Shenzhen Geno-Immune Medical Institute	Phase I (NCT04299724)

aAPC, artificial antigen-presenting cell; CTL, cytotoxic T lymphocyte; DC, dendritic cell; LNP, lipid nanoparticle; S protein, SARS-CoV-2 spike protein. Source: ClinicalTrials.gov website; WHO.

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

[PMID: 32275812, Apr 11, 2020](#)

Grein, Jonathan; Ohmagari, Norio; Shin, Daniel; Diaz, George; Asperges, Erika; Castagna, Antonella; Feldt, Torsten; Green, Gary; Green, Margaret L; Lescure, Francois-Xavier; Nicastri, Emanuele; Oda, Rentaro; Yo, Kikuo; Quiros-Roldan, Eugenia; Studemeister, Alex; Redinski, John; Ahmed, Seema; Bennett, Jorge; Chelliah, Daniel; Chen, Danny; Chihara, Shingo; Cohen, Stuart H; Cunningham, Jennifer; D'Arminio Monforte, Antonella; Ismail, Saad; Kato, Hideaki; Lapadula, Giuseppe; L'Her, Erwan; Maeno, Toshitaka; Majumder, Sumit; Massari, Marco; Mora-Rillo, Marta; Mutoh, Yoshikazu;

Nguyen, Duc; Verweij, Ewa; Zoufaly, Alexander; Osinusi, Anu O; DeZure, Adam; Zhao, Yang; Zhong, Lijie; Chokkalingam, Anand; Elboudwarej, Emon; Telep, Laura; Timbs, Leighann; Henne, Ilana; Sellers, Scott; Cao, Huyen; Tan, Susanna K; Winterbourne, Lucinda; Desai, Polly; Mera, Robertino; Gaggar, Anuj; Myers, Robert P; Brainard, Diana M; Childs, Richard; Flanigan, Timothy  
New England Journal of Medicine

Level of Evidence: 4 – Cohort study without controls

Type of Article: Research

**BLUF:** Remdesivir, a viral RNA polymerase inhibitor, has shown clinical improvement in patients receiving oxygen support.

## Abstract:

**BACKGROUND:** Remdesivir, a nucleotide analogue prodrug that inhibits viral RNA polymerases, has shown in vitro activity against SARS-CoV-2.

**METHODS:** We provided remdesivir on a compassionate-use basis to patients hospitalized with Covid-19, the illness caused by infection with SARS-CoV-2. Patients were those with confirmed SARS-CoV-2 infection who had an oxygen saturation of 94% or less while they were breathing ambient air or who were receiving oxygen support. Patients received a 10-day course of remdesivir, consisting of 200 mg administered intravenously on day 1, followed by 100 mg daily for the remaining 9 days of treatment. This report is based on data from patients who received remdesivir during the period from January 25, 2020, through March 7, 2020, and have clinical data for at least 1 subsequent day.

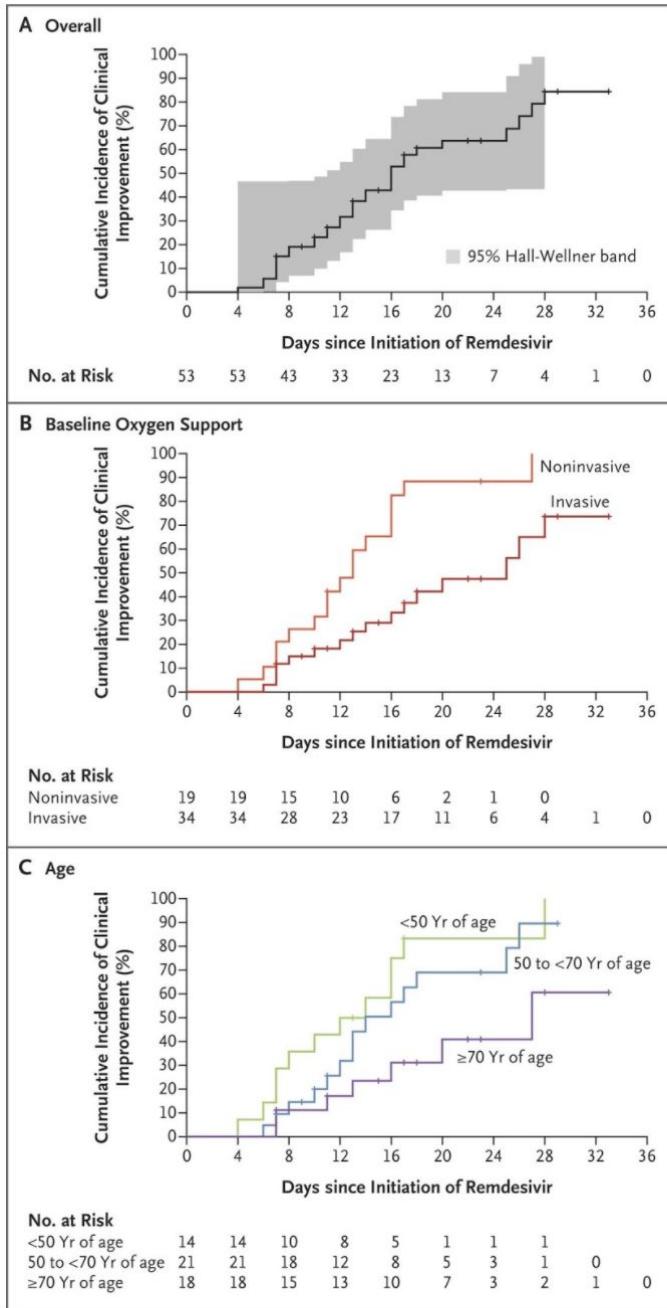
**RESULTS:** Of the 61 patients who received at least one dose of remdesivir, data from 8 could not be analyzed (including 7 patients with no post-treatment data and 1 with a dosing error). Of the 53 patients whose data were analyzed, 22 were in the United States, 22 in Europe or Canada, and 9 in Japan. At baseline, 30 patients (57%) were receiving mechanical ventilation and 4 (8%) were receiving extracorporeal membrane oxygenation. **During a median follow-up of 18 days, 36 patients (68%) had an improvement in oxygen-support class, including 17 of 30 patients (57%) receiving mechanical ventilation who were extubated.** A total of 25 patients (47%) were discharged, and 7 patients (13%) died; mortality was 18% (6 of 34) among patients receiving invasive ventilation and 5% (1 of 19) among those not receiving invasive ventilation.

**CONCLUSIONS:** In this cohort of patients hospitalized for severe Covid-19 who were treated with compassionate-use remdesivir, clinical improvement was observed in 36 of 53 patients (68%). Measurement of efficacy will require ongoing randomized, placebo-controlled trials of remdesivir therapy. (Funded by Gilead Sciences.).

		No. of Patients in Oxygen-Support Group at Baseline (%)			
		Invasive (N=34)	Noninvasive (N=7)	Low-flow oxygen (N=10)	Ambient air (N=2)
No. of Patients in Oxygen-Support Group after Treatment (%)	Category on ordinal scale →	5	4	3	2
	Death	6 (18)	1 (14)	0	0
	Invasive	9 (26)	1 (14)	0	0
	Noninvasive	3 (9)	0	0	0
	Low-flow oxygen	0	0	0	0
	Ambient air	8 (24)	0	0	0
Discharged		8 (24)	5 (71)	10 (100)	2 (100)
Improvement		19 (56)	5 (71)	10 (100)	2 (100)

**Figure 1. Oxygen-Support Status at Baseline and after Treatment.**

For each oxygen-support category, percentages were calculated with the number of patients at baseline as the denominator. Improvement (blue cells), no change (beige) and worsening (gray) in oxygen-support status are shown. Invasive ventilation includes invasive mechanical ventilation, extracorporeal membrane oxygenation (ECMO), or both. Noninvasive ventilation includes nasal high-flow oxygen therapy, noninvasive positive pressure ventilation (NIPPV), or both.



**Figure 3. Cumulative Incidence of Clinical Improvement from Baseline to Day 36.**  
 Clinical improvement is shown in the full cohort, in the cohort stratified according to ventilation status at baseline, and in the cohort stratified by age.

# Mental Health & Resilience

## Psychological status of medical workforce during the COVID-19 pandemic: A cross-sectional study.

PMID: 32276196, Apr 11, 2020

Lu, Wen; Wang, Hang; Lin, Yuxing; Li, Li

Psychiatry Res

Level of Evidence: Level 3- local nonrandom sample

Type of Article: Research

Summarizing excerpt: "The current study found support that the medical staff unfolded greater fear, anxiety and depression than the administrative staff. Moreover, the front line medical staff working in department of respiratory, emergency, ICU and infectious disease, were twice more likely to suffer anxiety and depression than the non-clinical staff with hardly possibility to contact with coronavirus pneumonia patients. Effective strategies toward to improving the mental health should be provided to these individuals."

### Abstract

The pandemic of 2019 coronavirus disease (COVID-19) has burdened an unprecedented psychological stress on people around the world, especially the medical workforce. The study focuses on assess the psychological status of them. The authors conducted a single-center, cross-sectional survey via online questionnaires. Occurrence of fear, anxiety and depression were measured by the numeric rating scale (NRS) on fear, Hamilton Anxiety Scale (HAMA), and Hamilton Depression Scale (HAMD), respectively. A total of 2299 eligible participants were enrolled from the authors' institution, including 2042 medical staff and 257 administrative staff. The severity of fear, anxiety and depression were significantly different between two groups. Furthermore, as compared to the non-clinical staff, front line medical staff with close contact with infected patients, including working in the departments of respiratory, emergency, infectious disease, and ICU, showed higher scores on fear scale, HAMA and HAMD, and they were 1.4 times more likely to feel fear, twice more likely to suffer anxiety and depression. The medical staff especially working in above-mentioned departments made them more susceptible to psychological disorders. Effective strategies toward to improving the mental health should be provided to these individuals.

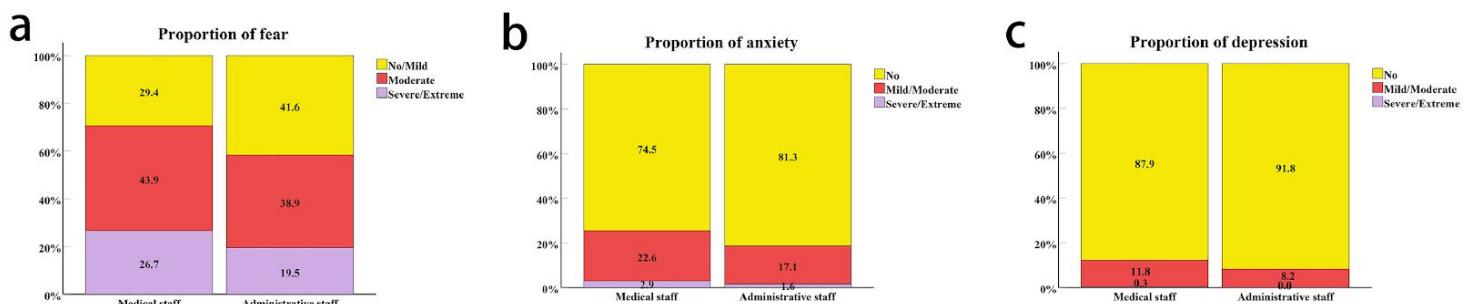


Fig. 1. Comparisons of neuropsychological feature between groups. a-c. the proportion of fear, anxiety and depression in each group of subjects. Colors indicate the different severities neuropsychological status.

Table. 3. Comparison the average level of fear, anxiety and depression between medical staff and administrative staff.

Variables	Medical staff (n = 2042)	Administrative staff (n = 257)	P value <sup>a</sup>
Fear scale	4.89 ± 2.389	4.19 ± 2.384	< 0.001
HAMA	4.73 ± 6.291	3.67 ± 5.072	0.015
HAMD	2.41 ± 3.979	1.86 ± 3.277	0.029

## Suicide Mortality and Coronavirus Disease 2019-A Perfect Storm?

[PMID: 32275300](#), Apr 11, 2020

Reger, Mark A; Stanley, Ian H; Joiner, Thomas E

JAMA Psychiatry

Level of Evidence: N/A

Type of Article: Comment

**Summarizing Excerpt:** “Concerns about negative secondary outcomes of COVID-19 prevention efforts should not be taken to imply that these public health actions should not be taken. However, implementation should include a comprehensive approach that considers multiple US public health priorities, including suicide prevention. There are opportunities to enhance suicide prevention services during this crisis.”

## Symptom Cluster of ICU nurses treating COVID-19 pneumonia patients in Wuhan, China.

[PMID: 32276095](#), Apr 11, 2020

Yifan, Tang; Ying, Liu; Chunhong, Gao; Jing, Song; Rong, Wang; Zhenyu, Li; Zejuan, Gu; Peihung, Liao

Journal of Pain and Symptom Management

Level of Evidence: 5 – Expert opinion, qualitative research survey

Type of Article: Research

**BLUF:** ICU nurses are at risk of somatic symptom disorder. Interventions targeted at specific types of somatic symptoms may help in the management of the disorder.

### Abstract:

**OBJECTIVE:** In treating highly infectious COVID-19 pneumonia, **ICU nurses face a high risk of developing somatic symptom disorder (SSD)**. The present study aims to investigate the symptoms and causes of SSD of ICU nurses treating COVID-19 pneumonia. The research results are expected to provide evidence for the establishment of a better management strategy.

**METHODS:** This study enrolled a total of 140 ICU nurses who were selected by Jiangsu Province Hospital to work in Wuhan (the epicenter of the COVID-19 epidemic in China) on 3(rd) February 2020. A **questionnaire** "Somatic Symptom Disorders for ICU Nurses in Wuhan No.1 Hospital" was designed based on the "International Classification of Functioning, Disability and Health" (ICF).

Exploratory factor analysis was performed to cluster the symptoms, and logistic regression analysis to find the risk factors of the symptoms.

**RESULTS:** Five major symptoms were chest-discomfort-and-palpitation (31.4%), dyspnea (30.7%), nausea (21.4%), headache (19.3%), and dizziness (17.9%). In exploratory factor analysis, the symptoms were classified into three clusters: Cluster A of breathing and sleep disturbances (dizziness, sleepiness, dyspnea); Cluster B of gastrointestinal complaints and pain (nausea, headache), and Cluster C of general symptoms (xerostomia, fatigue, chest-discomfort-and-palpitation). In Cluster A, urine/feces splash, sex, and sputum splash were independent predictive factors. In Cluster B, fall of protective glasses and urine/feces splash were independent predictive factors. In Cluster C, urine/feces splash and urine/feces clearance were independent predictive factors.

**CONCLUSION:** The ICU nurses in Wuhan showed varying and overlapping SSDs. These SSDs could be classified into three symptom clusters. Based on the characteristics of their SSDs, specific interventions could be implemented to safeguard the health of ICU nurses.