April 28, 2020
Daily COVID-19 Literature Surveillance Summary

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NOW LIVE!

COVID-19 Daily Literature Surveillance

COVID19LST

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

Coming soon:

The Swab

Jasmine Rah

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

April 28th, 2020
Executive Summary

Climate

- There is a call for regulatory bodies to make sure antimicrobial products are not altered or falsified.
- Some researchers argue that all research should be considered as essential and laboratories that were closed should be reopened, warning that otherwise there will be long standing impacts.

Epidemiology

- Models predicted COVID-19 cases in Hubei Province, China to reach over 150,000 without intervention; however, they only reached slightly above 50,000, highlighting the importance of mitigation efforts such as social distancing and lockdown.
- Case definitions play a large role in reported case numbers. China saw anywhere from 3 to 7 fold increases in the proportion of detected cases with each update to the national COVID-19 case definition guidelines. Experts urge that this variable be taken into account when making further models.
- A case series of almost 200 COVID-19 patients found that the frequency of pulmonary embolism in infected patients is 2 times higher than that found during the control period.
- Experts recommend testing patients presenting with a febrile rash due to increased and varied reports of this symptom.

Understanding the Pathology

- A cohort study proposed that decreased ACE2 expression on epithelial airway cells could account for a potential mechanistically protective effect.
- Researchers in Italy postulate that the respiratory failure observed in severe cases of COVID-19 may be rooted in the brain, due to invasion of the virus into the nucleus of solitary tract in the medulla oblongata.
- One team's genome sequencing of over 250 known clinical isolates of SARS-CoV-2 found high genetic diversity among the isolates with each continent appearing to have multiple introductions of different viral strains.

Transmission & Prevention

- Concerns about fecal transmission lead experts to suggest the use of fecal swabs in making criteria for discharge or discontinuation of quarantine.
- Physicians at Massachusetts General hospital describe the design of their surge clinic for COVID-19 which sees an average of 160 patients a day with only 1% of patients requiring transfer to the ED.
    - Similar techniques are also described at a hospital in Taiwan.

Management

- There is continued discussion in the medical community with regard to the utility telehealth has had in the pandemic and the capacity of a country to employ that along with the associated drawbacks and how they impact management.

- A randomized crossover study of a group of 25 anesthesiologists simulated 4 different intubations using standard vs powered air purifying respirators and found no significant difference in mean intubation time.
- One case study noted potential GI and neurological complications in COVID-19 while another found myocarditis, cautioning physicians to watch for such changes.
- Utmost caution is recommended for cryopreserving sperm, which has been found to have low risk of significant virus shedding but there is suggestion that may not be an acceptable risk.
- Rehabilitation in the acute and recovery stages of COVID-19 is hypothesized to improve respiratory function among other effects.

Adjusting Practice during COVID-19

- Physicians in Mexico developed plans for an aerosol-preventing intubation box that can be made for $40 USD.
- Experts in Italy suggest that prognostic factors such as frailty, comorbidity, and functional status are more accurate prognostic indicators than age when making decisions about the rationing of care.
- Guidelines and recommendations in:
    - Interventional radiology workflow in Switzerland
    - Acute stroke care
    - Deep brain stimulation management.
    - Reducing transmission risk in neurosurgery
    - Pediatric dialysis
    - Management of orthopaedic and traumatology patients
    - Neonatal resuscitation when the mother has suspected or confirmed SARS-CoV-2
- A systematic review containing 106 cases of COVID-19 in immunosuppressed people found that immunosuppression did not place patients at a greater risk of an increased disease severity.

R&D: Diagnosis & Treatments

- Ultrasound (US) is being considered as an alternative to computer tomography (CT) to detect early COVID-19 in resource limited settings.
- A pilot cohort study with Baricitinib therapy for COVID-19 patients found significant improvement of clinical and respiratory parameters within two weeks.

Mental Health & Resilience

- A hospitalized COVID-19 patient with no history of mental illness attempted suicide due to the belief that he was responsible for the infection of several family members highlighting the importance of psychological counseling in the midst of the pandemic.
- A recent social media survey of Iranians found that almost 20% of respondents had severe or very severe anxiety.
- There is increased concern over case reports describing relapses of depression in the elderly.

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Resources

An Interactive Online Dashboard for Tracking COVID-19 in U.S. Counties, Cities, and States in Real Time.

Acknowledgements

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)
How common is the problem?	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
Is this diagnostic or monitoring test accurate? (Diagnosis)	Systematic review of cross sectional studies with consistently applied reference standard and blinding	Individual cross sectional studies with consistently applied reference standard and blinding	Non-consecutive studies, or studies without consistently applied reference standards**	Case-control studies, or "poor or non-independent reference standard**	Mechanism-based reasoning
What will happen if we do not add a therapy? (Prognosis)	Systematic review of inception cohort studies	Inception cohort studies	Cohort study or control arm of randomized trial*	Case-series or case-control studies, or poor quality prognostic cohort study**	n/a
Does this intervention help? (Treatment Benefits)	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
What are the COMMON harms? (Treatment Harms)	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
What are the RARE harms? (Treatment Harms)	Systematic review of randomized trials or *n*-of-1 trial	Randomized trial or (exceptionally) observational study with dramatic effect			
Is this (early detection) test worthwhile? (Screening)	Systematic review of randomized trials	Randomized trial	Non -randomized controlled cohort/follow-up study**	Case-series, case-control, or historically controlled studies**	Mechanism-based reasoning

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

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

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

We have added Level 6 to denote papers that do not cite any sources or provide any supporting evidence.

Climate

Global

The pandemic of COVID-19 and its implications for the purity and authenticity of alcohol-based hand sanitizers: The health risks associated with falsified sanitizers and recommendations for regulatory and public health bodies

Jairoun, AA; Al-Hemyari, SS; Shahwan, M
Res Social Adm Pharm
2020 Apr 20; PMID: 32334979
Level of Evidence: 5 - Expert Opinion
Type of Article: Letter

BLUF: The authors call for regulatory bodies to make sure antimicrobial products are not altered or falsified in times such as this pandemic, citing the alcohol-based sanitizer alterations that are happening now.

Abstract:
With the beginning of the pandemic of COVID-19 throughout the world, the demand and consumption of hand sanitizers has increased, which had *(sic)* led to a sharp crunch in these products at all levels. This shortage has led to an increase in the prevalence of falsified alcohol-based hand sanitizers, including the illegal addition of methanol to hand sanitizers and the production of hand sanitizers with an alcohol concentration of less than 60%. These findings indicate that regulatory and public health bodies should take an active role in ensuring the safety and quality of antimicrobial products such as alcohol-based hand sanitizers at every stage of the products' lifecycle, including distribution, manufacture, and import.

Nonessential Research in the New Normal: The Impact of Novel Coronavirus Disease (COVID-19).

Yanow SK, Good MF.
Am J Trop Med Hyg
2020 Apr 24; PMID: 32333545
Level of Evidence: 5 - Expert Opinion
Type of Article: Editorial

Bluf: The authors argue that all research should be considered essential and laboratories that were closed should be reopened.

Summary: Many research activities, including clinical trials, involving diseases other than COVID-19 have been shut down. This will have long standing impacts as many of these diseases continue to cause morbidity and mortality even though they are not seen to be as urgent as COVID-19. The authors express fears that governments will divert funding from non-COVID-19 research to accommodate new demand and that this shutdown will affect the next generation of scientists. The authors are concerned about students who had to stop the projects needed to complete their degrees and build their careers. Additionally, the travel ban hurts international students, especially those from lower resource countries who gain the most from international experiences. The authors argue that governments and academia must allow scientists to resume their work and consider all research essential.

Social and behavioral health responses to COVID-19: lessons learned from four decades of an HIV pandemic.

Eaton LA, Kalichman SC.Eaton LA, et al.
J Behav Med.
2020 Apr 25; PMID: 32333185
Level of Evidence: 5- No Evidence Provided
Publication Type: Letter

BLUF: The authors draw on the United States' experience with the HIV epidemic 40 years ago and offer parallels to our current pandemic. They suggest that worst case scenarios of COVID-19 morbidity and mortality can be avoided through intrapersonal, interpersonal, community, and societal levels of data-driven and well-coordinated interventions.

Abstract:
Our public health approaches to addressing COVID-19 are heavily dependent on social and behavioral change strategies to halt transmissions. To date, biomedical forms of curative and preventative treatments for COVID-19 are at best limited. Four decades into the HIV epidemic we have learned a considerable amount of information regarding social and behavioral approaches to addressing disease transmission. Here we outline broad, scoping lessons learned from the HIV literature tailored to the nature of what we currently know about COVID-19. We focus on multiple levels of intervention including intrapersonal, interpersonal, community, and social factors, each of which provide a reference point for understanding and elaborating on social/behavioral lessons learned from HIV prevention and treatment research. The investments in HIV prevention and treatment research far outweigh any infectious disease in the history of public health, that is, until now with the emergence of COVID-19.

Impact of Potential COVID-19 Treatment on South African Water Sources Already Threatened by Pharmaceutical Pollution.

Horn S, Vogt B, Pieters R, Bouwman H
Environ Toxicol Chem
2020 Apr 26; PMID: 32335933
Level of Evidence: 5- Expert opinion
Type of Article: Opinion

Summary: Focusing on evidence from anti-HIV efforts in South Africa, the authors express concern about the environmental impact of our response to COVID-19, as drug metabolites, chemicals from sanitization efforts, and discarded PPE end up in water supplies and the natural environment.

Hospital Preparedness for Outbreak at Patan Hospital: Lesson Learnt from COVID-19.

Shrestha A, Rajbhandari P, Bajracharya S.
Nepal Health Res Counc.
2020 Apr 20; PMID: 32335611
Level of Evidence: 5 - Expert Opinion
Type of Article: Correspondence

BLUF: Physicians in Nepal call for tertiary hospitals in nearby regions to pool their resources and implement a central coordination mechanism to manage these resources in response to the COVID-19 pandemic.

Abstract:

Patan Academy of Health Sciences started preparedness for COVID-19 in response to increasing number of patient in neighboring country*(sic)*. Outbreak preparedness in resource limited setup is challenging. Despite this, preparedness was done in reference to WHO interim guidance utilizing best available resources. During this preparedness, one patient was isolated as suspected COVID-19. This paper presents level of preparedness achieved with the limited resources and the lesson learned while isolating the patient (*sic)*.

Role of Telehealth in the Management of COVID-19: Lessons Learned from Previous SARS, MERS, and Ebola Outbreaks.

Keshvardoost S, Bahaadinbeigy K, Fatehi F.
Telemed J E Health.
2020 Apr 23. PMID: 32329659
Level of Evidence: 5 - Expert Opinion
Type of Article: Commentary

BLUF: Multiple countries, such as the USA, China, and Australia, have demonstrated the utility of telehealth during the COVID-19 pandemic. Governmental expansions and private companies have aided in improving access to care. For developing countries, improving technical matters of bandwidth and communication infrastructure along with introducing legislation on telehealth are important next steps.

Abstract:
Concerns about the prevention and management of COVID-19 are on the rise, as it is crucial in contagious epidemics that travel and transfer of the patients be minimal for diagnosis, treatment, and follow-ups. Telemedicine or telehealth can play an important role, especially with previous successful experiences in the management of acute infectious respiratory epidemics such as SARS and MERS. In order to better control the rapid spread of coronavirus and manage the COVID-19 crisis, both developed and developing countries can improve the efficiency of their health system by replacing a proportion of face-to-face clinical encounters with telehealth. Recent technological advancement facilitates this reform, but there is a need for national or state-wide rules and regulations to be adapted accordingly.

CPR in the COVID-19 era will the risk benefit shift in resource-poor settings?

Dr, Peter C
Resuscitation
2020 Apr 22; PMID: 32333949
Level of Evidence: 5 - Expert Opinion
Type of Article: Letter

Summarizing Excerpt: "CPR is widely practised around the world and is the default position in many societies for a patient suffering cardiac arrest. In view of the recognised risks of CPR in the context of COVID- 19, policy makers should carefully evaluate the risk-benefit of this procedure. **In resource- limited settings, without easy access to adrenaline, defibrillators or intensive care facilities, the minimal benefits of CPR are unlikely to justify the risks to healthcare staff.** Policy makers should plan ahead and ensure that healthcare professionals are aware of the risks and policies are in place to protect staff as the prevalence of COVID-19 increases."

Epidemiology

Characteristics of COVID-19 pandemic and public health consequences.

Stang A, Standl F, Jöckel KH.

Herz
2020 Apr 24; PMID: 32333025
Level of Evidence: 5 - Review of data
Type of Article: Letter

Summarizing excerpt: "As of April 20, 2020, Germany reported 141,672 confirmed cases, 4,404 deaths, a case fatality rate of 3.1% with an underestimated infection rate, a median age at COVID-19 diagnosis of 50 years, and 6.8% of COVID-19 patients requiring ICU treatment." The case fatality rate in Germany is likely overestimated due to limited testing capacity and a higher proportion of testing among severely symptomatic patients and "increases greatly by age... [with] a sharp increase in mortality from the age of 60." Now as the number of newly infected people decreases in Germany, the "age-, sex-, comorbidity-, region-, and setting-specific data on the infection rate and CF should help to set up targeted... risk-adapted measures to contain the pandemic without severely restricting the entire economy and social life."

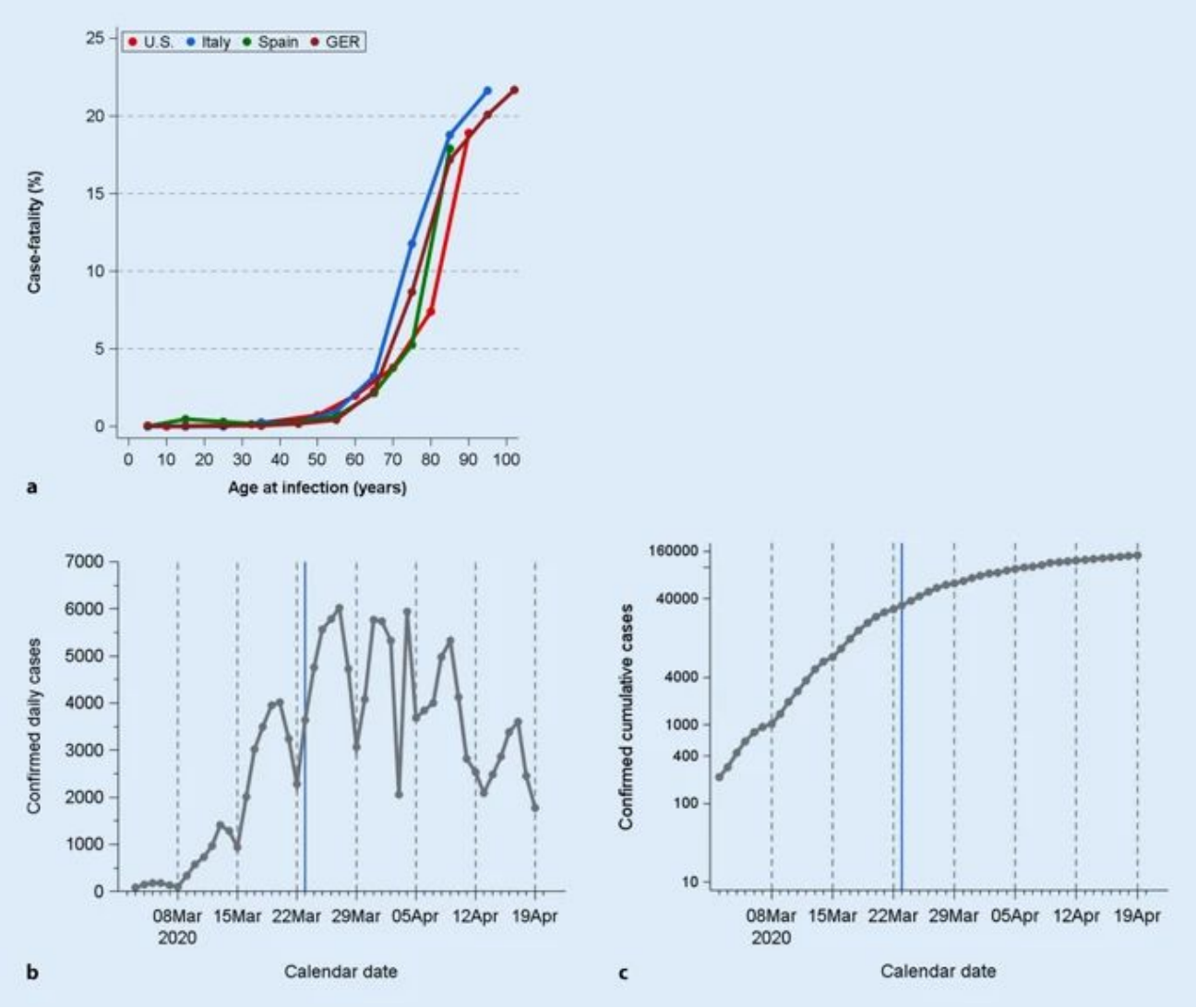


Figure: (a) Association between age of COVID-19 diagnosis and case fatality in Italy, Spain, United States, and Germany. (b) Daily reported number of confirmed new cases in Germany. (c)Daily reported number of cumulative cases in Germany.

Modeling

Can we predict the occurrence of COVID-19 cases? Considerations using a simple model of growth

Cássaro FAM, Pires LF
Sci Total Environ
2020 Apr 20; PMID: 32334161
Level of Evidence: Statistical Model
Type of Article: Research

BLUF: The authors use mathematical modeling based on the cumulative distribution function (CDF) to compare confirmed COVID-19 cases in China, Italy, Spain, Germany and Austria against a dynamic exponential model. They believe this will provide a more realistic means of modeling the potential spread of the virus, particularly under certain conditions of social restriction.

Abstract:
This study aimed to present a simple model to follow the evolution of the COVID-19 (CV-19) pandemic in different countries. The cumulative distribution function (CDF) and its first derivative were employed for this task. The simulations showed that it is almost impossible to predict based on the initial CV-19 cases (1st 2nd or 3rd weeks) how the pandemic will evolve. However, the results presented here revealed that this approach can be used as an alternative for the exponential growth model, traditionally employed as a prediction model, and serve as a valuable tool for investigating how protective measures are changing the evolution of the pandemic.

Preliminary estimating the reproduction number of the coronavirus disease (COVID-19) outbreak in Republic of Korea and Italy by 5 March 2020

Zhuang Z, Zhao S, Lin Q, Cao P, Lou Y, Yang L, Yang S, He D, Xiao L
Int J Infect Dis
2020 Apr 20; PMID:32334115
Level of Evidence: Statistical Model
Type of Article: Short communication

BLUF: In this study, authors use mathematical modelling to estimate the reproductive number (R_0) of SARS-CoV-2 using two sets of dates of initial transmission as variable inputs. They use COVID-19 case numbers recorded in the Republic of Korea from 20 January to 1 March, 2020, and from Italy between 5 February and 5 March, 2020. Their estimated R_0 values for the Republic of Korea (2.6 and 3.3) and Italy (2.6 and 3.3) correlate with observed cases.

Abstract:
The novel coronavirus disease 2019 (COVID-19) outbreak and Italy has caused 6088 cases and 41 deaths in Republic *(sic)* of Korea and 3144 cases and 107 death (*sic*) in Italy by 5 March 2020. **We modeled the transmission process in Republic of Korea and Italy with a stochastic model and estimated the basic reproduction number R0 as 2.6 (95% CI: 2.3-2.9) or 3.2 (95% CI: 2.9-3.5) in Republic of Korea, under the assumption that the exponential growth starting on 31 January or 5 February 2020, and 2.6 (95% CI: 2.3-2.9) or 3.3 (95% CI: 3.0-3.6) in Italy,** under the assumption that the exponential growth starting on 5 February or 10 February 2020.

Strong Policies Control the Spread of COVID-19 in China.

Li BZ, Cao NW, Zhou HY, Chu XJ, Ye DQ
J Med Virol.

2020 Apr 24; PMID: 32330295
Level of Evidence: Predictive modeling
Type of Article: Research
BLUF: This population model study assessed the effect of policy in controlling the spread of the COVID-19 pandemic. Among the four Chinese provinces that were modeled, the predicted number of confirmed cases in Hubei province without the application of policies was 157,721 when the number of real cases was 50,255. Thus, demonstrating the effectiveness of applied interventional policies in controlling the number of COVID-19 cases.

Abstract:
Objective: The coronavirus disease 2019 (COVID-19) outbroke in Wuhan, Hubei Province, China, affecting more than 200 countries and regions. This study aimed to predict the development of the epidemic with specific interventional policies applied in China and evaluate their effectiveness.
Methods: COVID-19 data of Hubei Province and the next five most affected provinces were collected from daily case reports of COVID-19 on the Health Committee official website of these provinces. The number of current cases, defined as the number of confirmed cases minus the number of cured cases and those who have died, was examined in this study. A modified Susceptible-Exposed-Infectious-Removed (SEIR) model was used to assess the effects of interventional policies on the epidemic. In this study, January 28 was day zero of the model.
Results: The results of the modified SEIR model showed that the **number of current cases** in Hubei and Zhejiang provinces tended to be **stabilized after 70 days** and after 60 days in the four other provinces. The predicted number of current **cases without policy intervention was shown to far exceed that with policy intervention.** The estimated number of COVID-19 cases in Hubei Province **with policy intervention was predicted to peak at 51,222,** whereas that **without policy intervention was predicted to reach 157,721.**
Conclusion: Based on the results of the model, strong interventional policies were found to be vital components of epidemic control. Applying such policies is likely to shorten the duration of the epidemic and reduce the number of new cases.

Effect of changing case definitions for COVID-19 on the epidemic curve and transmission parameters in mainland China: a modelling study.

Tsang TK, Wu P, Lin Y, Lau EHY, Leung GM, Cowling BJ
Lancet Public Health.
2020 Apr 21; PMID: 32330458
Level of Evidence: 3 - Population study
Type of Article: Research
BLUF: There have been seven versions of COVID-19 case definitions issued by the National Health Commision in China from January to March 2020. Tsang et al. have identified that these changes have led to a stepwise increase in the proportion of all infections. **There was an estimated 7.1 times increase in identified cases from version 1 to 2, 2.8 times increase from version 2 to 4, and 4.2 times increase from version 4 to 5.** Consistent with previous studies, many cases went undetected when using an earlier case definition, suggesting that we should evaluate predictive models with a grain of salt.

Abstract:
Background: When a new infectious disease emerges, appropriate case definitions are important for clinical diagnosis and for public health surveillance. Tracking case numbers over time is important to establish the speed of spread and the effectiveness of interventions. We aimed to assess whether

changes in case definitions affected inferences on the transmission dynamics of coronavirus disease 2019 (COVID-19) in China.

Methods: We examined changes in the case definition for COVID-19 in mainland China during the first epidemic wave. We used exponential growth models to estimate how changes in the case definitions affected the number of cases reported each day. We then inferred how the epidemic curve would have appeared if the same case definition had been used throughout the epidemic.

Findings: From Jan 15 to March 3, 2020, seven versions of the case definition for COVID-19 were issued by the National Health Commission in China. We estimated that when the case definitions were changed, the proportion of infections being detected as cases **increased by 7·1 times (95% credible interval [CrI] 4·8-10·9) from version 1 to 2, 2·8 times (1·9-4·2) from version 2 to 4, and 4·2 times (2·6-7·3) from version 4 to 5**. If the **fifth version of the case** definition had been applied throughout the outbreak with sufficient testing capacity, we estimated that by **Feb 20, 2020, there would have been 232 000 (95% CrI 161 000-359 000) confirmed cases in China as opposed to the 55 508 confirmed cases reported.**

Interpretation: The case definition was initially narrow and was gradually broadened to allow detection of more cases as knowledge increased, particularly milder cases and those without epidemiological links to Wuhan, China, or other known cases. **These changes should be taken into account when making inferences on epidemic growth rates and doubling times, and therefore on the reproductive number, to avoid bias.**

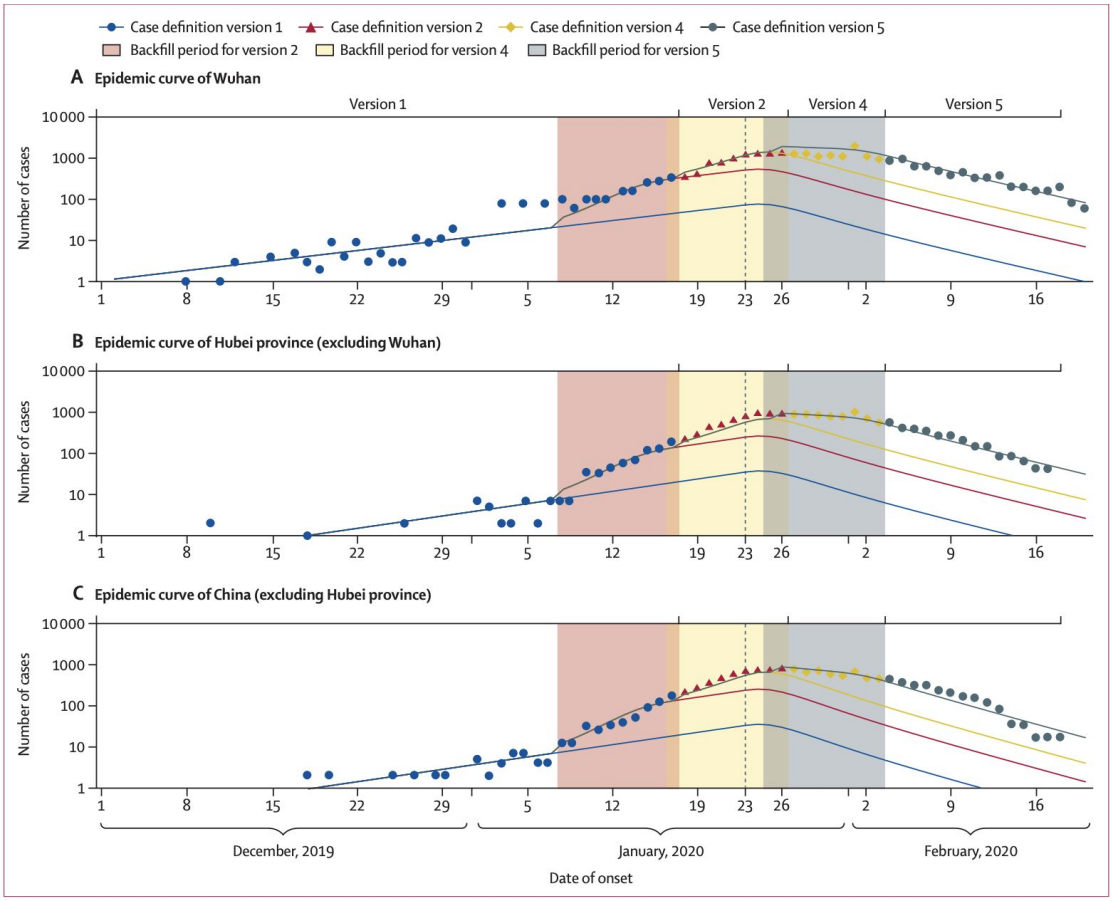


***Figure 2*: Reported COVID-19 cases by date of onset and the the modelled exponential growth of daily numbers of cases by application of different versions of case definitions**

Data are assuming that the version of the case definition was applied throughout the study period in mainland China, as of Feb 20, 2020. Symbols and lines show daily numbers of reported and estimated cases, and colours indicate cases in line with the different versions of COVID-19 case definitions. The coloured shading areas reflect that changing case definitions were adjusted earlier to reflect the assumption that there was a backfill of symptomatic cases who had not yet presented for diagnosis up to 10 days before each change in case definition, and therefore the effect of changing case definition would appear to modify the proportion of infections captured as cases before the actual day of change. The vertical dashed line indicates the implementalion of control measures.
COVID-19=coronavirus disease 2019.

[The Sensitivity and Specificity Analyses of Ambient Temperature and Population Size on the Transmission Rate of the Novel Coronavirus (COVID-19) in Different Provinces of Iran]

Jahangiri M, Jahangiri M, Najafgholipour M
Sci Total Environ
2020 Apr 21; PMID: 32335407
Level of Evidence: 5 – Mechanism-based Reasoning
Type of Article: Research

BLUF: The authors perform analyses to determine the predictive power of **ambient temperature and population size on rate of SARS-CoV-2 transmission** using topographical, demographic, and COVID-19 data segmented by province in Iran. They conclude that their **ambient temperature model cannot predict COVID-19 infection rate**, and that their **population model can** predict disease spread, determining that a **population size of >1.7 million** is at **sharply increased risk for spread** in Iran.

Abstract:
On 10 April 2020, Iran reported 68,192 COVID-19 cumulative cases including 4232 death (*sic*) and 35,465 recovery cases. Numerous factors could influence the transmission rate and survival of coronavirus. On this basis and according to the latest epidemiological researches, both ambient temperature (AT) and population size (PS) can be considered as significant transmissibility factors for coronavirus. The analysis of receiver operating characteristics (ROC) allows measuring the performance of a classification model using the confusion matrix. This study intends to investigate the **sensitivity of AT and PS on the transmission rate of the novel coronavirus** in different provinces of Iran. For this purpose, the information of each province of Iran including the **annual average of AT and the number of healthy and diseased cases** are categorized. Subsequently, the sensitivity and specificity analyses of both AT and PS factors are performed. The obtained results confirm that **AT and PS have low sensibility (*sic*) and high sensitivity, respectively**. Thus, there is **no scientific reason to confirm** that the number of **COVID-19 cases in warmer climates is less** than that of moderate or cold climates. Therefore, it is recommended that the cities/provinces with a population of over 1.7 million people have stricter inspections and more precise controls as their management policy.

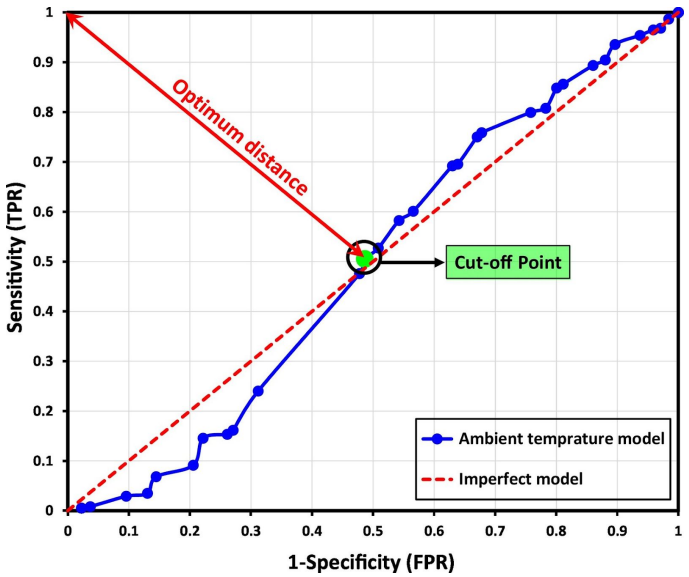


Fig. 6. The sensitivity analysis of the transmission rate of coronavirus based on the variations of AT in different provinces of Iran.

Symptoms and Clinical Presentation

Adults

Pulmonary Embolism in COVID-19 Patients: Awareness of an Increased Prevalence.

Poissy J, Goutay J, Caplan M, Parmentier E, Duburcq T, Lassalle F, Jeanpierre E, Rauch A, Labreuche J, Susen S; Lille ICU Haemostasis COVID-19 group
Circulation
2020 Apr 24; PMID: 32330083
Level of Evidence: 4 - Case series
Type of Article: Editorial

Summary: A case-series of COVID-19 patients (n = 196) with pulmonary embolism (PE) suggests that there is an increased risk of PE in COVID-19 patients. The frequency of **PE in the COVID-19 series was 2x higher than the frequency found in the control** period, (20.6% vs 6.1%; absolute increase risk of 14.4%, 95%CI 6.1 to 22.8%). Given this increased incidence, there is an **urgent need for replication of this study in a much larger scale** on PE frequency in COVID-19 infection in ICU-patients in order to accurately manage and increase the prognosis of patients with COVID-19.

Conjunctivitis and COVID-19: A Meta-Analysis

Lorenzo Loffredo, Fernanda Pacella, Elena Pacella, Giulia Tiscione, Alessandra Oliva, Francesco Violi
J Med Virol
2020 Apr 24; PMID: 32330304
Level of Evidence: 2–Systematic review
Type of Article: Research

BLUF: Data from 3 Chinese studies was analyzed for incidence of conjunctivitis, incidence in severe COVID-19 was compared against incidence in mild COVID-19 and found more prevalent (3% vs 0.7%) in severe vs non-severe cases. Authors submit that conjunctivitis may portend more severe COVID-19.

Abstract:
There are sparse data in literature regarding conjunctivitis incidence in COVID-19 and its relationship with disease severity. The objective of this metaanalysis was to assess the association between conjunctivitis and the severity of COVID-19 disease.
Methods: We performed a meta-analysis with studies that included patients with severe vs non-severe form of COVID-19 infection. Severe COVID-19 infection was defined as severe pneumonia, mortality, acute respiratory distress syndrome (ARDS), use of mechanical ventilation or Intensive Care Unit (ICU) treatment.
Results: Three studies, including 1167 patients, reported the incidence of conjunctivitis at admission to the hospital. The overall rate of conjunctivitis was 1.1%; it was 3% and 0.7% in severe and non-severe COVID-19 patients, respectively. Patients with severe COVID-19 had an increased incidence of conjunctivitis (O.R.:3.4; 95% C.I.:1.1-10.2; p=0.030).
Conclusions: Conjunctivitis is more frequent in severe COVID and may be a warning sign of poor outcomes.

Covid-19 and Kidney Transplantation

Enver Akalin, Yorg Azzi, Rachel Bartash, Harish Seethamraju, Michael Parides, Vagish Hemmige, Michael Ross, Stefanie Forest, Yitz D Goldstein, Maria Ajaimy, Luz Liriano-Ward, Cindy Pynadath, Pablo Loarte-Campos, Purna B Nandigam, Jay Graham, Marie Le, Juan Rocca, Milan Kinkhabwala

N Engl J Med
2020 Apr 24; PMID: 32329975
Level of Evidence: 4 – Case Series
Article Type: Letter to the Editor

Summarizing excerpt: "Kidney-transplant recipients appear to be at particularly high risk for critical Covid-19 illness due to chronic immunosuppression and coexisting conditions… at our institution, kidney-transplant recipients with Covid-19 had less fever as an initial symptom, lower CD3, CD4, and CD8 cell counts, and more rapid clinical progression than persons with Covid-19 in the general population… [and] very high early mortality among kidney-transplant recipients with Covid-19 — 28% at 3 weeks as compared with the reported 1% to 5% mortality among patients with Covid-19 in the general population who have undergone testing in the United States and the reported 8 to 15% mortality among patients with Covid-19 who are older than 70 years of age."

Table 1. Clinical Features and Outcomes in the Kidney-Transplant Recipients.

Variable	Value
Presenting symptom — no./total no. (%)	
Fever	21/36 (58)
Cough	19/36 (53)
Dyspnea	16/36 (44)
Myalgias	13/36 (36)
Diarrhea	8/36 (22)
Hospitalization — no./total no. (%)	28/36 (78)
Chest radiographic findings consistent with viral pneumonia — no./total no. (%)	27/28 (96)
Treatment — no./total no. (%)	
Withdrawal of antimetabolite	24/28 (86)
Withdrawal of tacrolimus	6/28 (21)
Hydroxychloroquine	24/28 (86)
Azithromycin	13/28 (46)
Leronlimab	6/28 (21)
Tocilizumab	2/28 (7)
High-dose glucocorticoids	2/28 (7)
Laboratory values	
White-cell count	
Median (range) — per mm^3	5300 (2100–14,700)
Patients with count <400 per mm^3 — no./total no. (%)	6/28 (21)
Lymphocyte count	
Median (range) — per mm^3	600 (100–1900)
Patients with count <1000 per mm^3 — no./total no. (%)	22/28 (79)
Platelet count	
Median (range) — per mm^3	146,000 (78,000–450,000)
Patients with count <150,000 per mm^3 — no./total no. (%)	12/28 (43)
CD3 cell count	
Median (range) — per mm^3	319 (34–1049)
Patients with count <706 per mm^3 — no./total no. (%)	19/28 (68)
CD4 cell count	
Median (range) — per mm^3	173 (6–507)
Patients with count <344 per mm^3 — no./total no. (%)	20/28 (71)
CD8 cell count	
Median (range) — per mm^3	132 (39–654)
Patients with count <104 per mm^3 — no./total no. (%)	8/28 (29)
Ferritin	
Median (range) — ng/ml	1230 (191–9259)
Patients with level >900 ng/ml — no./total no. (%)	10/28 (36)
D-dimer	
Median (range) — μg/ml	1.02 (0.32–5.19)
Patients with level >0.5 μg/ml — no./total no. (%)	16/28 (57)
Patients with level >3 μg/ml — no./total no. (%)	3/28 (11)
C-reactive protein	
Median (range) — mg/dl	7.9 (0.5–48.7)
Patients with level >5 mg/dl — no./total no. (%)	13/28 (46)
Procalcitonin	
Median (range) — ng/ml	0.2 (0.1–5.1)
Patients with level >0.2 ng/ml — no./total no. (%)	12/28 (43)
Lactate dehydrogenase	
Median (range) — U/liter	336 (158–309)
Patients with level >1.5 times upper limit of normal range — no./total no. (%)	10/28 (36)
Creatine kinase	
Median (range) — U/liter	145 (48–815)
Patients with level >200 U/liter — no./total no. (%)	9/28 (32)
Outcomes at a median of 21 days (range, 14–28) — no./total no. (%)	
Death	10/36 (28)
Intubation	11/28 (39)
Death after intubation	7/11 (64)
Renal replacement therapy	6/28 (21)
Remained hospitalized	12/28 (43)
Discharged from hospital	10/28 (36)

Concomitant acute aortic thrombosis and pulmonary embolism complicating COVID-19 pneumonia.

Le Berre A, Marteau V, Emmerich J, Zins M.
Diagn Interv Imaging
2020 Apr 16; PMID: 32334995
Level of Evidence: 4 - Case report
Type of Article: Letter to the Editor

BLUF: An otherwise-healthy 71 year old COVID-19 patient was found to have acute PE and acute aortic thrombosis. This may reflect the hypercoagulability associated with SARS-CoV-2 infection and indicates that markers of DIC could guide therapy.

Summary: This is a case report of an otherwise-healthy 71 year old male who presented with a **two-week history of dyspnea, cough, and fever.** A chest CT and real-time PCR test confirmed COVID-19. On hospital day 3, his oxygen requirements increased, his D-dimer level was 17280 ng/mL, and his PT was elevated. Ultrasound revealed a thrombus in the right posterior tibial vein, **pulmonary CT angiogram showed an acute pulmonary embolism, and additional aortic CT angiography showed a free-floating aortic thrombus without aortic atherosclerosis**. LMWH therapy was started with favorable outcomes. **These thrombi "may reflect the potential hypercoagulability associated with SARS-CoV-2 infection and [raise] the question of using early markers of disseminated intravascular coagulation, particularly D-dimer levels, to guide therapy."**

COVID-19 Coagulopathy in Caucasian Patients.

Helen Fogarty, Liam Townsend, Cliona Ni Cheallaigh, Colm Bergin, et al.
Br J Haematol.
2020 Apr 24; PMID: 2330308
Level of Evidence: 3 - Prospective cohort study
Type of Article: Research

BLUF: This prospective study of 83 patients (81% Caucasian) confirmed that severe COVID-19 infection is associated with significant coagulopathy that correlates with disease severity. The marked increase in D-dimer levels (median 732; range 200 to 10,000 ng/ml) is consistent with progressive coagulation and fibrinolysis activation within the lungs. However, COVID-19 patients on prophylactic LMWH did not typically develop overt DIC. DIC was restricted to late stage COVID-19.

Abstract:
Although the pathophysiology underlying severe COVID-19 remains poorly understood, accumulating data suggest that a lung-centric coagulopathy may play an important role. Elevated D-dimer levels which correlated inversely with overall survival were recently reported in Chinese cohort studies. Critically however, ethnicity has major effects on thrombotic risk, with a **3-4 fold lower risk in Chinese compared to Caucasians** and a **significantly higher risk in African Americans**. In this study, we investigated COVID-19 coagulopathy in Caucasian patients. Our findings confirm that **severe COVID-19 infection is associated with a significant coagulopathy that correlates with disease severity.** Importantly however, Caucasian **COVID-19 patients on LMWH thrombo-prophylaxis rarely develop overt DIC**. In rare COVID-19 cases where DIC does develop, it tends to be restricted to late stage disease. Collectively, these data suggest that the **diffuse bilateral pulmonary inflammation observed in COVID-19 is associated with a novel pulmonary specific vasculopathy** which we have termed

pulmonary intravascular coagulopathy (PIC) as distinct to DIC. Given that thrombotic risk is significantly impacted by race, coupled with the accumulating evidence that coagulopathy is important in COVID-19 pathogenesis, our findings

Retrospective study of risk factors for severe SARS-Cov-2 infections in hospitalized adult patients.

Yao Q, Wang P, Wang X, Qie G, Meng M, Tong X, Bai X, Ding M, Liu W, Liu K, Chu Y
Pol Arch Intern Med
2020 Apr 24; PMID: 32329978
Level of Evidence: 3 - Retrospective Study
Type of Article: Research

Summary Excerpt: "The higher Sequential Organ Failure Assessment (SOFA) score and lymphocyte count less than 0.8×10^9 per L on admission was associated with greater risk of developing severe COVID-19. Therefore, the patients with high risk should be paid more attention, monitored closely and timely treatment [sic], which may help to improve the prognosis."

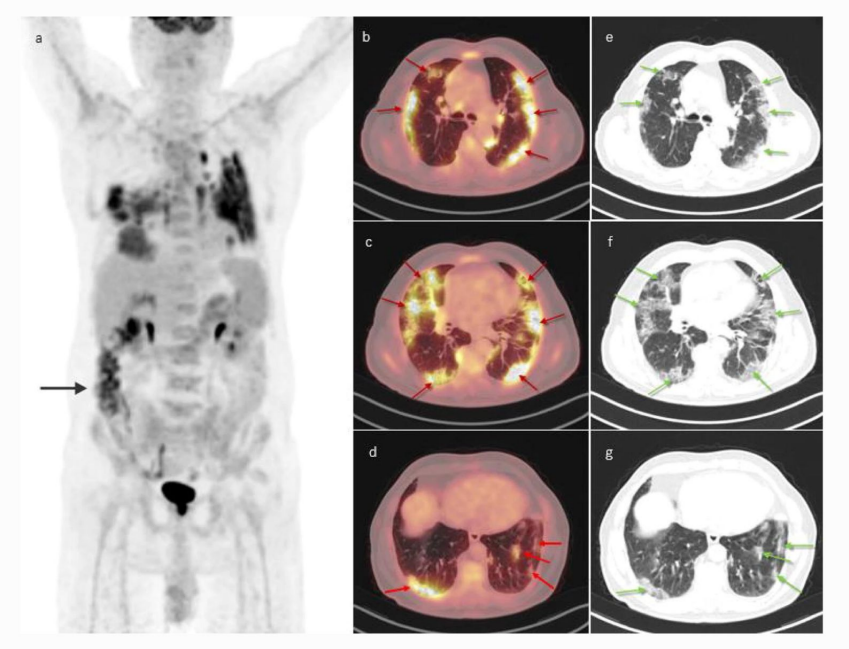
Abstract:
Introduction: Coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection has been spread worldwide.
Objectives: To identify the clinical characteristics and risk factors associated with the severe incidence of SARS-CoV-2 infection.
Patients and methods: All adult patients (≥18 years old) consecutively admitted in Dabieshan Medical Center from January 30, 2020 to February 11, 2020 were collected and reviewed. Only patients diagnosed with COVID-19 according to WHO interim guidance were included in this retrospective cohort study.
Results: A total of 108 patients with COVID-19 were retrospectively analyzed. Twenty-five patients (23.1%, 25/108) developed severe disease, and of those 12 (48%, 12/25) patients died. **Advanced age, co-morbidities with hypertension, higher blood leukocyte count, neutrophil count, higher sensitive C-reactive protein level, D-dimer level, Acute Physiology and Chronic Health Evaluation Ⅱ (APECHE Ⅱ) score and Sequential Organ Failure Assessment (SOFA) score were associated with greater risk of development of severe COVID-19**, and so were lower lymphocyte count and albumin level. Multivariable regression showed increasing odds of severe COVID-19 associated with higher SOFA score (OR 2.450, 1.302-4.608; p = 0.005), and lymphocyte count less than 0.8×109 per L (OR 9.017, 2.808-28.857; p <0.001) on admission. The higher SOFA score (OR 2.402, 1.313-4.395; p = 0.004) on admission was identified as risk factor for in-hospital death.
Conclusions: **Lymphocytopenia and the higher SOFA score** on admission could help clinicians to identify patients with **high risk for developing severe COVID-19**. More related studies are needed in the future.

A case of COVID-19 lung infection first detected by [18F]FDG PET-CT.

Amini H, Divband G, Montahaei Z, Dehghani T, Kaviani H, Adinehpour Z, Akbarian Aghdam R, Rezaee A, Vali R.Amini H, et al.
Eur J Nucl Med Mol Imaging.
2020 Apr 25; PMID: 32333071
Level of Evidence: 4 - Case Report
Article Type: Editorial

BLUF: A patient with a history of adenocarcinoma was first observed to have COVID-19 infection through a [18F]FDG PET-CT scan.

Summary: This is a case report of an 82-year-old man with incidental finding of coronavirus on [18F]FDG PET-CT. The patient had a history of adenocarcinoma of the colon and **presented with fatigue and myalgia**. After lab workup with a mildly elevated carcinoembryonic antigen and an unremarkable total colonoscopy, the patient was referred for a[18F]FDG PET-CT scan. The scan showed no hypermetabolic focus in the pelvic or abdominal areas. **However, foci of moderate to severely increased FDG activity were detected in both lungs with an SUVmax of 8.6. This corresponded to peripheral bilateral patchy ground-glass opacities on CT with hypermetabolic mediastinal lymph nodes (SUVmax of 4.5). The diagnosis of COVID-19 infection was confirmed 4 days later with PCR.**



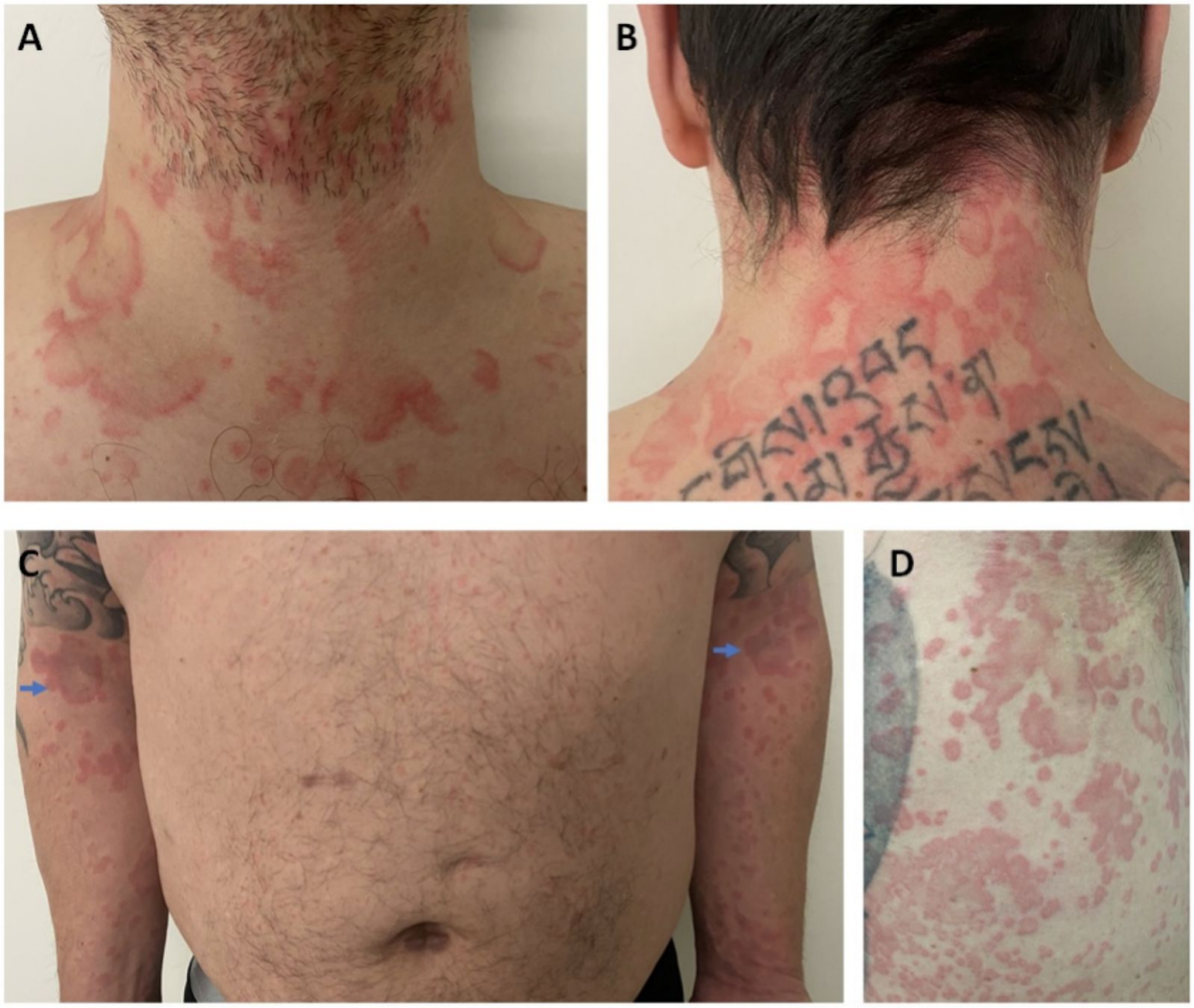
Acute urticaria with pyrexia as the first manifestations of a COVID-19 infection.

van Damme C, Berlingin E, Saussez S, Accaputo O.
J Eur Acad Dermatol Venereol.
2020 Apr 24. PMID: 32329915
Level of Evidence: 4 - Case Reports
Type of Article: Research
Summarizing excerpt: "The coronavirus disease 2019 (COVID-19) affects principally the respiratory tract but recent studies described that COVID-19 could present a broader clinical spectrum from the absence of any symptoms to heart, digestive or Ear-Nose-Throat (including anosmia and ageusia) manifestations. Here we report two cases of [urticaria] skin manifestation."

SARS-CoV-2 infection presenting as a febrile rash.

Amatore F, Macagno N, Mailhe M, Demarez B, Gaudy-Marqueste C, Grob JJ, Raoult D, Brouqui P, Richard MA
J Eur Acad Dermatol Venereol
2020 Apr 24; PMID: 32330336
Level of Evidence: 4 - Case Report
Type of Article: Editorial

Summary: The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection can be associated with a febrile rash without any pulmonary manifestations, which is histologically similar to but different from the classic viral exanthemata. In a case report on March 7th, a SARS-CoV-2 positive patient presented with a rash characterized by erythematous non-pruritic annular plaques diffusely involving the body, while sparing the face and mucus membranes. Thus, this editorial suggests that patients presenting with a febrile rash during the COVID-19 pandemic should be tested.



Pregnant women

Clinical analysis of ten pregnant women with COVID-19 in Wuhan, China: A retrospective study.

Cao D, Yin H, Chen J, Tang F, Peng M, Li R, Xie H, Wei X, Zhao Y, Sun G.
International Journal of Infectious Disease
2020 Apr 23; PMID: 32335338
Level of Evidence: 4- Case Series
Type of Article: Research

BLUF: Researchers reviewed chest CT, laboratory work and other clinical findings in ten COVID-19 positive pregnant women from three hospitals in China. They noted the importance of chest CT in detecting asymptomatic patients with COVID-19, with other important findings including:
Symptoms

- While only two patients had fever on admission, five patients had postpartum fevers
- No patients experienced myalgias, chills, sore throat or chest pain
- No patients developed severe respiratory distress or required mechanical ventilation

Laboratory tests

- Laboratory tests prior to delivery were mostly normal (1 patient had lymphopenia), however, six patients developed lymphopenia postpartum
- Six patients had elevated C-reactive protein postpartum
- No abnormalities in ALT, AST, lactate dehydrogenase or D-dimer were found

CT Findings

- **All ten patients had lung abnormalities**
- Six patients had bilateral multi-lobe lesions
- Six cases showed patchy infiltrates
- Five cases showed pleural effusion

Newborns

- Four were born prematurely
- **All 11 newborns (one set of twins) tested negative for COVID-19**
- **No neonatal death or asphyxia occured within 14 days of birth**
- No neonates exhibited symptoms of COVID-19

Abstract:
Background**:** COVID-19 is spreading globally. This study aims to evaluate the clinical characteristics and outcomes of pregnant women confirmed with COVID-19 to provide reference for clinical work.
Methods**:** The clinical features and outcomes of 10 pregnant women confirmed with COVID-19 at Maternal and Child Health Hospital of Hubei Province, Tongji Medical College, Huazhong University of Science and Technology, a tertiary- care teaching hospital in Hubei province, Wuhan, China from January 23 to February 23, 2020 were retrospectively analyzed.
Results**:** All the 10 observed pregnant women including 9 singletons and 1 twin were native people in Wuhan. All of them were diagnosed mild COVID-19, and none one of the patients developed severe COVID-19 or died. Among the 10 patients, two patients underwent vaginal delivery, two patients underwent intrapartum cesarean section, and the remaining six patients underwent elective cesarean section. All of 10 patients showed lung abnormalities by pulmonary CT images after delivery. Their eleven newborns were recorded and no neonatal asphyxia was observed.
Conclusions**:** Pulmonary CT screening on admission may be necessary to reduce the risk of nosocomial transmission of COVID-19 during the outbreak period. And COVID-19 is not an indication of cesarean section.

Coronavirus disease 2019 (COVID-19) in pregnant women: A report based on 116 cases.

Yan J, Guo J, Fan C, Juan J, Yu X, Li J, Feng L, Li C, Chen H, Qiao Y, Lei D, Wang C, Xiong G, Xiao F, He W, Pang Q, Hu X, Wang S, Chen D, Zhang Y, Poon LC, Yang H.
Am J Obstet Gynecol
2020 Apr 23; PMID: 32335053
Level of Evidence: 4 - Case Series
Type of Article: Research
Summary: This case series reports the outcomes for 116 pregnant patients with COVID-19 (65 cases confirmed by PCR and 51 clinically diagnosed) who received treatment in China between January 20th and March 24th. Observations included:

- Fever (59/116), cough (33/116), and fatigue (15/116) were the most common presenting symptoms

- Of the 108 patients that had chest CTs on admission, 104 had abnormal results
- Twenty seven of the 116 patients were asymptomatic
- Eight of the 116 patients had severe pneumonia
- There were no maternal deaths
- Of the eight patients that presented before 24 weeks, one had a missed spontaneous abortion at 5^{+2} weeks
- Of the 99 patients who delivered while hospitalized, six had spontaneous preterm births between 34 weeks and 37 weeks; there were no spontaneous preterm births before 34 weeks
- Of the 100 neonates tested for SARS-CoV-2, 14 had positive test results
- Ten amniotic fluids samples (paired with neonates that tested negative), six vaginal secretion samples, and 12 breast milk samples tested negative for COVID-19

The authors conclude that this data set suggests the clinical features of COVID-19 are similar between pregnant and non-pregnant patients and that COVID-19 does not increase the risk of spontaneous abortion or spontaneous preterm birth compared to background risk. This study also doesn't provide evidence suggesting that vertical transmission occurs, but the authors note that a few case studies published to date present evidence that suggest it is a possibility, so more research is needed on this front.

Abstract:
Background: The coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), is a global public health emergency. Data on the effect of COVID-19 in pregnancy are limited to small case series.
Objectives: To evaluate the clinical characteristics and outcomes in pregnancy and the vertical transmission potential of SARS-CoV-2 infection.
Study design: Clinical records were retrospectively reviewed for 116 pregnant women with COVID-19 pneumonia from 25 hospitals in China between January 20 and March 24, 2020. Evidence of vertical transmission was assessed by testing for SARS-CoV-2 in amniotic fluid, cord blood, and neonatal pharyngeal swab samples.
Results: The median gestational age on admission was 38+0 (IQR 36+0-39+1) weeks. The most common symptoms were fever (50.9%, 59/116) and cough (28.4%, 33/116); 23.3% (27/116) patients presented without symptoms. Abnormal radiologic findings were found in 96.3% (104/108) of cases. There were eight cases (6.9%, 8/116) of severe pneumonia but no maternal deaths. One of eight patients (1/8) that presented in the first- and early-second-trimester had a missed spontaneous abortion. Twenty-one of 99 patients (21.2%, 21/99) that had delivered had preterm birth, including six with preterm premature ruptured of membranes. The rate of spontaneous preterm birth before 37 weeks was 6.1% (6/99). There was one case of severe neonatal asphyxia that resulted in neonatal death. Eighty-six of the 100 neonates that had testing for SARS-CoV-2 had negative results, of these ten neonates had paired amniotic fluid and cord blood samples that were tested negative for SARS-CoV-2.
Conclusions: SARS-CoV-2 infection during pregnancy is not associated with an increased risk of spontaneous abortion and spontaneous preterm birth. There is no evidence of vertical transmission of SARS-CoV-2 infection when the infection manifests during the third-trimester of pregnancy.

SARS-CoV-2: Is it the newest spark in the TORCH?

Muldoon KM, Fowler KB, Pesch MH, Schleiss MR.
Journal of Clinical Virology.
2020 Apr 14; PMID: 32335336
Level of Evidence: 5 - Literature review
Type of Article: Review

BLUF: This article reviews vertical transmission of SARS-CoV-2 virus in both animal models as well as in retrospective studies. Based on the findings, they suggest that SARS-CoV-2 should be added to the working list of TORCH infections and therefore development of vaccines is a high priority for pregnant patients.

Abstract:
Amid the rapidly evolving global coronavirus disease 2019 (COVID-19) pandemic that has already had profound effects on public health and medical infrastructure globally, many questions remain about its impact on child health. The unique needs of neonates and children, and their role in the spread of the virus (severe acute respiratory syndrome coronavirus 2 [SARS-CoV-2]) should be included in preparedness and response plans. Fetuses and newborn infants may be uniquely vulnerable to the damaging consequences of congenitally- or perinatally-acquired SARS-CoV-2 infection, but data are limited about outcomes of COVID-19 disease during pregnancy. Therefore, information on illnesses associated with other highly pathogenic coronaviruses (i.e., severe acute respiratory syndrome (SARS) and the Middle East respiratory syndrome [MERS]), as well as comparisons to common congenital infections, such as cytomegalovirus (CMV), are warranted. Research regarding the potential routes of acquisition of SARS-CoV-2 infection in the prenatal and perinatal setting is of a high public health priority. Vaccines targeting women of reproductive age, and in particular pregnant patients, should be evaluated in clinical trials and should include the endpoints of neonatal infection and disease.

Understanding the Pathology

Association of Respiratory Allergy, Asthma and Expression of the SARS-CoV-2 Receptor, ACE2.

Jackson DJ, Busse WW, Bacharier LB, et al.
J Allergy Clin Immunol.
2020 Apr 22; PMID: 32333915
Level of Evidence: 4- Cohort Study
Type of Article: Research

BLUF: Researchers from multiple US academic medical centers propose a mechanism for explaining the counterintuitive finding that asthma and allergic respiratory disease do not appear to be risk factors for severe COVID-19 disease. They propose that **decreased ACE2 expression** on epithelial airway cells of multiple "carefully phenotyped" cohorts of patients after "**controlled allergen exposure" may be one mechanistic** factor explaining this protective effect.

Abstract:
Underlying respiratory allergy and experimental allergen exposure reduce the expression of the SARS-CoV-2 receptor, ACE2, which could lead to reduced COVID-19 susceptibility.

A possible role for B cells in COVID-19?: Lesson from patients with Agammaglobulinemia.

Quinti I, Lougaris V, Milito C, Cinetto F, Pecoraro A, Mezzaroma I, Mastroianni CM, Turriziani O, Bondioni MP, Filippini M, Soresina A, Spadaro G, Agostini C, Carsetti R, Plebani A.
J Allergy Clin Immunol.
2020 Apr 22; PMID: 32333914
Level of Evidence: 4 - Case Series
Type of Article: Letter to the Editor

Summary: The authors speculate on a possible role of B lymphocytes in the SARS-CoV-2 induced inflammation and suggest investigation into COVID-19 treatments that damper the inflammatory functions of B cells, and to block cytokine production by monocytes and dendritic cells. This is because out of seven COVID-19 positive patients with immunodeficiency syndromes, the two with agammaglobulinemia had mild symptoms while the five with CVIDs had severe forms of COVID-19.

Dynamics of anti-SARS-CoV-2 IgM and IgG antibodies among COVID-19 patients.

Lee YL, Liao CH, Liu PY, Cheng CY, Chung MY, Liu CE, Chang SY, Hsueh PR.
J Infect.
2020 Apr 23; PMID: 32335168
Level of Evidence: 4 – Low quality prognostic cohort study
Type of Article: Letter to the Editor

BLUF: Patients with symptoms and development of anti-SARS-CoV-2 IgM antibodies had a shorter duration of positive rRT-PCR result and were discharged with relatively stable conditions.

Summary:
Fourteen COVID-19-positive patients treated at six hospitals in Taiwan between January and March 2020 were enrolled in this study. Patients were categorized into two groups: asymptomatic/mild symptoms (N=8), and symptomatic (N=6). Thirty-three serum samples from the 14 COVID-19-positive patients were tested for anti-SARS-CoV-2 IgG/IgM antibodies; 28 control serum samples collected from 28 hospitalized patients with respiratory tract infection, but two negative

results of SARS-CoV-2 rRT-PCR testing were also evaluated to validate the performance of the assay. Of the six patients in the symptomatic group, all had positive anti-SARS-CoV-2 IgG and four had positive anti-SARS-CoV-2 IgM responses. For the eight patients in the asymptomatic/mild symptom group, none had positive anti-SARS-CoV-2 IgM results and three (cases 11-13) had negative anti-SARS-CoV-2 IgG results. **Patients with symptoms and development of anti-SARS-CoV-2 IgM antibodies had a shorter duration of positive rRT-PCR result and no worsening clinical conditions compared to those without the presence of anti-SARS-CoV-2 IgM antibodies.** The significance of antibody response in COVID-19 is important, not only in the diagnosis but also prognosis, as these are important for protecting the host from infection.

Racial Variations in COVID-19 Deaths May Be Due to Androgen Receptor Genetic Variants Associated with Prostate Cancer and Androgenetic Alopecia. Are Anti-Androgens a Potential Treatment for COVID-19?

McCoy J, Wambier CG, Vano-Galvan S, Shapiro J, Sinclair R, et al.
J Cosmet Dermatol.
2020 Apr 25; PMID: 32333494
Level of Evidence: 6- No Evidence Provided
Publication Type: Letter
BLUF: The authors of this study speculate that androgens may be implicated in disease severity. They suggest that special attention may need to be given to American Americans infected by the COVID-19.

Abstract:
Racial disparities in COVID-19 infection rates and disease severity are due to a multifactorial etiology that can include socioeconomic as well as other factors. Nevertheless, genetic factors in different ethnic groups often contribute to disease severity and treatment response. In particular, the frequency of genetic variations in the androgen receptor differs by ethnicity and gender. For example, the increased prevalence of prostate cancer and androgenetic alopecia among African Americans correlates with the frequency of these variants. In this communication, we propose that androgens may be implicated in COVID-19 disease severity. As such, special attention may need to be given to African Americans infected by the SARS-CoV-2 virus. Finally, if a link to genetic variations in the androgen receptor and COVID-19 disease severity can be established, it would suggest new treatment options.

Extent and Quantification of Inflammation Burden in COVID-19 by Computed Tomography.

Mendoza Ferradas FJ, García Del Barrio L, Bastarrika G
Arch Bronconeumol
2020 Apr 2; PMID: 32334855
Level of Evidence: Unable to find article in English
Type of Article: Unable to find article in English
Summary: Unable to find article in English

In silico

Emerging genetic diversity among clinical isolates of SARS-CoV-2: Lessons for today.

Sheikh JA, Singh J, Singh H, Jamal S, Khubaib M, Kohli S, Dobrindt U, Rahman SA, Ehtesham NZ, Hasnain SE

Infect Genet Evol
2020 Apr 23; PMID: 32335334
Level of Evidence: 5 - Mechanism Based-Reasoning
Type of Article: Research

BLUF: The authors analyzed the genome sequence of over 250 known clinical isolates of COVID-19 to compare phylogenetic diversity throughout the world (exact methods not described). They highlight six of their main findings:

- Analyses revealed a great deal of genetic diversity emerging among clinical isolates of SARS-CoV-2.
- Every continent seems to have multiple introductions of different viral strains.
- 5' terminal of the viral genome is more prone to mutations compared to 3' end.
- ORF1ab, spike, ORF3a and E are key protein *(sic)* prone to mutations.
- Receptor Binding Domain of spike protein emerged as mutational *(sic)* hotspot.
- Our phylogenetic analyses reveal at least five different clades of SARS-CoV-2.

Abstract:
Considering the current pandemic of COVID-19, it is imperative to gauge the role of molecular divergence in SARS-CoV-2 with time, due to clinical and epidemiological concerns. Our analyses involving molecular phylogenetics is a step toward understanding the transmission clusters that can be correlated to pathophysiology of the disease to gain insight into virulence mechanism. As the infections are increasing rapidly, more divergence is expected followed possibly by viral adaptation. We could identify mutational hotspots which appear to be major drivers of diversity among strains, with RBD of spike protein emerging as the key region involved in interaction with ACE2 and consequently a major determinant of infection outcome. We believe that such molecular analyses correlated with clinical characteristics and host predisposition need to be evaluated at the earliest to understand viral adaptability, disease prognosis, and transmission dynamics.

Transmission & Prevention

Developments in Transmission & Prevention

Positive rectal swabs in young patients recovered from coronavirus disease 2019 (COVID-19).

Zhang B, Liu S, Dong Y, Zhang L, Zhong Q, Zou Y, Zhang S.
J Infect.
2020 Apr 23; PMID: 32335176
Level of Evidence: 4 - Case Series
Type of Article: Research

BLUF: In this article, physicians from Guangdong, China identified six confirmed COVID-19 positive patients who required hospital readmission after positive RT-PCR results from rectal swabs 7-11 days post-discharge to quarantine locations. The authors suggest that while it is unclear whether COVID-19 can be transmitted fecal-orally, it is something that providers should be aware of. Adding RT-PCR test of rectal swabs may be useful to determine when patients discontinue quarantine.

Abstract:
Objectives: To investigate the widely concerned issue about positive real-time reverse transcription polymerase chain reaction (RT-PCR) test results after discharge in patients recovered from coronavirus disease 2019 (COVID-19).
Methods: We identified **seven cases of COVID-19** who was*(sic)* readmitted to hospital because of **positive RT-PCR after discharge**, including three pediatrics and four young adult patients.
Results: Six patients had positive rectal swabs but negative throat swabs, and one patient had positive throat swabs. All the patients continued to be asymptomatic and had unchanged chest computed tomography from previous images. **The time from hospital discharge to positive RT-PCR after recovery was 7-11 days.** The time from positive to negative rectal swabs was 5-23 days.
Conclusion: The study might suggest the positive RT-PCR after recovery did not mean disease relapse or virus reinfection. Adding RT-PCR test of rectal swabs to the criteria for discharge or discontinuation of quarantine might be necessary.

Potential Fecal Transmission of SARS-CoV-2: Current Evidence and Implications for Public Health.

Amirian ES
Int J Infect Dis
2020 Apr 23; PMID: 32335340
Level of Evidence: 5-Expert opinion
Type of Article: Review

BLUF: A thorough but not systematic review of the literature finds significant questions remain unanswered about potential fecal transmission of SARS-CoV-2. The author urges the adoption of more targeted public health efforts against fecal spread (i.e. focusing on wastewater treatment, shared restrooms, and food services) until more rigorous studies can be conducted to determine the real threat of fecal transmission.

Abstract:
Coronavirus disease 2019 (COVID-19) emerged in Hubei Province, China in December 2019 and has since become a global pandemic, with hundreds of thousands of cases and over 165 affected countries. Primary routes of transmission of the causative virus, severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2), are through respiratory droplets and close person-to-person contact. While information about other potential modes of transmission are relatively sparse, evidence

supporting the possibility of a fecally-mediated mode of transmission has been accumulating. Here, current knowledge on the potential for fecal transmission is briefly reviewed and the possible implications are discussed from a public health perspective.

Prevention in the Hospital

Hospital visiting policies in the time of COVID-19: A nationwide website survey in Taiwan.

Liu YA, Hsu YC, Lin MH, Chang HT, Chen TJ, Chou LF, Hwang SJ.
J Chin Med Assoc
2020 Apr 21; PMID: 32332514
Level of Evidence: 5 - Qualitative data
Type of Article: Research

BLUF: The authors surveyed the hospital visiting policies for all 472 National Health Institute contracted hospitals in Taiwan and determined that 58.5% of hospitals updated their visiting policies. Although 40.9% hospitals still allowed visits to ordinary wards, many restricted visitors to two at a time and to two visiting slots per day. The authors suggest that the extent of hospital visiting policies needs to be further investigated and that hospital visiting policies will change with the evolution of the pandemic.

Abstract:
Background: COVID-19, a novel infectious coronavirus disease, has become a worldwide pandemic. Infection control precautions for hospital visitors are needed to avoid cluster outbreaks, so this study **investigated the visiting policies of all the hospitals in Taiwan in the time of COVID-19**.
Methods: From March 15, 2020, through March 18, 2020, we searched the official websites of all 472 National Health Insurance contracted hospitals to determine their visiting policies. For those hospitals that had posted new visiting policies and still allowed visits to ordinary wards, we recorded the relevant details shown on their websites, including the number of visitors allowed at one time, the number of visiting slots per day, the total visiting hours per day, and the rules provided to visitors before visiting.
Results: During the study period, 276 (58.5%) hospitals had posted new visiting policies on their websites, with higher proportions of academic medical centers (92.0%, 23/25) and metropolitan hospitals (91.5%, 75/82) than local community hospitals (48.8%, 178/365) doing so. **Visits to ordinary wards were forbidden in 83 hospitals of those hospitals.** Among the 193 hospitals that had new visiting policies and still allowed visits to ordinary wards, 73.1% (n = 141) restricted visitors to two at a time and 54.9% (n = 106) restricted visits to two visiting slots per day. Furthermore, **history taking regarding travel, occupation, contacts, and cluster information was mentioned by 82.4% (n = 159) of these 193 hospitals, body temperature monitoring by 78.2% (n = 151), hand hygiene by 63.2% (n = 122), and identity checks by 51.8% (n = 100).**
Conclusion: In the time of COVID-19 covered by this study, about three-fifths of the hospitals in Taiwan had posted their visiting policies for ordinary wards on their websites. Furthermore, the thoroughness with which such visiting policies have been enforced also requires investigation.

Fight COVID-19 Beyond the Borders: Emergency Department Patient Diversion in Taiwan.

Lien WC, Wu JL, Tseng WP, Chow-In Ko P, Chen SY, Tsai MS, Chang WT, Huang CH, Chen SC.Lien WC
Ann Emerg Med.

202 April 11; PMID: 32334881
Level of Evidence: 5 - Expert Opinion
Type of Article: Correspondence

BLUF: A strategic diversion in the Emergency Department (ED) of the National Taiwan University Hospital divides the ED into one pre-triage unit, three special clinics, and two tents to limit contamination and improve the safety of patients and healthcare workers (figure 1). This structure is intended to lower contamination rates and improve the protection of healthcare workers from COVID-19.

Summary: A unique patient diversion strategy at the Emergency Department (ED) of the National Taiwan University Hospital was made to lower contamination rates and improve the protection of healthcare workers from COVID-19. The ED is split up into special sections, 1 pretriage unit, 3 special clinics, and 2 tents. Starting at the main entrance is the pretriage unit, where a nurse accompanied by security guards and administrative office will selectively place patient according to travel history, high-risk occupation, respiratory symptoms, fevers or been in contacts with suspected COVID-19 individuals into a special clinic. Special clinic 1 is a negative-pressure room with the intended use for special procedures such as radiographs, intubation, and video-assisted laryngoscopy if needed. Special clinic 2 are for pediatric patients and special clinic 3 are for adults. Each of the special clinics are supervised by 2 emergency physicians and nurses with specific roles that includes conducting specimen, medicine and checkout delivery. Specific testing such as oral swabs are collected and performed in Tent A while Tent B is used to house patients with pneumonia waiting for admission to the hospital. All of the personal protective equipment, safety protocols, and standard isolation care are mandated in all of the subdivided sections in the ED.

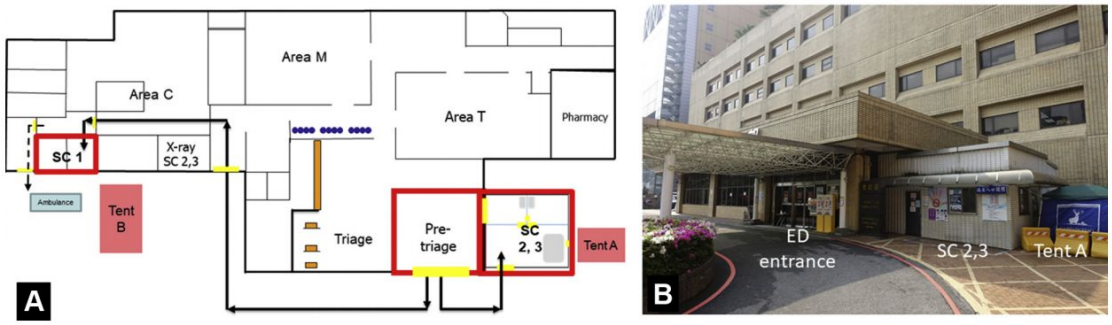


Figure. Flow of patients with a history of travel, occupation, cluster, and contact (arrows). *A*, Red squares represent the pretriage unit and the special clinics, possible contaminated areas. Yellow rectangles represent doors. Area C denotes the critical and resuscitation area. Area M denotes the area for medical patients. Area T denotes the area for trauma patients. Dashed lines depict patient traffic (special clinic 1) to the ward. *B*, The entrance to special clinics 2 and 3 and tent A. *SC*, Special clinic.

Creating a COVID-19 surge clinic to offload the emergency department

Baugh JJ, Yun BJ, Searle E, Chyn A, Bernhardt JM, LeClair K, Henshaw-Archer L, L'Heureux MM, Raja AS, Lennes IT, Biddinger PD.Baugh JJ, et al.
Am J Emerg Med.
2020 Apr 20; PMID: 32334896
Level of Evidence: 5 - Expert Opinion
Type of Article: Letter

Summary: A group of physicians from Massachusetts General Hospital describe the planning and execution of a **surge clinic for COVID-19 care**. The clinic was designed, constructed, and staffed by a multidisciplinary team (Emergency Medicine, Ambulatory Medicine, Internal Medicine, Disaster Medicine, Infectious Disease Medicine, hospital staff, and administration). **In the first three**

weeks they saw an average of 160 patients/day. Approximately 1% required transfer to the Emergency Department and this allowed them to more effectively manage these patients.

The economics of infection prevention: why it is crucial to invest in hand hygiene and nurses during the novel coronavirus pandemic

Peters A, Lotfinejad N, Simniceanu A, Pittet D.Peters A, et al.
J Infect.
2020 Apr 23; PMID: 32335177
Level of Evidence: 5 - Expert Opinion
Type of Article: Letter to the Editor

Summarizing Statement: "**It is crucial that nurses adhere to proper hand hygiene in order to reduce hospital acquired infections (HPIs), save money** and ultimately, **save lives**. To achieve acceptable levels of hand hygiene compliance, **nursing teams need to be adequately staffed, well trained,** and **have access to good quality alcohol-based handrub.**"

COVID-19 Pandemic: Shortage of Personal Protective Equipment, Use of Improvised Surrogates, and the Safety of Health Care Workers.

Shrestha GS.Shrestha GS
J Nepal Health Res Counc
2020 April 20; PMID: 32335614
Level of Evidence: 5 - Expert Opinion
Type of Article: Letter

BLUF: The demand for PPE has exponentially increased in respect to the rising trend of COVID-19 cases leaving healthcare workers to improvise their own PPE from novelty materials found in their homes. In return, a significant proportion of healthcare workers are getting infected from caring for patients with COVID-19. Therefore, a system is needed to monitor the effectiveness of improvised PPE to further protect healthcare workers.

Summary: As the number of reported cases of COVID-19 increases, so will the demands for personal protective equipment (PPE). In the United States, proactive measures such as lifting the FDA standards for PPE and the CDC making liberal recommendations for the use of PPE when resources are scarce, were part of the resolution to the shortage of PPE. In contrast, **low and middle income countries (LMICs) are still facing struggles to meet the demands of PPE** due to constrained resources. Healthcare workers are now using personal items such as raincoats, scarfs and homemade visors as personalized PPE. As a result, a significant proportion of healthcare workers caring for COVID-19 patients are getting infected. Alongside with the demands for PPE, it is necessary to consider a system to ensure the safety and effectiveness of the improvised PPE to further protect healthcare workers during this unique time.

Management

Acute care

Critical Care

The impact of respiratory protective equipment on difficult airway management: a randomised, crossover, simulation study.

Schumacher J, Arlidge J, Dudley D, Sicinski M, Ahmad I.
J. Anaesthesia.
2020 Apr 23; PMID: 32335900
Level of Evidence: 3 - Randomised Crossover Simulation Study
Type of Article: Research

BLUF: In this non-blinded case-control study, a group of 25 anesthesiologists simulated four difficult intubations using **standard vs powered air purifying respirators** as PPE. They found **no significant difference** in **mean intubation time**. The powered respirators were reported to have higher heat and vision, but lower perceived noise levels. This suggests that type of respirator is not associated with prolonged or more complicated intubation; however, the **type of instrument** used for intubation is, with **videolaryngoscope achieving the shortest intubation time** regardless of respirator.

Abstract:
The current international coronavirus disease 19 health crisis underlines the importance of adequate and suitable personal protective equipment for clinical staff during acute airway management. This study compares the impacts of standard air purifying respirators and powered air purifying respirators during simulated difficult airway scenarios. Twenty-five anaesthetists carried out four different standardised difficult intubation drills, either unprotected (control), or wearing a standard, or a powered respirator. **Treatment times and wearer comfort** were determined and compared. In the wearer comfort evaluation form, operators rated mobility, noise, heat, vision, and speech intelligibility. All anaesthetists accomplished the treatment objectives of all study arms without adverse events. **Total mean (SD) intubation times for the four interventions did not show significant differences** between the powered and the standard respirator groups, being 16.4 (8.6) vs. 19.2 (5.2) seconds with the Airtraq™, **11.4 (3.4) vs. 10.0 (2.1) seconds with the videolaryngoscope**, 39.2 (4.5) vs. 40.1 (4.8) seconds with the fiberoptic bronchoscope *(sic)* scope, and 15.4 (5.7) vs. 15.1 (5.0) seconds for standard endotracheal intubation by direct laryngoscopy, respectively. **Videolaryngoscopy achieved the shortest intubation times** regardless of the respiratory protective device used. **Anaesthetists rated heat and vision significantly higher in the powered respirator group**; however, **noise levels were perceived to be significantly lower** than in the standard respirator group. We conclude that standard and powered respirators do not significantly prolong simulated advanced intubation procedures.

The Role of Extracorporeal Life Support for Patients With COVID-19: Preliminary Results From a Statewide Experience

Ibrahim Sultan [1 2], Andreas Habertheuer [1], Asad A Usman [3], Arman Kilic [1], Eric Gnall [4], Michael E Friscia [5], Dmitriy Zubkus [6], Hitoshi Hirose [7], Pablo Sanchez [1], Olugbenga Okusanya [1], Wilson Y Szeto [3], Jacob Gutsche [8]
J Card Surg
2020 Apr 25; PMID: 32333431
Level of Evidence: 4 - Case series

Type of Article: Research

BLUF: 10 cases of patients put on ECMO in Pennsylvania were described with focus on baseline characteristics. At time of publication, one patient was weaning off ECMO, two were off, and one had died, the other six were still being treated.

Abstract

Objective: There is a paucity of clinical data on critically ill patients with COVID-19 requiring extracorporeal life support.

Methods: A statewide multi-institutional collaborative for COVID-19 patients was utilized to obtain clinical data on the first 10 critically ill COVID-19 patients who required extracorporeal membrane oxygenation (ECMO).

Results: Of the first 10 patients that required ECMO for COVID-19, the age ranged from 31 to 62 years with the majority (70%) being men. Seven (70%) had comorbidities. The majority (80%) of patients had known sick contact and exposure to COVID-19 positive patients or traveled to pandemic areas inside the United States within the 2 weeks before symptom onset. None of the patients were healthcare workers. The most common symptoms leading to the presentation were high fever ≥103°F (90%), cough (80%) and dyspnea (70%), followed by fatigue and gastrointestinal symptoms (both 30%), myalgia, loss of taste, pleuritic chest pain, and confusion (all 10%). All patients had bilateral infiltrates on chest X-rays suggestive of interstitial viral pneumonia. All patients were cannulated in the venovenous configuration. Two (20%) patients were successfully liberated from ECMO support after 7 and 10 days, respectively, and one (10%) patient is currently on a weaning course. One patient (10%) died after 9 days on ECMO from multiorgan dysfunction.

Conclusions: These preliminary multi-institutional data from a statewide collaborative offer insight into the clinical characteristics of the first 10 patients requiring ECMO for COVID-19 and their initial clinical course. Greater morbidity and mortality is likely to be seen in these critically ill patients with longer follow-up.

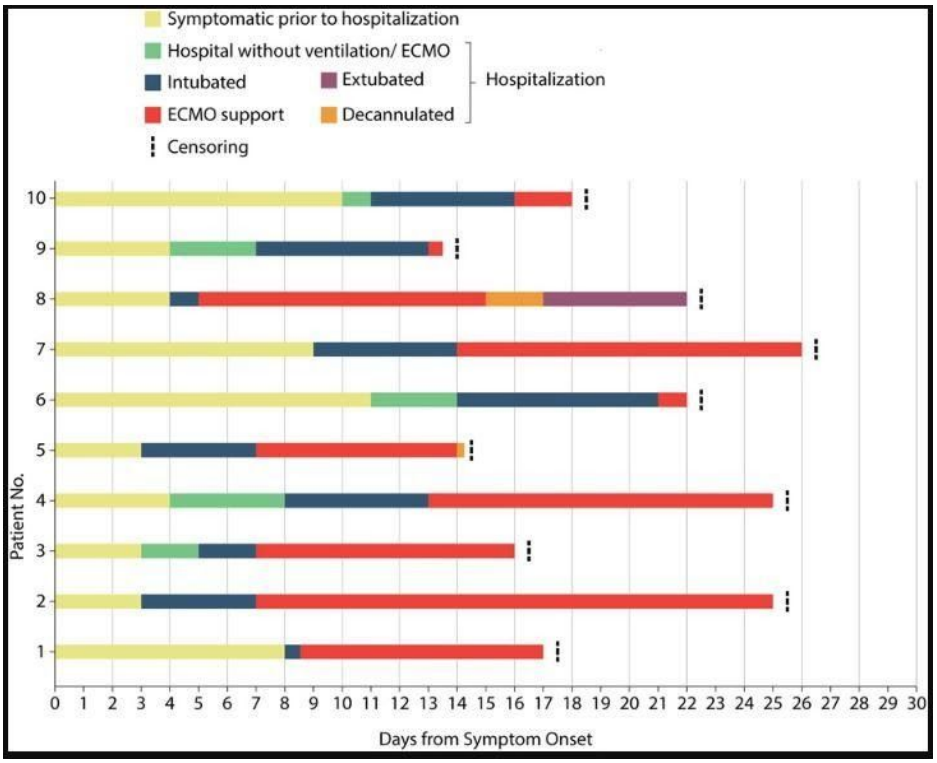


Figure 1. Individual course of COVID-19 patients with ARDS requiring salvage ECMO. ARDS, acute respiratory distress syndrome; ECMO, extracorporeal membrane oxygenation

BEDSIDE TRANSCERVICAL-TRANSTRACHEAL POST-INTUBATION INJURY REPAIR IN A COVID-19 PATIENT

Bassi, M; Anile, M; Pecoraro, Y; Ruberto, F; Martelli, S; Piazzolla, M; Pugliese, F; Venuta, F; De Giacomo, T
Ann Thorac Surg
2020 Apr 22; PMID: 32333850
Level of Evidence: 4 - Case Report
Type of Article: Research

BLUF: The authors report a case of tracheal injury in a 73-year old patient with COVID-19 after an intubation, emphasizing that although reported tracheal injuries from intubations are low at 0.005%, they are likely underreported and clinicians should be aware of this risk during this time.

Abstract:
SARS-Co-2 disease 2019 (COVID-19) has rapidly spread worldwide since December 2019. A relevant rate of patients develops an acute respiratory distress syndrome that require *(sic)* hospitalization. Among them, a non-negligible rate (9.8%-15.2%) requires tracheal intubation for invasive ventilation. We report the case of a COVID-19 patient developing pneumomediastinum and subcutaneous emphysema secondary to post-intubation tracheal injury. The management of COVID-19 patient *(sic)* can be challenging due to the risk of disease transmission to caregivers and epidemic spread. We performed a bedside tracheal injury surgical repair, after failure of conservative management, with resolution of pneumomediastinum and subcutaneous emphysema and improvement of patient's conditions.

Medical subspecialties

Telemedicine and eConsults for hospitalized patients during COVID-19.

Gadzinski AJ, Andino JJ, Odisho AY, Watts KL, Gore JL, Ellimoottil C.
Urology
2020 Apr 21; PMID: 32330533
Level of Evidence: 5 – Review
Type of Article: Commentary

BLUF: The purpose of this commentary is to describe types of remote consultation, medical documentation and billing requirements, as well as to demonstrate a process for rapid implementation. The goal is to have other consulting specialists implement similar programs in an effort to contribute to PPE preservation and minimize unnecessary physical exposure without compromising medical care.

Summarizing Excerpt:
"The COVID-19 pandemic has rapidly changed how physicians assess and interact with patients. Many providers have appropriately cancelled nonemergent surgical procedures and converted ambulatory in-person appointments to remote video visits or phone calls. As hospitals throughout the United States begin to fill with patients afflicted with COVID-19 and other acute illnesses, the need to preserve personal protective equipment (PPE) and to reduce the risk of nosocomial COVID-19 transmission to patients and providers is critical. Likewise, it is imperative to rapidly triage, diagnose, and provide disposition for nonCOVID-19-related urgent and emergent hospital visits. In order to support this objective, we developed a process to utilize inpatient telemedicine video visits and electronic consultation (eConsults) to assess patients with non-procedural urological needs presenting to the emergency department (ED) or admitted to the hospital… The COVID-19 pandemic

has necessitated dramatic changes in the practice of medicine. The utilization of telemedicine video visits and eConsults for certain patients requiring specialist evaluation in the ED and inpatient ward setting will help to conserve PPE, limit exposures bidirectionally, could allow for a centralized consult workforce to service multiple hospitals, and facilitate rapid triage and disposition of non-COVID-19 emergencies during this crisis."

Cardiology

Myocarditis in a patient with COVID-19: a cause of raised troponin and ECG changes.

Doyen D, Moceri P, Ducreux D, Dellamonica J.
Lancet
2020 Apr 23; PMID: 32334650
Level of Evidence: 5 - Case report
Type of Article: Letter to the Editor

BLUF: A 69-year old COVID-19 patient admitted to the ICU on mechanical ventilation was found to have dynamic ECG changes, an elevated troponin, and signs of myocarditis on MRI. Physicians should consider the possibility of myocarditis in COVID-19 patients with ECG changes and follow usual guidelines to exclude the possibility of an acute MI.

Summary: This is a case report of a 69-year old man with PMH of hypertension who presented with cough, fever, and dyspnea. Chest CT showed bilateral ground-glass opacities, PCR test confirmed diagnosis of COVID-19, and he was admitted to the ICU due to ARDS on mechanical ventilation. His ECG showed signs of **LVH and diffuse T-wave inversions**, and his **high-sensitivity cardiac troponin I concentration was elevated at 9001 ng/L.** Although a non-STEMI was suspected, coronary angiography showed no disease. However, **cardiovascular MRI showed subepicardial late gadolinium enhancement of the apex and inferolateral wall suggestive of myocarditis**. Additional tests for common causes of myocarditis were negative, and the authors concluded that the **SARS-CoV-2 infection was the cause.** The patient received hydrocortisone for 9 days, was weaned off mechanical ventilation, and was discharged from the ICU after 3 weeks. **It is still recommended that troponin is not routinely measured in COVID-19 patients, but physicians should consider the possibility of myocarditis in patients with dynamic ECG changes and high GRACE scores.**

Hematology and Oncology

COVID-19 in persons with haematological cancers.

He W, Chen L, Chen L, Yuan G, Fang Y, Chen W, Wu D, Liang B, Lu X, Ma Y, Li L, Wang H, Chen Z, Li Q, Gale RP.
Leukemia
2020 Apr 24; PMID: 32332856
Level of Evidence: 3 - Cohort study
Type of Article: Research

BLUF: A cohort study determined and compared the COVID-19 case fatality and disease severity rates in hospitalized patients with hematological cancers and in the control group of healthcare providers in Wuhan, China. The authors were unable to identify risk factors causing severe disease but calculated a higher case fatality rate and more severe disease in hospitalized patients with hematological cancers when compared to hospitalized healthcare workers.

Abstract:
Infection with SARS-CoV-2, the cause of coronavirus infectious disease-19 (COVID-19), has caused a pandemic with >850,000 cases worldwide and increasing. Several studies report outcomes of COVID-19 in predominately well persons. There are also some data on COVID-19 in persons with predominately solid cancer but controversy whether these persons have the same outcomes. We conducted a **cohort study at two centres in Wuhan, China**, of **128 hospitalised subjects with haematological cancers, 13 (10%) of whom developed COVID-19**. We also studied **226 health care providers, 16 of whom developed COVID-19 and 11 of whom were hospitalised**. Co-variates were compared with the 115 subjects with haematological cancers without COVID-19 and with 11 hospitalised health care providers with COVID-19. There were no significant differences in baseline co-variates between subjects with haematological cancers developing or not developing COVID-19. Case rates for COVID-19 in hospitalised subjects with haematological cancers was 10% (95% Confidence Interval [CI], 6, 17%) compared with 7% (4, 12%; P = 0.322) in health care providers. However, the 13 subjects with haematological cancers had more severe COVID-19 and more deaths compared with hospitalised health care providers with COVID-19. Case fatality rates were 62% (32, 85%) and 0 (0, 32%; P = 0.002). **Hospitalised persons with haematological cancers have a similar case rate of COVID-19 compared with normal health care providers but have more severe disease and a higher case fatality rate**. Because we were unable to identify specific risk factors for COVID-19 in hospitalised persons with haematological cancers, we **suggest increased surveillance and possible protective isolation**.

Neurology

18F-FDG PET/CT and Serial Chest CT Findings in a COVID-19 Patient With Dynamic Clinical Characteristics in Different Period.

Liu C, Zhou J, Xia L, Cheng X, Lu D.
Clinical Nucl Med.
2020 Apr 21; PMID: 32332319
Level of Evidence: 4 - Case study
Type of Article: Case study

BLUF: This case study details the clinical presentation, diagnosis, and successful treatment (Figure 3) of a 37 year old man who was clinically diagnosed with COVID-19. Interestingly, the patient presented with vertigo and diarrhea which suggested potential neurological or gastrointestinal complications of SARS-CoV-2.

Abstract: Neurological symptoms and gastrointestinal symptoms were rare at onset in COVID-19. Here we report a 37-year-old man with vertigo, fever, and diarrhea symptoms as the first manifestation. F-FDG PET/CT spotted multiple ground glass opacity (GGO) lesions in the lungs, with increased tracer uptake in both lung GGOs and the whole colon. Serial CT examinations showed the emersion and dissipation of lung GGOs. We illustrate the symptoms initiation, the laboratory test results, the imaging examination, and the treatment strategy in the duration of COVID-19 with a timeline chart.

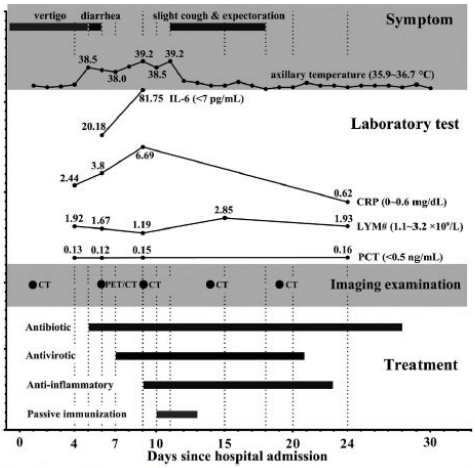


FIGURE 3. The timeline chart showed how the disease developed and how the treatment was managed during the COVID-19 course. The patient's fever emerged on day 5, along with 5 times of diarrhea for 1 day. Interleukin 6 and C-reactive protein increased quickly during the fever stage, whereas lymphocyte counts decreased a little but were still within normal reference range. Procalcitonin never got elevated in the duration of the disease. Antibiotics on day 5 and antivirotics on day 7 were used to treat against COVID-19. However, his fever persisted until the treatment of anti-inflammatory and passive immunization. The patient was symptom-free since day 18 and was discharged from hospital on day 30. The successful treatment corroborated the initial diagnosis of COVID-19 infection. COVID-19 shares the same respiratory symptoms and lung pathological characteristics with severe acute respiratory syndrome and Middle East respiratory syndrome[1,2]; however, this case and other reports indicate neurological symptoms, and gastrointestinal symptoms may also suggest suspected COVID-19.[3,4] Due to the unsatisfactory positive rate of SARS-CoV-2 nucleic acid test,[5] chest imaging examination serves as an important diagnostic method.[6–8] ^{18}F-FDG PET/CT plays a complementary role for COVID-19 diagnosis.[9] It demonstrates inflammatory lesions of the whole body, which may offer value for treatment strategy in the duration of COVID-19.

Pulmonology

Practical considerations for the diagnosis and treatment of fibrotic interstitial lung disease during the COVID-19 pandemic.

Wong AW, Fidler L, Marcoux V, Johannson KA, Assayag D, Fisher JH, Hambly N, Kolb M, Morisset J, Shapera S, Ryerson CJ

Chest.
2020 Apr 22. PMID: 32333929
Level of Evidence: 5 - Review
Type of Article: Research

BLUF: COVID-19 impacts multiple aspects of care for patients with interstitial lung disease (ILD). To minimize transmission risk, pulmonary function tests (PFT) and invasive procedures (e.g. bronchoscopy, biopsy) should be evaluated for their necessity based on their potential impact on urgent management. It might be beneficial to limit the amount of steroids or other immunomodulating therapies in ILD patients. Symptomatic stability, rather than routine PFTs, may be more appropriate for assessing disease stability. A negative RT-PCR result does not rule out COVID-19.

Abstract:
The 2019 coronavirus disease (COVID-19) pandemic caused by the SARS-CoV-2 virus has affected virtually all aspects of patient care. Healthcare systems around the world are trying to simultaneously treat patients with COVID-19 infection, prepare for its long-term impacts, and manage patients with other acute and chronic diseases. There are multiple ways that the COVID-19 pandemic will directly affect patients with fibrotic interstitial lung disease (ILD), particularly given their common risk factors for poor outcomes. Major issues for patients with ILD will include restricted access to key components of the diagnostic process, new uncertainties in the use of common ILD pharmacotherapies, limited ability to monitor both disease severity and the presence of medication adverse effects, and significantly curtailed research activities. The purpose of this review is to summarize how COVID-19 has impacted key components of the diagnosis and management of fibrotic ILD as well as to provide strategies to mitigate these challenges. We further review major obstacles for researchers and identify priority areas for future ILD research related to COVID-19. Our goals are to

provide practical considerations to support the care of patients with ILD during the COVID-19 pandemic and to provide a road map for clinicians caring for these patients during future infectious disease outbreaks.

Surgical Subspecialties

General Surgery

Management of orthopaedic and traumatology patients during the Coronavirus disease (COVID-19) pandemic in northern Italy.

Randelli PS, Compagnoni R
Knee Surg Sports Traumatol Arthrosc
2020 Apr 25; PMID: 32335697
Level of Evidence: 5 - Expert Opinion
Type of Article: Guideline

BLUF: The authors detail the method they use for triaging and managing orthopedic trauma cases at one of the two hospitals in the Lombardy region of Italy that are dedicated as orthopedic trauma hubs during the COVID-19 pandemic. They provide flowcharts describing the management of patients requiring admission/immediate surgery (figure 1) and admission/surgery on a later date (figure 2) and share these guidelines as a model for other hospitals (no data provided on outcomes of this intervention).

Abstract:
Purpose: This article aims to share northern Italy's experience in hospital re-organization and management of clinical pathways for traumatic and orthopaedic patients in the early stages of the COVID-19 pandemic.
Methods: Authors collected regional recommendations to re-organize *(sic)* the healthcare system during the initial weeks of the COVID-19 pandemic in March, 2020. The specific protocols implemented in an orthopaedic hospital, selected as a regional hub for minor trauma, are analyzed and described in this article.
Results: Two referral centres were identified as the hubs for minor trauma to reduce the risk of overload in general hospitals. These two centres have specific features: an emergency room, specialized orthopaedic surgeons for joint diseases and trauma surgeons on-call 24/7. Patients with trauma without the need for a multi-disciplinary approach or needing non-deferrable elective orthopaedic surgery were moved to these hospitals. Authors report the internal protocols of one of these centres. All elective surgery was stopped, outpatient clinics limited to emergencies and specific pathways, ward and operating theatre dedicated to COVID-19-positive patients were implemented. An oropharyngeal swab was performed in the emergency room for all patients needing to be admitted, and patients were moved to a specific ward with single rooms to wait for the results. Specific courses were organized to demonstrate the correct use of personal protection equipment (PPE).
Conclusion: The structure of the orthopaedic hubs, and the internal protocols proposed, could help to improve the quality of assistance for patients with musculoskeletal disorders and reduce the risk of overload in general hospitals during the COVID-19 pandemic.

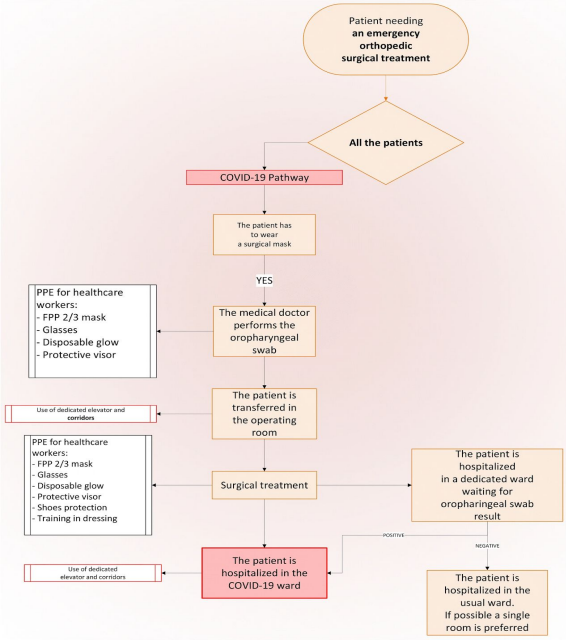


Fig. 1 Flowchart for patients referring to the emergency department and requiring an emergency surgical treatment

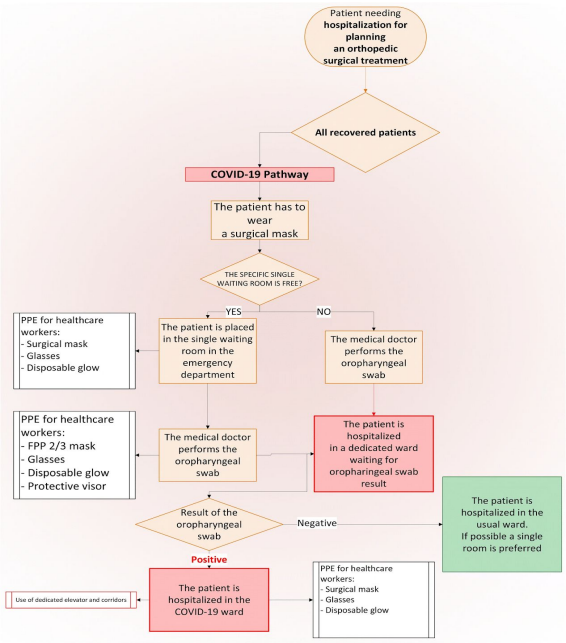


Fig. 2 Flowchart for hospitalization of patients referring to emergency department needing to plan a surgical treatment

COVID-19: should we continue to cryopreserve sperm during the pandemic?.

Yakass MB, Woodward B.
Reprod Biomed Online
2020 Apr 12; PMID: 32334942
Level of Evidence: 5 - Expert Opinion
Type of Article: Letter

Summarizing Excerpt: “For COVID-19-positive men, we consider the risk of significant virus shedding into semen is low, given that only very low titres of SARS-CoV-2 have been detected in non-respiratory sites … However, is 'low' an acceptable risk if we are to cryopreserve semen samples during the pandemic? … We therefore recommend that utmost precaution be exercised for sperm cryobanking at this time, with use of highly secure devices and segregated cryovessels. The risks

associated with couriering cryopreserved samples between clinics, during and after this pandemic, should also be considered."

Vascular Surgery

Acute Type A Aortic Dissection during COVID-19 Outbreak.

Fukuhara S, Rosati CM, El-Dalati S.
Ann Thorac Surg.
2020 Apr 22; PMID: 32333849
Level of Evidence: 4- Single Case Report
Type of Article: Research

BLUF: Authors from the University of Michigan departments of Cardiac Surgery and Infectious Disease present the case of how an otherwise successful surgical aortic dissection repair was complicated by post-op multi-organ failure and expiration due to COVID-19 to advocate for more liberal testing before emergent surgeries. This preoperative knowledge may significantly change clinical management and better protect healthcare workers.

Abstract:
As of April 7, 2020, approximately 1,300,000 cases and 80,000 deaths related to coronavirus disease 2019 (COVID-19) have been reported in > 180 countries/territories. Healthcare infrastructures and resources, particularly as it relates to the care of the most critically ill patients, are currently being strained globally. In this context, however, there has been little clinical guidance or information regarding life-threatening conditions requiring emergency surgery that cannot be delayed. We herein present a case of acute type A aortic dissection with COVID-19 in order to highlight the clinical implications of a true emergent procedure during the COVID-19 outbreak.

OBGYN

Neonatal Resuscitation Where the Mother Has a Suspected or Confirmed Novel Coronavirus (SARS-CoV-2) Infection: Suggestion for a Pragmatic Action Plan.

Trevisanuto D, Moschino L, Doglioni N, Roehr CC, Gervasi MT, Baraldi E.
Neonatology.
2020 Apr 24; PMID: 32335559
Level of Evidence: 5- Expert opinion
Type of Article: Letter

BLUF: Due to the unclear risks that pregnant patients and their newborns face during the COVID-19 pandemic, health care professionals have struggled to find a safe and effective way of managing admission, delivery and discharge. The Padua University Hospital has designed a new program which details appropriate management of these patients and has received positive feedback, see the figure and table below.

Abstract: Coronavirus disease 2019 (COVID-19), caused by the novel SARS-CoV-2 virus, is rapidly spreading across the world. As the number of infections increases, those of infected pregnant women and children will rise as well. Controversy exists whether COVID-19 can be transmitted in utero and lead to disease in the newborn. As this chance cannot be ruled out, strict instructions for the management of mothers and newborn infants are mandatory. This perspective aims to be a practical support tool for the planning of delivery and neonatal resuscitation of infants born by mothers with suspected or confirmed COVID-19 infection.

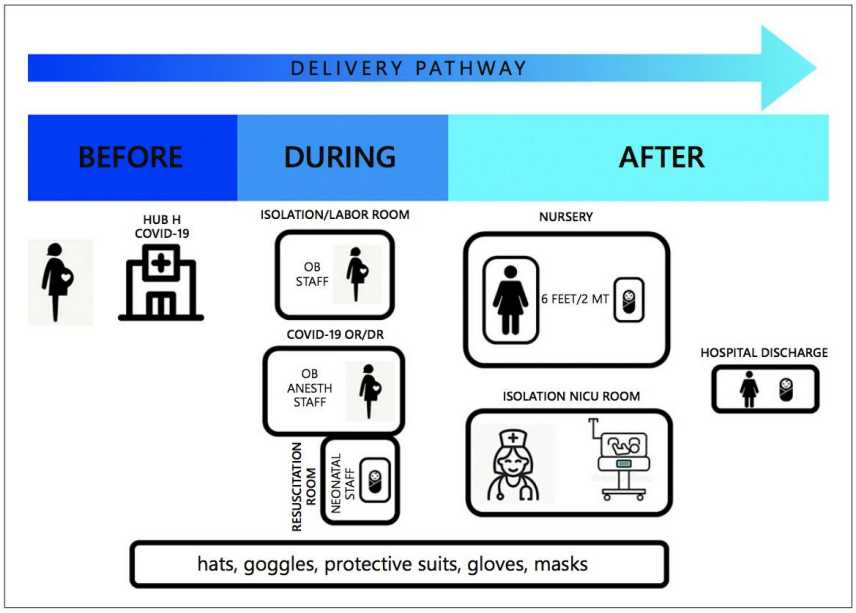


Fig. 1. Management of mothers with suspected or confirmed SARS-CoV-2 infection and their infants in the perinatal period

Table 1. Checklist on management of mothers with suspected or confirmed SARS-CoV-2 infection and their infants in the perinatal period

Time	Actions*
Before delivery	– A specific simulation training on management of mother and infant with COVID-19 should be put in place in every delivery setting – Plan the delivery in a hub hospital; if not possible, organize a separate path for suspected or diagnosed COVID-19 cases – Assure screening procedures in a dedicated area before arrival in the delivery unit – Inform hospital infection office or authorities of new cases – Suspected or diagnosed mother managed in airborne infection isolation room until delivery – Define a dedicated delivery room/operating theater (possibly negative pressure rooms) – Designate a room equipped with an infant warmer next to the delivery room or, if not available, put a neonatal resuscitation bed >6 feet (2 m) from the mother's bed – Clearly define a multidisciplinary team (midwives, obstetricians, anesthesiologists, and neonatologists) with a minimum number of health caregivers for scenario (ideally, 2 members for neonatal resuscitation) – Prepare separate packages with protective personal equipment (PPE, including hats, goggles, protective suits, gloves, N95 masks, etc.) for each team member in the delivery ward – Clearly define function and roles of team members for neonatal resuscitation – Equipment check (based on NRP or ERC guidelines): – Infant warmer temperature set, dry linen, plastic wrap – Suctioning (pressure 80–100 mm Hg); prefer closed systems – T-piece (PEEP 6 cm H_2O, PIP 20–25 cm H_2O, FiO_2 according to gestational age, flow 8–10 L/min), oxygen source, appropriate-sized masks, endotracheal tubes and laryngoscope of appropriate size, laryngeal mask, antibacterial filter, self-inflating bag – Videolaryngoscope – Drugs according to risk factors – Stethoscope, pulse oximeter, ECG, electrodes – Medications and kit for advanced resuscitation – Rescue personnel for neonatal resuscitation available for emergency – Transport incubator for postnatal transfer
During delivery	– The multidisciplinary team must wear protective clothing, N95 masks, goggles, and gloves before contact with the patients and before mother's arrival in the delivery suite/operating theatre – Vaginal delivery assisted in the airborne isolation room or in the designated operating theatre if caesarean section – Consider general anesthesia for CS if mother with incipient respiratory insufficiency – Delayed cord clamping below the introitus or abdominal incision if no other contraindications – Skin-to-skin contact not recommended – Neonatal stabilization/resuscitation steps as usually indicated
After delivery	– All PPE should be removed and put in plastic bags – Cleaning and disinfection of delivery room/operating theatre and equipment – Manage mother in an isolated room in the post-partum period – Care for the baby in an incubator possibly >6 feet (2 m) from mother or in a different room or, if intensive care needed, put the infant in an incubator in an isolated room in the unit – Staff managing mother and baby should always wear PPE and be tested for SARS-CoV-2 (nasal and oropharyngeal swabs) every 2–3 weeks – Send maternal specimens for SARS-CoV-2 testing (placenta, amniotic fluid) – Test the baby for SARS-CoV-2 (nasal and oropharyngeal swabs) 24 h after delivery – Consider expressed breast milk – Healthy neonates with two negative SARS-CoV-2 tests 24 h apart should be discharged to their mother with contact and droplet precautions until mother has two negative SARS-CoV-2 – Monitor mother, baby, and family with a strict follow-up

* Woman and parents of the baby should be involved in decisions at all stages.

Pathology

Unexpected Blood Pressure Sensitivity to Angiotensin II in a COVID-19 Patient with ARDS and Septic Shock

Wang, H; Das, S; Wieruszewski, PM; Taji, J; Bartlett, B; Azad, N; Chowdhury, A; Kolar, G; Jain, N; Subla, MR; Khan SA.

Chest
2020 Apr 23; PMID: 32335068
Level of Evidence: 4 - Case Report
Type of Article: Research
BLUF: This is a case report showing an 88-year old with severe COVID-19 in septic shock, who had rapid blood pressure response to angiotensin II. The authors contemplate this is related to the COVID-19 virus.

Abstract:
We report the case of an 88-year-old man with coronavirus disease 2019 (COVID-19) who presented with ARDS and septic shock. The patient had exquisite blood pressure sensitivity to low-dose angiotensin II (Ang-2), allowing for rapid liberation from high-dose vasopressors. We hypothesize that sensitivity to Ang-2 might be related to *(sic)* biologic effect of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection. Our case is suggestive of a potential role for synthetic Ang-2 for patients with COVID-19 and septic shock. Further studies are needed to confirm our observed clinical efficacy.

Renin-angiotensin-aldosterone system inhibitors and COVID-19.

Quinn KL, Fralick M, Zipursky JS, Stall NM.
Canadian Medical Association Journal.
2020 Apr 24; PMID: 32332039
Level of Evidence: 5 - Literature Review
Type of Article: Review
BLUF: This article details and reviews the controversy over whether a renin-angiotensin-aldosterone system (RAAS) inhibitor is harmful to COVID-19 patients. It is hypothesized that patients with underlying comorbidities such as diabetes or hypertension, who are currently taking RAAS inhibitors, should not change their RAAS medication due to COVID-19 infection.

Summary: This article provides a review and recommendation of the use of renin-angiotensin-aldosterone system (RAAS) inhibitors in COVID-19 patients with concurrent comorbidities such as hypertension or diabetes. They discuss how some studies have suggested increased harm to COVID-19 patients using ACE/ARB inhibitors because cellular expression of ACE2 may be increased in patients with diabetes treated with ACE inhibitors. However, the authors criticize these studies stating that they are "likely to have been subject to selection bias, unmeasured confounding and immortal time bias, which makes it impossible to establish causation." They state that **COVID-19 patients with established indications/benefits of RAAS inhibitors (ie. diabetic and hypertensive patients) should not undergo abrupt withdrawal of RAAS inhibitors** unless high-quality evidence suggests otherwise.

Pediatrics

Neurosurgery in an infant with COVID-19.

Carrabba G, Tariciotti L, Guez S, Calderini E, Locatelli M.
Lancet.
2020 Apr 22; PMID: 32333840
Level of Evidence: 4- Case Study
Type of Article: Correspondence
Summary: The authors present the case of a COVID-19 positive 8-month old patient from Milan with a complex hydrocephalus who had a shunt malfunction. The infant underwent neurosurgical shunt revision under general anesthesia without respiratory complications and the neurosurgical

course was favorable. Available protocol for patients with COVID-19 was followed, including the use of a negative pressure operating room and appropriate PPE use.

Adjusting Practice During COVID-19

For Healthcare Professionals

Aerosol box, An Operating Room Security Measure in COVID-19 Pandemic.

Leyva Moraga FA, Leyva Moraga E, Leyva Moraga F, Juanz González A, Ibarra Celaya JM, Ocejo Gallegos JA, Barreras Espinoza JA.Leyva Moraga FA, et al.
World J Surg.
2020 Apr 26; PMID: 32335692
Level of Evidence: 5 - Expert Opinion
Type of Article: Commentary

Summary: This article discussed how certain techniques can be used to protect providers from aerosol droplets while intubating and extubating COVID-19 patients. They **implemented a reusable, reproducible, temperature resistant transparent sheet** (see image below), which can be made for 40$USD. This device has proven to **allow providers adequate mobility** and even be **used in various maneuvers requiring an assistant, such as applying cricoid pressure, or securing tubing while intubating a patient**. They aim to share this information in hopes to become a solution, especially in low and middle income settings during this pandemic.

Fig. 1

Colocation of Aerosol Box

Acute care

Emergency Medicine

Acute Stroke Care in the Coronavirus Disease 2019 Pandemic.

Dafer RM, Osteraas ND, Biller J.
J Stroke Cerebrovasc Dis
2020 Apr 17; PMID: 32334918
Level of Evidence: 5 - Expert opinion
Type of Article: Guideline

Summary: The authors outline the following guidelines for acute stroke care during the COVID-19 pandemic:
Prehospital: EMS should screen over the phone for COVID-19 symptoms
Emergency department: All patients should be given a mask and should be screened for COVID-19 before evaluation by the stroke team
Hospitalization: Patients receiving IV thrombolytics should be monitored via two-way video conferencing, patients with large strokes may be admitted to the designated COVID-19 rule out part of ICUs, and diagnostic testing should be consolidated and should only be ordered when deemed necessary. Telemedicine may be used when appropriate, especially when rounding with residents and fellows.
Rehabilitation Planning: Rehabilitation healthcare workers should wear appropriate PPE and should be consulted discriminately to reduce COVID-19 exposure.
Family Members: Since many hospitals have placed restrictions on visitors, extra effort should be made to reach out to family via phone to assist in obtaining history on the patient.
Transferring Patients: Tele-stroke should be utilized to evaluate patients and reduce unnecessary transfers, and appropriate PPE should be utilized by the healthcare workers at both facilities and the patient.
Discharge: Since some acute rehabilitation facilities have closed, patients may need to be placed in rehabilitation beds in the hospital or discharged home until the pandemic is under control.

Wound Center Without Walls: The New Model of Providing Care During the COVID-19 Pandemic.

Rogers LC, Armstrong DG, Capotorto J, Fife CE, Garcia JR, Gelly H, Gurtner GC, Lavery LA, Marston W, Neville R, Nusgart M, Ravitz K, Woelfel S.
Wounds
2020 Apr 24; PMID: 32335520
Level of Evidence: 6 – No data
Type of Article: Correspondence

BLUF: During the ongoing pandemic, goals for patients with wounds have shifted from healing at any cost, to management through the Wound Center Without Walls to prevent serious wound complications and hospitalization.

Abstract:
The COVID-19 pandemic poses a major challenge in delivering care to wound patients. **Due to multiple comorbidities, wound patients are at an increased risk for the most extreme complications of COVID-19** and providers must focus on reducing their exposure risk. The Federal, State, and local governments, as well as payers, have urged hospitals and providers to reduce utilization of nonessential health services, but they also have given more flexibility to shift the site of necessary care to lower risk environments. Providers must be prepared for disruption from this pandemic mode of health care for the next 18 months, at minimum. The wound provider must accept

the new normal during the pandemic by adapting their care to meet the safety needs of the patient and the public. **The Wound Center Without Walls is a strategy to** untether wound care from a physical location and **aggressively triage and provide care to patients with wounds across the spectrum of the health system utilizing technology and community-centered care.**

Interventional Radiology

Interventional radiology workflow during the COVID-19 pandemic: recommendations of the Swiss Society of Vascular and Interventional Radiology.

Qanadli SD, Zech CL, Monnard E, Binkert C, Denys A, et al.
Swiss Med Wkly.
2020 Apr 24; PMID: 32330285
Level of Evidence: 5 - Expert Opinion
Publication Type: Letter
Summary: The Swiss Society of Vascular and Interventional Radiology recommends the following COVID-19 guidelines:

1. To provide care for the COVID-19 patients;
2. To continue to provide care to non-COVID-19 patients who need procedures;
3. To protect non-COVID-19 patients during IR procedures;
4. To protect IR teams;
5. To maintain sufficient active resources for IR in the mid-term;
6. To minimise physical interactions between onsite workforces and healthcare professional partners

Preparing IR for COVID-19: The Singapore Experience.

Gogna A, Punamiya S, Gopinathan A, Irani F, Toh LHW, Wen Cheong LH, Babu S, Wee B, Goh P, Tan BP, Damodharan K, Venkatanarasimha N, Chan SJM, Chandramohan S, Too CW, Chung R, Ong SJ, Tan A, Tan BS, Tay KH.
J Vasc Interv Radiol.
2020 Apr 9; PMID: 32331919
Level of Evidence: 5 – Review
Type of Article: Editorial
BLUF: This is a review of country-wide special measures undertaken for interventional radiology staff during the current coronavirus disease 2019 (COVID-19) pandemic. Overall, this paper summarizes that multiple lines of defense are needed to prevent uncontrolled hospital transmission.

Abstract:
This paper describes country-wide special measures undertaken for interventional radiology staff during the current coronavirus disease 2019 (COVID-19) pandemic. Although each interventional radiology service around the world faces unique challenges, the principles outlined in this article will be useful when designing or strengthening individual practices and integrating them within wider hospital and national measures. Moving beyond the current outbreak, these measures will be useful for any future infectious diseases which are likely to arise.

Critical Care

COVID-19 with spontaneous pneumothorax,pneumomediastinum and subcutaneous emphysema.

Wang W, Gao R, Zheng Y, Jiang L.Wang W, et al.

J Travel Med.
2020 Apr 25; PMID: 32330274
Level of Evidence: 4 - Case Report
Type of Article: Research
BLUF: The case presented in this article served to highlight that rapid deterioration of oxygen desaturation in a COVID-19 patient could be due to pneumothorax or pneumomediastinum. They also discussed that their administration of steroids due to indications of a cytokine storm led to a good outcome, but they cautioned that the use of steroids in severe pneumonia cases "remains elusive".

Abstract:
We present a case of COVID-19 pneumonia associated with spontaneous pneumothorax, pneumomediastinum and subcutaneous emphysema.

Neurology

Recommendations for Deep Brain Stimulation Device Management During a Pandemic.

Miocinovic S, Ostrem JL, Okun MS, Bullinger KL, Riva-Posse P, Gross RE, Buetefisch CM
J Parkinsons Dis
2020 Apr 24; PMID: 32333552
Level of Evidence: 5 - Expert Opinion
Type of Article: Commentary
BLUF: Authors provide general recommendations and a workflow algorithm (Figure 1) that centers can modify regarding the management of Deep Brain Stimulation (DBS) devices:

- Checking and tracking DBS battery status can be accomplished via telemedicine using patient programmers.
- Hardware infection can be assessed with telemedicine or through email, and treatment may range from oral antibiotics to explanation and IV antibiotics.
- Hardware malfunction may be checked remotely, although an in-person visit may be necessary to localize the problem.
- Urgent DBS replacement should be performed in patients who may require hospitalization due to therapy cessation, such as patients with Parkinson's disease, dystonia, OCD, depression, or severe or self-injurious tics from Tourette syndrome.
- If the neurostimulator cannot be replaced, medication therapy may be beneficial.
- Initial programming clinic visits may be postponed, and utilization of patient programmer advanced features can minimize the need for clinic visits during active programming.
- Patients should check the battery status every 3-6 months to prevent sudden interruption of DBS therapy and to plan for replacement.

ABSTRACT:
Most medical centers are postponing elective procedures and deferring non-urgent clinic visits to conserve hospital resources and prevent spread of COVID-19. The pandemic crisis presents some unique challenges for patients currently being treated with deep brain stimulation (DBS). Movement disorder (Parkinson's disease, essential tremor, dystonia), neuropsychiatric disorder (obsessive compulsive disorder, Tourette syndrome, depression), and epilepsy patients can develop varying degrees of symptom worsening from interruption of therapy due to neurostimulator battery reaching end of life, device malfunction or infection. Urgent intervention to maintain or restore stimulation may be required for patients with **Parkinson's disease who can develop a rare but potentially life-threatening complication known as DBS-withdrawal syndrome**. Similarly, patients with **generalized dystonia can develop status dystonicus**, patients with **obsessive**

compulsive disorder can become suicidal, and **epilepsy patients can experience potentially life-threatening worsening of seizures** as a result of therapy cessation. DBS system infection can require urgent, and rarely emergent surgery. Elective interventions including new implantations and initial programming should be postponed. For patients with existing DBS systems, the **battery status and electrical integrity interrogation can now be performed using patient programmers**, and employed through telemedicine visits or by phone consultations. The decision for replacement of the implantable pulse generator to prevent interruption of DBS therapy should be made on a case-by-case basis taking into consideration battery status and a patient's tolerance to potential therapy disruption. Scheduling of the procedures, however, depends heavily on the hospital system regulations and on triage procedures with respect to safety and resource utilization during the health crisis.

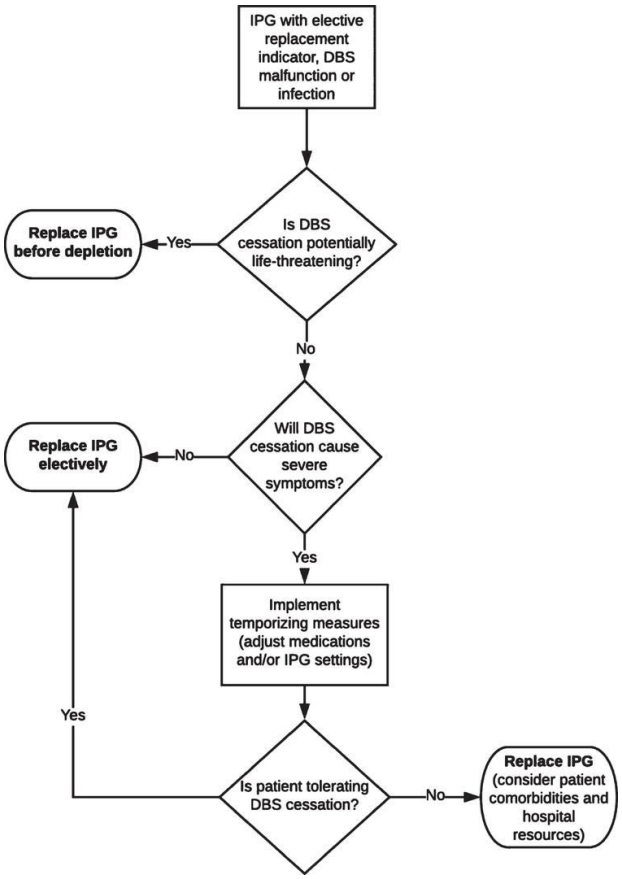


Fig 1. Workflow algorithm for management of DBS-related issues in a pandemic.

The COVID-19 pandemic and the use of MS disease-modifying therapies.

Giovannoni G, Hawkes C, Lechner-Scott J, Levy M, Waubant E, Gold J
Mult Scler Relat Disord
2020 Apr; PMID: 32334820
Level of Evidence: 5- Expert opinion
Type of Article: Commentary

Summary: The authors reprint recommendations on multiple sclerosis treatment during this pandemic from the Italian Society of Neurology or SIN (Società Italiana di Neurologia) while noting that the guidelines are aimed at treatment plans in the short term and are necessarily lacking evidence-based data. They urge careful decision making before modifying standard treatment plans for MS patients given the principle that 'time is brain.' They offer their own **recommendations** for

whether a variety of **disease modifying therapies should be initiated, continued, or discontinued** during the pandemic and in the case of COVID-19 infection, including detailed discussion of their rationale.

Optimizing the Use Of Teleneurology During the COVID-19 Pandemic.

Al Kasab, Sami; Almallouhi, Eyad; Holmstedt, Christine A
Telemed J E Health
2020 Apr 24; PMID: 32329661
Level of Evidence: 5 - Expert opinion
Type of Article: Commentary

BLUF: There is a need to expand teleneurology services during the COVID-19 pandemic to include outpatient encounters and in-patient virtual rounding.

Summary: One of the main ways teleneurology has been used is to remotely evaluate patients with neurological illnesses who present to the ER in community hospitals that have limited in-person neurology coverage. There is a need to expand the use of teleneurology services during the COVID-19 pandemic. This includes expanding to the outpatient setting to replace in-person encounters and expanding to virtual rounding, as has been implemented at the Medical University of South Carolina. While this switch to telemedicine has been a result of the current pandemic, when looking forward to the future, virtual care should become the new standard.

Medical subspecialties

Allergy and immunology

How is immunosuppressive status affecting children and adults in SARS-CoV-2 infection? A systemic review

Minotti C, Tirelli F, Barbieri E, Giaquinto C, Dona D.
J Infect.
2020 Apr 23; PMID: 32335173
Level of Evidence: 1 – Systematic review of non-randomized, observational studies
Type of Article: Research

BLUF: In this systematic review of non-randomized, observational studies, case-series, and case reports containing a total of 110 immunosuppressed adults (N=106) and children (N=4), immunosuppressed status did not place patients at greater risk of an increased severity of COVID-19.

Abstract:
Objectives: SARS-CoV-2 infection has now a global resonance. Data on how COVID-19 is affecting immunocompromised patients are however few. With our study we aimed to **systematically review the current knowledge on SARS-CoV-2 cases in children and adults with immunosuppression**, to evaluate outcomes in this special population.
Methods: A systematic review of literature was carried out to identify relevant articles, searching the EMBASE, Medline, and Google Scholar databases. Studies reporting data on pre-defined outcomes and related to immunosuppressed adults and children with SARS-CoV-2 were included.
Results: Sixteen relevant articles were identified with **110 immunosuppressed patients, mostly presenting cancer, along with transplantation and immunodeficiency.** Cancer was more often associated with a more severe course, but not necessarily with a bad prognosis. Our data show that both children and adults with immunosuppression seem to have a favorable disease course, as compared to the general population.

Conclusion: **Immunosuppressed patients with COVID-19** seem to be few in relation to the overall figures, and to **present a favorable outcome as compared to other comorbidities.** This might be explained by a hypothetical protective role of a weaker immune response, determining a milder disease presentation and thus underdiagnosis. Nevertheless, surveillance on this special population should be encouraged.

Endocrinology

Use of glucocorticoids in patients with adrenal insufficiency and COVID-19 infection.

Isidori AM, Pofi R, Hasenmajer V, Lenzi A, Pivonello R
Lancet Diabetes Endocrinol
2020 Apr 23; PMID: 32334645
Level of Evidence: 5- Expert opinion
Type of Article: Letter

Summary: The authors call for a more evidence based approach to glucocorticoid stress regimens in adrenal insufficiency patients with suspected or confirmed COVID-19. In the meantime they offer the following guidance:

- Patients with mild symptoms of COVID-19 should increase their original glucocorticoid doses to at least double
- "In cases of persistent fever or progression of respiratory damage to severe pneumonia, an initial bolus of 50–100 mg of hydrocortisone followed by continuous intravenous infusion of 200 mg of hydrocortisone"
- Promptly correct hydration and electrolyte balance to avoid hypotension
- Introduce low molecular weight heparin early to decrease thromboembolic risk

Hematology and Oncology

Recommendations for prioritization, treatment, and triage of breast cancer patients during the COVID-19 pandemic. the COVID-19 pandemic breast cancer consortium.

Dietz JR, Moran MS, Isakoff SJ, Kurtzman SH, Willey SC, Burstein HJ, Bleicher RJ, Lyons JA, Sarantou T, Baron PL, Stevens RE, Boolbol SK, Anderson BO, Shulman LN, Gradishar WJ, Monticciolo DL, Plecha DM, Nelson H, Yao KA.
Breast Cancer Res Treat.
2020 Apr 24; PMID: 32333293
Level of Evidence: 5 - Expert opinion
Type of Article: Editorial

BLUF: Depending on the priority level (A,B,C), this editorial has outlines of how care should be maintained or modified for breast cancer patients during the pandemic. Generally speaking, the A priority levels ought to have care postponed for after the pandemic versus C who should be given the normal standard of care without modifications.

Abstract:
The COVID-19 pandemic presents clinicians a unique set of challenges in managing breast cancer (BC) patients. As hospital resources and staff become more limited during the COVID-19 pandemic, it becomes critically important to define which BC patients require more urgent care and which patients can wait for treatment until the pandemic is over. In this Special Communication, we use expert opinion of representatives from multiple cancer care organizations to categorize BC patients into priority levels (A, B,

C) for urgency of care across all specialties. Additionally, we provide treatment recommendations for each of these patient scenarios. Priority A patients have conditions that are immediately life threatening or symptomatic requiring urgent treatment. Priority B patients have conditions that do not require immediate treatment but should start treatment before the pandemic is over. Priority C patients have conditions that can be safely deferred until the pandemic is over. The implementation of these recommendations for patient triage, which are based on the highest level available evidence, must be adapted to current availability of hospital resources and severity of the COVID-19 pandemic in each region of the country. Additionally, the risk of disease progression and worse outcomes for patients need to be weighed against the risk of patient and staff exposure to SARS CoV-2 (virus associated with the COVID-19 pandemic). Physicians should use these recommendations to prioritize care for their BC patients and adapt treatment recommendations to the local context at their hospital.

Surgical Subspecialties

General Surgery

We Asked the Experts: How Do We Maintain Surgical Quality Standards for Enhanced Recovery Programs After Cancer Surgery During the COVID-19 Outbreak?

Doussot A, Heyd B, Lakkis Z.
World J Surg.
2020 Apr 26; PMID: 32335691
Level of Evidence: 5 – Expert Opinion
Type of Article: Editorial

Summary: The COVID-19 pandemic has complicated the compliance with enhanced recovery programs (ERPs) after cancer surgery, particularly because ERP-designated medical personnel have been reassigned to other units and key parts of the ERP guidelines such as minimally invasive surgery and use of NSAIDs is currently discouraged because of COVID-19. Thus, preoperative screening of all patients for COVID-19 is key in determining whether elective cancer surgery should be postponed.

Surgery during the COVID-19 pandemic: A comprehensive overview and perioperative care.

Al-Balas M, Al-Balas HI, Al-Balas H.
Am J Surg.
2020 Apr 18; PMID: 32334800
Level of Evidence: 5 – Expert Opinion
Type of Article: Letter

Summary: This paper aims to highlight essential measures that healthcare providers and surgeons need to take into consideration during their management of the patient during the COVID-19 pandemic.

- Stratify preoperative patients into: non-infected, asymptomatic carriers, symptomatic patients
- Health status of medical personnel should be assessed daily and body temperature should be recorded
- Patients with or suspected to have COVID-19 should be operated on in a designated negative pressure environment,
- Choice between laparoscopy and laparotomy as a surgical approach needs to be cautious given the risk of pneumoperitoneum,
- Use lowest effective power for energy devices and use smoke evacuator

Neurosurgery

Letter: The Risk of COVID-19 Infection During Neurosurgical Procedures: A Review of Severe Acute Respiratory Distress Syndrome Coronavirus 2 (SARS-CoV-2) Modes of Transmission and Proposed Neurosurgery-Specific Measures for Mitigation.

Iorio-Morin C, Hodaie M, Sarica C, Dea N, Westwick HJ, Christie SD, McDonald PJ, Labidi M, Farmer JP, Brisebois S, D'Aragon F, Carignan A, Fortin D.
Neurosurgery.
2020 Apr 26; PMID: 32335684
Level of Evidence: 5 – Expert Opinion
Type of Article: Letter

Summary: The authors provide recommendations to mitigate risk of COVID-19 transmission specific to neurosurgery. Neurosurgeons can reappraise the necessity for general anesthesia and endotracheal intubation. Neurosurgery procedures that typically involve an approach that exposes the respiratory or digestive tracts, should be done with an alternative approach that does not expose those respective tracts. Limit the use of aerosol-generating treatments.

TABLE 3. Neurosurgical Procedure Optimization

- Consider alternatives to general anesthesia whenever possible to minimize the risk of aerosolization associated with endotracheal intubation and extubation
  - For awake surgeries, use a facemask
  - If intubation is required, keep all unnecessary personnel outside of the room during the induction
  - If intubation is required, use neuromuscular blockers to avoid cough
- Consider surgical approaches avoiding the sinuses and mastoids
  - If exposing the nasal or oral mucosa, consider intranasal povidone iodine preparation (especially in endonasal approaches) and chlorhexidine or hydrogen peroxide mouth rinse
  - Avoid postoperative nasal endoscopy and nasal spays
- Given the current uncertainty on the potential of viral transmission through aerosolized blood or other particles such as bone, consider limiting the use of aerosol-generating instruments:
  - Avoid using drills whenever possible:
    - Choose rongeurs, curettes, or chisels instead of burrs, especially when in the vicinity of sinuses or mastoid cells
    - Perform burr holes using a Hudson brace or twist drill rather than a perforator
    - For spinal decompression and stabilization, perform bony removal using rongeurs rather than a burr and use manual, tactile pedicle probes to facilitate the placement of pedicle screws
    - When drilling is required:
      - Consider drilling at lower speed
      - Stop the drill when irrigating
      - Use large suctions to try and aspirate all airborne particles
      - Try isolating the drilled area using a transparent adherent film (eg, Opsite™) "tent" or gauzes to limit the spread of airborne particles
      - Try minimizing the amount of drilling required in spine procedures by using navigation and considering minimally invasive approaches, such as endoscopic procedures and percutaneous instrumentation
  - Avoid using unnecessary electrocautery
  - Avoid using lasers
  - Avoid using ultrasonic aspirators
  - Consider performing VP shunts open rather than laparoscopically to minimize pneumoperitoneum-induced aerosolization
  - Protect the surgical field with towels when hammering to minimize aerosolization
  - Irrigate with large volumes at low pressure rather than low volumes at high pressure

Otolaryngology

An Ethical Framework for Head and Neck Cancer Care Impacted by COVID-19.

Shuman AG, Campbell BH; AHNS Ethics & Professionalism Service.Shuman AG, et al.
Head Neck.
2020 Apr 24; PMID: 32329948
Level of Evidence: 5 - Expert Opinion
Article Type: Commentary

BLUF: The authors describe how the tension between "clinical ethics" (the needs of the patient) and "public health ethics" (i.e. the needs of the population) presents a challenge for head and neck

oncologic providers. Mitigating this challenge may require treatment delays, non-standard treatment paradigms, consideration of limited resources, and development of consensus approaches to head and neck cancer management.

Abstract:
The COVID-19 pandemic has upended head and neck cancer care delivery in ways unforeseen and unprecedented. The impact of these changes parallels other fields in oncology, but is disproportionate due to protective measures and limitations on potentially aerosolizing procedures and related interventions specific to the upper aerodigestive tract. **The moral and professional dimensions of providing ethically appropriate and consistent care for our patients in the COVID-19 crisis are considered herein for head and neck oncology providers.**

Should we wait or not? The preferable option for patients with stage IV oral cancer in COVID-19 pandemic.

Bhattacharjee, Atanu; Patil, Vijay M; Dikshit, Rajesh; Prabhash, Kumar; Singh, Arjun; Chaturvedi, Pankaj
Head & Neck
2020 Apr 24; PMID: 32329953
Level of Evidence: 5 - Mechanism-based Reasoning
Type of Article: Research
BLUF: A multi state and hazards model was used to perform a simulation using current data on a cohort of stage IV oral cancer patients in order to visualize the impact of COVID-19 on this population and provide an objective model for decision making for healthcare workers. **Based on this model, it is advisable that isolation and deferral of treatments is utilized in stage IV oral cancer patients in order to prevent contraction of COVID-19.**

Abstract:
Background: The coronavirus infection is rapidly spreading putting a strain on healthcare services across the globe. Oral cancer patients are susceptible often immunosuppressed due to the disease and/or the treatment received.
Methods: We performed a simulation of the currently available data using a multi state and hazards model to provide an objective model for counseling and decision making for healthcare workers.
Results: Stage IV oral cancer patients that did not receive treatment had progression of disease and an increased mortality rate than patients that receive treatment but did not contract COVID-19. The patients that received treatment and got affected with COVID-19 had a far worse impact and higher mortality rate than all other groups.
Conclusion: Isolation and deferring treatment for stage IV oral cancer patients, so as to avoid hospital visits and contration of COVID-19, is an advisable strategy based on this model. *(sic)*

Transplant Surgery

SARS-CoV-2 Pandemic and The Need for Transplant-oriented Trials.

Zaza G, Benedetti C, Fribourg M, Maggiore U, Azzi J, Riella LV, Cravedi P.
Transpl Int
2020 Apr 25; PMID: 32333712
Level of Evidence: 5 - Expert Opinion
Type of Article: Letter to the Editor
Summary: There are currently no published studies beyond case series describing the incidence and clinical course of COVID-19 in transplant recipients. Most trials allow participation of transplant recipients but are not designed to address important questions specific to transplant patients,

particularly questions about discontinuing or continuing immunosuppressive drugs. Ad hoc trials are urgently needed in transplant patients to answer these questions.

OBGYN

Proposed Imaging Guidelines for Pregnant Women Suspected of Having COVID-19

Karimi MA, Radpour A, Sedaghat A, Gity M, Hekmatnia A, Sanei-Taheri M, Tarzamani MK, Arab-Ahmadi M.Karimi MA, et al.
Acad Radiol.
2020 Apr 17; PMID: 32335003
Level of Evidence: 5 - Expert Opinion
Type of Article: Letter to the Editor

BLUF: Recommendations (specified below) from the Iranian Society of Radiology to 'maximize benefit' and 'optimize protection' **when considering imaging pregnant women suspected of having COVID-19.**

Summary: Considerations for diagnostic imaging in pregnant women during COVID-19:

- **Avoid chest X-ray or CT** if diagnosis can be made without imaging and only use imaging after a thorough history and exam have made **other differentials less likely.**
- **Informed consent**, including the relevant indications, risks, and benefits, must be obtained.
- The **minimum effective radiation dose should be used.**
    - In the 1st trimester, start with X-ray and proceed to CT with reduced radiation dose if inconclusive.
    - In the 2nd and 3rd trimester, an initial low dose CT scan may be reasonable.
- **Abdominal shielding** must always be used, especially in the first trimester.
- **PPE must be available** for the patient, all personnel, and anyone else coming into contact with the patient.
- The **scan request, patient's clothing, and patient's files should be marked red/high-risk.**
- The attending physician should be responsible when decisions about repeat imaging or termination of pregnancy need to be made.

COVID-19 in Pregnancy: Consider Thromboembolic Disorders and Thromboprophylaxis

Di Renzo FC, Giardina I
Am J Obstet Gynecol
2020 Apr 22; PMID: 32333857
Level of Evidence: 5 – Expert Opinion
Type of Article: Letter

Summary: In this letter to the editor, the authors **suggest use of low molecular-weight heparin as prophylaxis for pregnancy** during COVID-19, given the hypercoagulable state associated with pregnancy and recent findings of microvessel thrombosis in infection.

Ophthalmology

Review of Hygiene and Disinfection Recommendations for Outpatient Glaucoma Care: A COVID Era Update.

Shabto JM, De Moraes CG, Cioffi GA, Liebmann JM.

Journal of Glaucoma.
2020 Apr 22; PMID: 32332334
Level of Evidence: 5 - Expert opinion
Type of Article: Opinion
BLUF: SARS-CoV-2 is primarily thought to be spread person-to-person via respiratory droplets, which can land and reside on a number of instruments that may be used during a single patient exam. This article discusses how "Careful attention to personal hygiene, social (physical) distancing, and instrument disinfection will decrease the chance of inadvertent transmission among ourselves, office personnel, and patients in the outpatient setting."

Abstract: This review focuses on best practices and recommendations for hygiene and disinfection to limit exposure and transmission of infection in outpatient glaucoma clinics during the current COVID-19 pandemic.

Pediatrics

Consensus recommendations for the care of children receiving chronic dialysis in association with the COVID-19 epidemic.

Shen Q, Wang M, Che R, Li Q, Zhou J, Wang F, Shen Y, Ding J, Huang S, Yap HK, Warady BA, Xu H, Zhang A.
Pediatr Nephrol.
2020 Apr 24. PMID: 32333285
Level of Evidence: 5 - Expert Opinion
Type of Article: Guidelines
BLUF: A review article describing recommendations based on "infectious disease guidelines and [their] experience with the COVID-19 epidemic," for healthcare staff in pediatric dialysis who work with children with kidney failure to effectively prevent and control transmission of SARS-CoV-2. Recommendations include: preventive and control strategies for in center hemodialysis (HD), patient management, HD facility management, control strategies, and preventative and control strategies for home peritoneal dialysis (PD).

Abstract: Coronavirus disease 2019 (COVID-19) has rapidly spread not only in China but throughout the world. **Children with kidney failure (chronic kidney disease (CKD) stage 5) are at significant risk for COVID-19**. In turn, a set of **recommendations for the prevention and control of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and COVID-19 in pediatric hemodialysis (HD) centers and in home peritoneal dialysis (PD) settings have been proposed**. The recommendations are based on the epidemiological features of the SARS-CoV-2 virus and COVID-19 disease, susceptibility factors, and preventive and control strategies. These recommendations will be updated as new information regarding SARS-CoV-2 and COVID-19 becomes available.

Geriatrics

COVID-19 in Italy: Ageism and Decision Making in a Pandemic

Cesari, Matteo; Marco Proietti
J Am Med Dir Assoc
2020 May; PMID: 32334771
Level of Evidence: 5 - Expert Opinion
Type of Article: Editorial

Summarizing Excerpt: "In settings where rationing of resources becomes a necessity and such preparation has not been made, medical staff or oversight organizations **should implement ad hoc guidelines that incorporate key prognostic factors beyond age—most notably frailty, comorbidity, and functional status.** In this manner, a sentence about function and comorbidities in an ethics document underscores the need to operationalize the meaning of prognosis at advanced age, and acknowledges the critical role that function and comorbidity play in the aging individual. Clinicians familiar with principles of geriatrics and gerontology could thus support the development of more contemporary recommendations by identifying valid, efficient ways of measuring comorbidities and function across different settings and specialties."

PM&R

Organization of acute patients' transfer to rehabilitation services during COVID-19 crisis.

Treger I, Lutsky Treger L, Friedman A
Eur J Phys Rehabil Med
2020 Apr 24; PMID: 32329592
Level of Evidence: 5 - Expert Opinion
Type of Article: Letter

SUMMARY: Rehabilitation doctors at a hospital in Israel share their protocol for arranging the transfer of acute patients to the appropriate type of rehabilitation services, which has produced positive results and high levels of satisfaction:

1. All requests are referred to the Senior PRM doctor (SR) by the electronic medical record (EMR) system.
2. The Chief Rehabilitation Doctor of the Southern Region was selected as the SR and is working remotely, without entering the hospital.
3. The information used for decision making is the following: the acute staff (doctor, nurse, social worker, physiotherapist, occupation therapist or speech therapist when needed) document their finding in the chart. If this information is not sufficient, one of the PRM residents goes and physically assesses the patient. SR's decision is transferred the same day by the EMR to the acute department, Health Fund and Rehabilitation facility.

Telemedicine from research to practice during the pandemic. "Instant paper from the field" on rehabilitation answers to the Covid-19 emergency.

Negrini S, Kiekens C, Bernetti A, Capecci M, Ceravolo MG, Lavezzi S, Zampolini M, Boldrini P.
Eur J Phys Rehabil Med.
2020 Apr 24. PMID: 32329593
Level of Evidence: 5 - Expert Opinion
Type of Article: Commentary

BLUF: A webinar with six Italian Physical and Rehabilitation physicians highlights the benefits and struggles of telemedicine during the COVID-19 crisis. Advantages of telehealth include: cost reduction, accessibility for less mobile patients, and human interaction during a time of social isolation. Disadvantages of telehealth include: lack of technology for some patients, inability to perform a complete physical exam on patients, and issues concerning consent, privacy, and reimbursement.

Abstract:

Covid-19 pandemic is creating collateral damage to outpatients, whose rehabilitation services have been disrupted in most of the European countries. Telemedicine has been advocated as a possible

solution. This paper reports the contents of the third Italian Society of Physical and Rehabilitation Medicine (SIMFER) webinar on "experiences from the field" Covid-19 impact on rehabilitation ("Covinars"). It provides readily available, first-hand information about the application of telemedicine in rehabilitation. The experiences reported were very different for population (number and health conditions), interventions, professionals, service payment, and technologies used. Commonalities included the pushing need due to the emergency, previous experiences, and a dynamic research and innovation environment. Lights included feasibility, results, reduction of isolation, cost decrease, stimulation to innovation, satisfaction of patients, families, and professionals beyond the starting diffidence. Shadows included that telemedicine can integrate but will never substitute face-to-face rehabilitation base on the encounter among human beings; age, and technology barriers (devices absence, bad connection and human diffidence) have also been reported. Possible issues included privacy and informed consent, payments, cultural difficulties in understanding that telemedicine is a real rehabilitation intervention. There was a final agreement that this experience will be incorporated by participants in their future services: technology is ready, but the real challenge is to change PRM physicians' and patients' habits, while better specific regulation is warranted.

Psychiatry

Mobilization of Telepsychiatry in Response to COVID-19-Moving Toward 21st Century Access to Care.

Kannarkat JT, Smith NN, McLeod-Bryant SA.Kannarkat JT, et al.
Adm Policy Ment Health.
2020 Apr 24; PMID: 32333227
Level of Evidence: 5 - Expert Opinion
Article Type: Point of View

BLUF: The author discusses important considerations in rapidly enabling telepsychiatry care during the COVID-19 pandemic. These considerations include defining protocols for staff and providers, ensuring availability of telepsychiatry modalities at clinics, recognizing the potential disparity in care for those who cannot utilize digital devices, creating homebound activities (i.e. meditation, yoga) for patients, utilizing remote collaborative care models, and providing adequate training.

Abstract:
The COVID-19 pandemic threatens to disrupt the provision of mental health services. In response, policymakers, administrators, and providers have taken bold steps toward enabling telepsychiatry to bridge this sudden gap in care for our most vulnerable populations**. With rapid deregulation and adoption of this modality of care [telepsychiatry], careful consideration of issues related to policy and implementation is essential to maximize its effectiveness and mitigate unintended consequences.** Though the crisis places the healthcare system under strain, it sets the stage for a lasting shift in not only how care is delivered, but also our beliefs around the system's capacity for rapid, innovative change.

R&D: Diagnosis & Treatments

Current Diagnostics

Guidance for evaluating and testing patients for COVID-19.

Blumberg, E.
Am J Transplant
2020 Apr 25; PMID: 32333516
Level of Evidence: 5 – Expert Opinion
Type of Article: Editorial

Summary: This article summarizes the priority of COVID-19 testing based on CDC guidelines due to the limited availability of tests. The highest priority is given to hospitalized patients and healthcare workers while the lowest is given to asymptomatic patients.

Developments in diagnostics

Atypical pneumonia diagnosed as COVID-19 by serologic test (patient #1 in Poland).

Swadzba, Jakub; Kozlowska, Danuta; Anyszek, Tomasz; Dorycka, Malgorzata; Martin, Emilia; Piotrowska-Mietelska, Anna
Pol Arch Intern Med
2020 Apr 24; PMID: 32329977
Level of Evidence: 4 - Case Study
Type of Article: Clinical image

Summary: This is the case study of a 63 y/o female patient with hypertension and diabetes who was the first patient diagnosed with COVID-19 in Poland; symptom onset was on March 2, 2020 and the diagnosis was made on March 27, 2020. This case study is an example of slow seroconversion and long lasting viremia and highlights the challenges in establishing a correct diagnosis during the early stages of COVID-19 pandemic.

Challenges and Opportunities for Lung Ultrasound in Novel Coronavirus Disease (COVID-19).

Schultz MJ, Sivakorn C, Dondorp AM.Schultz MJ, et al.
Am J Trop Med Hyg.
2020 Apr 24; PMID: 32333546
Level of Evidence: 5 - Expert Opinion
Type of Article: Editorial

Summary: Although computer tomography (CT) can be used to detect early COVID-19 cases, under certain constraints, such as resource limited settings, an alternative needs to be utilized. For this reason, they discussed the positives of ultrasound (US), including good sensitivity level, as well as the negatives, such as the limitations of existing scoring systems with US, in order to better inform those aiming to rely on this tool clinically.

Developments in Treatments

Baricitinib therapy in COVID-19: A pilot study on safety and clinical impact.

Cantini F, Niccoli L, Matarrese D, Nicastri E, Stobbione P, Goletti D.
J Infect.
2020 Apr 22. PMID: 32333918

Level of Evidence: 4 - Single Cohort Design
Type of Article: Research
Summarizing excerpt: "Baricitinib at 4 mg/day/orally was given to 12 patients with moderate COVID-19. In baricitinib-treated patients no adverse events were recorded, after 2 weeks. Clinical and respiratory parameters **significantly improved at 2 weeks. None of the baricitinib-treated patients required admission to ICU**. Proper control group was missing; this is required to demonstrate the efficacy."

Repurposing the mucolytic cough suppressant and TMPRSS2 protease inhibitor bromhexine for the prevention and management of SARS-CoV-2 infection.

Maggio R, Corsini GU
Pharmacol Res
2020 Apr 22; PMID: 32334502
Level of Evidence: 5 - Expert Opinion
Type of Article: Letter to the Editor
Summary: The authors offer their support for use of bromhexine hydrochloride, an over-the-counter mucolytic medication, as a treatment for COVID-19. Because this drug is a known inhibitor of the cellular enzyme required for SARS-CoV-2 entry, they believe this drug could be successfully repurposed to treat COVID-19 patients.

A hypothesis for pathobiology and treatment of COVID-19: the centrality of ACE1/ACE2 imbalance.

Sriram K, Insel PA.
Br J Pharmacol.
2020 Apr 24; PMID: 32333398
Level of Evidence: 5 - Mechanism Based Reasoning
Type of Article: Comment
BLUF: Targeting the ACE-2 receptor may be a novel approach in SARS-CoV-2 prevention and subsequent treatment. Recombinant ACE1/2 decoy receptors, ARBs, and other RAAS inhibitors may help blunt morbidity and mortality of COVID-19.

Abstract: Angiotensin converting enzyme-2 (ACE2) is the receptor for the coronavirus SARS-CoV-2, which causes COVID-19. We propose the following hypothesis: **Imbalance in the action of ACE1- and ACE2-derived peptides, thereby enhancing [sic] Angiotensin-II (ANG II) signaling, a primary driver of COVID-19 pathobiology.** ACE1/ACE2 imbalance occurs due to the binding of SARS-CoV-2 to ACE2, reducing ACE2-mediated conversion of ANG II to ANG peptides that counteract pathophysiological effects of ACE1-generated ANGII. This hypothesis suggests several approaches to treat COVID-19 by restoring ACE1/ACE2 balance: **1) ANG II receptor blockers (ARBs); 2) ACE1 inhibitors (ACEIs); 3) Agonists of receptors activated by ACE2-derived peptides [e.g., ANG (1-7), which activates MAS1]; 4) Recombinant human ACE2 or ACE2 peptides as decoys for the virus**. Reducing ACE1/ACE2 imbalance is predicted to blunt COVID-19-associated morbidity and mortality, especially in vulnerable patients. Importantly, approved ARBs and ACEIs can be rapidly repurposed to test their efficacy in treating COVID-19.

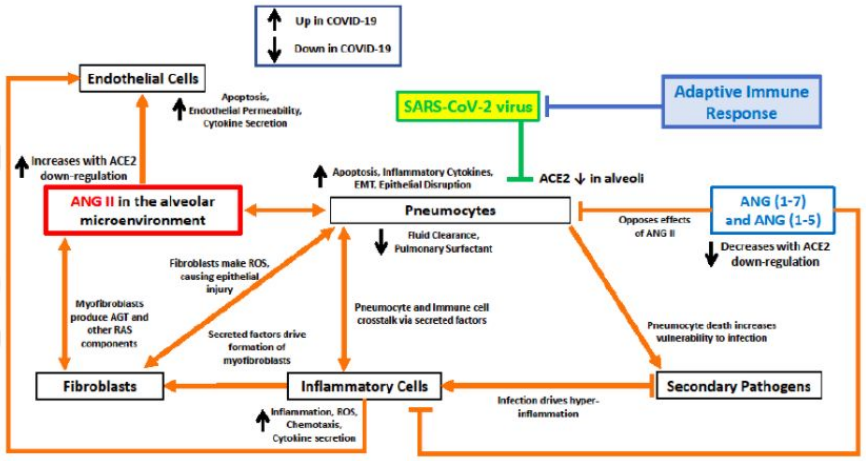


Figure 3. Hypothesized model of cell-cell communication and pathobiology in pulmonary infection from SARS-CoV-2 and the role of ACE1- and ACE2-derived peptides in mediating these effects on several different cell types.

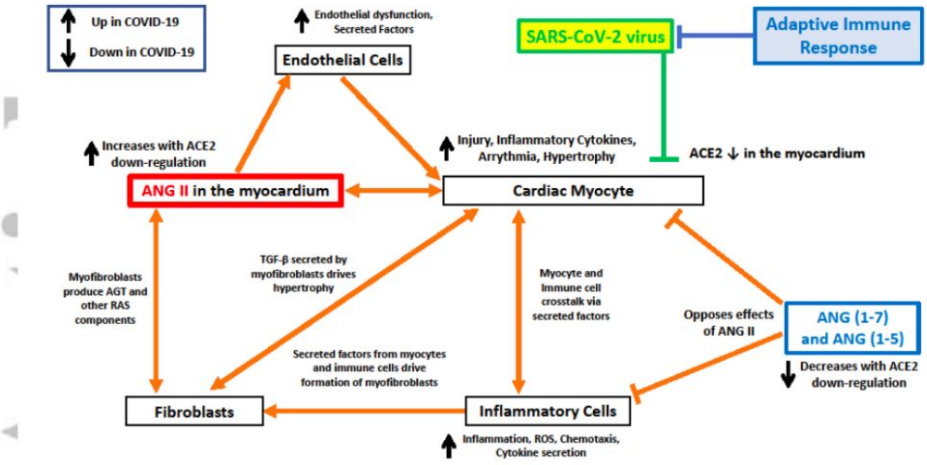


Figure 5. Hypothesized model of cell-cell communication in myocardial infection from SARS-CoV-2 and the influence of ACE1/ACE2 imbalance on a variety of cell types involved in cardiac injury.

Pharmacologic Perspective: Glycyrrhizin May Be an Efficacious Therapeutic Agent for COVID-19

LuoLiu P, Li J
Int J Antimicrob Agents
2020 Apr 23; PMID: 32335281
Level of Evidence: 5 – Mechanism-based Reasoning
Type of Article: Review

BLUF: The authors make a case for **glycyrrhizin**, a triterpene saponin, as a **potential therapeutic for COVID-19**, citing its previous ***in vitro* anti-SARS-CoV activity** and preliminary *in silico* data suggesting it **might bind ACE-2**. The authors also tout **potential immunomodulatory effects** of glycyrrhizin as a glucocorticoid alternative, inhibitor of ROS formation, thrombin inhibitor, and inducer of endogenous interferon. They measure their enthusiasm however, by highlighting the **need for clinical validation**.

Abstract:

Coronavirus disease 2019 (COVID-19) caused by a previously unknown pathogen named severe acute respiratory syndrome-related coronavirus-2 (SARS-CoV-2) has now become a pandemic threat to the whole world. However, there are no vaccines or specific treatment against the new virus. Therefore, there is an urgent need for advancing novel therapeutic interventions for COVID-19. Glycyrrhizin, a triterpene saponine (*sic*), is valuable for its various biological functions and pharmacology effects. In this brief article, we will discuss the **therapeutic potential of glycyrrhizin** for COVID-19 from the perspective of its pharmacological action including binding angiotensin converting enzyme II (ACE2), **down-regulating proinflammatory cytokines**, inhibiting the accumulation of intracellular ROS, **inhibiting thrombin**, inhibiting the hyperproduction of airway exudates, and inducing endogenous interferon.

Can Transdermal Photobiomodulation Help Us at the Time of COVID-19?

Domínguez A, Velásquez SA, David MA
Photobiomodul Photomed Laser Surg.
2020 Apr 24; PMID: 32330404
Level of Evidence: 5 - Expert opinion
Type of Article: Letter

BLUF: Intravascular laser irradiation of the blood has been shown to improve the immune system and the endothelium. Given that COVID-19 is thought to create a damaging cytokine storm, the authors suggest examining photobiomodulation therapies as a means to combat the dangerous inflammatory response that COVID-19 can inflict in patients.

Summarizing excerpt: "Intravascular laser irradiation of blood is a low-level laser therapy modality that aims to radiate the body's blood flow...[Studies have] found that the laser, applied with its protocol, had a beneficial effect on endothelium and blood flow. Previous studies show that photobiomodulation therapy improves the immune system... It has now been suggested by clinicians and researchers that [COVID-19] causes an overreaction of the immune system known as "cytokine storm." ...The damage caused by the virus could be mitigated with an adjuvant therapy that reaches all organs, logically with a special interest in the respiratory system. We recommend the identification and treatment of hyperinflammation using a noninvasive therapy that exists with proven safety profiles to address the immediate need to reduce the rising mortality [of COVID-19]."

DPP4 inhibition: preventing SARS-CoV-2 infection and/or progression of COVID-19?

Strollo, Rocky; Pozzilli, Paolo
Diabetes Metab Res Rev
2020 Apr 26; PMID: 32336007
Level of Evidence: 5 - Mechanism-based Reasoning
Type of Article: Comment

BLUF: The role of DPP4 as a potential drug target for COVID-19 is explored through the evaluation of a docked complex model of the SARS-CoV-2 spike glycoprotein and DPP4, which indicates that DPP4 could be directly involved in SARS-CoV-2 cell adhesion/virulence and could have anti-inflammatory properties. Further validation is necessary to establish the therapeutic effects of DPP4 inhibition in COVID-19.

Abstract:
Dipeptidyl peptidase 4 (DPP4), also known as cluster of differentiation 26 (CD26), is a **serine exopeptidase** expressed ubiquitously in several tissues, including but not limited to lung, kidney, liver, gut, and immune cells. The question has been raised on whether DPP4 modulation or inhibition

may prevent infection and/or progression of the COVID-19. A **docked complex model of the SARS-CoV-2 spike glycoprotein and DPP4 has been proposed, showing a large interface between the proteins and proposing close similarity with other coronaviruses using DPP4 as functional receptor**. In absence of experimental validation, these data should be interpreted with caution. Nevertheless, this observation may rise the question on whether DPP4 is directly involved in SARS-CoV-2 cell adhesion/virulence, and whether DPP4 inhibition might be a therapeutic strategy for preventing infection. Although a direct involvement of DPP4 in SARS-CoV-2 infection needs to be clarified, there is also **evidence suggesting that DPP4i modulate inflammation and exert anti-fibrotic activity**. These properties may be of potential use for halting progression to the hyperinflammatory state associated with severe COVID-19. Taken together these findings may suggest a potential role for DPP4 inhibition or modulation in one or more steps of COVID-19 immunopathogenesis.

Mental Health & Resilience Needs

Impact on Public Mental Health

Awareness of mental health problems in patients with coronavirus disease 19 (COVID-19): A lesson from an adult man attempting suicide.

Liu Y, Cao L, Li X, Jia Y, Xia H
2020 Apr 18; Asian J Psychiatr.
PMID: 32334411
Level of Evidence: 4 - Case report
Type of Evidence: Research

BLUF: A case-report of a man with no previous history of mental illness who attempted suicide while hospitalized for COVID-19. He believed he was responsible for the infection of several family members. He scored 35 on the Impact of Events Scale - Revised (IES-R), a tool to measure PTSD, which is over the diagnostic threshold of 20. Regular counselling was started and the patient's symptoms were relieved. The authors suggest timely psychological counselling for patients who have an infectious disease that causes severe harm to the public, especially if those patients believe they are responsible for infecting other individuals.

Summarizing statement: "Although many studies have reported the clinical characteristics of COVID-19 patients, few have described changes in the mental state of the patients. Previous studies have reported that 10 %–42 % of Middle East respiratory syndrome (MERS) and severe acute respiratory syndrome (SARS) patients were afflicted by anxiety, depression and other mental symptoms (Han et al., 2003; Kim et al., 2018; Lee et al., 2018), which are closely related to the quarantine state in addition to the diseases themselves. The adverse effects of mental illness on the recovery of COVID-19 patients should be considered, including the possibility of death in a few patients (Goyal et al., 2020). **Therefore, psychotherapy should be considered as an important treatment measure for patients suffering from infectious diseases that are characterized by severe social harm. It is especially important to provide timely and effective psychological counselling for patients who believe they may be responsible for disease transmission."**

Assessing the anxiety level of Iranian general population during COVID-19 outbreak.

Moghanibashi-Mansourieh A
2020 Apr 18; Asian J Psychiatr.
PMID: 32334409
Level of Evidence: 5 - Qualitative cross-sectional study
Type of Evidence: Research

BLUF: A cross-sectional study of 10,754 individuals from the general population of Iran assessed anxiety level and risk factors during the COVID-19 outbreak. Participants completed a questionnaire survey on social networks between March 1 and March 9, 2020. Anxiety was assessed with the validated Anxiety-Depression-Stress Scale - 21 and risk factors were assessed with demographic and COVID-19 related questions such as news follow-up level. 19.1% of respondents had severe or very severe anxiety. Anxiety was higher among those living in a high prevalence province ($p<.001$), women as compared to men ($p<.001$), people ages 21-40 as compared to all other age groups ($p<.001$), those with at least one family member or friend with COVID-19($p<.001$), and those who followed coronavirus news most closely ($p<.001$). The authors conclude services providing psychological care to reduce anxiety are necessary.

Abstract: This study is aimed to assess the anxiety level of Iranian general population during COVID-19 outbreak. The online questionnaire surveyed 10,754 individuals from the general population of 31 provinces of Iran who completed the questionnaire on social networks from March 1 to March 9, 2020. **The inferential statistics suggests that the level of anxiety was higher among women (95 % CI [0.1, 81.36], p < 0.001), people who more followed corona-related news (p < 0.001) and the age group of 21–40 years (p < 0.001). Ultimately, the level of anxiety was significantly higher among people who had at least one family member, relative, or friend who contracted COVID-19 disease (95 % CIB [1.2, 35.03], p < 0.001).** The health care system should adopt a package of psychosocial interventions to reduce the anxiety of high risk groups.

A qualitative study on the psychological experience of caregivers of COVID-19 patients.

Sun N, Wei L, Shi S, Jiao D, Song R, Ma L, Wang H, Wang C, Wang Z, You Y, Liu S, Wang H.Sun N, et al.
Am J Infect Control.
2020 Apr 8; PMID: 32334904
Level of Evidence: 5 - Qualitative data
Type of Article: Research
Summary: A qualitative study, based on one-to-one interviews on 20 nurses' subjective experience while working with positive COVID-19 patients in the First Affiliated Hospital of Henan University of Science and Technology from 1/20-2/10/2020. Two researchers independently reviewed the data, summarized, and extracted meaningful statements, summarizing 4 main themes with subthemes:

(1) Negative emotions present in early stages
   a. fatigue/discomfort/helplessness from high intensity work and self-protection
   b. fear of viral infections and concern for patients
   c. anxiety due lack of knowledge, environmental changes and presence of strangers
   d. bidirectional concerns with their own family members
(2) Coping and self-care styles
   a. Active/passive psychological adjustment
   b. Life adjustment
   c. Taking initiative to be altruistic and seek team support "huddling together for warmth"
   d. Adjusting cognition to face the situation rationally
(3) Growth under pressure
   a. Increased affection and grateful sentiments
   b. Professional responsibility and identity
   c. Self-reflection
(4) Positive emotions occurred simultaneously or progressively with negative emotions
   a. Confidence in government, medical environment and self-prevention
   b. Calmness and relaxation at work and with patients
   c. Happiness from multiple social support sources

Abstract:
Background: The coronavirus disease 2019 (COVID-19) is spreading rapidly, bringing pressure and challenges to nursing staff.
Objective: To explore the psychology of nurses caring for COVID-19 patients.

Methods: Using a phenomenological approach, we enrolled 20 nurses who provided care for COVID-19 patients in the First Affiliated Hospital of Henan University of Science and Technology from January 20, to February 10, 2020. The interviews were conducted face-to-face or by telephone and were analysed by Colaizzi's 7-step method.
Results: The psychological experience of nurses caring for COVID-19 patients can be summarized into 4 themes. First, negative emotions present in early stage consisting of fatigue, discomfort, and helplessness was caused by high-intensity work, fear and anxiety, and concern for patients and family members. Second, self-coping styles included psychological and life adjustment, altruistic acts, team support, and rational cognition. Third, we found growth under pressure, which included increased affection and gratefulness, development of professional responsibility, and self-reflection. Finally, we showed that positive emotions occurred simultaneously with negative emotions.
Conclusions: During an epidemic outbreak, positive and negative emotions of the front-line nurses interweaved and coexisted. In the early stage, negative emotions were dominant and positive emotions appeared gradually. Self-coping styles and psychological growth played an important role in maintaining mental health of nurses.

A crisis for elderly with mental disorders: Relapse of symptoms due to heightened anxiety due to COVID-19.

Mehra A, Rani S, Sahoo S, Parveen S, Singh AP, Chakrabarti S, Grover S
2020 Apr 18; Asian J Psychiatr.
PMID: 32334406
Level of Evidence: 4 - Case series
Type of Evidence: Research
BLUF: A case series report on two elderly patients who experienced a recurrence of depression during the COVID-19 pandemic. In both cases, patients were well prior to the outbreak and closely followed the news on COVID-19. Symptoms worsened as the pandemic evolved, including development of severe anxiety over contracting coronavirus and belief that they are vulnerable to the virus and would be likely to die, or be unable to care for themselves, if they contracted it. The authors conclude that news outlets, social media, and healthcare professionals should be sensitive to the elderly population and avoid terms such as “vulnerable group” and “older are not as important as younger.”

Summarizing Statement: “Elderly with mental illnesses, who are already prone for depression and anxiety, are at much higher risk of relapse due to this emerging scene. Further, elderly, those who have poor social support and are living alone are finding themselves helpless in the current scenario. Older people also have a feeling of insecurity like the feeling of being unsafe in the neighbourhood, non availability of essential groceries or eatables at home, financial insecurities, few close relationships, lack of resources to support socializing or attending activities, leading to both boredom and inactivity etc. (Cohen-mansfield et al., 2016)**. Fear of unknown and uncertainty over the daily living, contracting the virus or worry about spreading the infection to other family members and non availability of ongoing medications etc. are contributing further to the heightened anxiety among the elderly.**”

Conceived in the covid-19 crisis: impact of maternal stress and anxiety on fetal neurobehavioral development.

Barišić, Anita
Journal of Psychosomatic Obstetrics and Gynaecology
2020, April 23; PMID: 32326793

Level of Evidence: 5- Expert Opinion
Type of Article: Letter to the Editor
Summarizing Excerpt: "The aim of this letter is to stimulate novel investigations and theoretical perspectives on how pregnant women are psychologically affected by [the] COVID-19 critical situation. Specific aims include putting an effort in pregnancy counselling and reducing the risk of developing distress, as well as promoting preventive behaviors. Finally, future research is needed to estimate the burden of COVID-19 infection in the formation of personality and neurobehavioral development of the children conceived in the era of the COVID-19 crisis."

Mental Health and Psychological Distress in People with Diabetes during COVID-19.

Mukhtazr S, Mukhtar S.
Metabolism
2020 Apr 23; PMID: 32335075
Level of Evidence: 5 - Expert Opinion
Type of Article: Letter
Summary: While research is still needed on the relationship between COVID-19 and diabetes, this article posits that the pandemic will have a significant impact on the mental health of patients with diabetes. The authors also express concerns that mental health issues could impact these patients' abilities to maintain appropriate glycemic control.

COVID 2019 - Suicides: A global psychological pandemic.

Thakur V, Jain A.Thakur V, et al.
Brain Behavior Immun.
2020 Apr 23; PMID: 32335196
Level of Evidence: 5 - Expert opinion
Type of Article: Letter
Summary: "Few cases have been reported around the world where people out of fear of getting COVID-19 infection, social stigma, isolation, depression, anxiety, emotional imbalance, economic shutdown, lack and/or improper knowledge, financial and future insecurities took their lives. With recent suicide reports we can anticipate the rippling effect of this virus on worldwide suicide events. "
This letter describes the possible factor or predictors for the increase in suicidal events around the world listing various news articles of individual suicide cases. As their conclusion, they remind the readers on how they can manage COVID-19 stress individually and how to care for others during this time.

Resources

An Interactive Online Dashboard for Tracking COVID-19 in U.S. Counties, Cities, and States in Real Time.

Wissel BD, Van Camp PJ, Kouril M, Weis C, Glauser TA, White PS, Kohane IS, Dexheimer JW
J Am Med Inform Assoc
2020 Apr 25; PMID: 32333753
Level of Evidence: 5 - Mechanism-based reasoning
Type of Article: Accepted Manuscript
BLUF: The authors developed a website (https://covid19watcher.research.cchmc.org/) to aggregate county-level COVID-19 data and display it in an interactive dashboard that updates in real time.

Abstract:
Objective: To create an online resource that informs the public of COVID-19 outbreaks in their area.
Materials and methods: This R Shiny application aggregates data from multiple resources that track COVID-19 and visualizes them through an interactive, online dashboard.
Results: **The web resource, called the COVID-19 Watcher, can be accessed at https://covid19watcher.research.cchmc.org/. It displays COVID-19 data from every county and 188 metropolitan areas in the U.S. Features include rankings of the worst affected areas and auto-generating plots that depict temporal changes in testing capacity, cases, and deaths.**
Discussion: The Centers for Disease Control and Prevention (CDC) do not publish COVID-19 data for local municipalities, so it is critical that academic resources fill this void so the public can stay informed. The data used have limitations and likely underestimate the scale of the outbreak.
Conclusions: The COVID-19 Watcher can provide the public with real-time updates of outbreaks in their area.

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