April 18, 2020
Daily COVID-19 Literature Surveillance Summary

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Coming soon:

COVID-19 Daily Literature Surveillance

COVID19LST

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

The Swab

Jasmine Rah

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

April 18th, 2020
Executive Summary

Climate:

- Continued concern
  - For lack of rigorous randomized controlled trials and scientific integrity
  - Exacerbation of existing health inequalities

Epidemiology

- Our first sets of meta-analyses on the clinical characteristics of patients that are substantially powered
  - The most common symptoms of COVID-19 from 38 studies in China from January 1- February 28 were fever, fatigue, cough and expectoration; which is interesting when compared to the dry cough that has been reported.
  - An association between COVID-19 and COPD, not smoking, that increased the risk of severe disease, ICU admission and death.
  - Pregnant women with pneumonia from SARS, MERS, COVID-19 were more likely to have preterm birth, miscarriage, preeclampsia, cesarean sections and perinatal death. But still no evidence of vertical transmission.
- Retrospective cohort studies
  - Platelet count is an "independent risk factor associated with a in- hospital mortality in a manner that is dose dependent".
  - Higher nasopharyngeal viral RNA load and degree of lymphopenia is associated with disease severity
- Case studies
  - More reports of dermatologic manifestations of covid19

Pathology

- The viral tropism for cardiac cells and its implications for the cardiovascular system and the clinical course of disease that involve cardiac pathology, vasculitis, coagulopathy described in *Circulation* summarized here.

PPE

- The need to protect lab staff when working with pediatric specimens
- Contrary to popular belief, systematic review shows that heavy, waterproof PPE are often harder to don/doff properly, are uncomfortable and lead to higher rates of contamination.

Diagnosis

- A negative nasopharyngeal swab means very little if it cannot be replicated consecutively

New guidelines:

- Management of acute covid-19 cardiovascular syndrome from *Circulation*
- Management guidelines on difficult airways, tracheostomy, laryngectomy

Mental Health

- We need to look out for our elders

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Levels of Evidence

Oxford Centre for Evidence-Based Medicine 2011 Levels of Evidence

Question	Step 1 (Level 1*)	Step 2 (Level 2*)	Step 3 (Level 3*)	Step 4 (Level 4*)	Step 5 (Level 5)
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

Climate

Reducing onward spread of COVID-19 from imported cases: quarantine and 'stay at home' measures for travelers and returning residents to Singapore

PMID: 32297942
Publication Date: April, 16, 2020; Apr 17, 2020 (LitCovid)
Chiew, Calvin J; Li, Zongbin; Lee, Vernon J
Journal of Travel Medicine
Level of Evidence: 5 - Expert opinion
Type of Article: Letter to the Editor

BLUF: Singapore is addressing the risk of disease spread through travel by introducing a policy of a mandatory 14-day stay at government run hotels upon return. Citizens receive economic and housing support, as well as accomodations for food and medical needs.

Abstract: Singapore imposed a 14-day 'Stay Home Notice' (SHN) on travellers and returning residents to reduce secondary transmission from imported cases of COVID-19. In this article, we describe the processes and enforcement of SHN, and explore the issues faced by individuals under such quarantine, and the steps taken to address them.

Rigorous Randomized Controlled Trial Implementation in the Era of Novel Coronavirus Disease (COVID-19).

PMID: 32297590
Publication Date: Apr 15, 2020
Oldenburg CE, Doan T.Oldenburg CE, et al.
Am J Trop Med Hyg.
Level of Evidence: 5 - Expert opinion
Type of Article: Editorial

Summarizing excerpt: "**Randomized placebo-controlled trials (RCTs) should remain the gold standard to guide clinical care, even in emergency settings.** In the absence of a randomized control arm, we simply do not know the counterfactual. That a subset of patients recover following treatment is not evidence of efficacy when patients routinely clear infection without therapy."

Finding Effective Treatments for COVID-19: Scientific Integrity and Public Confidence in a Time of Crisis.

PMID: 32297900
Publication Date: Apr 16, 2020; Apr 16, 2020 (Lit Covid)
Goodman JL, Borio L.
JAMA
Level of Evidence: 6 - No data cited
Type of Article: Viewpoint

BLUF: The pandemic crisis cannot usurp traditional evidence-based research models. Any leniency or alteration to traditional requirements must be approached with caution to maintain trust and validity.

Summary Excerpt: Prior research has demonstrated that "sound research can and should be done during emergencies and that RCTs are the most ethical and reliable approach to quickly identify effective treatments and ensure that the most people benefit....Given the unique powers, role, and circumstances of [Emergency Use Authorizations] EUAs, if scientific independence and objectivity in requesting and making EUA determinations are not rigorously upheld, not only will such EUA-related decisions risk being compromised or erroneously made, but, particularly if harm occurs, public confidence in the FDA may also be eroded....That trust will be needed once vaccines against COVID-19 become available and in future public health emergencies."

Not a Perfect Storm - Covid-19 and the Importance of Language.

PMID: 32294345
Publication date: April 16, 2020; April 17, 2020 (LitCovid)
Botelho A.Brandt AM, et al.
N Engl J Med. 2020
Level of Evidence: 6 - No Data Cited
Type of Article: Comment
Summary: The author challenges the generally accepted approach that the COVID-19 pandemic is something of a "perfect storm," discussing how when we do that, we lose the ability to move on from the fear that is provoked. By lingering on what we cannot control during times of crisis, as was the notion seen in fear during the HIV outbreak and Hurricane Katrina, we undermine what life-changing impact public health can have.

Response to SARS-Covid-19-related visitor restrictions on labor and delivery wards in New York City.

PMID: 32296947
Publication Date: Apr 15, 2020; Apr 16, 2020 (LitCovid)
Hermann Alison; Deligiannidis Kristina; Bergink Veerle; Monk Catherine; Fitelson Elizabeth; Robakis Thalia; Birndorf Catherine
Arch Womens Ment Health
Level of Evidence: 6 - No data cited
Type of Article: Letter to the Editor
Summary: The authors of the article state their support for hospital administration to restrict visitors to labor and delivery wards. Given the low supply of PPE, healthcare workers cannot provide supply for visitors to appropriately protect themselves. They determined that the risk of SARS-Covid-19 transmission was greater than the psychological effect physical separation can have on the patients.

Novel Coronavirus Disease (COVID-19): Global Health Equity in Pandemic Response.

PMID: 32297589
Publication Date: Apr 14, 2020

Ivers LC, Walton DA.Ivers LC, et al.
Am J Trop Med Hyg
Level of Evidence: 5 - Expert opinion
Type of Article: Editorial
BLUF: The COVID-19 pandemic exacerbates existing global health inequalities caused by long standing structural and institutional racism, resource limitations, and fragile healthcare systems. These concerns must be addressed by proactive investment in health systems globally to reduce mortality.
Summary: Historical "evidence and experience suggest that **low-income and marginalized communities" will bear the COVID-19 pandemic's direct impact on morbidity and mortality and many of its indirect impacts on other health indicators** such as infant mortality. Major global health concerns include addressing the existing health disparities and "differential outcomes in health" perpetuated by structural and institutional racism along with the marginalization of migrant communities.Under-resourced, low-income, and fragile health systems will be overwhelmed by the surge of COVID-19 patients and exacerbate laboratory, personal protective equipment, and healthcare worker shortages. **Many countries, globally, are densely populated with their population relying on daily wages for food, thus making quarantine and social distancing measures unfeasible.** Food and water insecurity due to lack of access or sanitation impedes COVID-19 preventative measures. The global community must **ensure that all populations have access and can afford proven pharmaceutical interventions**, **implement social investments to decongest prisons and detainment centers**, **invest in health systems** to address health disparities and reduce further disease mortality.

Travel restrictions and infectious disease outbreaks

PMID: 32297935
Publication Date: Apr 16, 2020; Apr 16, 2020 (Lit Covid)
Vaidya R, Herten-Crabb A, Spencer J, Moon S, Lillywhite L.
Journal of Travel Medicine
Level of Evidence: 5 - Literature review
Type of Article: Commentary
BLUF: Knowing how different countries respond to disease outbreaks, such as the Ebola epidemic in 2014-2016, and whether travel bans were appropriate may help reduce the economic impact of the current and future outbreaks.

Summarizing Statement: "**Infectious disease outbreaks** will inevitably **impact travel and tourism**. Given the complexity of decision-making during outbreaks, **careful strategizing is required to consider how to mitigate this impact**...The epidemiology of **the COVID-19 outbreak may** also **inform hypotheses on the impact of travel restrictions on limiting or slowing the spread of a viral respiratory pathogen.** Further work is also required to determine whether **some of the successful risk mitigation processes (such as those employed by Brussels Airlines during the Ebola epidemic in West Africa) can be scaled up in future outbreaks**, especially where the risk of spread via air travel is limited."

Epidemiology

Clinical characteristics of 3,062 COVID-19 patients: a meta-analysis.

PMID: 32293716
Publication Date: Apr 15, 2020
Zhu J, Ji P, Pang J, Zhong Z, Li H, He C, Zhang J, Zhao C.Zhu J, et al.
J Med Virol
Level of Evidence: 2 - Meta Analysis
Type of Article: Research
BLUF: A meta analysis of 38 studies from January 1 - February 28 mostly performed in China and including 3,062 COVID-19 patients found that the **most common symptoms of COVID-19 were fever, fatigue, cough, and expectoration**. Most patients showed normal leukocyte counts, **lymphopenia, and elevated CRP and ESR values** and exhibited bilateral lung involvement.

Abstract:
Objective: We aim to systematically review the clinical characteristics of Coronavirus disease 2019 (COVID-19).
Methods: Seven datebases [sic] were searched to collect studies about the clinical characteristics of COVID-19 from 1 January 2020 to 28 February 2020. Then, meta-analysis was performed by using Stata12.0 software.
Results: A total of **38 studies involving 3 062 COVID-19 patients** were included. Meta-analysis showed that a higher proportion of infected patients were male (56.9%). **The incidence rate of respiratory failure or ARDS was 19.5% and the fatality rate was 5.5%. Fever (80.4%), fatigue (46%), cough (63.1%) and expectoration (41.8%) were the most common clinical manifestations**. Other common symptoms included muscle soreness (33%), anorexia (38.8%), chest tightness (35.7%), shortness of breath (35%), dyspnea (33.9%). Minor symptoms included nausea and vomiting (10.2%), diarrhea (12.9%), headache (15.4%), pharyngalgia(13.1%), shivering (10.9%) and abdominal pain (4.4%). Patients with asymptomatic was 11.9%. **Normal leukocytes counts (69.7%), lymphopenia (56.5%), elevated C-reactive protein levels (73.6%), elevated ESR (65.6%) and oxygenation index decreased (63.6%) were observed in most patients.** About 37.2% of patients with elevated D-dimer, 25.9% of patients with leukopenia, along with abnormal levels of liver function (29%) and renal function (25.5%). Other findings included leukocytosis (12.6%) and elevated procalcitonin (17.5%). Only 25.8% of patients had lesions involving single lung and **75.7% of patients had lesions involving bilateral lungs.**

The impact of COPD and smoking history on the severity of Covid-19: A systemic review and meta-analysis.

PMID: 32293753
Publication Date: Apr 15, 2020; Apr 16, 2020 (Lit Covid)
Zhao Q, Meng M, Kumar R, Wu Y, Huang J, Lian N, Deng Y, Lin S.
Journal of Medical Virology
Level of Evidence: 1- Systematic review
Type of Article: Meta Analysis
BLUF: A meta analysis of Chinese and English language case series' finds that a history of COPD increases the risk of severe Covid-19 disease, including the risk of ICU requirements and death. The risks associated with smoking history were less conclusive.

Abstract
Aims: Comorbidities are associated with the severity of Coronavirus Disease 2019 (Covid-19). This meta-analysis aimed to explore the risk of severe Covid-19 in patients with pre-existing chronic obstructive pulmonary disease (COPD) and ongoing smoking history.
Methods: A comprehensive systematic literature search was carried out to find studies published from December 2019 to 22nd March 2020 from 5 Database. The language of literature included English and Chinese. The point prevalence of severe Covid-19 in patients with pre-existing COPD and those with ongoing smoking was evaluated with this meta-analysis.
Results: Overall 11 case-series, published either in Chinese or English language with a total of 2002 cases were included in the study. The pooled OR of COPD and the development of severe Covid-19 was 4.38 (Fixed effect model, 95% CI: 2.34-8.20), while the OR of ongoing smoking was 1.98 (Fixed effect model, 95% CI: 1.29-3.05). There was no publication bias as examined by the funnel plot and Egger's test (p=NS). The heterogeneity of included studies was moderate for both COPD and ongoing smoking history on the severity of Covid-19.
Conclusions:COPD and ongoing smoking history attribute to the worse progression and outcome of Covid-19.

Outcome of Coronavirus Spectrum Infections (SARS, MERS, COVID 1 -19) During Pregnancy: A Systematic Review and Meta-Analysis

PMID: 32292902
Publication Date: Mar 25, 2020; Apr 16, 2020 (LitCovid)
Di Mascio, Daniele; Khalil, Asma; Saccone, Gabriele; Rizzo, Giuseppe; Buca, Danilo; Liberati, Marco; Vecchiet, Jacopo; Nappi, Luigi; Scambia, Giovanni; Berghella, Vincenzo; D'Antonio, Francesco
American Journal of Obstetrics and Gynecology – Maternal Fetal Medicine
Level of Evidence: 1 – Systematic Review – surveys that allow matching to local circumstances
Type of Article: Review
Summarizing Excerpt: "In mothers infected with coronavirus infections, including COVID-19, **>90% of whom also had pneumonia, [preterm birth] is the most common adverse pregnancy outcome. Miscarriage, preeclampsia, cesarean, and perinatal death (7-11%) were also more common than in the general population**. There have been no published cases of clinical evidence of vertical transmission. Evidence is accumulating rapidly, so these data may need to be updated soon. The findings from this study can guide and enhance prenatal counseling of women with COVID-19 infection occurring during pregnancy."

Association between platelet parameters and mortality in coronavirus disease 2019: Retrospective cohort study.

PMID: 32297540
Publication Date: April 16, 2020; Apr 17, 2020 (LitCovid)
Liu Y, Sun W, Guo Y, Chen L, Zhang L, Zhao S, Long D, Yu L.Liu Y, et al.
Platelets
Level of Evidence: 3 - Retrospective cohort study
Type of Article: Research
BLUF: This study illustrates a relationship between high platelet count and COVID-19 survival (and vice versa) and provides evidence for the use of platelet count as a prognostic tool.
Abstract:

Thrombocytopenia has been implicated in patients infected with severe acute respiratory syndrome coronavirus 2, while the association of platelet count and changes with subsequent mortality remains unclear. The clinical and laboratory data of 383 patients with the definite outcome by March 1, 2020 in the Central Hospital of Wuhan were reviewed. The association between platelet parameters and mortality risk was estimated by utilizing Cox proportional hazard regression models. Among the 383 patients, 334 (87.2%) were discharged and survived, and 49 (12.8%) died. Thrombocytopenia at admission was associated with mortality of almost three times as high as that for those without thrombocytopenia ($P < 0.05$). Cox regression analyses revealed that **platelet count was an independent risk factor associated with in-hospital mortality in a dose-dependent manner**. **An increment of per 50 × 109/L in platelets was associated with a 40% decrease in mortality** (hazard ratio: 0.60, 95%CI: 0.43, 0.84). Dynamic changes of platelets were also closely related to death during hospitalization. Baseline platelet levels and changes were associated with subsequent mortality. Monitoring platelets during hospitalization may be important in the prognosis of patients with coronavirus disease in 2019.

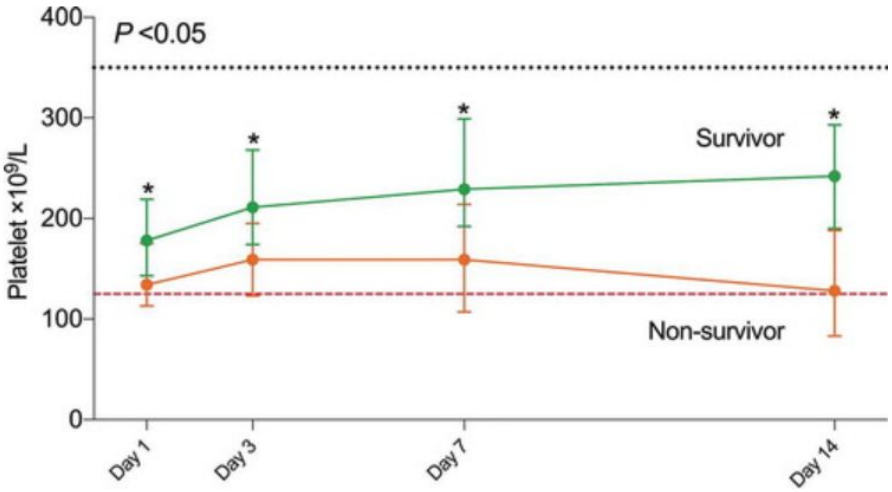


Figure 1. Timeline charts illustrate the platelet levels in 383 patients with COVID-19 (49 non-survivors and 334 survivors) on day 1, day 3, day 7, and day 14 after admission

Correlation Between Relative Nasopharyngeal Virus RNA Load and Lymphocyte Count Disease Severity in Patients With COVID-19

PMID: 32297828
Publication date: Apr 10, 2020; Apr 17, 2020 (LitCovid)
Liu, Yang; Liao, Wenjian; Wan, Lagen; Xiang, Tianxing; Zhang, Wei
Viral Immunology
Level of Evidence: 3 - Cohort Study
Type of Article: Research

BLUF: In a retrospective analysis of COVID-19 viral load in the nasopharynx of 76 patients with mild or severe disease, levels were found to be correlated with disease severity. Relative RNA load was proportionate to risk of organ damage and duration of positive nucleic acid testing. Lymphocyte count had an inverse relationship.

Abstract:
The aim of this study was to analyze the correlation between dynamic changes in the nasopharyngeal viral load of patients infected with the new coronavirus causing pneumonia and lymphocyte count disease severity. Cases newly diagnosed with COVID-19 at the First Affiliated Hospital of Nanchang

University from January 2020 to February 2020 were analyzed retrospectively. Quantitative real-time polymerase chain reaction was used to determine severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) from throat swab sample ΔCT values; lymphocyte and lymphocyte subset counts, coagulation system factor levels, myocardial injury indexes, and laboratory biochemical indicators were compared between the mild group and the severe group. The correlation between the relative load of nasopharyngeal SARS-CoV-2 RNA and severe disease symptoms was analyzed. Of the 76 patients, 49 were male and 27 were female. The lymphocyte, CD4+ T lymphocyte, and CD8+ T lymphocyte counts all differed significantly between the two groups ($p < 0.001$), as did differences in interleukin (IL)-2R, IL-6, and IL-8 levels ($p = 0.022$, 0.026, and 0.012, respectively). Moreover, there were significant differences in prothrombin time, D-dimer, and fibrinogen levels between the mild group and the severe group ($p = 0.029$, 0.006, and <0.001, respectively), and in lactate dehydrogenase and troponin ($p < 0.001$ and $p = 0.007$, respectively). SARS-CoV-2 RNA load and lymphocyte count, CD4+ T lymphocyte count, and CD8+ T lymphocyte count were linearly negatively correlated ($p < 0.001$). SARS-CoV-2 RNA load was positively correlated with IL-2R, prothrombin time, lactate dehydrogenase, and hypersensitive troponin T ($p = 0.002$, $p = 0.009$, and $p < 0.001$, respectively). In addition, the time that it took for the nucleic acid test to turn negative was significantly shorter for patients in the mild group than for those in the severe group ($Z = -6.713$, $p < 0.001$). **In conclusion, relative SARS-CoV-2 RNA load in the nasopharynx is closely related to COVID-19 severity. If the relative RNA load was higher, the lymphocyte count was lower, organ damage was greater, and the time it took for the nucleic acid test to turn negative was longer.**

Urticarial eruption in COVID-19 infection.

PMID: 32294273
Publication Date: Apr 16, 2020
Henry, D; Ackerman, M; Sancelme, E; Finon, A; Esteve, E
J Eur Acad Dermatol Venereol
Level of Evidence: Level 4 – Case Study
Type of Article: Letter

Summary: The author shares the case of a COVID-19 positive patient who presented with a cutaneous manifestation, before fever or any respiratory symptom. A 27-year old woman, previously healthy medical resident, presented with odynophagia followed by diffuse arthralgia and pruritic erythematous plaque eruption with particular involvement of the face and acral regions **without cough or fever.** Diagnosis of urticaria was confirmed by a dermatologist. No triggers except for viral context were found.

Immune Thrombocytopenic Purpura in a Patient with Covid-19.

PMID: 32294340
Publication Date: Apr 15, 2020; Apr 16, 2020 (LitCovid)
Zulfiqar, Abrar-Ahmad; Lorenzo-Villalba, Noel; Hassler, Patrick; Andres, Emmanuel.
N Engl J Med.
Level of Evidence: Level 4
Type of Article: Correspondence

Summary:
The report herein details the case of a 65-year-old woman with hypertension, autoimmune hypothyroidism, and known COVID-19 exposure who presented to the emergency department with symptoms suggestive of SARS-CoV-2 infection. Oropharyngeal swab for COVID-19 testing was positive; CT scan revealed ground-glass opacities in the lower zones. The patient received treatment with IV amoxicillin-clavulonic acid, low-molecular-weight heparin, and oxygen. On day 4, isolated thrombocytopenia was noted. The sequence in this case suggested that **COVID-19 may have been a causal factor in immune thrombocytopenia in this patient.** This case **reinforced the need to be vigilant for complications after SARS-CoV-2 infection.**

Analysis of 92 Deceased Patients With COVID-19.

PMID: 32293741
Publication Date: Apr 15, 2020
Yang F, Shi S, Zhu J, Shi J, Dai K, Chen X.Yang F, et al.
J Med Virol
Level of Evidence: 4 - Case series
Type of Article: Research

BLUF: The major complications found in deceased patients with COVID-19, of which a majority had underlying diseases, include acute respiratory distress syndrome, myocardial injury, liver injury, renal injury, and multiple organ dysfunction syndrome. **Procalcitonin, C-reactive protein, serum amyloid A were frequently elevated in patients with COVID-19, suggesting that cytokine storms are associated with disease severity and complications.**
Abstract:
Objective: This retrospective study aimed to analysis the clinical characteristics and complications in death cases with novel coronavirus disease-19 (COVID-19). **Method**: We collected the medical records of 92 patients with COVID-19 in Renmin Hospital of Wuhan University who died during January 6th to February 25th, 2020, summarized the clinical characteristics of complications. **Results**: There were 91 death cases who developed different complications including acute respiratory distress syndrome (ARDS) (73/91), myocardial injury (31/91), liver injury (15/91), renal insufficiency (14/91), multiple organ dysfunction syndrome (MODS) (14/91) and pneumothorax (1/91). Among these patients, 83 patients had at least one complication. While 1 patient who died of recurrent gastrointestinal bleeding was not directly linked to COVID-19. **Conclusion**: The main **complications of deceased patients with COVID-19 were ARDS, myocardial injury, liver injury, renal insufficiency and MODS**.

Neurologic Features in Severe SARS-CoV-2 Infection.

PMID: 32294339
Publication Date: Apr 15, 2020
Helms J, Kremer S, Merdji H, Clere-Jehl R, Schenck M, Kummerlen C, Collange O, Boulay C, Fafi-Kremer S, Ohana M, Anheim M, Meziani F.Helms J, et al.

N Engl J Med
Level of Evidence: 4 - Observational case series
Type of Article: Research correspondence
Summary: Patients admitted to the ICU with ARDS due to COVID-19 were found to have a range of clinical neurological findings. A majority of the sampled patients presented with **prominent agitation, confusion, and "[d]iffuse corticospinal tract signs** with enhanced tendon reflexes, ankle clonus, and bilateral extensor plantar reflexes." At the time of publication, 33% of the discharged patients "had a **dysexecutive syndrome consisting of inattention, disorientation, or poorly organized movements in response to command**." Of those patients who underwent magnetic resonance imaging of the brain, **2 asymptomatic patients had single acute ischemic strokes** and a majority had **enhanced leptomeningeal spaces** in addition to **bilateral frontotemporal hypoperfusion**.

Failure in initial stage containment of global COVID-19 epicenters.

PMID: 32297980
Publication Date: April 16, 2020; Apr 17, 2020 (LitCovid)
Khosrawipour V, Lau H, Khosrawipour T, Kocbach P, Ichii H, Bania J, Mikolajczyk A.Khosrawipour V, et al.
Journal of Medical Virology
Level of Evidence: Level 4 - Retrospective cohort study
Type of Article: Research
BLUF: The report found that European countries had increased initial growth rates and faster doubling time of COVID-19 in the first two weeks compared with Asian counterparts. This was associated with higher prevalence of COVID-19 infections European countries in the following weeks. This suggests that the first two weeks are critical to epidemic control.

Abstract: With multiple virus epicenters, COVID-19 has been declared a pandemic by the World Health Organization. Consequently, many countries have implemented different policies to manage this crisis, including curfew and lockdown. However, the efficacy of individual policies remains unclear with respect to COVID-19 case development. We analyzed available data on COVID-19 cases of eight majorly affected countries, including China, Italy, Iran, Germany, France, Spain, South Korea and Japan. Growth rates and doubling time of cases were calculated for the first six weeks after initial cases were declared for each respective country and put in context with implemented policies. While the growth rate of total confirmed COVID-19 cases in China decreased, those for Japan remained constant. For European countries, the growth rate of COVID-19 cases considerably increased during the second time interval. Interestingly, the rates for Germany, Spain and France are the highest measured in the second interval and even surpass the numbers in Italy. While the initial data in Asian countries are encouraging with respect to case development at the initial stage, the opposite is true for European countries. Based on our data, disease management in the two weeks following first reported cases is of utmost importance.

Rates of Co-infection Between SARS-CoV-2 and Other Respiratory Pathogens.

PMID: 32293713
Publication Date: Apr 15, 2020; Apr 16, 2020 (LitCovid)
Kim, David; Quinn, James; Pinsky, Benjamin; Shah, Nigam H; Brown, Ian.
JAMA.

Level of Evidence: Level 2
Type of Article: Research Letter
Summary: Early reports from the experience in China suggested that co-infection with respiratory pathogens was rare. Herein, the rates of co-infection between SARS-CoV-2 and other respiratory pathogens were reported in Northern California. Real-time reverse transcriptase-polymerase chain reaction tests were performed for SARS-CoV-2 and other respiratory pathogens on 1,217 nasopharyngeal swab specimens from 1,206 symptomatic patients (eg, cough, fever, dyspnea). There are **higher rates of co-infection between SARS-CoV-2 and other respiratory pathogens than previously reported**. Nonetheless, routine testing for non-SARS-CoV-2 respiratory pathogens during the COVID-19 pandemic is unlikely to provide clinical benefit unless a positive result would change disease management.

Case fatality rate analysis of Italian COVID-19 outbreak.

PMID: 32297983
Publication Date: Apr 16, 2020
Giangreco G
J Med Virol
Level of Evidence: 2 - Ecological study
Type of Article: Research
Summary: This study analyzed case fatality rates of different countries in order to evaluate if the social behaviour (e.g., intergenerational interactions, co-residence, and commuting patterns) of the different populations can contribute to explain the observed differences of high fatality rates in Italy compared to other nations.. Data about social behaviors was extracted from the Italian Institute of Statistics and United Nation database. **The study found no positive correlation between case fatality rates and social behavior**.

High Prevalence of SARS-CoV-2 Infection in Repatriation Flights to Greece From Three European Countries.

PMID: 32297940
Publication Date: Apr 16, 2020 (LitCovid)
Lytras T, Dellis G, Flountzi A, Hatzianastasiou S, Nikolopoulou G, Tsekou K, Diamantis Z, Stathopoulou G, Togka M, Gerolymatos G, Rigakos G, Sapounas S, Tsiodras S.Lytras T, et al.
J Travel Med
Level of Evidence: 4 – Case series
Type of Article: Research
Abstract:
Passengers on repatriation flights to Greece from the UK, Spain and Turkey were screened with oropharyngeal swabs on arrival for SARS-CoV-2 infection. Despite **almost all passengers being asymptomatic**, many tested positive (**3.6% from UK, 6.3% from Spain and 6.3% from Turkey**), indicating **widespread transmission of SARS-CoV-2 in these countries**.

Global Preparedness Against COVID-19: We Must Leverage the Power of Digital Health.

PMID: 32297868
Publication Date: 2020 Apr 16

Mahmood S, Hasan K, Colder Carras M, Labrique A.Mahmood S, et al.
JMIR Public Health Surveill
Level of Evidence: 5 - Expert opinion
Type of Article: Comment

BLUF: Expansion of the use of digital health tools in mitigating the COVID-19 pandemic can have a substantive impact on outcomes. The author offers several use cases of these tools.

Summary: This paper presents several use cases of digital health tools to respond to the COVID-19 pandemic:

- Teleconsultations with early-stage or mild COVID-19
- Remote monitoring and dissemination of infection and prevention guidelines.
- Centralized, digital training programs for infection control, isolation, and contact tracing program workers
- Remote collection of patient samples enabling more efficient home quarantine.
- Centralized information helplines for the general public and health care workers.
- Psychological intervention for quarantined individuals
- Contact tracing over the phone
- Utilization of crowd-sourced data

Understanding the Pathology

Coronavirus infections and type 2 diabetes-shared pathways with therapeutic implications

PMID: 32294179
Publication Date: Apr 15, 2020; Apr 16, 2020 (Lit Covid)
Drucker DJ
Endocrine Reviews
Level of Evidence: 5 - Mechanism-based reasoning
Type of Article: Review
BLUF: Medications like DPP4 inhibitors for type 2 diabetes (T2D) act on proteins that may be utilized by COVID-19 for entry into pneumocytes. **Understanding these mechanisms is important because many patients with metabolic disorders may be at increased risk for COVID-19.**

Summarizing statement: "The global epidemic of SARS-CoV-2 has immediate implications for the therapy of common metabolic disorders such as type 2 diabetes (T2D). Moreover, individuals with obesity are known to be at increased [risk] for complications arising from influenza, and **obesity is emerging as an important comorbidity for disease severity in the context of SARS-CoV-2** (1). Cells within the lung, including **pneumocytes, represent major cellular sites for coronavirus entry and inflammation**…**[and] may also express key proteins facilitating coronavirus entry into cells,** such as **Angiotensin-converting enzyme 2 (ACE2), Transmembrane Protease Serine 2 (TMPRRSS2)**, and for some viral strains, **Dipeptidyl Peptidase-4 (DPP4).**"

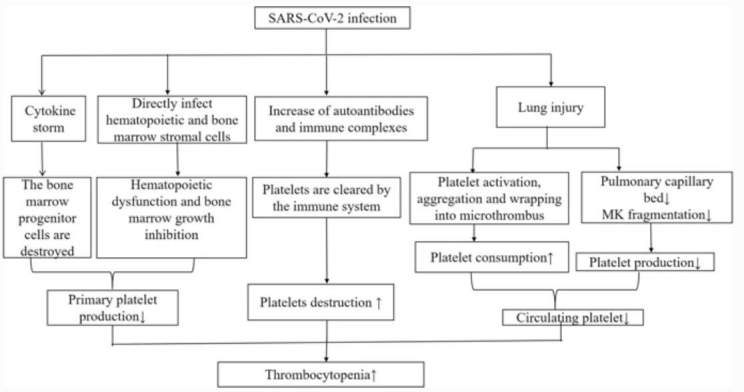
Mechanism of Thrombocytopenia in COVID-19 Patients

PMID: 32296910
Publication: April 15, 2020.
Xu P, Zhou Q, Xu J.Xu P, et al.
Ann Hematol.
Level of Evidence: 5 - Expert opinion
Article Type: Commentary
Summary: The authors summarize the hematological changes of thrombocytopenia COVID-19 positive patients and propose 3 hypothesized mechanisms by which COVID-19 causes thrombocytopenia. 1) Direct viral infection of bone marrow cells and platelet synthesis inhibition. Specifically, a cytokine storm destroys bone marrow progenitor cells and leads to the decrease of platelet production, indirectly leading to lung injury. 2) Platelet destruction by the immune system. 3) Platelet aggregation in the lungs, leading to microthrombi and platelet consumption.

Reactive lymphocytes in patients with Covid-19.

PMID: 32297330
Publication Date: Apr 16, 2020
Chong VCL, Lim EKG, Fan EB, Chan SSW, Ong KH, Kuperan P.Chong VCL, et al.
Br J Haematol
Level of Evidence: 4 - Case series
Type of Article: Research
Abstract: "From January 23 to February 27, 2020, Singapore had 96 Covid-19 cases confirmed by real time reverse transcriptase-polymerase chain reaction (RT-PCR) for SARS-CoV-2. **We examined**

Fig. 1



The possible mechanisms of thrombocytopenia in COVID-19 patients. SARS-CoV-2, severe acute respiratory syndrome coronavirus 2; COVID-19, coronavirus disease 2019; MK, megakaryocyte;↑, means an increase in a substance; ↓, means a decrease in a substance

the peripheral blood films of 32 patients and found reactive lymphocytes as shown in the top images in 23 cases (72%). This is in stark contrast to the coronavirus responsible for the 2003 SARS outbreak where reactive lymphocytes of this type were not present in a review of 185 SARS cases in Singapore and were present in only 15.2% of 138 cases in Hong Kong (Chng et al., 2005; Lee et al. 2003). Reactive lymphocytes are commonly seen in other viral diseases such as dengue fever and infectious mononucleosis. They have varied morphological features. **The most common subtype seen in our Covid-19 patients display a distinctive abundant pale blue cytoplasm that often abuts adjacent red blood cells.** Strikingly, lymphoplasmacytoid lymphocytes were present in 16 out of 23 patients. These are small mature lymphocytes with condensed chromatin and an eccentric nucleus, occasionally with a paranuclear hof. Lymphoplasmacytoid lymphocytes are also seen in dengue fever and in several B-cell non-Hodgkin lymphomas. **Reactive lymphocytes of both types can coexist in a single peripheral blood film in Covid-19 patients**."

The Science Underlying COVID-19: Implications for the Cardiovascular System.

PMID: 32293910
Publication Date: Apr 15, 2020
Liu PP, Blet A, Smyth D, Li H.Liu PP, et al.
Circulation
Level of Evidence: Level 5 - Expert Opinion
Type of Article: Review

BLUF: This is a comprehensive, but not exhaustive, review of various aspects of COVID-19 and the cardiovascular system, including:

- The clinical spectrum of cardiovascular involvement in COVID-19
- Unique properties of the virus, the disease phenotype, and its clinical implications
- How the viral receptors ACE2 and TMPRSS2 contribute to the disease phenotype and their clinical implications
- The virus-receptor's interaction and its potential consequences and clinical implications
- Immune system interactions and clinical implications

- Impact of advanced disease on the microvascular system and coagulation and clinical implications
- Overall impact of COVID-19 on the heart
- Potential therapeutic opportunities which are in ongoing clinical trials.

A few of these topics are summarized in the tables and figures below.

Abstract:
Corona Virus Disease 2019 (COVID-19) pandemic has impacted health and economy worldwide on an unprecedented scale. Patients have diverse clinical outcomes, but those with pre-existing cardiovascular (CV) disease, hypertension, and related conditions incur disproportionately worse outcome. The high infectivity of the SARS-CoV-2 virus is in part related to new mutations in the receptor binding domain, and acquisition of a furin cleavage site in the S spike protein. The continued viral shedding in the asymptomatic and pre-symptomatic individuals enhances its community transmission.
The virus uses the ACE2 receptor for internalization, aided by TMPRSS2 protease. The tissue localization of the receptors correlates with COVDI-19 presenting symptoms and organ dysfunction. Virus-induced ACE2 down regulation may attenuate its function, diminish its anti-inflammatory role, and heightened angiotensin II effects in the predisposed patients.
Lymphopenia occurs early and is prognostic, potentially associated with reduction of the CD4+ and some CD8+ T cells. This leads to imbalance of the innate/acquired immune response, delayed viral clearance, and hyper stimulated macrophages and neutrophils. Appropriate type I interferon pathway activation is critical for virus attenuation, and balanced immune response. Persistent immune activation in predisposed patients, such as the elderly and those with CV risk, can lead to hemophagocytosis like syndrome, with uncontrolled amplification of cytokine production, leading to multi-organ failure and death.
In addition to the airways and lungs, the cardiovascular system is often involved in COVID-19 early, reflected in the release of highly sensitive troponin and natriuretic peptides, which are all extremely prognostic, particularly in those showing continued rise, along with cytokines such as IL-6. Inflammation in the vascular system can result in diffuse microangiopathy with thrombosis. Inflammation in the myocardium can result in myocarditis, heart failure, cardiac arrhythmias, acute coronary syndrome, rapid deterioration and sudden death.
Aggressive support based on early prognostic indicators with expectant management can potentially improve recovery. Appropriate treatment for heart failure, arrhythmias, acute coronary syndrome and thrombosis remain important. Specific evidence based treatment strategies for COVID-19 will emerge with ongoing global collaboration on multiple approaches being evaluated. To protect the wider population, antibody testing and effective vaccine will be needed to make COVID-19 history.

Table 1. Death rate to date of patients with COVID-19 infection and specific pre-existing conditions (WHO Data)

PRE-EXISTING CONDITION	DEATH RATE
Cardiovascular disease	**10.5%**
Diabetes	**7.3%**
Chronic respiratory disease	**6.3%**
Hypertension	**6.0%**
Cancer	**5.6%**
no pre-existing conditions	**0.9%**

Table 2. Distribution of ACE2 and TMPRSS2 in organs, and symptoms of COVID-19 (percentage indicate estimated frequency in COVID-19 patients).

ACE2/TMPRSS2 Distribution	**Symptoms/Lab Findings**
Lymphocytes/Dendritic Cells	Fever (>99%), fatigue (70%), myalgia, lymphopenia
Lung (type 2 pneumocytes, bronchial epithelium)	Dyspnea (31%), dry cough (60%), respiratory failure
GI Smooth Muscle	Nausea (30%), Diarrhea
Myocardium	Myocarditis, heart failure, arrhythmias
Vasculature (smooth muscle)	Vasculitis, thrombosis, microangiopathy
Neurons	Anosmia, hypogeusia, encephalopathy, seizures, myopathy
Liver	Abnormal liver function
Kidney	Renal dysfunction

Table 3. Mortality in confirmed cases, or in all cases, according to sex distribution in COVID-19 patients.

SEX	DEATH RATE confirmed cases	DEATH RATE all cases
Male	**4.7%**	**2.8%**
Female	**2.8%**	**1.7%**

Table 4. Potential processes in COVID-19 infection amenable to therapeutic targeting, with examples of candidate agents

Potential Targeted Process	**Candidate Agent**
Antiviral/anti-inflammatory general	Convalescent serum (COVID-19 patients), type I Interferon, immunoglobulins, mesenchymal stem cells
ACE2 entry	Soluble recombinant ACE2
TMPRSS2 Protease S Priming	Protease inhibitor (camostat mesylate)
Receptor endocytosis	Chloroquine or hydroxychloroquine
RNA polymerase for replication	Remdesivir, favipiravir
Viral proteases	Lopinavir/vitonavir
Importin nuclear transport	Ivermectin
IL-1 excess activation	Anakinra, canakinumab, colchicine
Angiotensin II excess	ACE inhibitors / ARB, recombinant ACE2
Cytokine storm	Torcizumab, sarilumab or siltuximab (IL-6 inhibitors) or baricitinib (JAK inhibitor), Lenzilumab (GM-CSF inhibitor)
Oxidative stress	Deferoxamine, Vitamin C
Fibrosis	Nintedanib
Bacterial infection/Inflammation	Azithromycin
Coagulopathy	Normal or high dose anticoagulation regimen
SARS-CoV-2	Multiple vaccine candidates, including BCG

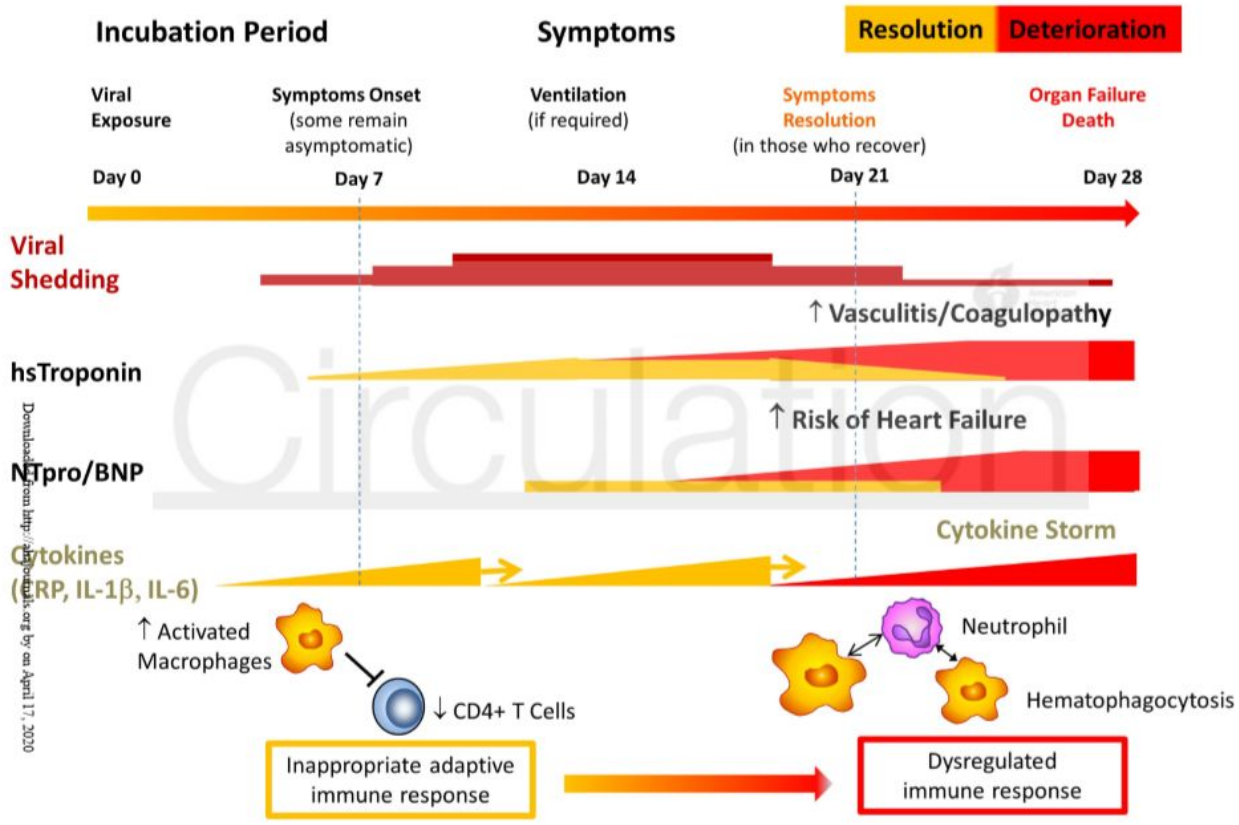


Figure 1. Clinical course of COVID-19 infection. The incubation period averages 7 days, but can be up to 14 days. There can be asymptomatic, presymptomatic or postsymptomatic viral shedding, likely contributing to its rapid transmission. Cardiac biomarkers such as high sensitivity troponin (hsTroponin) can be detectable in patients at symptom onset and is prognostic. Continued increases in troponin together with rising cytokines predict need for ICU stays, ventilation, and vascular complications. Together with cytokine rise, NTproBNP rise can predict risk of myocarditis or heart failure. Lymphopenia, with suppression of T cells and inefficient viral clearance, set the stage for over-stimulated macrophages, cytokine amplification, and hemophagocytosis with organ failure, including the heart (CRP=c-reactive protein, BNP=brain natriuretic peptide).

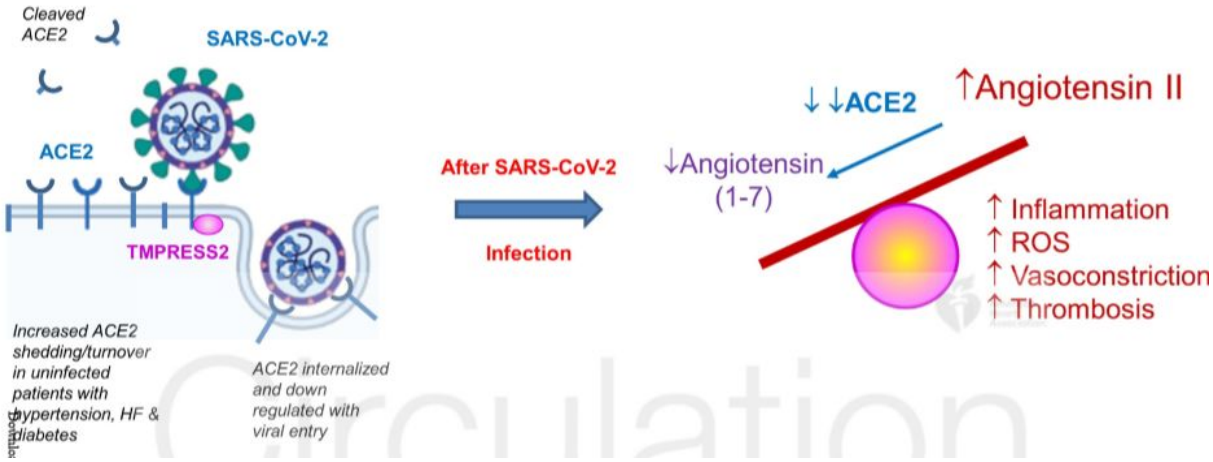


Figure 2. SARS-Cov-2 uses the ACE2 internalization receptor, facilitated by TMPRSS2 protease. ACE2 can be shed in the circulation, and ACE2 is increased in patients with hypertension, heart failure, or diabetes. ACE2 can be down-regulated following viral entry. This partial decrease in ACE2 function leads to dominant angiotensin II effects, including enhanced inflammation, vasoconstriction and propensity for thrombosis. This can also worsen heart failure (TMPRSS=transmembrane protease, serine 2, ROS=reactive oxygen species).

Cell type-specific expression of the putative SARS-CoV-2 receptor ACE2 in human hearts.

PMID: 32293672
Publication date: April 15, 2020; April 17, 2020 (LitCovid)
Nicin L, Abplanalp WT, Mellentin H, Kattih B, Tombor L, John D, Schmitto JD, Heineke J, Emrich F, Arsalan M, Holubec T, Walther T, Zeiher AM, Dimmeler S.Nicin L, et al.
Eur Heart J.
Level of Evidence: 4 - Case-Control studies
Type of Article: Research
Summary: SARS-CoV-2 has been theorized to bind to ACE2 as a mechanism of infection. Researchers from Frankfurt, Germany took cardiac tissue samples from 5 patients with AS and 2 with HFrEF, compared them with that of a healthy donor, and performed single nuclei RNA sequencing to determine expression of ACE and ACE2. Patients with varying heart disease etiology show augmented expression of ACE2 in cardiomyocytes.

Transmission & Prevention

Swivel-HEPA-ETT (SHE) Bougie and HEPA-ETT (HE) Methods for Safe Intubation While Managing Patients With COVID-19

PMID: 32295770
Publication Date: April 15, 2020; Apr 17, 2020 (LitCovid)
Lin, Li-Wei, Hung, Tzu-Yao
Emergency Medicine Journal
Level of Evidence: 5 - Expert opinion
Type of Article: Letter

Summary: Many of the severely ill patients with COVID-19 require intubation and ventilation. The authors utilized two methods that incorporated HEPA filters (HEPA-ETT and Swivel-HEPA-ETT) that they believe helped to reduce aerosolization during intubation and allow for confirmation of placement without auscultation.

COVID-19 pandemic: guidance for nuclear medicine departments.

PMID: 32296886
Publication date: Apr 15, 2020
Paez D, Gnanasegaran G, Fanti S, Bomanji J, Hacker M, Sathekge M, Bom HS, Cerci JJ, Chiti A, Herrmann K, Scott AM, Czernin J, El-Haj N, Estrada E, Pellet O, Orellana P, Giammarile F, Abdel-Wahab M.Paez D, et al.
Eur J Nucl Med Mol Imaging.
Level of Evidence:
Type of Article:

BLUF: "The current COVID-19 pandemic poses many challenges for the practice of **nuclear medicine.** If adequately prepared, departments can continue to deliver their essential services, while mitigating the risk for patients and staff."

Summary: The essential considerations emphasized by the authors are listed below:

- Robust screening for patients and staff
- Prompt identification and isolation of cases in staff and patients.
- Social distancing practices in the office and waiting room.
- Messaging promoting handwashing and respiratory hygiene
- Cleaning and disinfection of equipment and commonly used surfaces
- Telemedicine and stay-at-home guidelines for staff.
- Contingency planning for possibility of infection of clinic staff.

Minimally invasive surgery at the time of Covid-19: The OR staff needs protection.

PMID: 32294548
Bogani G, Raspagliesi F.Bogani G, et al.
PMID: 32294548
Publication Date: Apr 12, 2020
Journal of Minimally Invasive Gynecology
Level of Evidence: N/A
Type of Article: Letter

Summary: There are concerns related to the adoption of minimally invasive surgery in patients

potentially infected by Covid-19 because **potential infectious viral components may be present in surgical smoke**. Therefore, along with potential contamination occurring through contact of human fluids (including blood) , breathing possible particles coming from pneumoperitoneum or aerosol release through the trocar valves could also expose the OR staff; so they **need substantial protection**. Further evidence is needed to understand the risk.

Management of COVID-19 Related Paediatric Blood Samples in a Clinical Haematology Laboratory.

PMID: 32297317
Publication Date: Apr 16, 2020
Lam JCM, Moshi GB, Ang SH, Chew HM, Ng QH, Madjukie A, M L.Lam JCM, et al.
Br J Haematol
Level of Evidence: 5 - Expert Opinion
Type of Article: Commentary
Summary: In this paper, the authors discuss the importance of proper management of blood samples from COVID-19 pediatric patients, because "...paediatric specimens pose a particular challenge as automated analysers cannot handle small volume samples from paediatric-sized tubes, necessitating manual handling of specimens...**Although the rates of viraemia appear to be low, it nonetheless poses a risk of potential respiratory transmission to laboratory staff via aerosolization of blood specimens during specimen processing steps such as centrifugation and vortexing.**" The authors **recommend the use of BD Microtainer MAP (Microtube for Automated Process) Microtube, which is an alternative collection tube with a membrane cap allowing automated sample piercing and analysis without cap removal.** They also discussed the importance of proper transport and labeling of specimens, use of personal protective equipment, and specimen handling, analysis, disposal, and waste management.

Personal protective equipment for preventing highly infectious diseases due to exposure to contaminated body fluids in healthcare staff.

PMID: 32293717
Publication Date: Apr 15, 2020
Verbeek JH, Rajamaki B, Ijaz S, Sauni R, Toomey E, Blackwood B, Tikka C, Ruotsalainen JH, Kilinc Balci FS.Verbeek JH, et al.
Cochrane Database Syst Rev
Level of Evidence: 1 - Systematic Review
Type of Article: Research
Summarizing excerpt: "[The authors] found **low- to very low-certainty evidence that covering more parts of the body leads to better protection but usually comes at the cost of more difficult donning or doffing and less user comfort, and may therefore even lead to more contamination. More breathable types of PPE may lead to similar contamination but may have greater user satisfaction.** Modifications to PPE design, such as tabs to grab, may decrease the risk of contamination. For donning and doffing procedures, following CDC doffing guidance, a one-step glove and gown removal, double-gloving, spoken instructions during doffing, and using glove disinfection may reduce contamination and increase compliance. Face-to-face training in PPE use may reduce errors more than folder-based training."

Minimising Intra-Hospital Transmission of COVID-19: The Role of Social Distancing

PMID: 32294511
Publication Date: Apr 12, 2020; Apr 16, 2020 (LitCovid)
Wee, Liang E.; Conceicao, Edwin P.; Sim, Xiang Y. J.; Aung, May K.; Tan, Kwee Y.; Wong, Hei M.; Wijaya, Limin; Tan, Ban H.; Ling, Moi L.; Venkatachalam, Indumathi
Journal of Hospital Infection
Level of Evidence: 5 – Expert Opinion
Type of Article: Letter

Summary: The authors comment on the key role of social distancing in preventing not just nosocomial spread of COVID-19 but also intra-hospital spread. The authors relate an anecdote from their institution, a Singaporean hospital. A patient was treated at this hospital who was initially thought to be low risk for COVID-19, but later testing showed actually had a high viral load. Social distancing measures were practiced by the patient and all care providers wore masks when interacting with this patient. None of the health care workers or other patients that interacted with this patient went on to develop COVID-19.

Does Hydroxychloroquine Prevent the Transmission of COVID-19?

PMID: 32295788
Publication Date: Apr 15, 2020; Apr 17, 2020 (LitCovid)
Heldwein, Flavio L; Calado, Adriano
Annals of the Rheumatic Diseases
Level of Evidence: 5 – Expert Opinion
Type of Article: Letter

Summary: A case series published by Gautret et al reported that hydroxychloroquine in combination with azithromycin resulted in a lower viral load and negative PCR results. The authors here comment that while these findings support a hypothesis that these drugs may represent an effective prophylactic treatment for preventing COVID-19 transmission, studies with a higher level of evidence are needed to validate this strategy.

Management

Description and Proposed Management of the Acute COVID-19 Cardiovascular Syndrome.

PMID: 32297796
Publication Date: Apr 16, 2020
Hendren NS, Drazner MH, Bozkurt B, Cooper LT Jr.Hendren NS, et al.
Circulation
Level of Evidence: Level 5 – Review
Type of Article: Research
BLUF (excerpts): "COVID-19 is associated with the development of an associated cardiovascular syndrome including acute myocardial injury, arrhythmias, and cardiomyopathy that we have termed Acute COVID-19 Cardiovascular Syndrome (ACovCS)."**"Patients with elevated troponin who are otherwise clinically stable do not require extensive cardiac imaging during the acute phase of COVID-19** if point of care cardiac ultrasound is not available. Patients with hemodynamic instability or ventricular arrhythmias require more detailed evaluation".

Abstract:
Coronavirus Disease 2019 (COVID-19) is a rapidly expanding global pandemic due to Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) resulting in significant morbidity and mortality. A substantial minority of patients hospitalized develop an Acute COVID-19 Cardiovascular Syndrome (ACovCS) that can manifest with a variety of clinical presentations, but often presents as an acute cardiac injury with cardiomyopathy, ventricular arrhythmias and hemodynamic instability in the absence of obstructive coronary artery disease. The etiology of this injury is uncertain, but is suspected to be related to myocarditis, microvascular injury, systemic cytokine-mediated injury or stress-related cardiomyopathy. Although histologically unproven, SARS-CoV-2 has the potential to directly replicate within cardiomyocytes and pericytes leading to viral myocarditis. Systemically elevated cytokines are also known to be cardiotoxic and have the potential to result in profound myocardial injury. Prior experience with Severe Acute Respiratory Syndrome Coronavirus-1 (SARS-CoV-1) has helped expedite the evaluation of several promising therapies including anti-viral agents, interleukin-6 inhibitors, and convalescent serum. Management of ACovCS should involve a multidisciplinary team including intensive care specialists, infectious disease specialists and cardiologists. Priorities for managing ACovCS include balancing the goals of minimizing healthcare staff exposure for testing that will not change clinical management with early recognition of the syndrome at a time point where intervention may be most effective. The aim of this paper is to review the best available data on ACovCS epidemiology, pathogenesis, diagnosis and treatment. From these data, we propose a surveillance, diagnostic and management strategy that balances potential patient risks and healthcare staff exposure with improvement in meaningful clinical outcomes.

Liver impairment associated with disease progression in COVID-19 patients.

PMID: 32294285
Publication Date: Apr 15, 2020
Chen, Peng; Lei, Jiexin; Wu, Yue; Liu, Gang; Zhou, Benhong
Liver Int
Level of Evidence:

Type of Article: Letter

Summary: The authors reply to a study by YF Zhang *et al* which found that liver function test abnormalities are common in COVID-19 patients, but that clinically significant liver dysfunction was not a prominent feature of COVID-19 infection and also may not have serious clinical consequences. The authors raise their concerns regarding selection bias, omissions in the logistic regression analysis, and the po**ssibility of confounding factors of hepatic injury including medications used for treatment.**

The Double Burden of Disease of COVID-19 in Cardiovascular Patients: Overlapping Conditions Could Lead to Overlapping Treatments

PMID: 32296994

Publication Date: April 15, 2020;

Gonzalez-Jaramillo Nathalia, Low Nicola, Franco Oscar H.

European Journal of Epidemiology

Level of Evidence: 5 - Expert opinion

Type of Article: Letter to the editor

BLUF: Many COVID-19 patients have cardiovascular disease (CVD) which is correlated with worse outcomes, but the effects on the cardiovascular system are not fully understood. RAS-acting agents could have a **positive or negative impact on COVID-19 severity and should be studied more.**

Summarizing excerpt: "About 40% of hospitalized COVID-19 patients have CVD and the clinical course of COVID-19 is more severe in patients with hypertension, diabetes, and CVD. **COVID-19 mortality increases with comorbidities and age**. Correct evaluation of this double burden is challenged by three gaps in our knowledge: (1) the unknown confounding effect of age on mortality of CVD/COVID-19 patients, (2) the not fully understood effects of COVID-19 on the cardiovascular system, and (3) **how antihypertensive medications targeting the renin–angiotensin system (RAS) might be associated with the severity of and survival to COVID-19 in CVD patients.**"

Management of other conditions during COVID-19

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

PMID: 32298036
Publication Date: Apr 16, 2020; Apr 17, 2020 (LitCovid)
Topf MC, Shenson JA, Holsinger FC, Wald SH, Cianfichi LJ, Rosenthal EL, Sunwoo JB.
Head & Neck
Level of Evidence: 5 - Expert Opinion
Type of Article: Research
BLUF: If there is no substantial threat to a patient's health for not receiving care within the next 30 days, then it is recommended to postpone the surgery.

Abstract:
The COVID-19 pandemic has placed an extraordinary demand on the United States healthcare system. Many institutions have cancelled elective and non-urgent procedures to conserve resources and limit exposure. While operational definitions of elective and urgent categories exist, there is a degree of surgeon judgment in designation. In the present commentary, we provide a framework for prioritizing head and neck surgery during the pandemic. Unique considerations for the head and neck patient are examined including risk to the oncology patient, outcomes following delay in head and neck cancer therapy, and risk of transmission during otolaryngologic surgery. Our case **prioritization criteria consist of four categories: urgent - proceed with surgery, less urgent - consider postpone >30 days, less urgent - consider postpone 30-90 days, and case-by-case basis**. Finally, we discuss our preoperative clinical pathway for transmission mitigation including defining low-risk and high-risk surgery for transmission and role of preoperative COVID-19 testing.

Head and neck virtual medicine in a pandemic era: lessons from COVID-19.

PMID: 32298018
Publication Date: Apr 16, 2020
Prasad A, Carey RM, Rajasekaran K.Prasad A, et al.
Head Neck
Level of Evidence: Level 5 - Expert Opinion
Type of Article: Commentary
BLUF: Telemedicine is a useful resource for head and neck surgeons during the pandemic, and despite a more limited interaction, surgeons should utilize this tool to evaluate certain post-operative and oncologic patients as well as for tumor board conferences.

Abstract: The 2019 novel coronavirus disease (COVID-19) has presented the world and physicians with a unique public health challenge. In light of its high transmissibility and large burden on the healthcare system, many hospitals and practices have opted to cancel elective surgeries in order to mobilize resources, ration personal protective equipment and guard patients from the virus. Head and neck cancer physicians are particularly affected by these changes given their scope of practice, complex patient population, and interventional focus. In this viewpoint, we discuss some of the many challenges faced by head and neck surgeons in this climate. Additionally, we outline the utility of

telemedicine as a potential strategy for allowing physicians to maintain an effective continuum of care.

Management of the Difficult Airway in the COVID-19 Pandemic: An Illustrative Complex Head and Neck Case Scenario.

PMID: 32298017
Publication Date: Apr 16, 2020; Apr 17, 2020 (Litcovid)
Topf MC, Shenson JA, Holsinger FC, Wald SH, Cianfichi LJ, Rosenthal EL, Sunwoo JB.
Head & Neck
Level of Evidence: 5 - Expert opinion
Type of Article: Case Report

BLUF: For patients with tracheal lesions and a negative COVID-19 test, a CT may be necessary to evaluate for pulmonary findings before performing surgery. It is important to establish a care team for such decision making.

Abstract:
Background: This case highlights challenges in the assessment and management of the "difficult airway" patient in the SARS-CoV-2 (COVID-19) pandemic era.
Methods: A 60-year-old male with history of recent TORS resection, free flap reconstruction and tracheostomy for p16+ squamous cell carcinoma presented with stridor and dyspnea one month after decannulation. Careful planning by a multidisciplinary team allowed for appropriate staffing and personal protective equipment, preparations for emergency airway management, evaluation via nasopharyngolaryngoscopy, and COVID testing. The patient was found to be COVID negative and underwent imaging which revealed new pulmonary nodules and a tracheal lesion.
Results: The patient was safely transorally intubated in the operating room. The tracheal lesion was removed endoscopically and tracheostomy was avoided.
Conclusions: This case highlights the importance of careful and collaborative decision making for the management of head and neck cancer and other "difficult airway" patients during the COVID-19 epidemic.

Managing the Head and Neck Cancer Patient with Tracheostomy or Laryngectomy During the COVID-19 Pandemic.

PMID: 32298035
Publication Date: Apr 16, 2020; Apr 17, 2020 (Litcovid)
Kligerman MP, Vukkadala N, Tsang RKY, Sunwoo JB, Holsinger FC, Chan JYK, Damrose EJ, Kearney A, Starmer HM.
Head & Neck
Level of Evidence: 5 - Expert Opinion
Type of Article: Commentary

Summarizing Excerpt: "Given the increased risk of aerosolization and droplet formation in conjunction with the high rates of undocumented infections and asymptomatic carriers, precautions for all patients with tracheostomy and TL may be indicated.[17]...The cornerstones of these recommendations include the use of closed-circuit ventilation whenever possible, cuffed tracheostomy tubes, judicious use of heat moisture exchange units (HMEs) as tolerated, appropriate personal protective equipment (PPE) for providers and patients at all times, and minimal manipulation of tracheostomy tubes. These strategies are described below in more detail."

CORONAVIRUS-DAYS IN DERMATOLOGY.

PMID: 32297402
Publication Date: Apr 15, 2020
TüRsen Ü, Türsen B, Lotti T.TüRsen Ü, et al.
Dermatol Ther
Level of Evidence: Level 5 - Expert opinion
Type of Article: Review of Guidelines
Summary with excerpts: The article reviews skin care to prevent COVID-19 infection and skin manifestations of the disease "including **petechiae, purpura, ecchymosis, livedoid lesions**...described in mostly pediatric COVID-19. COVID-19 may show signs of small blood vessel occlusion such as petechiae or tiny bruises, and transient unilateral livedoid eruptions." Also, in terms of dermatologic patients, the authors conclude **etanercept, secukinumab and ustekinumab may be good alternative biologic treatments** as they have demonstrated a lower risk association with upper respiratory viral infections.

Abstract: Severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2), which causes coronavirus disease 2019 (COVID-19), is highly contagious and a particularly popular problem in all around the World and also in all departments of every hospital. In order to protect the well-being of healthcare providers while providing a sufficient workforce to respond to the coronavirus disease (COVID-19) are vital for pandemic planning. **In this article, we will discuss this problem from a dermatological aspect.**

Novel Coronavirus Disease (COVID-19) and Biologic Therapy in Psoriasis: Infection Risk and Patient Counseling in Uncertain Times.

PMID: 32297223
Publication Date: Apr 15, 2020; Apr 16, 2020 (LitCovid)
Brownstone, Nicholas D; Thibodeaux, Quinn G; Reddy, Vidhatha D; Myers, Bridget A; Chan, Stephanie Y; Bhutani, Tina; Liao, Wilson.
Dermatol Ther (Heidelb).
Level of Evidence: Level 5
Type of Article: Comment
BLUF: No data is presently available for psoriasis biologics and COVID-19, thus caution is warranted, and treatment decisions should be based on patient-provider dialogue.

Abstract:
With the emergence of the novel coronavirus disease (COVID-19) viral pandemic, there is **uncertainty whether biologic agents for psoriasis may place patients at a higher risk for infection or more severe disease course.** This commentary offers patient counseling recommendations based on the current available evidence. While there are **currently no specific data for psoriasis biologics and COVID-19, data are presented here from phase III clinical trials of psoriasis biologics on rates of upper respiratory infection, influenza, and serious infection.** Overall these data reveal that on the whole, psoriasis biologics do not show major increases in infection risk compared to placebo during the course of these trials**.** However, as the COVID-19 virus is a novel pathogen that is associated with mortality in a subset of patients, a cautious approach is warranted. We discuss factors that may alter the benefit-risk ratio of biologic use during this time of COVID-19 outbreak. Ultimately, treatment decisions should be made on the basis of dialogue between patient and provider, considering each patient's individualized situation. Once

this pandemic has passed, it is only a matter of time before a new viral disease reignites the same issues discussed here.

How to Guarantee the Best of Care to Patients with Cancer During the COVID-19 Epidemic: The Italian Experience.

PMID: 32298029
Publication date: April 16, 2020; April 17, 2020 (LitCovid)
Curigliano G.
The Oncologist Journal.
Level of Evidence: 5 - Expert opinion
Type of Article- Comment
BLUF: As much as possible, **patients undergoing cancer therapeutic treatments will be continuing their regimen in an outpatient setting,** but in instances when this is not a possibility, stronger COVID-19 precautions will be exercised in an inpatient setting.

Summarizing Excerpt: "As initial actions, we recommended that routine screening be suspended and that patients with early and advanced cancer be treated as outpatients as much as possible and at the nearest medical center. Patients who need to be hospitalized for cancer treatment were protected from potential SARS-CoV-2 infection by creating a dedicated diagnostic and therapeutic internal pathway for cancer treatment. Stronger personal protection was made available for patients with cancer. Because of the extreme burden created by COVID-19, antitumor treatment was initiated only after considering patient performance status, comorbidities, biology of disease, and the likely impact of treatment on outcome."

Decline of acute coronary syndrome admissions in Austria since the outbreak of COVID-19: the pandemic response causes cardiac collateral damage.

PMID: 32297932
Publication date: April 16, 2020; April 17, 2020 (LitCovid)
Metzler B, Siostrzonek P, Binder RK, Bauer A, Reinstadler SJ.Metzler B, et al.
Eur Heart J.
Level of Evidence: 4 - Case series
Type of Article- Research
Summary: This nationwide retrospective observation study conducted in Austria quantified a 39.4% reduction in the number of patient cases of ACS between 2019 and 2020. **It is unknown if ACS symptoms are being mistaken for COVID19 respiratory symptoms, or if quarantine precautions are making patients more reluctant to seek care when they become symptomatic.**

R&D: Diagnosis & Treatments

Virological and Clinical Cure in COVID-19 Patients Treated with Hydroxychloroquine: A Systematic Review and Meta-Analysis

PMID: 32278361
Publication Date: April 16, 2020; Apr 17, 2020 (LitCovid)
Sarma, Phulen; Kaur, Hardeep; Kumar, Harish; Mahendru, Dhruv; Avti, Pramod; Bhattacharyya, Anusuya; Prajapat, Manisha; Shekhar, Nishant; Kumar, Subodh; Singh, Rahul; Singh, Ashutosh; Prasad Dhibar, Deba; Prakash, Ajay; Medhi, Bikash
Journal of Medical Virology
Level of Evidence: Level 1 – Systematic Review
Type of Article: Review
BLUF: Hydroxychloroquine may decrease risk of radiological progression without increased adverse events when compared to other treatment options, including no treatment at all.

Abstract:
Background: Following the demonstration of efficacy of hydroxychloroquine against SARS-CoV-2 in-vitro, many trials started to evaluate its efficacy in clinical settings. However, no systematic review and meta-analysis has addressed the issue of safety and efficacy of hydroxychloroquine (HCQ) in COVID-19.
Methods: We conducted a systematic review and metaanalysis with the objectives of evaluation of safety and efficacy of HCQ alone or in combination in terms of "time to clinical cure", "virological cure", "death or clinical worsening of disease", "radiological progression" and safety. RevMan was used for meta-analysis.
Result: We searched 16 literature databases out of which seven studies (n=1358) were included in the systematic review. In terms of clinical cure, 2 studies reported possible benefit in "time to body temperature normalization" and one study reported less "cough days" in the HCQ arm. Treatment with **HCQ resulted in less number of cases showing radiological progression of lung disease** (OR 0.31, 0.11-0.9). **No difference was observed in virological cure** (OR 2.37, 0.13-44.53), death or clinical worsening of disease (OR 1.37, 1.37-21.97) and safety (OR 2.19, 0.59-8.18), when compared to the control/conventional treatment. Five studies reported either the safety or efficacy of HCQ + Azithromycin. Although seems safe and effective, more data is required for a definitive conclusion.
Conclusion: HCQ seems to be promising in terms of less number of cases with radiological progression with a comparable safety profile to control/conventional treatment. We need more data to come to a definite conclusion.

COVID-19: Recommended sampling sites at different stage of the disease.

PMID: 32297981
Publication Date: April 16, 2020
Song F, Zhang X, Zha Y, Liu W.Song F, et al.
Journal of Medical Virology
Level of Evidence: Level 5 - Expert Opinion
Type of Article: Commentary
BLUF: Based on previously published data, Table 1 outlines which sampling sites are most recommended for various disease stages of COVID-19.

Abstract:
Coronavirus Disease 2019 (COVID-19) is mainly an acute respiratory infectious disease caused by a novel coronavirus (officially named Severe acute respiratory syndrome coronavirus 2, SARS-CoV-2) in December 2019, which is currently a worldwide pandemic, mainly causes the novel coronavirus pneumonia (NCP).

TABLE 1. Sampling sites recommended for patients with COVID-19 at different disease stages

Sampling sites	Disease stages			
	Early stage (Diagnosis)	Intermediate stage (Advanced)	Convalescence (Discharge)	Isolation period after discharge (Follow-up)
Nasal swabs	Highly recommend	Highly recommend	Highly recommend	Highly recommend
Pharyngeal swabs	Highly recommend	Recommend	Recommend	Recommend
Sputum	Highly recommend	Highly recommend	Highly recommend	Highly recommend (Severe, critical type)
Bronchoalveolar lavage fluid	Not recommend	Highly recommend (Intubated patients)	Not recommend	Not recommend
Feces/Anal swabs*	Recommend	Recommend	Recommend	Recommend
Blood	Not recommend	Recommend (Critical type)	Not recommend	Not recommend
Fibrobronchoscope brush biopsy	Not recommend	Recommend (Intubated patients)	Not recommend	Not recommend

Note: * Patients with digestive symptoms

[Three unsuspected CT diagnoses of COVID-19.]

PMID: 32285222
Publication Date: Apr 13, 2020; Apr 15, 2020 (LitCovid)
Vu, David; Ruggiero, Maryanne; Choi, Woo Sung; Masri, Daniel; Flyer, Mark; Shyknevsky, Inna; Stein, Evan G
Emerg Radiol
Level of Evidence: 4 – Case Series
Type of Article: Research
BLUF: In patients without common symptoms of COVID-19 or negative RT-PCR testing, pulmonary parenchymal ground-glass opacities in a predominantly basal and peripheral distribution" on CT may identify asymptomatic disease or false-negative individuals who may spread disease.

Abstract: Coronavirus disease 2019 (COVID-19) is caused by a novel strain of coronavirus named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) that has quickly spread around the

globe. Health care facilities in the USA currently do not have an adequate supply of COVID-19 tests to meet the growing demand. **Imaging findings for COVID-19 are non-specific but include pulmonary parenchymal ground-glass opacities in a predominantly basal and peripheral distribution. Three patients** were imaged for non-respiratory-related symptoms with a portion of the lungs in the imaged field. Each patient **had suspicious imaging findings for COVID-19, prompting the interpreting radiologist to suggest testing for COVID-19. All 3 patients turned out to be infected with COVID-19**, and one patient is the first reported case of the coincident presentation of COVID-19 and an intraparenchymal hemorrhage. **Using imaging characteristics of COVID-19 on abdominal or neck CT when a portion of the lungs is included, patients not initially suspected of COVID-19 infection can be quarantined earlier to limit exposure to others.**

Rapid Detection of COVID-19 Causative Virus (SARS-CoV-2) in Human Nasopharyngeal Swab Specimens Using Field-Effect Transistor-Based Biosensor.

PMID: 32293168
Publication Date: Apr 15, 2020
Seo G, Lee G, Kim MJ, Baek SH, Choi M, Ku KB, Lee CS, Jun S, Park D, Kim HG, Kim SJ, Lee JO, Kim BT, Park EC, Kim SI.Seo G, et al.
ACS Nano
Level of Evidence: 5- Mechanism based
Type of Article: Research
BLUF: A COVID-19 FET sensor was developed in which "SARS-CoV-2 spike antibody is conjugated to a graphene sheet, which is used as the sensing area [..] to detect the virus virus in clinical samples; the SARS-CoV-2 antigen in standard buffer and transport medium; and cultured SARS-CoV-2 virus." The functionalized graphene-based sensor platform had no measurable cross-reactivity with MERS-CoV antigen and thus provides **simple, rapid, and highly responsive detection of SARS-CoV-2 virus in clinical samples**.

Abstract:
Coronavirus disease 2019 (COVID-19) is a newly emerging human infectious disease caused by acute respiratory syndrome coronavirus 2 (SARS-CoV-2, previously called 2019-nCoV). Based on the rapid increase in the rate of human infection, the World Health Organization (WHO) has classified the COVID-19 outbreak as a pandemic. Because no specific drugs or vaccines for COVID-19 are yet available, early diagnosis and management are crucial for containing the outbreak. Here, we report a **field-effect transistor (FET)-based biosensing device for detecting SARS-CoV-2 in clinical samples**. The sensor was produced by coating graphene sheets of FET with a specific antibody against SARS-CoV-2 spike protein. The performance of the sensor was determined using antigen protein, cultured virus, and nasopharyngeal swab specimens from COVID-19 patients. Our FET device could **detect SARS-CoV-2 spike protein at concentrations of 1 fg/ml in PBS and 100 fg/ml clinical transport medium**. In addition, the FET sensor successfully detected SARS-CoV-2 in culture medium (limit of detection [LOD]: 1.6 x 10^1 pfu/ml) and clinical samples (LOD: 2.42 x 10^2 copies/ml). **Thus, we have successfully fabricated a promising FET biosensor for SARS-CoV-2; our device is a highly sensitive immunological diagnostic method for COVID-19 that requires no sample pretreatment or labeling.**

Figure 1

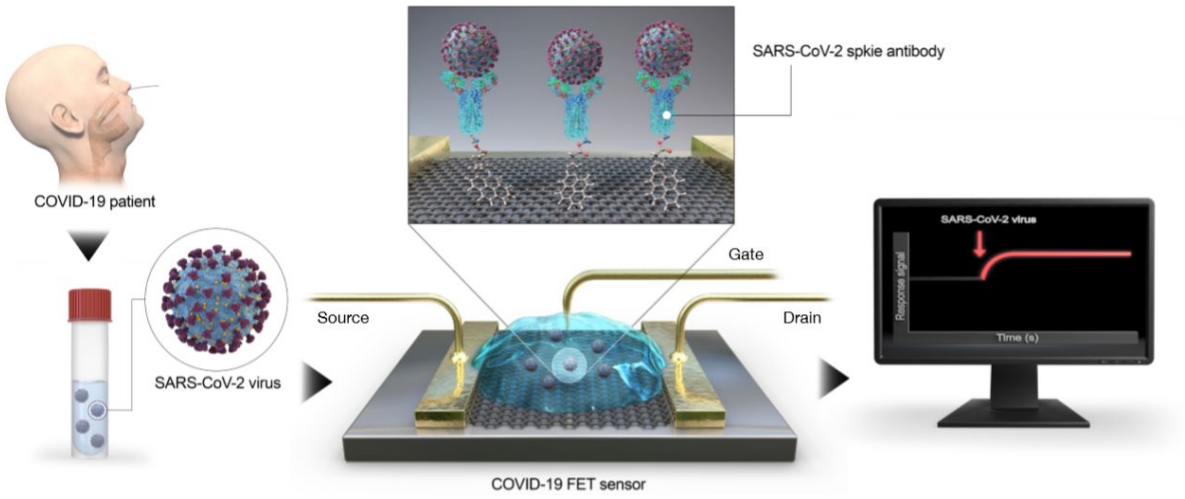


Figure 1. Schematic diagram of COVID-19 FET sensor operation procedure. Graphene as a sensing material is selected and SARS-CoV-2 spike antibody is conjugated onto the graphene sheet via 1-pyrenebutyric acid n-hydroxysuccinimide ester, which is an interfacing molecular as a probe linker.

Figure 6

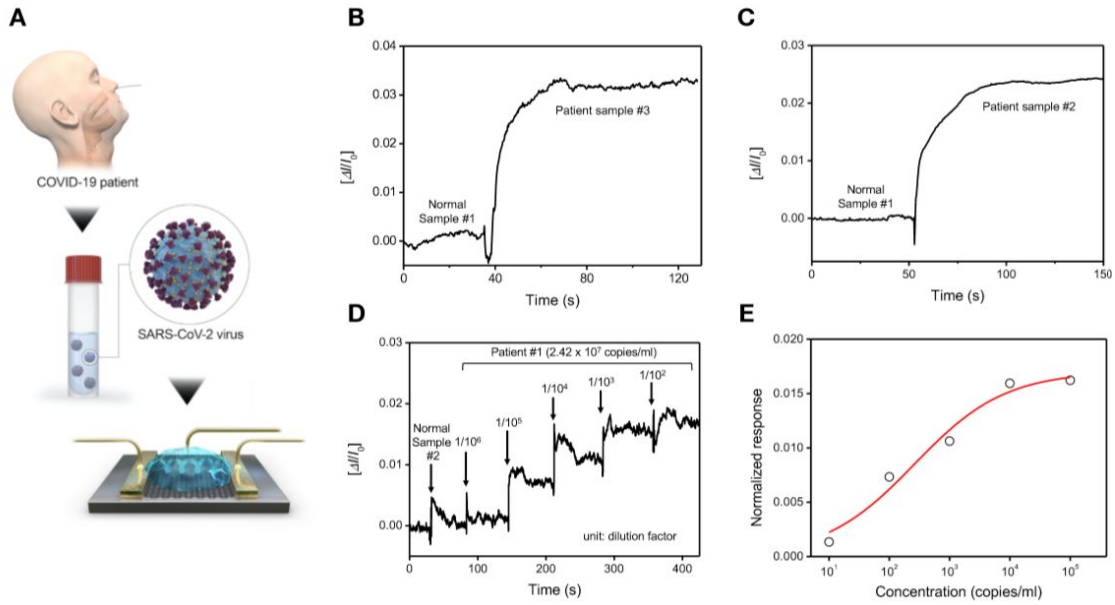


Figure 6. Detection of SARS-CoV-2 virus from clinical samples. (A) Schematic diagram for the COVID-19 FET sensor for detection of SARS-CoV-2 virus from COVID-19 patients. (B) and (C) Comparison of response signal between normal samples and patient ones. (D) Real time response of COVID-19 FET toward SARS-CoV-2 clinical sample and (C) related dose dependent response curve.

[Comparison of Copan Eswab and FLOQswab for COVID-19 PCR diagnosis: working around a supply shortage.]

PMID: 32297722

Publication date: April 15, 2020

Vermeiren C, Marchand-Senécal X, Sheldrake E, Bulir D, Smieja M, Chong S, Forbes JD, Katz K.Vermeiren C, et al.

J Clin Microbiol.
Level of Evidence: 3 - Cross Sectional Study
Article Type: Research
BLUF: This article compares swabs and transport media for SARS -CoV -2 testing and concludes that **Eswab Collection device is a suitable alternative to the UTM collection system**.
Summary: This article directly compares COVID-19 specimens collected with FLOQswab Nasopharyngeal Swab (UTM system) preserved in universal transport medium to specimens collected with flocked regular nylon tip swab (Eswab collection) preserved in liquid amies. Paired specimens for 94 patients were processed using two distinct extraction/real -time reverse transcription polymerase chain reaction (rRT -PCR) amplification platforms. With the results demonstrated in Figure 1, the authors concluded that Eswab collection devices can substitute UTM collection systems in the context of international swab shortage.

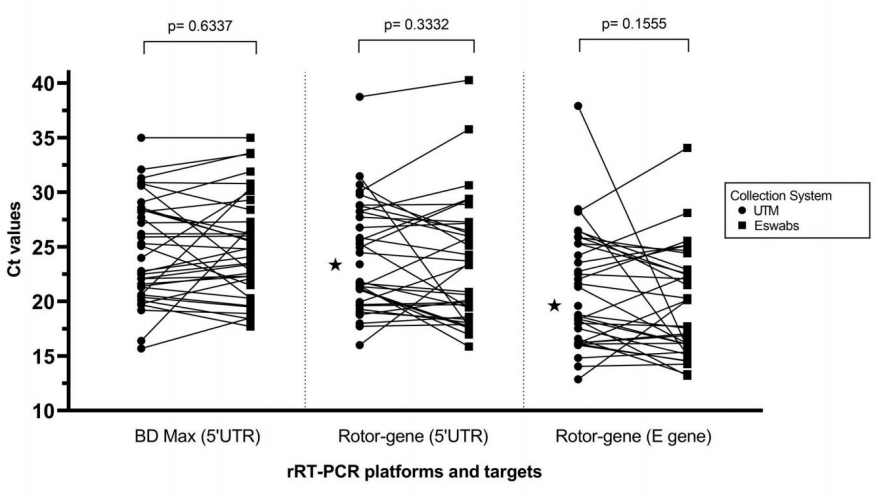


Figure 1 Diagram depicting UTM collection device and Eswab Collection system paired Ct values of 83 positive SARS -CoV -2 detection for the different rRT -PCR targets and platforms. Values identified with a star (*) represent discrepant qualitative results, where the rRT -PCR result of the other 85 collection device is negative. Two -sided paired sample s t -test found no statistically significant 86 difference between the Ct values, as shown by p values.

Absence of 2019 Novel Coronavirus in Semen and Testes of COVID-19 Patients.

PMID: 32297920
Publication Date: Apr 16, 2020
Song C, Wang Y, Li W, Hu B, Chen G, Xia P, Wang W, Li C, Diao F, Hu Z, Yang X, Yao B, Liu Y.Song C, et al.
Biol Reprod
Level of Evidence: Level 4 - Case Series
Type of Article: Research
Summarizing Excerpt: "Our data suggest that the **2019-nCov is absent from the semen and testes in men infected by COVID-19 at both acute and recovery phases.** Thus, it is **highly unlikely that the 2019-nCov can be sexually transmitted by men**. This is the first report showing that the 2019-nCov is absent from both the semen and testis specimens of COVID-19

patients**. Given the relatively small sample size, more patients are needed to confirm our findings**. Multiple rounds of 2019-nCov RNA testing on semen samples would be ideal during the course of disease."

Positive RT-PCR tests among discharged COVID-19 patients in Shenzhen, China.

PMID: 32297851
Publication date: April 16, 2020; April 17, 2020 (LitCovid)
Tang X, Zhao S, He D, Yang L, Wang MH, Li Y, Mei S, Zou X.Tang X, et al.
Infect Control Hosp Epidemiol.
Level of Evidence: 4 - Case-control studies
Type of Article: Research
Summarizing excerpt: "Among all 209 discharged coronavirus 2019 patients in Shenzhen China between January 23 and February 21, 2020, there are 9 (4.3%) patients showed RT-PCR positive in throat swabs, 13 (6.2%) patients showed RT-PCR positive in anal swabs, and 22 (10.5%) positive in either type. The time between discharge and positive RT-PCR tests is 4.7 days on average."

Nasal Swab Sampling for SARS-CoV-2: A Convenient Alternative in Time of Nasopharyngeal Swab Shortage.

PMID: 32295896
Publication Date: Apr 15, 2020; April 16, 2020 (LitCovid)
Péré H, Podglajen I, Wack M, Flamarion E, Mirault T, Goudot G, Hauw-Berlemont C, Le L, Caudron E, Carrabin S, Rodary J, Ribeyre T, Bélec L, Veyer D.Péré H, et al.
J Clin Microbiol
Level of Evidence: 4 – Case series
Type of Article: Research
Summary:
Patients suspected of COVID-19 in Paris, France were subjected to SARS-COV-2 molecular testing using both nasopharyngeal and nasal swabs. The sensitivity of SARS-COV-2 RNA detection by multiplex real-time PCR using nasal swabs is 89.2% and the specificity is 100%. This indicates nasal swab testing is nearly comparable to the gold standard detection using nasopharyngeal swabs. Limitations of the study include a small sample size and no inclusion of a control group.

A search for medications to treat COVID-19 via in silico molecular docking models of the SARS-CoV-2 spike glycoprotein and 3CL protease.

PMID: 32294562
Publication Date: Apr 12, 2020
Hall, Donald C Jr; Ji, Hai-Feng
Travel Med Infect Dis
Level of Evidence: Level 5 – Mechanism Based Reasoning
Type of Article: Research
BLUF: **Zanamivir, indinavir, saquinavir, remdesivir, flavin adenine dinucleotide (FAD), adeflavin, B2 deficiency medicine, and Coenzyme A may potentially be useful for the treatment of SARS-CoV-2 infections**. *in silico* docking models show these drugs may inhibit the

spike glycoprotein and main protease of SARS-CoV-2, which are two proteins essential to the transmission and virulence of the virus.

Abstract:
Background**:** The COVID-19 has now been declared a global emergency by the World Health Organization. There is an emergent need to search for possible medications
Method: Utilization of the available sequence information, homology modeling, and in slico docking a number of available medications might prove to be effective in inhibiting the COVID-19 two main drug targets the spike glycoprotein and the 3CL protease.
Results: Several compounds were determined from the in silico docking models that might prove to be effective inhibitor for the COVID-19. Several antiviral medications: Zanamivir, Indinavir, Saquinavir, and Remdesivir show potential as and $3CL^{PRO}$ main proteinase inhibitors and as a treatment of COVID-19.
Conclusion: Zanamivir, Indinavir, Saquinavir, and Remdesivir are among the exciting hits on the $3CL^{PRO}$ main proteinase. It is also exciting to uncover that Flavin Adenine Dinucleotide (FAD) Adeflavin, B2 Deficiency medicine, and Coenzyme A, a coenzyme, may also be potentially used for the treatment of SARS-CoV-2 infections. The use of these off-label medications may be beneficial in the treatment of the COVID-19.

Treatment with convalescent plasma for COVID-19 patients in Wuhan, China.

PMID: 32293713
Publication Date: Apr 15, 2020; Apr 16, 2020 (LitCovid)
Ye, Mingxiang; Fu, Dian; Ren, Yi; Wang, Faxiang; Wang, Dong; Zhang, Fang; Xia, Xinyi; Lv, Tangfeng.
J Med Virol.
Level of Evidence: Level 4
Type of Article: Research
BLUF: Convalescent plasma therapy in COVID-19 patients may be effective in improving patient's symptoms and ameliorating radiologic abnormalities.

Abstract:
The discovery of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and the outbreak of coronavirus disease 2019 (COVID-19) are causing public health emergency. A handful of literatures have summarized its clinical and radiologic features, whereas **therapies for COVID-19 are rather limited.** In order to evaluate the efficacy of convalescent plasma therapy in COVID-19 patients, we did this timely descriptive study. **6 laboratory confirmed COVID-19 patients were enrolled and received the transfusion of ABO-compatible convalescent plasma.** The efficacy of this intervention was determined by the alleviation of symptoms, changes in radiologic abnormalities and laboratory tests. **No obvious adverse effect observed during the treatment.** Transfusion of convalescent plasma led to a resolution of ground glass opacities (GGOs) and consolidation in patient #1, #2, #3, #4 and #6. In patient #1 and #5 who presented with SARS-CoV-2 in throat swab, convalescent plasma therapy elicited an elimination of virus. Serologic analysis indicated an immediate increase in anti-SARS-CoV-2 antibody titers in patient #2 and #3, but not in patient #1. This study indicates that convalescent plasma therapy is effective and specific for COVID-19. This intervention has a special significance for eliminating SARS-CoV-2 and is believed to be a promising state-of-art therapy during COVID-19 pandemic crisis.

Potential Benefits of Precise Corticosteroids Therapy for Severe 2019-nCoV Pneumonia

PMID: 32296012
Publication Date: 21 February 2020
Zhou Wei, Liu Yisi, Tian Dongdong, Wang Cheng, Wang Sa, Cheng Jing, Hu Ming, Fang Minghao, Gao Yue
Signal Transduction and Targeted Therapy
Level of Evidence: 5 - Expert Opinion
Type of Article: Letter to the Editor
BLUF: Low-dose corticosteroids may improve survival for critically-ill patients with COVID-19, but only for patients with definite clinical indications (e.g. refractory ARDS, sepsis, or septic shock).

Summarizing excerpt: "We endorse the potential benefits from low-dose corticosteroids treatment in a subset of critically ill patients with 2019-nCoV b**ased on existing studies and clinical experience**, despite there is no significant improvement in overall survival. Certainly, our ongoing well-designed prospective cohort study with sufficient samples may provide systematic answers to this clinical dilemma—"to use or not to use corticosteroids for the treatment of lung injury with 2019-nCoV"—in the near future."

Mental Health & Resilience

Meeting the Care Needs of Older Adults Isolated at Home During the COVID-19 Pandemic.

PMID: 32297903
Publication Date: April 16, 2020; Apr 17, 2020 (LitCovid)
Steinman MA, Perry L, Perissinotto CM.Steinman MA, et al.
JAMA Intern Med.
Level of Evidence: Level 6 - No data cited
Type of Article: Viewpoint
Summary: Mental and physical health could be worsened by isolation and limited access to resources such as food or technology. Fear of hospitals due to COVID-19 may discourage patients who need medical treatment from seeking out treatment. The article recommends that physicians be proactive in asking patients about unmet social services. Physicians should also recommend patients to hospitals as needed.

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