



## International EPI Cell Daily Evidence Digest – 07/04/2020

This briefing is produced by the PHE COVID-19 Literature Digest Team. The papers are organised under the following themes:

- Diagnostics and genomics
- Epidemiology and clinical
- Infection control
- Treatment
- Social sciences
- Miscellaneous
- Modelling

Please note that we are including preprints, which are preliminary reports of work that have NOT been peer-reviewed. They should not be relied on to guide clinical practice or health-related behaviour and should NOT be reported in news media as established information.

### Diagnostics and genomics

Publication Date	Title/URL	Journal/ Article type	Digest
31.03.2020	<a href="#">Lung ultrasound findings in a 64-year-old woman with COVID-19</a>	Canadian Medical Association Journal / Case report	<ul style="list-style-type: none"><li>• Describe the lung ultrasound findings in a 64 yo health care worker.</li><li>• The authors propose that lung ultrasonography may be useful in the workup of patients with suspected COVID-19, even though differentiating between different causes of viral pneumonia is not possible.</li></ul>
31.03.2020	<a href="#">A Comparative Study of Chest Computed Tomography Features in Young and Older Adults With Corona Virus Disease (COVID-19)</a>	Journal of Thoracic Imaging / Article	<ul style="list-style-type: none"><li>• The chest CT images of 72 symptomatic patients with COVID-19 were analysed retrospectively, including 44 younger patients (47.5±8.7 yo) and 28 older patients (68.4±6.0 yo).</li><li>• Elderly and younger patients with COVID-19 have some common CT features, but older patients are more likely to have</li></ul>

			extensive lung lobe involvement, and subpleural line and pleural thickening.
31.03.2020	<a href="#">Ultra-high-resolution computed tomography can demonstrate alveolar collapse in novel coronavirus (COVID-19) pneumonia</a>	Japanese Journal of Radiology / Special report	<ul style="list-style-type: none"> <li>• In Feb 2020, six consecutive patients with COVID-19 pneumonia (median age, 69 years) underwent Ultra-high-resolution CT (U-HR CT) imaging.</li> <li>• U-HRCT can evaluate not only the distribution and hallmarks of COVID-19 pneumonia but also visualize local lung volume loss.</li> </ul>
31.03.2020	<a href="#">A case of SARS-CoV-2 carrier for 32 days with several times false negative nucleic acid tests</a>	medRxiv (not peer reviewed) / Case report	<ul style="list-style-type: none"> <li>• Collected the epidemiological history, clinical manifestations, outcomes, laboratory results and images of a SARS-CoV-2 carrier with no significant past medical history. The patient was quarantined because her colleague had been diagnosed.</li> <li>• After the onset of clinical symptoms, chest CT results showed patchy ground-glass opacity (GGO) in her lungs, but it took a total of nine nucleic acid tests to confirm the diagnosis, among which the first eight RT-PCR results were negative or single-target positive.</li> <li>• This is a confirmed case of SARS-CoV-2 infection with common symptoms, and her diagnosis has undergone multiple false negatives, suggesting that it is difficult to identify certain carriers of the virus and that such patients may also increase the spread of the SARS-CoV-2.</li> </ul>
28.03.2020	<a href="#">The Role of Emergency Radiology in COVID-19: From Preparedness to Diagnosis</a>	Can Assoc Radiol J / Review	<ul style="list-style-type: none"> <li>• A review of the symptoms, epidemiology, and testing for this disease plus the characteristic imaging findings of COVID-19 in relation to other modern coronavirus diseases including SARS and MERS.</li> <li>• Also reviews roles that community radiology clinics, outpatient radiology departments, and emergency radiology departments can play in the diagnosis of this disease, and practical methods to reduce spread of infections within radiology departments</li> </ul>
03.04.2020	<a href="#">Early Lessons on the Importance of Lung Imaging in Novel Coronavirus Disease (COVID-19)</a>	The American Journal of Tropical Medicine and Hygiene / Editorial	<ul style="list-style-type: none"> <li>• The potential benefit of point-of-care lung ultrasound (LUS) as a diagnostic tool in COVID-19 should be highlighted. LUS is a well-established, non-invasive, rapid, repeatable, sensitive, bedside method to detect pulmonary pathology, including pneumothorax, pleural effusion, and pulmonary infiltrates or consolidations.</li> <li>• LUS is a promising additional imaging tool in patients with COVID-19, in particular in resource-limited settings in low- and middle-income countries.</li> </ul>

06.04.2020	<a href="#">Sample Pooling as a Strategy to Detect Community Transmission of SARS-CoV-2</a>	JAMA / Research letter	<ul style="list-style-type: none"> <li>• This article uses sample pooling to discuss the possibility of community circulation of SARS-CoV-2 prior to the identification of individuals with positive results through standard public health surveillance.</li> <li>• A pooled screening strategy was pursued to increase testing throughput, limit use of reagents, and increase overall testing efficiency at an expected slight loss of sensitivity.</li> </ul>
03.04.2020	<a href="#">Assessment of Specimen Pooling to Conserve SARS CoV-2 Testing Resources</a>	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> <li>• Determined whether saving in reagents for detection of SARS CoV-2 can be accomplished using the optimal parameters for group testing of pooled specimens in a public health laboratory.</li> <li>• Concluded that group testing may result in the saving of reagents and personnel time with an overall increase in testing capability of at least 69% when the positive laboratory test rate is 10% or less.</li> </ul>
31.03.2020	<a href="#">Guidelines for Laboratory Diagnosis of Coronavirus Disease 2019 (COVID-19) in Korea</a>	Annals of Laboratory Medicine / Article	<ul style="list-style-type: none"> <li>• Korean Society for Laboratory Medicine and the Korea CDC propose guidelines for diagnosing COVID-19 in clinical laboratories in Korea.</li> <li>• These guidelines are based on other related domestic and international guidelines, as well as expert opinions and include the selection of test subjects, selection of specimens, diagnostic methods, interpretation of test results, and biosafety.</li> </ul>
27.02.2020	<a href="#">Structural and Evolutionary Analysis Indicate that the SARS-CoV-2 Mpro is an Inconvenient Target for Small-Molecule Inhibitors Design</a>	bioRxiv (not peer reviewed) / Research Paper	<ul style="list-style-type: none"> <li>• Reports on detailed classical and mix-solvent molecular dynamics simulations of SARS-CoV-2 main protease (Mpro) enriched by evolutionary and stability analysis of the protein. The results were compared with those for a highly similar SARS Mpro protein.</li> </ul>
06.04.2020	<a href="#">The potential genetic network of human brain SARS-CoV-2 infection</a>	bioRxiv (not peer reviewed) / Research Paper	<ul style="list-style-type: none"> <li>• Hypothesis was that as ACE2 is essential to the SARS-CoV-2 virus invasion, then brain regions where ACE2 is the most expressed are more likely to be disturbed by the infection. Thus, the expression of other genes which are also over-expressed in those damaged areas could be affected.</li> <li>• Used mRNA expression levels data of genes provided by the Allen Human Brain Atlas, and computed spatial correlations with the LinkRbrain platform. Genes whose co-expression is spatially correlated to that of ACE2 were then clustered into 16 groups, depending on the organ in which they are the most expressed.</li> <li>• The list of organs where genes sharing local over-expression</li> </ul>

			with the ACE2 gene are the most expressed is astonishingly similar to the organs affected by Covid-19.
16.03.2020	<a href="#">The sequence of human ACE2 is suboptimal for binding the S spike protein of SARS coronavirus 2</a>	bioRxiv (not peer reviewed) / Research Paper	<ul style="list-style-type: none"> <li>• Using deep mutagenesis, variants of ACE2 were identified with increased binding to the receptor binding domain of S. Mutations are found across the interface, in the N90-glycosylation motif, and at buried sites where they are predicted to enhance folding and presentation of the interaction epitope. When single substitutions are combined, large increases in binding can be achieved.</li> <li>• The mutational landscape offers a blueprint for engineering high affinity proteins and peptides that block receptor binding sites on S to meet this unprecedented challenge.</li> </ul>
05.04.2020	<a href="#">CovProfile: profiling the viral genome and gene expressions of SARS-COV2</a>	bioRxiv (not peer reviewed) / Research Paper	<ul style="list-style-type: none"> <li>• Propose a computational tool to detect the viral genomic variations as well as viral gene expressions from the sequenced amplicons with Nanopore devices of the multiplex reverse transcription PCR.</li> <li>• The authors applied this tool to 11 samples of terminally ill patients, and discovered that seven of the samples were infected by two viral strains. The expression of viral genes ORF1ab gene, S gene, M gene, and N gene are high among most of the samples.</li> <li>• While performing our tests, they noticed the abundances of MUC5B transcript segments to be consistently higher than those of other genes in the host.</li> </ul>
28.03.2020	<a href="#">Molecular characterization of SARS-CoV-2 in the first COVID-19 cluster in France reveals an amino-acid deletion in nsp2 (Asp268Del)</a>	Clin Microbiol Infect / Letter	<ul style="list-style-type: none"> <li>• This short report, presents the first genetic characterization of a COVID-19 cluster in Europe.</li> <li>• A new deletion in nsp2 (Asp268Del) was found in all 3 samples - the analysis of 571 WGS identified this deletion in 37 other viruses collected in England (Feb) and in Netherlands (Mar), suggesting the spread of this deletion in Europe.</li> <li>• The impact of Asp268Del on SARS-CoV-2 transmission and pathogenicity, as well as on PCR performances and anti-viral strategy should be rapidly evaluated in further studies.</li> </ul>
27.03.2020	<a href="#">Full-genome sequences of the first two SARS-CoV-2 viruses from India</a>	Indian J Med Res / Article Preprint	<ul style="list-style-type: none"> <li>• The two SARS-CoV-2 sequences obtained from India represent two different introductions into the country.</li> <li>• The identified B- and T-cell epitopes may be considered suitable for future experiments towards the design of vaccines and diagnostics.</li> </ul>

## Epidemiology and clinical

Publication Date	Title/URL	Journal/ Article type	Digest
31.03.2020	<a href="#">COVID-19 in Hemodialysis Patients: A Report of 5 Cases</a>	American Journal of Kidney Diseases / Case report	<ul style="list-style-type: none"> <li>• In this case report, the authors describe the clinical and epidemiological features of COVID-19 in 201 maintenance haemodialysis patients who contracted COVID-19 disease.</li> <li>• Up to February 13, 2020, none of the patients had developed severe complications or died.</li> </ul>
31.03.2020	<a href="#">COVID-19-associated Acute Hemorrhagic Necrotizing Encephalopathy: CT and MRI Features</a>	Radiology / Reviews and Commentary	<ul style="list-style-type: none"> <li>• This is the first reported case of COVID-19–associated acute necrotizing haemorrhagic encephalopathy.</li> <li>• As the number of patients with COVID-19 increases worldwide, clinicians and radiologists should be watching for this presentation among patients presenting with COVID-19 and altered mental status.</li> </ul>
28.03.2020	<a href="#">Follow-up of the asymptomatic patients with SARS-CoV-2 infection</a>	Clin Microbiol Infect / Letter	<ul style="list-style-type: none"> <li>• This follow up study assessed virologically confirmed COVID-19 patients in Shanghai Public Health Centre who had no subjective symptoms on admission (13 out of 328 adults diagnosed).</li> <li>• 4 types of asymptomatic patients were found that had completely different significance for the disease spectrum and natural history of COVID-19 - if we can make diagnosis early enough, we should be able to detect patients in the incubation period.</li> <li>• The study did not find chronic asymptomatic carriers in the cohort and concludes that there is probably no chronic carrier for SARS-CoV-2.</li> </ul>
06.04.2020	<a href="#">Baseline Characteristics and Outcomes of 1591 Patients Infected With SARS-CoV-2 Admitted to ICUs of the Lombardy Region, Italy</a>	JAMA / Original Investigation	<ul style="list-style-type: none"> <li>• This investigation asks: what are the baseline characteristics and outcomes of patients with laboratory-SARS-CoV-2 infection admitted to ICUs in Lombardy, Italy?</li> <li>• Findings: in this retrospective case series that involved 1591 critically ill patients admitted from February 20 to March 18, 2020, 99% (1287 of 1300 patients) required respiratory support, including endotracheal intubation in 88% and non-invasive ventilation in 11%; ICU mortality was 26%</li> <li>• Meaning: in this case series of critically ill patients admitted to ICUs in Lombardy, Italy, with laboratory-confirmed COVID-19, a</li> </ul>

			high proportion required mechanical ventilation and ICU mortality was 26% as of March 25, 2020.
01.04.2020	<a href="#">Epidemiological Characteristics of COVID-19: A Systemic Review and Meta-Analysis</a>	medRxiv (not peer reviewed) / Systematic review	<ul style="list-style-type: none"> <li>• Out of 1675 non-duplicate studies identified, 57 were included (to assess epidemiological characteristics of COVID-19 patients(. Pooled mean incubation period was 5.84 days. Pooled mean number of days from the onset of COVID-19 symptoms to first clinical visit was 4.82, ICU admission was 10.48, recovery was 17.76 , and until death was 15.93. Pooled probability of COVID-19-related death was 0.02.</li> <li>• Limitations: Studies are observational and findings are mainly based on studies that recruited patient from clinics and hospitals and so may be biased toward more severe cases.</li> </ul>
30.03.2020	<a href="#">Novel Coronavirus Infection (COVID-19) in Humans: A Scoping Review and Meta-Analysis</a>	Journal of Clinical Medicine / Review	<ul style="list-style-type: none"> <li>• Performed a scoping review of currently available clinical, epidemiological, laboratory, and chest imaging data related to the SARS-CoV-2 infection. Qualitative synthesis and meta-analysis were conducted using the clinical and laboratory data, and random-effects models were applied to estimate pooled results.</li> <li>• A total of 61 studies were included (59,254 patients).</li> <li>• Concluded that the majority of reported clinical symptoms and laboratory findings related to SARS-CoV-2 infection are non-specific. Clinical suspicion, accompanied by a relevant epidemiological history, should be followed by early imaging and virological assay.</li> </ul>
01.04.2020	<a href="#">Case fatality rate in COVID-19: a systematic review and meta-analysis</a>	medRxiv (not peer reviewed) / Systematic review	<ul style="list-style-type: none"> <li>• Systematic review and meta-analysis aiming to address challenges due to biases associated with surveillance, data synthesis and reporting in estimating the prevalence of severe or critical illness and case fatality of COVID-19.</li> <li>• The meta-analysis included 29 studies representing 2,090 individuals.</li> <li>• Concluded that risk factors that emerged in this analyses predicting severity and case fatality should inform clinicians to define endophenotypes possessing a greater risk. Estimated case fatality rate of 7.4% after correcting for publication bias underscores the importance of strict adherence to preventive measures, case detection, surveillance and reporting.</li> </ul>
30.03.2020	<a href="#">Coronavirus Disease 2019 in elderly patients: characteristics and prognostic factors based on 4-week follow-up</a>	Journal of Infection / Pre-proof	<ul style="list-style-type: none"> <li>• Investigated the characteristics and prognostic factors in the elderly patients with COVID-19.</li> <li>• Consecutive cases over 60 years old with COVID-19 in Renmin</li> </ul>

			<p>Hospital of Wuhan University from Jan 1 to Feb 6, 2020 were included.</p> <ul style="list-style-type: none"> <li>• High proportion of severe to critical cases and high fatality rate were observed in the elderly COVID-19 patients. Rapid disease progress was noted in the dead with a median survival time of 5 days after admission. Dyspnoea, lymphocytopenia, comorbidities including cardiovascular disease and chronic obstructive pulmonary disease, and acute respiratory distress syndrome were predictive of poor outcome. Close monitoring and timely treatment should be performed for the elderly patients at high risk.</li> </ul>
02.04.2020	<a href="#">Reduction of lymphocyte at early stage elevates severity and death risk of COVID-19 patients: a hospital-based case-cohort study</a>	medRxiv (not peer-reviewed) /Article	<ul style="list-style-type: none"> <li>• The objective of this study was to analyse the association between lymphocyte reduction at early stage and the prognosis of COVID-19 patients.</li> <li>• Conclusion: Older COVID-19 patients are more susceptible to lymphocyte reduction. Lymphocyte reduction at early stage aggravates the severity of multiple organ injuries and elevates death risk of COVID-19 patients.</li> </ul>
02.04.2020	<a href="#">Acute liver injury and its association with death risk of patients with COVID-19: a hospital-based prospective case-cohort study</a>	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> <li>• Acute liver injury (ALI) data was collected from electronic medical records of 355 COVID-19 patients.</li> <li>• As expected, ALI was more common in critical ill patients. By multivariate logistic regression, male, older age and lymphocyte reduction were three important independent risk factors predicting ALI among COVID-19 patients.</li> <li>• Conclusions: ALI at early stage elevates death risk of COVID-19 patients. SARS-CoV-2-induced ALI has not recovered completely 14 days after discharge.</li> </ul>
20.03.2020	<a href="#">Kidney disease is associated with in-hospital death of patients with COVID-19</a>	Kidney International / Editorial special report	<ul style="list-style-type: none"> <li>• Investigated the prevalence of acute kidney injury (AKI) in patients with COVID-19.</li> <li>• Kaplan-Meier analysis demonstrated patients with kidney disease had a significantly higher risk for in-hospital death. Cox proportional hazard regression confirmed that elevated baseline serum creatinine (hazard ratio: 2.10, 95% confidence interval: 1.36-3.26), elevated baseline blood urea nitrogen, AKI stage 1, stage 2, stage 3, proteinuria 1+, 2+ approximately 3+ (4.84, 2.00-11.70), and haematuria 1+ (2.99, 1.39-6.42), 2+ approximately 3+ (5.56, 2.58-12.01) were independent risk factors for in-hospital</li> </ul>

			death after adjusting for age, sex, disease severity, comorbidity and leukocyte count.
31.03.2020	<a href="#">Identification of a potential mechanism of acute kidney injury during the COVID-19 outbreak: a study based on single-cell transcriptome analysis</a>	Annals of Intensive Care / Letter to the editor	<ul style="list-style-type: none"> <li>• Based on their findings, the authors conclude that the cytopathic effects of SARS-CoV-2 on podocytes and proximal straight tubule cells may cause AKI in patients with COVID-19, especially in patients with SARS-CoV-2 infection in blood samples.</li> <li>• It is necessary to pay more attention to the early monitoring of renal function and cautiously handle the urine of COVID-19 patients with AKI to prevent accidental infection.</li> </ul>
03.04.2020	<a href="#">Separate Fever Clinics Prevent the Spread of COVID-19 and Offload Emergency Resources: Analysis from a large tertiary hospital in China</a>	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> <li>• Outpatient Fever Clinics (FCs), instituted during the SARS epidemic in 2003 were upgraded to provide COVID-19 screening and prevention attached to large tertiary hospitals. The authors analysed the effect of upgraded FCs to detecting COVID-19 at their institution.</li> <li>• Concluded that the work-load of the FC increased after the COVID-19 outbreak and effectively prevented COVID-19 from spreading in the hospital as well as offload ED resources.</li> </ul>
06.04.2020	<a href="#">Understanding pathways to death in patients with COVID-19</a>	The Lancet Respiratory Medicine / Comment	<ul style="list-style-type: none"> <li>• Discusses pathways to death in patients diagnosed with COVID-19.</li> <li>• Death might occur in the ICU despite full intensive care support, including mechanical ventilation, ECMO, vasopressors, and renal replacement therapy.</li> <li>• Another scenario for ICU and hospital patients is related to limitation of life-sustaining therapies because of poor predicted outcomes associated with old age, frailty, comorbidities, or profound disability, or because of effects of distributive limitations associated with lack of personnel, beds, or materials.</li> <li>• A third scenario relates to patients admitted to the ICU or hospital whose deaths are not directly related to COVID-19. Especially in areas with high infection rates, patients might be admitted to the ICU with, for example, severe trauma or acute brain injury, test positive for SARS-CoV-2 during the ICU stay, and eventually die because of the initial injury; these deaths will still be attributed to COVID-19 and included in the statistics.</li> </ul>
04.04.2020	<a href="#">Global interim guidance on coronavirus disease 2019 (COVID-19) during pregnancy and puerperium from FIGO and allied partners: Information for healthcare professionals</a>	International Journal of Gynecology & Obstetrics / Article	<ul style="list-style-type: none"> <li>• FIGO guidance for management of pregnant women at four main settings of pregnancy: (1) ambulatory antenatal care in the outpatient clinics; (2) management in the setting of the obstetrical triage; (3) intrapartum management; and (4) postpartum</li> </ul>

			<p>management and neonatal care.</p> <ul style="list-style-type: none"> <li>• Plus guidance on the medical treatment of pregnant women with COVID-19 infection</li> </ul>
30.03.2020	<a href="#">Home care for cancer patients during COVID-19 pandemic: the "double triage" protocol</a>	Journal of Pain and Symptom Management / Article	<ul style="list-style-type: none"> <li>• Suggests a triage protocol for cancer patients - firstly a telephone interview to the patient, then questions to their relatives and/or cohabiters. Secondly another telephone interview to schedule home access, avoiding unnecessary contacts. Home visits are then scheduled according to priority.</li> <li>• The authors found a good level of patient acceptability.</li> </ul>
31.03.2020	<a href="#">Triaging Spine Surgery in the COVID-19 Era</a>	Clinical Spine Surgery / Editorial - published ahead of print	<ul style="list-style-type: none"> <li>• The authors make recommendations for performing spinal surgeries during the COVID-19 outbreak, based on the Rothman Institute Guidelines for Spine Surgery.</li> </ul>
06.04.2020	<a href="#">Global rheumatology in the time of COVID-19</a>	The Lancet Rheumatology / Correspondence	<ul style="list-style-type: none"> <li>• Many reports have cited the use of medications commonly found in the rheumatology armamentarium for the management of COVID-19, including hydroxychloroquine, glucocorticoids, intravenous immunoglobulin, anti-interleukin (IL)-1 and anti-IL-6 therapies, and Janus kinase inhibitors.</li> <li>• In the rheumatology community, an international coalition, the COVID-19 Global Rheumatology Alliance, has come together to launch a global registry of patients with rheumatic and musculoskeletal diseases with COVID-19, for physicians worldwide to report these cases of COVID-19 and support the collection of patient-reported cases.</li> <li>• The authors outline the scientific and clinical challenges facing the rheumatology community.</li> </ul>
28.03.2020	<a href="#">COVID-19 in children: More than meets the eye</a>	Travel Med Infect Dis / Comment	<ul style="list-style-type: none"> <li>• The potentially prolonged shedding of the virus in nasal secretions and stool of children and infants has substantial implications for spread of the virus in day-care centres, schools, and in the home, and consequently, children and infants may play a pivotal role in community-based transmission of SARS-CoV-2.</li> <li>• Clinicians caring for children should be wary of subgroups of children who can be at an increased risk for more significant illness, as particularly younger age, underlying pulmonary pathology, and many immunocompromising conditions have also been associated with more severe outcomes with other coronavirus infections in children</li> </ul>
30.03.2020	<a href="#">Creating a Palliative Care Inpatient Response Plan for COVID19 - The UW Medicine Experience</a>	Journal of Pain and Symptom Management / Article	<ul style="list-style-type: none"> <li>• In this publication, the authors share their multi-faceted strategy to implement high-quality palliative care in the context of the</li> </ul>

			COVID-19 pandemic that incorporates conventional, contingency, and crisis capacity and focuses on the areas of the hospital caring for the most patients: the emergency department, the intensive care units, and the acute care services. The strategy focuses on key content areas including identifying and addressing goals of care, addressing moderate and severe symptoms, and supporting family members.
06.04.2020	<a href="#">Intensive care management of coronavirus disease 2019 (COVID-19): challenges and recommendations</a>	The Lancet Respiratory Medicine / Review	<ul style="list-style-type: none"> <li>• This review covers: epidemiology and clinical features, diagnosis, management of acute respiratory failure, repurposed and experimental therapies, infection prevention. In relation to the ICU there is discussion of: infrastructure, capacity, staffing, triage.</li> </ul>
30.03.2020	<a href="#">Nervous system involvement after infection with COVID-19 and other coronaviruses</a>	Brain, Behavior, and Immunity / Article	<ul style="list-style-type: none"> <li>• This article reviews the research into neurological complications in coronavirus infections and the possible mechanisms of damage to the nervous system.</li> <li>• Very recently, coronaviruses (CoV), especially SARS-CoV-2, exhibit neurotropic properties and may also cause neurological diseases. It is reported that CoV can be found in the brain or cerebrospinal fluid.</li> <li>• Patients with CoV infections should be evaluated early for neurological symptoms, including headache, consciousness disorder, paraesthesia, and other pathological signs.</li> </ul>
06.04.2020	<a href="#">The COVID-19 Pandemic in the US: A Clinical Update</a>	JAMA / Viewpoint	<ul style="list-style-type: none"> <li>• This article provides an overview on the current clinical knowledge around: PCR testing, immunity, wearing masks, transmission, vaccine, and social distancing.</li> <li>• More evidence is needed, particularly for public health and clinical interventions to successfully prevent and treat infections.</li> </ul>
02.04.2020	<a href="#">Global epidemiology, pathogenesis, immune response, diagnosis, treatment, economic and psychological impact, challenges, and future prevention of COVID-19: A scoping review</a>	medRxiv (not peer-reviewed) / Scoping review	<ul style="list-style-type: none"> <li>• In this scoping review, 50 records published before 28 March, 2020 were included and discussed to better understand the current epidemiology, pathogenesis, immunological response, diagnosis, evasion mechanisms and suggested strategies to boost the immune system, challenges, treatment, and future preventions of the virus.</li> </ul>
28.03.2020	<a href="#">Coronavirus disease 2019 (COVID-19): current status and future perspective</a>	Int J Antimicrob Agents / Review	<ul style="list-style-type: none"> <li>• This review will focus on recent progress regarding the structure of SARS-CoV2 and characteristics of COVID-19, such as aetiology, pathogenesis and epidemiological characteristics.</li> </ul>
27.03.2020	<a href="#">A new threat from an old enemy: Re-emergence of coronavirus (Review)</a>	Int J Mol Med / Review	<ul style="list-style-type: none"> <li>• In the present review, the authors address current knowledge on coronaviruses from a short history to epidemiology, pathogenesis,</li> </ul>

			clinical manifestation of the disease, as well as treatment and prevention strategies.
28.03.2020	<a href="#">The epidemiology, diagnosis and treatment of COVID-19</a>	Int J Antimicrob Agents / Review	<ul style="list-style-type: none"> <li>• This is a review of the literature on all available information about the epidemiology, diagnosis, isolation and treatments of COVID-19.</li> </ul>
28.03.2020	<a href="#">Recent Progress in understanding 2019 Novel Coronavirus associated with Human Respiratory Disease: Detection, Mechanism and Treatment</a>	Int J Antimicrob Agents / Review	<ul style="list-style-type: none"> <li>• A review of available studies by global scientists on the clinical manifestations, detection methods and treatment options of 2019 novel coronavirus pneumonia, and potential strategies for preventing the infection.</li> </ul>
28.03.2020	<a href="#">COVID-19, SARS and MERS: are they closely related?</a>	Clin Microbiol Infect / Review	<ul style="list-style-type: none"> <li>• Provides a review of the differences in terms of pathogenesis, epidemiology and clinical features between COVID-19, SARS and MERS.</li> </ul>

## Infection control

Publication Date	Title/URL	Journal/ Article type	Digest
02.04.2020	<a href="#">Precautions for Operating Room Team Members during the COVID-19 Pandemic</a>	Journal of the American College of Surgeons / Article	<ul style="list-style-type: none"> <li>• Department of Surgery, Stanford University developed an institutional algorithm to protect operating room team members during the COVID-19 pandemic and rationally conserve personal protective equipment (PPE).</li> <li>• A decision tree algorithm describing their institutional guidelines for precautions for operating room team members was created. This algorithm is based on urgency of operation, anticipated viral burden at the surgical site, opportunity for a procedure to aerosolize virus, and likelihood a patient could be infected based on symptoms and testing.</li> </ul>
06.04.2020	<a href="#">Effectiveness of Surgical and Cotton Masks in Blocking SARS-CoV-2: A Controlled Comparison in 4 Patients</a>	Annals of Internal Medicine / Letter	<ul style="list-style-type: none"> <li>• Evaluated the effectiveness of surgical and cotton masks in filtering SARS-CoV-2.</li> <li>• According to this study, both surgical and cotton masks seem to be ineffective in preventing the dissemination of SARS-CoV-2 from the coughs of patients with COVID-19 to the environment and external mask surface.</li> </ul>

28.03.2020	<a href="#">Spinal anaesthesia for patients with coronavirus disease 2019 and possible transmission rates in anaesthetists: retrospective, single-centre, observational cohort study</a>	Br J Anaesth / Article	<ul style="list-style-type: none"> <li>• Spinal anaesthesia was delivered safely in patients with active COVID-19 infection, the majority of whom had Caesarean sections.</li> <li>• Level 3 PPE appears to reduce the risk of transmission to anaesthetists who are exposed to mildly symptomatic surgical patients.</li> </ul>
31.03.2020	<a href="#">Protecting healthcare workers from SARS-CoV-2 infection: practical indications</a>	European Respiratory Review / Article	<ul style="list-style-type: none"> <li>• Article aims to provide evidence-based recommendations for correct use of "respiratory devices" to protect healthcare workers from contracting the SARS-CoV-2 infection.</li> <li>• 1) Risk of transmission during oxygen administration/high flow nasal cannula (HFNC) oxygen therapy, continuous positive airway pressure (CPAP) and non-invasive ventilation (NIV). 2) Safety measures to minimise COVID-19 transmission through contact/droplets. 3) Precautions to minimise transmission in the case of aerosol-generating procedures in COVID-19 patients.</li> </ul>
30.03.2020	<a href="#">Expert opinion of the Working Group on Echocardiography of the Polish Cardiac Society on performing echocardiographic examinations during COVID-19 pandemic</a>	Kardiologia Polska / Expert opinion and position papers	<ul style="list-style-type: none"> <li>• The expert opinion of the Working Group on Echocardiography of the Polish Cardiac Society is that transoesophageal echocardiography is considered an aerosol-generating procedure and should be performed only in lifesaving indications. Personnel should use appropriate personal protection equipment in the immediate vicinity of the patients, according to the relevant guidelines.</li> </ul>
02.04.2020	<a href="#">USE OF A MODIFIED VENTILATION MASK TO AVOID AEROSOLIZING SPREAD OF DROPLETS FOR SHORT ENDOSCOPIC PROCEDURES DURING CORONAVIRUS COVID-19 OUTBREAK</a>	Gastrointestinal Endoscopy / Letter	<ul style="list-style-type: none"> <li>• For endoscopic procedures, prudent to consider all patients as potentially infected, especially in hospitals highly involved in the outbreak.</li> <li>• Authors suggest use of device applied to the patient's face during upper endoscopy to minimize the aerosolization during the procedure, using an anaesthetic face mask applied over a bite block set with O2 tubing and nasal CO2 sampling, through which the endoscope is inserted; to minimize the emission of</li> </ul>

			droplets, a rubber valve made with a glovefinger is put on the endoscope port.
06.04.2020	<a href="#">Emergency Restructuring of a General Surgery Residency Program During the Coronavirus Disease 2019 Pandemic: The University of Washington Experience</a>	JAMA Surgery / Special Communication	<ul style="list-style-type: none"> <li>• This article introduces a unique approach to general surgery resident allocation by dividing patient care into separate inpatient care, operating care, and clinic care teams. Separate teams made up of all resident levels will work in each setting for a 1-week period.</li> <li>• By creating this emergency structure, they have limited the number of surgery residents with direct patient contact and have created teams working in isolation from one another to optimize physical distancing while still performing required work.</li> <li>• Surgical resident team restructuring is critical during a pandemic to optimize patient care and ensure the well-being and vitality of the resident workforce while ensuring the entire workforce is not compromised.</li> </ul>
31.03.2020	<a href="#">Infection control protocol inside computed tomography suites during COVID-19 outbreak</a>	Japanese Journal of Radiology / Letter to the editor	<ul style="list-style-type: none"> <li>• The infection control in CT rooms are an important issue, but usually under-recognized.</li> <li>• There is usually no sufficient fund for rearrangement of the CT room to correspond to COVID-19.</li> <li>• The risk of the radiologists and radiotechnologists who practice in the CT room is also unknown.</li> </ul>
02.04.2020	<a href="#">Understanding the "Scope" of the Problem: Why Laparoscopy is Considered Safe During the COVID-19 Pandemic</a>	The Journal of Minimally Invasive Gynecology / Article	<ul style="list-style-type: none"> <li>• Laparoscopy remains the preferred surgical approach for gynecologic patients during the COVID-19 pandemic for most surgical indications. The theoretical risk of airborne SARS-CoV-2 from an abdominal source at the time of surgery has not been substantiated. There is no current evidence that infection of OR personnel occurs via laparoscopy any more sothan laparotomy surgery. Authors believe laparoscopy offers the opportunity for better containment and filtration of the surgical gas and plume compared with laparotomy.</li> </ul>
31.03.2020	<a href="#">An investigation of transmission control measures during the first 50 days of the COVID-19 epidemic in China</a>	Science / Report	<ul style="list-style-type: none"> <li>• Suspending intra-city public transport, closing entertainment venues and banning public gatherings were associated with reductions in case incidence.</li> <li>• The national emergency response appears to have delayed the growth and limited the size of the COVID-19</li> </ul>

			epidemic in China, averting hundreds of thousands of cases by 19 February (day 50).
06.04.2020	<a href="#">School closure and management practices during coronavirus outbreaks including COVID-19: a rapid systematic review</a>	The Lancet Child & Adolescent Health / Review	<ul style="list-style-type: none"> <li>• It is unknown whether school measures are effective in coronavirus outbreaks. This systematic review was a search of 3 electronic databases to identify what is known about the effectiveness of school closures and other school social distancing practices during coronavirus outbreaks.</li> <li>• 16 of 616 identified articles were included (9 published, 7 non-peer-reviewed).</li> <li>• School closures were deployed rapidly across mainland China and Hong Kong for COVID-19. However, there are no data on the relative contribution of school closures to transmission control. Data from the SARS outbreak in mainland China, Hong Kong, and Singapore suggest that school closures did not contribute to the control of the epidemic.</li> <li>• There is a dearth of quality data on the effect of school measures.</li> </ul>
02.04.2020	<a href="#">Synchronized travel restrictions across cities can be effective in COVID-19 control</a>	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> <li>• Applied the cumulative confirmed cases and mobility data of 350 Chinese cities outside Hubei to explore the relationships between all mobility patterns and epidemic spread, and estimate the impact of local travel restrictions, both in terms of level and timing, on the epidemic control based on mobility change.</li> <li>• The results prove the effectiveness of local travel restrictions and highlight the importance of synchronized implementation of mobility control across cities in mitigating the COVID-19 transmission.</li> </ul>
30.03.2020	<a href="#">Response to the COVID-19 Epidemic: The Chinese Experience and Implications for Other Countries</a>	International Journal of Environmental Research and Public Health	<ul style="list-style-type: none"> <li>• The ongoing outbreak of the COVID-19 that occurred in China is rapidly spreading globally. China's bond and strict containment measures have been proved (in practice) to significantly reduce the spread of the epidemic. This was obtained through the use of emergency control measures in the epidemic areas and the integration of resources from multiple systems, including business, community, technology, education, and transportation, across the country.</li> </ul>

- In order to better understand how China has managed to reduce the public health and economic impacts of the COVID-19 epidemic, this editorial systematically reviews the specific measures for infection prevention and control of the disease. The best practices for COVID-19 eradication in China provide evidence-based strategies that could be replicated in other countries.

## Treatment

Publication Date	Title/URL	Journal/ Article type	Digest
06.04.2020	<a href="#">Single ventilator use to support multiple patients</a>	ECRI Clinical Evidence Assessment / Evidence summary	<ul style="list-style-type: none"> <li>• Mechanical ventilators are intended to support one patient at a time; however, healthcare providers have reported using a single device to support two or four patients during supply shortages driven by disease outbreaks or mass casualty events.</li> <li>• Ventilator sharing may increase ventilation capacity available during a crisis but involves many technical challenges, safety risks, and ethical concerns.</li> </ul>
06.04.2020	<a href="#">Preventing COVID-19-induced pneumonia with anticytokine therapy</a>	The Lancet Rheumatology / Correspondence	<ul style="list-style-type: none"> <li>• This article discusses whether patients with immune-mediated disorders on cytokine inhibitors represent a privileged group who are resistant to COVID-19 disease. Analysis of the cytokine profile characterising severe cases of COVID-19 suggests this assumption might be the case.</li> </ul>
28.03.2020	<a href="#">The cytokine release syndrome (CRS) of severe COVID-19 and Interleukin-6 receptor (IL-6R)</a>	Int J Antimicrob Agents / Article	<ul style="list-style-type: none"> <li>• Interleukin-6 (IL-6) plays an important role in cytokine release syndrome (CRS).</li> </ul>

	<a href="#">antagonist Tocilizumab may be the key to reduce the mortality</a>		<ul style="list-style-type: none"> <li>• Tocilizumab is a blocker of IL-6R, which can effectively block IL-6 signal transduction pathway, so, tocilizumab is likely to become an effective drug for patients with severe COVID-19</li> </ul>
02.04.2020	<a href="#">Tocilizumab, an anti-IL6 receptor antibody, to treat Covid-19-related respiratory failure: a case report</a>	Annals of Oncology / Letter	<ul style="list-style-type: none"> <li>• Case of a patient with a respiratory failure linked to Covid-19 who had a rapid favourable outcome after two infusions of the anti-interleukin 6 receptor inhibitor tocilizumab. This suggests that anti-IL6 receptor inhibitor treatment could decrease the risk of progression toward SARS by mitigating the cytokine storm in the lungs with Covid-19.</li> <li>• Blocking the cytokine axis IL6 appears to us a promising therapy to be studied urgently in patients developing severe acute respiratory syndrome related to coronavirus.</li> </ul>
25.03.2020	<a href="#">COVID-19 and Chloroquine/Hydroxychloroquine: is there Ophthalmological Concern?</a>	American Journal of Ophthalmology / Editorial	<ul style="list-style-type: none"> <li>• Trials of medications to treat COVID-19, include Chloroquine (CQ) and Hydroxychloroquine (HCQ). CQ and HCQ used for systemic lupus erythematosus (SLE) and other rheumatoid diseases. Retinopathy is infrequently seen before 10 or more years of usage at American Academy of Ophthalmology (AAO) recommended dosage of &lt;5 mg/kg real weight.</li> <li>• Some doses proposed to treat COVID-19 4-5 times higher. However French trial using 600 mg/day of HCQ for 10 days to reduce viral load should have no risk of retinopathy in time frame.</li> </ul>

			<ul style="list-style-type: none"> <li>• As new protocols arise these will have to be evaluated relative to the risk of retinopathy that their particular doses and durations of use may pose.</li> </ul>
31.03.2020	<a href="#">COVID-19 and Paediatric Inflammatory Bowel Diseases: Global Experience and Provisional Guidance (March 2020) from the Paediatric IBD Porto group of ESPGHAN</a>	Journal of Pediatric Gastroenterology and Nutrition / Societal paper	<ul style="list-style-type: none"> <li>• Standard Inflammatory Bowel Diseases (IBD) treatments including biologics should continue at present through the pandemic, especially in children who generally have more severe IBD course on one hand, and milder SARS-CoV-2 infection on the other.</li> </ul>
03.04.2020	<a href="#">Core warming of coronavirus disease 2019 (COVID-19) patients undergoing mechanical ventilation: protocol for a randomized controlled pilot study</a>	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> <li>• This prospective single-site randomized controlled pilot study will enrol 20 patients undergoing mechanical ventilation for respiratory failure due to COVID-19. Patients will be randomized 1:1 to standard-of-care or to receive core warming via an oesophageal heat exchanger commonly utilized in critical care and surgical patients. The primary outcome is the severity of acute respiratory distress syndrome (as measured by PaO<sub>2</sub>/FiO<sub>2</sub> ratio) 24 hours after initiation of treatment. Secondary outcomes include hospital and intensive care unit length of stay, duration of mechanical ventilation, amount of viral shedding, and 30-day mortality.</li> <li>• Resulting data will provide effect size estimates to guide a definitive multi-centre randomized clinical trial.</li> </ul>

			<ul style="list-style-type: none"> <li>• ClinicalTrials.gov registration number: pending.</li> </ul>
26.03.2020	<a href="#">Respiratory physiotherapy in patients with COVID-19 infection in acute setting: a Position Paper of the Italian Association of Respiratory Physiotherapists (ARIR)</a>	Monaldi Arch Chest Dis / Guidance	<ul style="list-style-type: none"> <li>• ARIR (Italian Association of Respiratory Therapists) in collaboration with AIFI (Italian Association of Physiotherapists), issued this document to provide a quick respiratory physiotherapist reference guide to set up treatments for the management in acute stages of patients suffering from severe COVID-19.</li> </ul>
02.04.2020	<a href="#">3CL(pro) inhibitors as a potential therapeutic option for COVID-19: Available evidence and ongoing clinical trials</a>	Pharmacological Research / Letter	<ul style="list-style-type: none"> <li>• Review of several promising studies with regard to the mechanism of action and activity of protease inhibitors against SARS-CoVs, there is no sufficient in vitro and in vivo studies against SARS-CoV-2 to confidently use them for COVID-19</li> </ul>
30.03.2020	<a href="#">COVID-19 and non-communicable diseases</a>	Postgraduate Medical Journal / Letter	<ul style="list-style-type: none"> <li>• The most commonly reported non-communicable diseases that have been shown to predict poor prognosis in patients with COVID-19 include diabetes mellitus (DM), hypertension, cerebrovascular disease, coronary artery disease (CAD) and chronic obstructive pulmonary disease (COPD).</li> <li>• Although organisations all over the world recommend the continuation of ACEi/ARBs in patients with diabetes and hypertension largely because of lack of robust data to support their cessation, the authors believe that calcium channel blockers might be a viable</li> </ul>

			alternative, as they do not upregulate ACE2 levels.
31.03.2020	<a href="#">Inefficiency of Sera from Mice Treated with Pseudotyped SARS-CoV to Neutralize 2019-nCoV Infection</a>	Virologica Sinica	<ul style="list-style-type: none"> <li>The results of this study indicate that the sera of mice treated with pseudotyped SARS-CoV exhibited low titer of 2019-nCoV neutralization activity (&lt; 1:100), implying that it may not be practical to treat 2019-nCoV infection with anti-SARS-CoV antibodies and that people with history of SARS-CoV infection many years ago may not be resistant to 2019-nCoV infection.</li> </ul>
29.03.2020	<a href="#">Progress and Prospects on Vaccine Development against SARS-CoV-2</a>	Vaccines (Basel) / Review	<ul style="list-style-type: none"> <li>This review focuses on the progress and prospects in the field of vaccine development against SARS-CoV-2.</li> </ul>
30.03.2020	<a href="#">The First 75 Days of Novel Coronavirus (SARS-CoV-2) Outbreak: Recent Advances, Prevention, and Treatment</a>	International Journal of Environmental Research and Public Health / Article	<ul style="list-style-type: none"> <li>This review aims to critically summarize the most recent advances in understanding the coronavirus, as well as the strategies in prevention and treatment.</li> <li>On the basis of current studies, it would appear that the combined antiviral treatment has shown the highest success rate.</li> </ul>
02.04.2020	<a href="#">Therapeutic Management of COVID-19 Patients: A systematic review</a>	medRxiv (not peer reviewed) / Systematic review	<ul style="list-style-type: none"> <li>This review aimed to report any evidence of therapeutics used for the management of COVID-19 patients in clinical practice since the emergence of the virus.</li> <li>The most common mentioned and reported medicine in this systematic review was corticosteroids (n=25), followed by Lopinavir (n=21) and oseltamivir (n=16).</li> </ul>

Publication Date	Title/URL	Journal/ Article type	Digest
06.04.2020	<a href="#">COVID-19: Peer Support and Crisis Communication Strategies to Promote Institutional Resilience</a>	Annals of Internal medicine / Ideas and Opinions	<ul style="list-style-type: none"> <li>• The authors recommend 3 strategic principles that may be of value for other health care institutions responding to the COVID-19 pandemic: First, provide leadership focused on resilience. Effective crisis management provides a clear, optimistic vision and realistic plan; takes decisive action; and facilitates open, honest, and frequent communication.</li> <li>• Second, structure crisis communications to provide information and empowerment. In the absence of information, imagination and worst-case scenarios rush in. Information can help to reduce anxiety.</li> <li>• Third, create a continuum of staff support within the organization. Leaders should anticipate a surge of mental health concerns among HCWs at all levels. They should normalize these feelings and encourage their expression, advocate personal wellness, and identify support resources.</li> </ul>
06.04.2020	<a href="#">Psychological Impact of the COVID-19 Pandemic on Health Care Workers in Singapore</a>	Annals of Internal Medicine / Letter	<ul style="list-style-type: none"> <li>• Examined the psychological distress, depression, anxiety, and stress experienced by health care workers in Singapore in the midst of the outbreak, and compared these between medically and non-medically trained hospital personnel.</li> <li>• This study highlights that nonmedical health care personnel are at highest risk for psychological distress during the COVID-19 outbreak. Early psychological interventions targeting this vulnerable group may be beneficial.</li> </ul>
30.03.2020	<a href="#">Impact on Mental Health and Perceptions of Psychological Care among Medical and Nursing Staff in Wuhan during the 2019 Novel Coronavirus Disease Outbreak: a Cross-sectional Study</a>	Brain, Behavior, and Immunity / Article	<ul style="list-style-type: none"> <li>• Explored the mental health status of medical and nursing staff and the efficacy, or lack thereof, of critically connecting psychological needs to receiving psychological care, by conducting a quantitative study.</li> <li>• Medical staff experience mental health disturb during the COVID-19 pandemic.</li> <li>• Direct and indirect exposure to COVID-19 affects the mental health profoundly.</li> </ul>

			<ul style="list-style-type: none"> <li>• Psychological materials and resources provide some protection. Interventions with appropriate level are urgent.</li> </ul>
28.03.2020	<a href="#">Using psychoneuroimmunity against COVID-19</a>	Brain Behav Immun / Viewpoint	<ul style="list-style-type: none"> <li>• This Viewpoint addresses both physical and biopsychosocial aspects of Covid-19, as well as the psychoneuroimmunity of preventive strategies of healthy lifestyle, regular exercise, balanced nutrition, quality sleep and a strong connection with people.</li> <li>• Social distancing and wearing masks might help us from pathogen exposure, yet such these measures also prevent us from expressing compassion and friendliness - therefore, all forms of psychological support should be routinely implemented not only to consider psychological resilience but also to enhance psychoneuroimmunity against COVID-19.</li> </ul>
31.03.2020	<a href="#">The outbreak of COVID-19 coronavirus and its impact on global mental health</a>	International Journal of Social Psychiatry / Review article	<ul style="list-style-type: none"> <li>• This outbreak is leading to additional health problems such as stress, anxiety, depressive symptoms, insomnia, denial, anger and fear globally.</li> <li>• Collective concerns influence daily behaviours, economy, prevention strategies and decision-making from policy makers, health organizations and medical centres, which can weaken strategies of COVID-19 control and lead to more morbidity and mental health needs at global level.</li> </ul>
30.03.2020	<a href="#">Applying Palliative Care Principles to Communicate with Children about COVID-19</a>	Journal of Pain and Symptom Management / Article	<ul style="list-style-type: none"> <li>• Children are seeing rapid changes to their routines and facing an unpredictable future. Palliative care teams may consider expanding their communication training and skillsets to help families consider caring ways to communicate with their children and grandchildren about the coronavirus.</li> <li>• Palliative care teams are wise to encourage families to ground their communication with children on key values: honesty and trust, self-compassion, safety, sensitivity, connection, preparedness, community-building, recognition of death as a part of the lifecycle, and legacy.</li> </ul>
04.04.2020	<a href="#">Mental health during and after the COVID-19 emergency in Italy</a>	Psychiatry and Clinical Neurosciences / Letter	<ul style="list-style-type: none"> <li>• Outline potential impacts including protracted social isolation increasing risk of mental disorders such as</li> </ul>

			<p>anxiety, mood, addictive and thought disorders; bereaved suffering complicated grief associated with unexpected death or social isolation or loss of a support system; high risk of acute stress disorder, burn-out syndrome, and full psychiatric disorders for Italian healthcare professionals</p> <ul style="list-style-type: none"> <li>• Many independent mainly on-line initiatives to provide support</li> <li>• Call for active participation of mental health professionals: help better describe the current mental health situation; provide a nationwide, centrally coordinated and more efficient support group; increase the trust between workers and organizations; prevent future dramatic development of full psychiatric disorders, which would be an additional social and economic burden to the oncoming post-epidemic crisis.</li> </ul>
26.03.2020	<a href="#">Community pharmacists and communication in the time of COVID-19: Applying the health belief model</a>	Research in Social and Administrative Pharmacy / Article	<ul style="list-style-type: none"> <li>• Community pharmacists are likely to have a direct role in combating misinformation and helping patients select healthy behaviours. Evidence-based public health frameworks can provide a useful temporary measure, acting as a “checklist” that pharmacists and other healthcare professionals can use to guide their communication and reinforce healthy behaviours.</li> <li>• The Health Belief Model (HBM) was originally developed to study why patients may not seek screening for tuberculosis, and is one of the most prominent public health frameworks for understanding why individuals may or may not act in the face of a threat to personal or community health.</li> <li>• The HBM's constructs of perceived threat, perceived barriers, perceived benefits, perceived self-efficacy, and cues to action can be immediately deployed to help reinforce COVID-19 limiting behaviours, such as social distancing and remaining in the home whenever possible.</li> </ul>
03.04.2020	<a href="#">Anxiety, worry and perceived stress in the world due to the COVID-19</a>	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> <li>• The current emotional state of the general population was surveyed with a web-based survey in</li> </ul>

	<a href="#">pandemic, March 2020. Preliminary results</a>		<p>English and in Spanish, to determine how people perceived stress and worry due to the COVID-19.</p> <ul style="list-style-type: none"> <li>• The authors describe an increase of affective symptoms due to the COVID-19. This pandemic is raising the anxiety levels. The findings of our study show the affective and cognitive alterations people are going through.</li> </ul>
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**Miscellaneous**

Publication Date	Title/URL	Journal/ Article type	Digest
06.04.2020	<a href="#">How to Partner With the Military in Responding to Pandemics—A Blueprint for Success</a>	JAMA Surgery / Viewpoint	<ul style="list-style-type: none"> <li>• For partnership working between the military and health care system to be successful, this viewpoint considers the importance of: institutional commitment, governance and administration, human resources, physical resources, education, and evaluation.</li> </ul>
31.03.2020	<a href="#">Telemedicine in the Time of Coronavirus</a>	Journal of Pain and Symptom Management / Journal pre-proof	<ul style="list-style-type: none"> <li>• The authors share tips to support palliative care clinicians and program leaders in providing the best care possible by telemedicine.</li> <li>• Covers telemedicine set-up, patient considerations, and clinician considerations.</li> <li>• Next steps include ensuring equitable access to affordable telemedicine technology for vulnerable populations through creative solutions and financing, and dedicated attention to telemedicine evaluation and quality improvement.</li> </ul>
05.04.2020	<a href="#">Urban Intelligence for Pandemic Response: Viewpoint</a>	JMIR Public Health and Surveillance / Article	<ul style="list-style-type: none"> <li>• Overview of city-level information, in combination with analytical and operational capacity, that define urban intelligence for supporting response to disease outbreaks.</li> <li>• Present five components (movement, facilities, people, information, engagement) previously investigated but remain siloed to successfully orchestrate an integrated pandemic response.</li> <li>• Discuss the opportunities, technical challenges, and foreseeable controversies for deploying urban intelligence during a pandemic. Emphasize the urgency of building urban</li> </ul>

			intelligence through cross-disciplinary research and collaborative practice at the global scale.
30.03.2020	<a href="#">Maximizing the Calm Before the Storm: Tiered Surgical Response Plan for Novel Coronavirus (COVID-19)</a>	Journal of the American College of Surgeons / Article	<ul style="list-style-type: none"> <li>• Many hospitals, healthcare networks, and specifically Departments of Surgery are asking the same questions of how to cope and plan for surge capacity, personnel attrition, novel infrastructure utilization, and resource exhaustion.</li> <li>• This article presents a tiered plan for surgical department planning based on incident command levels. This includes Acute Care Surgeon deployment (given their critical care training and vertically integrated position in the hospital), recommended infrastructure and transfer utilization, triage principles, and faculty, resident and advanced care practitioner deployment.</li> </ul>

## Modelling

Publication Date	Title/URL	Journal/ Article type	Digest
01.04.2020	<a href="#">The effect of non-pharmaceutical interventions on COVID-19 cases, deaths and demand for hospital services in the UK: a modelling study</a>	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> <li>• Used a stochastic age-structured transmission model to explore a range of intervention scenarios. Simulated different durations of interventions and triggers for introduction, as well as combinations of interventions. For each scenario, they projected estimated new cases over time, patients requiring inpatient and critical care (intensive care unit, ICU) treatment, and deaths.</li> <li>• Found that mitigation measures aimed at reducing transmission would likely have decreased the reproduction number, but not sufficiently to prevent ICU demand from exceeding NHS availability. To keep ICU bed demand below capacity in the model, more extreme restrictions were necessary. In a scenario where "lockdown"-type interventions were put in place to reduce transmission, these interventions would need to be in place for a large proportion of the coming year in order to prevent healthcare demand exceeding availability.</li> </ul>
02.04.2020	<a href="#">Dynamics of COVID-19 epidemics: SEIR models underestimate peak infection rates and overestimate epidemic duration</a>	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> <li>• Compartment models of infectious diseases, such as SEIR, are being used extensively to model the COVID-19 epidemic.</li> <li>• The authors show that a SEIR model overestimates epidemic durations and substantially underestimates peak infection rates, by factors of 2 and 3 respectively using published parameter estimates based on the progress of the epidemic in Wuhan.</li> </ul>

02.04.2020	<a href="#">Explaining national differences in the mortality of Covid-19: individual patient simulation model to investigate the effects of testing policy and other factors on apparent mortality</a>	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> <li>• An individual patient simulation model was developed to address the apparent differences in mortality between countries reporting on the confirmed cases and deaths due to Covid-19.</li> <li>• Under all scenarios the proportion of patients tested in the community had the greatest impact on apparent mortality.</li> <li>• Whilst differences in mortality due to health service and demographic factors cannot be excluded, the current international differences in reported mortality are all consistent with differences in practice regarding screening, community testing and admission policies.</li> </ul>
02.04.2020	<a href="#">COVID-19 scenario modelling for the mitigation of capacity-dependent deaths in intensive care: computer simulation study</a>	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> <li>• The aim of this study was to estimate the extent to which capacity-dependent deaths can be mitigated through demand-side initiatives involving non-pharmaceutical interventions and supply-side measures to increase surge capacity or reduce length of stay.</li> <li>• Concluded that without treatment or vaccination there is little that can be done to reduce deaths occurring when patients have otherwise been treated in the most appropriate hospital setting. Healthcare planners should therefore focus on minimising the capacity-dependent deaths that are within their influence.</li> </ul>
01.04.2020	<a href="#">Dynamic Estimation of Epidemiological Parameters of COVID-19 Outbreak and Effects of Interventions on Its Spread</a>	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> <li>• Provide a comprehensive retrospection on how the disease had progressed in Wuhan from Jan 19 to Mar 5, 2020. Particularly, they estimate that the outbreak sizes by January 23 and March 5 were 11,239 and 124,506, respectively. The effective reproduction number attained its maximum on January 24 and became less than 1 from February 7.</li> <li>• Also estimate the effects of two major government interventions on the spread of COVID-19 in Wuhan.</li> </ul>

Produced by the PHE COVID-19 Literature Digest Team

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