

Title of Paper	Journal	Pub. Date	Category	Article highlights	Problem/Background	Design	Groups, for clinical studies	Results
<u>Clinical Characteristics of Covid-19 in New York City</u>	NEJM	4/17/20	Epidemiology	Manifestations of COVID-19 in early hospitalized cases in New York City were generally similar to those reported from China, with less frequent GI symptoms and higher proportion needing invasive ventilation.	New York City has become an epicenter of the COVID-19 pandemic	Case reports/series	The first 393 consecutive patients with COVID-19 admitted to 2 hospitals in New York City between March 5 and March 27	Median age was 62.2 with 60.6% male and 35.8% obese. Invasive ventilation was required in 33.1% of all patients; amongst these 30.8% did not need supplemental O2 at presentation, and only 33.1% have been extubated to date. Of all patients, 10.2% died, 66.2% have been discharged, and the remaining 23.7% had incomplete outcome data.
<u>Guillain-Barré Syndrome Associated with SARS-CoV-2</u>	NEJM	4/17/20	Epidemiology	Guillain-Barré syndrome (treatable with intravenous immune globulin and plasma exchange) is a potential complication of COVID-19 infection that presents earlier than neuropathy and myopathy resulting from critical illness due to COVID-19.	Many infections are known to induce Guillain-Barré syndrome in a small subset of patients. This autoimmune disorder, in which the immune system attacks nerves, can lead to muscle paralysis and autonomic dysfunction, in its most dangerous form. Are COVID-19 patients also at risk of this complication?	Case reports/series	5 patients in Northern Italy	Five Italian COVID-19 patients presented with axonal and demyelinating variants of Guillain-Barré syndrome 5-10 days after viral symptoms appeared. They experienced flaccid tetraparesis or tetraplegia, fibrillation potentials, and nerve enhancement, while their cerebral spinal fluid tested negative for SARS-CoV-2.
<u>Novel Coronavirus Disease (COVID-19): Global Health Equity in Pandemic Response</u>	The American Society of Tropical Medicine and Hygiene	4/14/20	Epidemiology	The COVID-19 pandemic will amplify existing health inequities, and swift action and investment is needed to prevent health injustice.	Structural and institutional racism, lack of capacity at low-income healthcare settings, inability to self-isolate in densely populated low-income communities, lack of access to safe water and hygiene, and the indirect impact of the pandemic exacerbate disparities.	Ideas, editorials, reviews or opinions		It is necessary to ensure the accessibility of new therapies/prevention methods for COVID-19 in a just manner, through social investments and advocacy.
<u>COVID-19 and Working Conditions in Health Care</u>	Psychotherapy and Psychosomatics	4/16/20	Legal, Ethics & Management	As the demand for healthcare providers rises during this pandemic, unfavorable work conditions may lead to poor physiological and psychological health outcomes of healthcare providers.	This pandemic has amplified the already existing psychosocial risk factors in the healthcare work environment (such as high demands and lack of institutional support) along with added stressors of increased work hours and making difficult, stressful ethical decisions.	Ideas, editorials, reviews or opinions		Prior psychosocial literature has suggested the following interventions: changing work shift cycles, sleep hygiene, social support, support in decision making, positive coping mechanisms, and participation in cultural experiences.
<u>High IL-6/IFN-γ ratio could be associated with severe disease in COVID-19 patients</u>	Journal of Medical Virology	4/17/20	Prognosis	Severe COVID-19 cases appear to display a higher IL-6/IFN-γ ratio that may be related to cytokine storm that promotes lung damage.	Mortality in COVID-19 infection may be due to viral hyperinflammation that promotes increases lung damage.	Meta-analysis		In a meta-analysis across three separate studies, comprising of 264 total patients (of which 123 patients displaying severe disease) and the sample sizes ranging from 43 to 148 patients, the IL-6/IFN-γ ratio was found to be significantly increased in cases of severe COVID-19 disease (SMD=0.739, 95% CI=0.131-1.383). This is believed to be associated with an enhanced cytokine storm that favors lung damage.
<u>ST-Segment Elevation in Patients with Covid-19 — A Case Series</u>	NEJM	4/17/20	Prognosis	Covid-19 patients with ST-segment elevation have variable presentation, high prevalence of nonobstructive disease, and poor prognosis.	Case series of COVID-19 patients with ST-segment elevation	Case reports/series	18 patients from 6 NY hospitals with ST-segment elevation	All 18 patients had elevated D-dimer levels. 50% underwent coronary angiography; 6 of these had obstructive disease, and 5 underwent percutaneous coronary intervention. 13 patients died in the hospital (4 patients with MI and 9 with noncoronary myocardial injury).
<u>Symptom Screening at Illness Onset of Health Care Personnel With SARS-CoV-2 Infection in King County, Washington</u>	JAMA	4/17/20	Diagnosis & Prevention	Screening only for fever, cough, shortness of breath, or sore throat would lead to missing 17% of symptomatic HCP at the time of illness onset. Expanding criteria to include myalgias and chills may still lead to missing 10%. Working while symptomatic may lead to transmission to vulnerable patients and other HCP, highlighting need for expanded screening criteria, quarantine, testing, and flexible and nonpunitive sick leave policies.	Health care personnel are at an increased risk of SARS-CoV-2 exposure. Screening criteria have implications for infection control and return-to-work policies.	Case reports/series	Forty-eight lab-confirmed SARS-CoV-2 infections in health care personnel in King County, WA from Feb 28 to Mar 13, 2020.	Median age was 43 with 77.1% female. Most common initial symptoms were cough (50%), fever (41.7%), and myalgias (25.4%). Eight individuals (16.7%) did not have standard symptoms included in CDC's screening criteria, and instead reported chills, myalgia, coryza, malaise, and/or headache. 64.6% of those interviewed reported working a median of 2 days while exhibiting symptoms.
<u>SARS-CoV-2 and viral sepsis: observations and hypotheses</u>	The Lancet	4/17/20	Treatment	The authors of this paper look at SARS-CoV-2 pathogenesis and hypothesize that viral sepsis plays a crucial role in disease mechanism.	Many severe or critically ill COVID-19 patients meet the diagnostic criteria for septic shock, with SARS-CoV-2 infection appearing to be the sole cause in almost all cases.	Ideas, editorials, reviews or opinions		The authors hypothesize that, in the case of severe infection, the damage of multiple organs partially attributed to the virus, the dysregulated immune response, as well as microcirculation dysfunctions together result in viral sepsis in the patient. As a result, the authors recommend the following: more basic research to discern whether SARS-CoV-2 attacks vascular endothelial cells as well as the effect of SARS-CoV-2 on coagulation and virus dissemination; additional trials to assess the effect ARB and ACE inhibitors on SARS-CoV-2 infection in vivo; studies to assess the effect of SARS-CoV-2 infection on the adaptive immune response, its potential to directly infect lymphocytes, as well as the kinetics of the cytokine storm; studies looking at the efficacy of immunomodulatory therapies.
<u>Endothelial cell infection and endotheliitis in COVID-19</u>	The Lancet	4/17/20	Biology	Pathologic reports detail immune cell infiltrates and cell death in vasculature throughout the body. SARS-CoV-2 can infect human endothelial organoids, potentially through ACE2 receptors expressed on these cell types.	Given the rates of cardiovascular complications in COVID-19, how does SARS-CoV-2 interact with endothelium and other vasculature?	Case reports/series	Three patients with pre-existing vascular disease and COVID-19.	Pathologic resection specimens from kidney, small bowel, heart, lung, and liver showed mononuclear or lymphocytic infiltrates into the vasculature. Apoptotic bodies or necrosis were also found with a similar organ distribution. Electron microscopy identified viral inclusion bodies in the peritubular space and viral particles in the endothelial cells of one patient's transplant recipient kidney.

<u>Comparative pathogenesis of COVID-19, MERS, and SARS in a nonhuman primate model</u>	Science	4/17/20	Biology	The non-human primate cynomolgus macaques are permissive to SARS-CoV-2 infection. Viral shedding can be detected from both upper and lower respiratory tract in the absence of clinical signs. Histologic findings in the lungs are consistent with human COVID-19 cases, with detectable SARS-CoV-2 antigen in both type I and II pneumocytes, similar to SARS-CoV manifestations in this animal model.	Novel animal model for testing preventive and therapeutic interventions for use in humans	Basic science		A non-human primate model (cynomolgus macaques) was used to characterize SARS-CoV-2 infection. Both young and old animals acquired infection without overt clinical signs after being inoculated with a clinical isolate. SARS-CoV-2 shedding peaked early, and was prolonged in the upper respiratory tract of aged animals. Histological findings are typical of respiratory coronavirus infections, with injury to both type I and II pneumocytes.
<u>The characteristics of household transmission of COVID-19</u>	Clinical Infectious Diseases	4/17/20	Epidemiology	Secondary transmission of SARS-CoV-2 were detected in 16.3% of household contacts. The secondary attack rate was lower in children compared to adult, and higher in contacts who were spouses of index cases. The secondary attack rate was 0% in households where index patients self-quarantined.	Home quarantine may lead to secondary transmission to household contacts	Case reports/series	105 index patients and 392 household contacts from two local hospitals near Wuhan, between Jan 1 and Feb 20, 2020.	Of the 105 family clusters with 392 eligible household contacts, 64 were infected with SARS-CoV-2, with a secondary attack rate of 16.3%. Risk factors associated with higher attack rates include adult age, absence of self-quarantine by the index case, and spousal relationship.
<u>Imbalanced host response to SARS-CoV-2 drives development of COVID-19</u>	Cell	4/17/20	Prognosis	In the following study, the authors characterize the transcriptional response of SARS-CoV-2 in comparison to other common respiratory viruses as well as by looking at the transcriptional signature in in vitro tissue culture, ex vivo infection of primary cells, in vivo infection of ferrets, and in vivo samples derived from human patients in order to gain a deeper understanding of the molecular basis of COVID-19.	The broad nature of the antiviral response has resulted in the evolution of countless viral countermeasures that are, as a result, not uniform from virus-to-virus and can lead to various degrees of morbidity and mortality.	Basic science		Looking at all model systems, SARS-CoV-2 infection display a unique transcriptional signature that involves a limited IFN-I and -III response (with the exception of when some in vitro cell lines were infected with a high MOI), but a robust pro-inflammatory cytokine response, suggesting an imbalance with regards to controlling virus replication versus activation of the adaptive immune response. In vivo, this cytokine response begins as early as 3 days post-infection and continues beyond clearance of virus, with special mention of monocyte-derived chemokines, neutrophil associated chemokines, as well as IL-6 and IL1RA (which may be linked to cytokine-release syndrome), among many others. Based on these findings of elevated chemokines and interleukins, the authors propose that future efforts addressing treatment options should focus on FDA approved drugs that have immunomodulating properties, but acknowledge that more work still needs to be done to further verify these findings.
<u>Efficacy and safety of lopinavir/ritonavir or arbidol in adult patients with mild/moderate COVID-19: an exploratory randomized controlled trial</u>	Med (Cell Press)	pre-proof	Treatment	Lopinavir/ritonavir or arbidol monotherapy were not effective compared to supportive care only for improving the clinical status of patients with mild to moderate COVID-19	Need for effective antiviral therapy for treating COVID-19	Clinical trial	86 patients with mild/moderate COVID-19, randomly assigned to receive lopinavir/ritonavir, arbidol, or no antiviral medication as control	There was no difference between groups in the primary endpoint (positive-to-negative conversion) or secondary endpoints (rate of antipyresis, cough alleviation, chest CT improvement at days 7 or 14). More patients treated with lopinavir/ritonavir progressed to severe/critical status compared to the other two groups.

These summaries were prepared by medical and graduate students at Washington University in St. Louis

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