



## International EPI Cell Daily Evidence Digest – 08/04/2020

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

Please note that we are including preprints (**highlighted in red**), which are preliminary reports of work that have NOT been peer-reviewed.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
01.04.2020	<a href="#">Virological assessment of hospitalized patients with COVID-2019</a>	Nature / Article	<ul style="list-style-type: none"><li>• Provide a detailed virological analysis of nine cases, providing proof of active virus replication in upper respiratory tract tissues. Pharyngeal virus shedding was very high during the first week of symptoms. Infectious virus was readily isolated from throat- and lung-derived samples, but not from stool samples, in spite of high virus RNA concentration. Blood and urine never yielded virus. Active replication in the throat was confirmed by viral replicative RNA intermediates in throat samples.</li><li>• Seroconversion occurred after 7 days in 50% of patients (14 days in all), but was not followed by a rapid decline in viral load. COVID-19 can present as a mild upper respiratory tract illness. Active virus replication in the upper respiratory tract puts the prospects of COVID-19 containment in perspective.</li></ul>
01.04.2020	<a href="#">INCIDENTAL FINDINGS SUGGESTIVE OF COVID-19 IN ASYMPTOMATIC PATIENTS</a>	J Nucl Med / Article	<ul style="list-style-type: none"><li>• Infection with SARS-CoV-2 may remain asymptomatic, leading to under-recognition of the related disease, COVID-19, and to incidental findings in nuclear</li></ul>

	<a href="#">UNDERGOING NUCLEAR MEDICINE PROCEDURES IN A HIGH PREVALENCE REGION</a>		<p>imaging procedures performed for standard clinical indications. Here, the authors report about their local experience in a region with high COVID-19 prevalence and dynamically increasing infection rates.</p> <ul style="list-style-type: none"> <li>• Six of 65 patients (9%) that underwent PET/CT for various malignancies showed unexpected signs of interstitial pneumonia on CT and elevated regional FDG-avidity. Additionally, 1 of 12 patients who received radioiodine for differentiated thyroid carcinoma also showed interstitial pneumonia on SPECT/CT. 5/7 patients had subsequent proof of COVID-19 by RT-PCR. The remaining 2 patients were not tested immediately but underwent quarantine and careful monitoring.</li> <li>• Incidental findings suggestive of COVID-19 may not be infrequent in hybrid imaging of asymptomatic patients, in regions with expansive spread of SARS-CoV-2. Nuclear medicine services should prepare accordingly.</li> </ul>
06.04.2020	<a href="#">High-Sensitivity Cardiac Troponin Can Be An Ally in the Fight Against COVID-19</a>	Circulation / Article	<ul style="list-style-type: none"> <li>• Authors argue that, taken together with clinical assessment and the electrocardiogram, elevations of cardiac troponin can inform the diagnosis of a number of cardiac conditions related to COVID-19.</li> <li>• We must take advantage of all available prognostic markers to identify patients with important systemic consequences of COVID-19 and determine those at highest risk of adverse outcomes as early as possible. Troponin should be considered an ally and a crucial diagnostic and prognostic aid.</li> </ul>
01.04.2020	<a href="#">Proposal of a low-dose, long-pitch, dual-source chest CT protocol on third-generation dual-source CT using a tin filter for spectral shaping at 100 kVp for CoronaVirus Disease 2019 (COVID-19) patients: a feasibility study</a>	Radiol Med / Article	<ul style="list-style-type: none"> <li>• Evaluated the feasibility and diagnostic reliability of a low-dose, long-pitch dual-source chest CT protocol on third-generation dual-source CT (DSCT) with spectral shaping at 100Sn kVp for COVID-19 patients.</li> <li>• Concluded that ultra-low-dose, dual-source, fast CT protocol provides highly diagnostic images for COVID-19 with potential for reduction in dose and motion artefacts.</li> </ul>
07.04.2020	<a href="#">A Systematic Meta-Analysis of CT Features of COVID-19: Lessons from Radiology</a>	medRxiv (not peer-reviewed)/ Review	<ul style="list-style-type: none"> <li>• Systematic analysis and meta-review of the reported CT features of COVID-19 and disease pattern and progression in different clinical stages. They short-listed and reviewed 49 studies including over 4145 patients with 3615 RT-PCR positive cases of COVID-19 disease.</li> <li>• 78% of patients with RT-PCR confirmed COVID-19 infections had either ground-glass opacities, consolidation or both.</li> <li>• Inter-lobular septal thickening was also found to be a common feature in many patients in advanced stages.</li> </ul>
01.04.2020	<a href="#">Our Italian Experience Using Lung Ultrasound for Identification, Grading and Serial Follow-up of Severity of Lung Involvement for Management of Patients with COVID-19</a>	Echocardiography / Review	<ul style="list-style-type: none"> <li>• Lung ultrasound (LU) has rapidly become a tool for assessment of patients with COVID-19. Over the past two and a half months the authors have used LU for identification of lung involvement along with pulmonary severity in patients with suspected or documented COVID-19 infection.</li> </ul>

			<ul style="list-style-type: none"> <li>• Use of LU has helped them in clinical decision making and reduced the use of both chest x-rays and computed tomography (CT).</li> </ul>
08.04.2020	<a href="#">POCUS in COVID-19: pearls and pitfalls</a>	The Lancet Respiratory Medicine / Correspondence	<ul style="list-style-type: none"> <li>• Lung ultrasound could replace stethoscopes in the ongoing COVID-19 pandemic, which could possibly reduce the risk of exposure</li> <li>• Point-of-care ultrasound (POCUS) technology is still relatively new so we would like to highlight the pearls and pitfalls for POCUS users to use this tool to its full potential and ensure optimal patient care and safety.</li> <li>• The extra precision and safety new technology brings must be embraced but its limitations and optimisation must be understood</li> </ul>
01.04.2020	<a href="#">Novel coronavirus in a 15-day-old neonate with clinical signs of sepsis, a case report</a>	Infect Dis (Lond) / Case report	<ul style="list-style-type: none"> <li>• A 15-day-old neonate was admitted with fever, lethargy, cutaneous mottling, and respiratory distress without cough. His mother had symptoms of Novel coronavirus.</li> <li>• RT-PCR assay was done for the neonate and showed to be positive. The newborn was isolated and subjected to supportive care. Antibiotic and antiviral treatment was initiated. Eventually, the baby was discharged in good general condition.</li> <li>• When a new-born presents with non-specific symptoms of infection with an added history of COVID-19 in his/her parents, it indicates the need for PCR testing for Novel coronavirus.</li> </ul>
07.04.2020	<a href="#">Estimating false-negative detection rate of SARS-CoV-2 by RT-PCR</a>	medRxiv (not peer-reviewed)/ Article	<ul style="list-style-type: none"> <li>• The authors analysed publicly available data from patients who received multiple RT-PCR tests and were identified as SARS-CoV-2 positive at least once.</li> <li>• They identify that the probability of a positive test decreases with time after symptom onset, with throat samples less likely to yield a positive result relative to nasal samples.</li> </ul>
02.04.2020	<a href="#">SARS-CoV-2 is not detectable in the vaginal fluid of women with severe COVID-19 infection</a>	Clinical infectious diseases / Article	<ul style="list-style-type: none"> <li>• The evidence of genital infection potential was assessed by testing for the presence of SARS-CoV-2 in vaginal fluids obtained from vaginal swab samples from 10 women with confirmed severe COVID-19 pneumonia admitted to in Tongji Zhongfa Hospital ICU ward from Feb 4, 2020 to Feb 24, 2020.</li> <li>• All ten patients were tested for SARS-CoV-2 in vaginal fluid, and all samples tested negative for the virus via RT-PCR.</li> <li>• Findings from this small group of cases suggest that no SARS-CoV-2 virus existing in the vaginal fluids of severe COVID-19 patients.</li> </ul>
01.04.2020	<a href="#">Differences between COVID-19 and suspected then confirmed SARS-CoV-2-negative pneumonia: a retrospective study from a single center</a>	J Med Virol / Research article	<ul style="list-style-type: none"> <li>• Aimed to distinguish SARS-CoV-2-positive patients from SARS-CoV-2-negative patients.</li> <li>• Retrospectively compared the data of COVID-19 patients with those of suspected and confirmed SARS-CoV-2-negative patients (control patients). There were 78 COVID-19 patients and 26 control patients.</li> <li>• Younger age, exposure to Wuhan, fever, cough, and slight changes in routine</li> </ul>

			blood work-up parameters, urea and creatinine were important features discriminating COVID-19 from control patients. Slightly increased, but far less than 0.5ng/ml, PCT levels also differentiated COVID-19 patients from control patients
07.04.2020	<a href="#">A globally available COVID-19 - Template for clinical imaging studies</a>	medRxiv (not peer-reviewed)/ Article	<ul style="list-style-type: none"> <li>• An evidence-based reporting template is described, used for assessing COVID-19 pneumonia to provide a joint approach to collect, analyse and share clinical and imaging information.</li> </ul>
06.04.2020	<a href="#">Structural Variations in Human ACE2 may Influence its Binding with SARS-CoV-2 Spike Protein</a>	Journal of Medical Virology / Research Article	<ul style="list-style-type: none"> <li>• The findings of this study provide structural basis of potential resistance against SARS-CoV-2 infection driven by ACE2 allelic variants.</li> </ul>
01.04.2020	<a href="#">Computational inference of selection underlying the evolution of the novel coronavirus, SARS-CoV-2</a>	J Virol / Article	<ul style="list-style-type: none"> <li>• The authors investigated how, since its divergence from a closely related bat virus, natural selection shaped the genome of SARS-CoV-2.</li> <li>• They found that distinct coding regions in the SARS-CoV-2 genome evolve under different degrees of constraint and are consequently more or less prone to tolerate amino acid substitutions. In practical terms, the level of constraint provides indications about which proteins/protein regions are better suited as possible targets for the development of antivirals or vaccines.</li> <li>• They also detected limited signals of positive selection in three viral ORFs. However, they warn that, in the absence of knowledge about the chain of events that determined the human spill-over, these signals should not be necessarily interpreted as evidence of an adaptation to our species.</li> </ul>
01.04.2020	<a href="#">Isolation and full-length genome characterization of SARS-CoV-2 from COVID-19 cases in Northern Italy</a>	J Virol / Research letter	<ul style="list-style-type: none"> <li>• Describes the isolation and full-length genome characterization of SARS-CoV-2 from COVID-19 cases in Northern Italy (n=4).</li> </ul>
01.04.2020	<a href="#">Isolation and rapid sharing of the 2019 novel coronavirus (SAR-CoV-2) from the first patient diagnosed with COVID-19 in Australia</a>	Med J Aust / Research article	<ul style="list-style-type: none"> <li>• Describes the first isolation and sequencing of SARS-CoV-2 in Australia and rapid sharing of the isolate.</li> <li>• WGS of the viral isolate and phylogenetic analysis indicated the isolate exhibited greater than 99.99% sequence identity with other publicly available SARS-CoV-2 genomes.</li> </ul>

## Epidemiology and clinical

Publication Date	Title/URL	Journal/ Article type	Digest
06.04.2020	<a href="#">COVID-19 infection in a paucisymptomatic infant: Raising the index of suspicion in epidemic settings</a>	Pediatric Pulmonology / Case report	<ul style="list-style-type: none"> <li>• Authors present the case of a 32-day-old boy infected by COVID-19 that presented with an upper air way infection which resolved spontaneously and did not require any therapy. They argue that in epidemic settings children presenting with any mild symptom potentially</li> </ul>

			attributable to COVID-19 should be considered contagious until proven otherwise, and that management must be guided by clinical conditions.
06.04.2020	<a href="#">A comparative-descriptive analysis of clinical characteristics in 2019-Coronavirus-infected children and adults</a>	Journal of Medical Virology / Article	<ul style="list-style-type: none"> <li>• Study to comparatively analyse the clinical characteristics of 2019-nCoV infection in children and adults and to explore the possible causes for the discrepancies present.</li> <li>• Medical records of 25 adults and 7 children confirmed cases of 2019-nCoV ARD were reviewed retrospectively. All children were family clusters. The median incubation period of children and adults was 5 days (range 3-12 days) and 4 days (range 2-12 days), respectively. Diarrhoea and/or vomiting (57.1%) were more common in children, whereas for adults it was myalgia or fatigue (52%). On admission, the percentage of children having pneumonia (5, 71.4%) was roughly the same as adults (20, 80%). 20% of adults had leucopenia, but leucocytosis was more frequently in children (28.6%, P=0.014). A higher number of children had elevated creatine kinase isoenzyme (57.1% vs. 4%, P=0.004).</li> </ul>
07.04.2020	<a href="#">Clinical characteristics of COVID-19 infection in pregnant women: a systematic review and meta-analysis</a>	medRxiv (not peer-reviewed)/ Review	<ul style="list-style-type: none"> <li>• Systemic review and Meta-analysis to measure the risks and presentations of COVID-19 in pregnant women and new-borns, including 7 studies (50 participants).</li> <li>• Findings showed same clinical characteristics in pregnant women as in non-pregnant adults, with the main symptoms being cough and fever.</li> <li>• No vertical transmission was seen and all patients delivered healthy neonates.</li> </ul>
02.04.2020	<a href="#">Vertical Transmission of Coronavirus Disease 19 (COVID-19) from Infected Pregnant Mothers to Neonates: A Review</a>	Fetal and pediatric pathology / Review	<ul style="list-style-type: none"> <li>• Reviewed the risk of vertical transmission of COVID-19 to the foetus of infected mothers by using data of published articles or official websites up to March 4, 2020.</li> <li>• A total of 31 infected pregnant mothers with COVID-19 were reported. No COVID-19 infection was detected in their neonates or placentas. Two mothers died from COVID-19-related respiratory complications after delivery.</li> <li>• Currently, based on limited data, there is no evidence for intrauterine transmission of COVID-19 from infected pregnant women to their foetuses. Mothers may be at increased risk for more severe respiratory complications.</li> </ul>
17.03.2020	<a href="#">Risk factors associated with disease progression in a cohort of patients infected with the 2019 novel coronavirus</a>	Ann Palliat Med	<ul style="list-style-type: none"> <li>• A cohort of 17 patients with laboratory-confirmed 2019-nCoV infections admitted to the Ninth Hospital of Nanchang between Jan 28 and Feb 6, 2020, were enrolled in this study. The clinical, radiologic, and laboratory characteristics were retrospectively analysed, and the factors associated with the disease progression were screened by binary logistic regression analysis.</li> <li>• Concluded that a higher cell count of total lymphocytes may indicate a better outcome of the disease, and immune response may be a vital factor for directing disease progression in the early stage of 2019-nCoV infection.</li> </ul>
31.03.2020	<a href="#">COVID-19 in Kidney Transplant Recipients</a>	Am J Transplant / Case report	<ul style="list-style-type: none"> <li>• Short article reporting the outcomes of two deceased-donor kidney transplant recipients with COVID-19 pneumonia admitted to the Hospital of Parma, Italy.</li> </ul>
01.04.2020	<a href="#">Clinical findings in a patient with hemophilia A affected by COVID-19</a>	Haemophilia / Case report	<ul style="list-style-type: none"> <li>• Case report concluding that clinical manifestations and outcomes of this mild COVID-19 patient with haemophilia were similar to that in non-hemophilic individuals. Mild infection of SARS-CoV-2</li> </ul>

			may not increase the occurrence of bleeding events in homophilic cases. Such cases may benefit from administration of replacement factors at the onset of COVID-19.
07.04.2020	<a href="#">The relationship of COVID-19 severity with cardiovascular disease and its traditional risk factors: A systematic review and meta-analysis</a>	medRxiv (not peer-reviewed)/ Review	<ul style="list-style-type: none"> <li>• Systematic review of studies (15 papers with 51,845 COVID-19 patients) exploring pre-existing CVD and its traditional risk factors, as risk factors of severe COVID-19 (defined as death, acute respiratory distress syndrome, mechanical ventilation, or intensive care unit admission).</li> <li>• Factors significantly associated with severe COVID-19 were male sex, hypertension, and CVD.</li> <li>• Meta-regression analyses were suggestive of confounding by age for the other three factors.</li> </ul>
31.03.2020	<a href="#">Hypertension and its severity or mortality in Coronavirus Disease 2019 (COVID-19): a pooled analysis</a>	Pol Arch Intern Med / Review	<ul style="list-style-type: none"> <li>• Evaluated the association of hypertension and severe and fatal COVID-19.</li> <li>• Hypertension was associated with a nearly 2.5-fold significantly increased risk of severe COVID-19 disease, as well as with a similarly significant higher risk of mortality. In meta-regression, a significant correlation was observed with an increase in mean age of patients with severe COVID-19 associated with increased log odds of hypertension and severity (<math>p=0.03</math>).</li> <li>• The results of this pooled analysis of the current scientific literature would suggest that hypertension may be associated with an up to 2.5-fold higher risk of severe and fatal COVID-19, especially among older individuals.</li> </ul>
03.04.2020	<a href="#">Preliminary Estimates of the Prevalence of Selected Underlying Health Conditions Among Patients with Coronavirus Disease 2019 - United States, February 12-March 28, 2020</a>	MMWR. Morbidity and mortality weekly report / Article	<ul style="list-style-type: none"> <li>• As of March 28, 2020, U.S. states and territories have reported 122,653 U.S. COVID-19 cases to CDC, including 7,162 (5.8%) for whom data on underlying health conditions and other known risk factors for severe outcomes from respiratory infections were reported. Among these 7,162 cases, 2,692 (37.6%) patients had one or more underlying health condition or risk factor, and 4,470 (62.4%) had none of these conditions reported.</li> <li>• The percentage of COVID-19 patients with at least one underlying health condition or risk factor was higher among those requiring intensive care unit (ICU) admission (358 of 457, 78%) and those requiring hospitalization without ICU admission (732 of 1,037, 71%) than that among those who were not hospitalized (1,388 of 5,143, 27%). The most commonly reported conditions were diabetes mellitus, chronic lung disease, and cardiovascular disease.</li> <li>• These preliminary findings suggest that in the United States, persons with underlying health conditions or other recognized risk factors for severe outcomes from respiratory infections appear to be at a higher risk for severe disease from COVID-19 than are persons without these conditions.</li> </ul>
07.04.2020	<a href="#">Clinical and epidemiological characteristics of Coronavirus Disease 2019 (COVID-19) patients</a>	medRxiv (not peer-reviewed)/ Review	<ul style="list-style-type: none"> <li>• A systematic review and pooled analysis of clinical and epidemiological characteristics of COVID-19 covering 69 studies (involving 48,926 patients).</li> <li>• Hypertension (50.82%) and diabetes (20.89%) most frequent comorbidities.</li> <li>• Most common symptoms were fever (83.21%), cough (61.74%), and myalgia or fatigue (30.22%).</li> <li>• 78.50% of patients had bilateral lung involvements, and 5.86% showed no CT findings indicative of viral pneumonia.</li> <li>• Acute respiratory distress syndrome (28.36%), acute cardiac injury (7.89%) and acute kidney injury (7.60%) were the most common complications.</li> </ul>

07.04.2020	<a href="#">The clinical characteristics of COVID-19: a retrospective analysis of 104 patients from the outbreak on board the Diamond Princess cruise ship in Japan</a>	medRxiv (not peer-reviewed)/ Article	<ul style="list-style-type: none"> <li>• Retrospective, single-centre study included 104 patients with laboratory-confirmed COVID-19 from the mass infection on the Diamond Princess cruise ship from February 11 to February 25, 2020.</li> <li>• 43, 41, and 20 patients on admission and 33, 43, and 28 patients at the end of observation had asymptomatic, mild, and severe COVID-19, respectively.</li> <li>• Lactate dehydrogenase level is a potential predictor of symptom onset in COVID-19.</li> <li>• Older age, consolidation on chest CT images, and lymphopenia might be risk factors for disease progression of COVID-19 and contribute to the clinical management.</li> </ul>
07.04.2020	<a href="#">A territory-wide study of early COVID-19 outbreak in Hong Kong community: A clinical, epidemiological and phylogenomic investigation</a>	medRxiv (not peer-reviewed)/ Article	<ul style="list-style-type: none"> <li>• Analysis of the demographic, clinical and epidemiological data from 50 COVID-19 patients, who accounted for 53.8% of the cases in Hong Kong by the end of February 2020.</li> </ul>
06.04.2020	<a href="#">Critically ill patients with COVID-19 in Hong Kong: a multicentre retrospective observational cohort study</a>	Critical Care and Resuscitation Journal / Article	<ul style="list-style-type: none"> <li>• Report the first eight cases of critically ill patients with COVID-19 in Hong Kong, describing the treatments and supportive care they received and their 28-day outcomes.</li> <li>• Concluded that critically ill patients with COVID-19 often require a moderate duration of mechanical ventilation and vasopressor support. Most of these patients recover and survive to ICU discharge with supportive care using lung protective ventilation strategies, avoiding excess fluids, screening and treating bacterial co-infection, and timely intubation. Lower rather than upper respiratory tract viral burden correlates with clinical severity of illness.</li> </ul>
07.04.2020	<a href="#">Validation of reported risk factors for disease classification and prognosis in COVID-19: a descriptive and retrospective study</a>	medRxiv (not peer-reviewed)/Article	<ul style="list-style-type: none"> <li>• Review of risk indicators in 132 COVID-19 patients showed that CRP, PCT, IL-6, LYM%, lactic acid and viral load could predict prognosis and guide classification.</li> <li>• The authors concluded that LYM% was the most sensitive and reliable predictor for disease typing and prognosis.</li> </ul>
07.04.2020	<a href="#">Sudden hyposmia as a prevalent symptom of COVID-19 infection</a>	medRxiv (not peer-reviewed)/ Article	<ul style="list-style-type: none"> <li>• A case report on six Italian patients with COVID-19 who presented sudden hyposmia as the only or most prominent manifestation of COVID-19, without upper or lower respiratory tract involvement or other major features of the disease.</li> </ul>
07.04.2020	<a href="#">Longitudinal analysis of laboratory findings during the process of recovery for patients with COVID-19</a>	medRxiv (not peer-reviewed)/ Article	<ul style="list-style-type: none"> <li>• The study explored longitudinal change patterns of key laboratory tests in patients with COVID-19, and independent prognostic factors.</li> <li>• Age, Eosinophil, platelet counts and CO2 may be used to predict the recovery probability.</li> </ul>
07.04.2020	<a href="#">EARLY DETECTION OF COVID-19</a>	medRxiv (not peer-reviewed)/ Review	<ul style="list-style-type: none"> <li>• The authors use retrospective methodology to collect available data on early sign and symptoms of COVID-19 through accessing World Health Organization (WHO) webpages and renowned journal publications.</li> <li>• They measured significant correlation of development of COVID-19 with fever 64.11%, cough 65% and dry mucus 19.67% equally sensitive, leukopenia 19.06%, lymphopenia 52.93%,</li> </ul>

			thrombopenia 19.1%, elevated Aspartate aminotransferase 12.79% and elevated Alanine aminotransferase 11.34%.
07.04.2020	<a href="#">Initial evidence of higher morbidity and mortality due to SARS-CoV-2 in regions with lower air quality</a>	medRxiv (not peer-reviewed)/ Article	<ul style="list-style-type: none"> <li>• The authors correlate higher mortality from COVID-19 with poor air quality, namely with high PM2.5, CO and NO2 values.</li> <li>• Similar to smoking, people living in polluted areas are more vulnerable to SARS-CoV-2 infections and induced mortality.</li> </ul>
07.04.2020	<a href="#">Plasma Metabolomic and Lipidomic Alterations Associated with COVID-19</a>	medRxiv (not peer-reviewed)/Article	<ul style="list-style-type: none"> <li>• In this study, plasma from a cohort of COVID-19 patients who had experienced different symptoms were analysed.</li> <li>• They found the metabolite and lipid alterations appeared to correlate with the course of disease, indicating that the development of COVID-19 affected patient metabolism.</li> </ul>
08.04.2020	<a href="#">What Other Countries Can Learn From Italy During the COVID-19 Pandemic</a>	JAMA Internal Medicine / Viewpoint	<ul style="list-style-type: none"> <li>• The number of cases and deaths in Italy cannot be explained simply because the epidemic started in Italy earlier compared with other countries (besides China).</li> <li>• It is important to understand why death rates were so high in Italy to learn how to best prepare and how to plan for optimal actions in other countries.</li> <li>• Some contributing factors may be immutable (e.g., age structure of the population), but even these need to be laid out carefully in preparedness assessments.</li> </ul>
06.04.2020	<a href="#">COVID-19 and liver disease</a>	Liver International / Commentary	<ul style="list-style-type: none"> <li>• Authors provide a short and schematic overview of the implications for clinical hepatologists and researchers in the field based on the first available data: Clinical features and liver injury in patients with COVID-19; Clinical implications for the management of liver injury during COVID-19; Prevention measures to consider in liver clinics; Unmet clinical needs and main research questions.</li> </ul>
06.04.2020	<a href="#">COVID-19 and Urology: A Comprehensive Review of the Literature</a>	BJU International / Review	<ul style="list-style-type: none"> <li>• In this review authors discuss the impact of Covid-19 on global health, urinary tract and uro-oncologic surgeries . Additionally, they reviewed some of the available recommendations reported on oncological surgeries practice during this pandemic.</li> </ul>
01.04.2020	<a href="#">Mobile field hospitals, an effective way of dealing with COVID-19 in China: sharing our experience</a>	Biosci Trends / Article	<ul style="list-style-type: none"> <li>• In China, mobile field hospitals have played a huge role in the centralized management of patients and they have effectively reduced transmission. This article describes some of the authors experiences operating mobile field hospitals in order to provide a reference and to better inform countries that are dealing with this crisis.</li> </ul>
06.04.2020	<a href="#">Impact of the COVID-19 pandemic on Parkinson's disease and movement disorders</a>	Movement Disorders / Article	<ul style="list-style-type: none"> <li>• Authors discuss the significance of COVID-19 with respect to the central nervous system and its relevance for patients with Parkinson's disease (PD) or other movement disorders.</li> </ul>
01.04.2020	<a href="#">Temporary Emergency Guidance to US Stroke Centers During the COVID-19 Pandemic</a>	Stroke / Guidance	<ul style="list-style-type: none"> <li>• Temporary statement issued by the AHA/ASA Stroke Council as an interim stopgap opinion, pending a more thorough and considered process. It is pointed out that ordinarily, national recommendations go through a rigorous process of development, refinement, peer review, and thoughtful promulgation. None of that is possible at this time, yet they believe there is a substantial need for a broad policy statement that reflects both the commonality of the pandemic across the US and the individual variability necessary at local sites.</li> </ul>

01.04.2020	<a href="#">Protected Code Stroke: Hyperacute Stroke Management During the Coronavirus Disease 2019 (COVID-19) Pandemic</a>	Stroke / Special report	<ul style="list-style-type: none"> <li>The authors introduce the concept of a protected code stroke during a pandemic, as in the case of COVID-19, and provide a framework for key considerations including screening, personal protective equipment, and crisis resource management. These considerations and suggested algorithms can be utilized and adapted for local practice.</li> </ul>
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## Infection control

Publication Date	Title/URL	Journal/ Article type	Digest
07.04.2020	<a href="#">Can N95 respirators be reused after disinfection? And for how many times?</a>	medRxiv (not peer-reviewed)/Article	<ul style="list-style-type: none"> <li>The authors investigate the conditions that would allow the safe reuse of respirators in healthcare settings during COVID-19 pandemic.</li> <li>They found that heating (&lt;100 °C) under various humidities (up to 100% RH at 75 °C) and ultraviolet (UV) irradiation were the most promising candidates for mask reuse in the modern hospital infrastructure (up to 20 cycles), when tested on a fabric with particle filtration efficiency ≥95%.</li> </ul>
06.04.2020	<a href="#">Reducing hand recontamination of health workers during COVID-19</a>	Infection Control & Hospital Epidemiology / Letter	<ul style="list-style-type: none"> <li>A neglected aspect of hand hygiene is the risk of touching surfaces or objects that could recontaminate hands after hand rubbing/washing, whether gloves worn or not. Recommendations for behaviour change follow Michie's principles for behaviour change during the COVID-19 pandemic.</li> </ul>
06.04.2020	<a href="#">Coronavirus Disease (COVID-19): Characteristics in children and considerations for Dentists providing their care</a>	International Journal of Paediatric Dentistry / Editorial	<ul style="list-style-type: none"> <li>Dental practices are focal points for cross-infection. The COVID-19 disease epidemiological and clinical characteristics are still being collated but children's symptoms seem to be milder than those that adults experience. It is unknown whether certain groups, for example, children with comorbidities, might be at a higher risk of more severe illness.</li> <li>Article reports current data on the paediatric population affected with COVID-19 and highlight considerations for dentists providing care for children during this pandemic.</li> </ul>
07.04.2020	<a href="#">Efficacy of face mask in preventing respiratory virus transmission: a systematic review and meta-analysis</a>	medRxiv (not peer-reviewed)/ Review	<ul style="list-style-type: none"> <li>Systematic Review and Meta-Analysis (including 21 studies) to investigate whether masks have a protective effect on the spread of respiratory viruses.</li> <li>Meta-analyses suggest that mask use provided a significant protective effect.</li> <li>Use of masks by healthcare workers (HCWs) and non-healthcare workers (Non-HCWs) can reduce the risk of respiratory virus infection by 80% and 47%.</li> <li>The protective effect of wearing masks in Asia appeared to be higher than that of Western countries.</li> <li>Masks had a protective effect against influenza viruses, SARS, and SARS-CoV-2.</li> </ul>

07.04.2020	<a href="#">Face mask use in the general population and optimal resource allocation during the COVID-19 pandemic</a>	medRxiv (not peer-reviewed)/ Article	<ul style="list-style-type: none"> <li>• The authors examined the role of face masks in mitigating the spread of COVID-19 using epidemic models to estimate reduction of infections and deaths.</li> <li>• They suggest face masks can reduce infections and deaths, and delay the peak time of the epidemic.</li> <li>• Random distribution of masks in the population was a suboptimal, but prioritising among the most at risk individuals and diagnosed infected cases was most beneficial.</li> </ul>
07.04.2020	<a href="#">Toilets dominate environmental detection of SARS-CoV-2 virus in a hospital</a>	medRxiv (not peer-reviewed)/Article	<ul style="list-style-type: none"> <li>• Study of environment contamination of COVID-19 in one hospital.</li> <li>• The faecal-derived aerosols in patients' toilets contained most of the detected SARS-CoV-2 virus in the hospital, highlighting the importance of surface and hand hygiene for intervention.</li> </ul>
02.04.2020	<a href="#">Incidence of novel coronavirus (2019-nCoV) infection among people under home quarantine in Shenzhen, China</a>	Travel medicine and infectious disease / Pre-proof article	<ul style="list-style-type: none"> <li>• A total of 2004 people under home quarantine participated in this study, of which 1637 participants finished the questionnaire with a response rate of 81.7%. Of people who provided clear travel history, 129 people have travelled to Wuhan city and 1,046 people have travelled to other cities in Hubei province within 14 days before the home quarantine. Few (less than 1%) participants reported contact history with confirmed or suspected cases during their trip and most of these arrived at Shenzhen between Jan 24, 2020 to Jan 27, 2020. The incidence of COVID-19 in the sample was 1.5 per thousand (95% CI: 0.31 per thousand-4.37 per thousand).</li> <li>• Home quarantine has been effective in preventing the early transmission of COVID-19, but that more needs to be done to improve early detection of COVID-19 infection.</li> </ul>
08.04.2020	<a href="#">The Challenge of Preventing COVID-19 Spread in Correctional Facilities</a>	JAMA / Perspective	<ul style="list-style-type: none"> <li>• Social distancing to minimize transmission of coronavirus disease 2019 (COVID-19) is virtually impossible in correctional facilities, whose residents live in close confinement, share toilets and showers, and typically sit shoulder-to-shoulder in mess halls.</li> <li>• The Centres for Disease Control and Prevention (CDC) notes that people who are incarcerated or detained in a particular facility often come from a variety of locations, increasing the chance of introducing COVID-19</li> <li>• Options to isolate people with COVID-19 are usually limited, and many facilities restrict access to soap and paper towels and ban alcohol-based hand sanitizers.</li> </ul>
01.04.2020	<a href="#">Peer-to-Peer Contact Tracing: A Privacy-Preserving Smartphone Application</a>	JMIR Public Health Surveill / Article	<ul style="list-style-type: none"> <li>• The authors propose the use of an anonymized graph of interpersonal interactions to conduct a novel form of contact tracing, and develop a proof-of-concept smartphone application which implements this approach. Additionally, they develop a computer simulation model which demonstrates the impact of our</li> </ul>

			proposal on epidemic or pandemic outbreak trajectories across multiple rates of adoption.
07.04.2020	<a href="#">Little Risk of the COVID-19 Resurgence on Students in China (outside Hubei) Caused by School Reopening</a>	medRxiv (not peer-reviewed)/ Article	<ul style="list-style-type: none"> <li>• The authors quantitatively evaluated the risk of COVID-19 infections on students caused by potential school reopening in China.</li> <li>• The probability of COVID-19 resurgence within one week on students of primary, middle and high schools in China (outside Hubei) is extremely low (&lt;0.2%) in each province/city.</li> </ul>
07.04.2020	<a href="#">Indoor transmission of SARS-CoV-2</a>	medRxiv (not peer-reviewed)/ Article	<ul style="list-style-type: none"> <li>• The authors identified all outbreaks involving three or more cases in China between 4 January and 11 February 2020 and reviewed the major characteristics of the enclosed spaces in which the outbreaks were reported.</li> <li>• Of 318 outbreaks, those in the home were most common (79.9%), followed by transport (34.0%).</li> <li>• All identified outbreaks of three or more cases occurred in an indoor environment, which confirms that sharing indoor space is a major SARS-CoV-2 infection risk.</li> </ul>

## Treatment

Publication Date	Title/URL	Journal/ Article type	Digest
06.04.2020	<a href="#">Triage Considerations for Patients Referred for Structural Heart Disease Intervention During the Coronavirus Disease 2019 (COVID-19) Pandemic: An ACC /SCAI Consensus Statement</a>	Catheterization and Cardiovascular Interventions / Original Study	<ul style="list-style-type: none"> <li>• Authors suggest guidelines for triaging patients in need of valvular and structural heart disease interventions and framework for deciding when appropriate to proceed with intervention - in particular triage of patients in need of transcatheter aortic valve replacement and percutaneous mitral valve repair. Also procedural issues and considerations for function of structural heart disease teams during the COVID-19 pandemic.</li> <li>• An American College of Cardiology (ACC) and Society for Cardiovascular Angiography and Interventions (SCAI) Consensus Statement.</li> </ul>
06.04.2020	<a href="#">Kidney diseases in the time of COVID-19: major challenges to patient care</a>	Journal of Clinical Investigation / Viewpoint	<ul style="list-style-type: none"> <li>• COVID-19 pandemic presents profound consequences for patients with kidney disease, health care providers, and biomedical researchers. Author discusses a number of kidney-specific aspects of COVID-19 infection, noting therapeutic and basic research opportunities.</li> </ul>
06.04.2020	<a href="#">Biologic therapy for psoriasis during the covid-19 outbreak is not a choice</a>	Journal of Dermatological Treatment / Letter	<ul style="list-style-type: none"> <li>• Criticize article calling to limit and/or reduce the time of administration of biologic drugs for psoriasis, 'preferring topical and/or drugs with a low impact on the immune system until certain data'.</li> <li>• Lack of direct evidence to support the choice of one biologic drug rather than</li> </ul>

			another in SARS-CoV-2 patients. Crucial for our community to learn of more cases of psoriatic patients under biologic treatment who have developed COVID-19.
06.04.2020	<a href="#">Hypertension and COVID-19</a>	American Journal of Hypertension / Editorial Commentary	<ul style="list-style-type: none"> <li>• There is as yet no evidence that hypertension is related to outcomes of COVID-19, or that ACE inhibitor or ARB use is harmful, or for that matter beneficial, during the COVID-19 pandemic. Use of these agents should be maintained for the control of blood pressure, and they should not be discontinued, at least on the basis of current evidence at this time.</li> </ul>
07.04.2020	<a href="#">A Simulated Single Ventilator / Dual Patient Ventilation Strategy for Acute Respiratory Distress Syndrome During the COVID-19 Pandemic</a>	medRxiv (not peer-reviewed)/Article	<ul style="list-style-type: none"> <li>• Through modelling the authors suggest that with appropriate modifications, two patients could be supported from a single ventilator with independent control of tidal volumes.</li> </ul>
01.04.2020	<a href="#">Potential covalent drugs targeting the main protease of the SARS-CoV-2 coronavirus</a>	Bioinformatics / Article	<ul style="list-style-type: none"> <li>• Compared with traditional non-covalent drugs, covalent drugs have attracted escalating attention in recent years due to their advantages in potential specificity upon careful design, efficiency, and patient burden. The authors recently developed a computational protocol named as SCAR for discovering covalent drugs.</li> <li>• They used the SCAR protocol to identify possible covalent drugs (approved or clinically tested) targeting the main protease (3CLpro) of SARS-CoV-2. They identified 11 potential hits, among which at least 6 hits were exclusively enriched by the SCAR protocol.</li> <li>• Since the preclinical or clinical information of these identified drugs is already available, they might be ready for being clinically tested in the treatment of COVID-19.</li> </ul>
31.03.2020	<a href="#">Chloroquine in COVID-19: the evidence</a>	Monaldi Arch Chest Dis / Letter	<ul style="list-style-type: none"> <li>• Correspondence containing a table summarising the trials/studies published thus far on the role of chloroquine in COVID-19.</li> </ul>
01.04.2020	<a href="#">Treating COVID-19 with Chloroquine</a>	J Mol Cell Biol / Research article	<ul style="list-style-type: none"> <li>• Report initial results from a clinical study to evaluate the efficacy and safety of Chloroquine in hospitalized patients with COVID-19. Included Lopinavir/Ritonavir treatment as a control group. 22 patients who met the inclusion criteria tested positive for SARS-CoV-2 by RT-PCR assay before enrolment.</li> <li>• Preliminary results suggest that Chloroquine could be an effective and inexpensive option among many proposed therapies, e.g. Lopinavir/Ritonavir.</li> </ul>
06.04.2020	<a href="#">Computational studies of drug repurposing and synergism of lopinavir, oseltamivir and ritonavir binding with SARS-CoV-2 Protease against COVID-19</a>	Journal of Biomolecular Structure and Dynamics / Letter	<ul style="list-style-type: none"> <li>• The combination of three known drugs, lopinavir, oseltamivir and ritonavir has been proposed to control the virulence to a great extent in COVID-19 affected patients within 48 hours.</li> <li>• Authors tried to understand the effect of synergism of these drugs against the SARS-CoV-2 protease using sequential docking studies: combination of three drugs showed a better binding energy than that of individual drugs.</li> <li>• The complex was subjected to molecular dynamics simulations to get insights</li> </ul>

			into the stability of the complex, considering the simultaneous interactions between three drugs and the protein. The protein complexed with three drugs remained stable during the simulations.
07.04.2020	<a href="#">The potential of low molecular weight heparin to mitigate cytokine storm in severe covid-19 patients: a retrospective clinical study</a>	medRxiv (not peer-reviewed)/Article	<ul style="list-style-type: none"> <li>• 42 patients with COVID-19, half treated with Low molecular weight heparin (LMWH) and half not, were retrospectively analysed to compare and evaluate its effect on disease progression.</li> <li>• Serum biochemical indicators differed between the two groups, showing that LMWH improved the coagulation dysfunction of these COVID-19 patients.</li> <li>• LMWH may be a potential therapeutic drug for the treatment of COVID-19 to reduce cytokine storm.</li> </ul>
06.04.2020	<a href="#">Potential harmful effects of discontinuing ACE-inhibitors and ARBs in COVID-19 patients</a>	ELife / Short report	<ul style="list-style-type: none"> <li>• Response to suggestion that ACEis and ARBs would be harmful in SARS-CoV-2-infected subjects. Instead evidence that the ACE-1/angiotensin(Ang)II/ATR-1 pathway is involved in SARS-CoV-2-induced ARDS, while the ACE-2/Ang(1-7)/ATR2/MasR pathway counteracts the harmful actions of AngII in the lung.</li> <li>• A reduced ACE-1/ACE-2 ratio is a feature of ARDS that can be rescued by human recombinant ACE-2 and Ang(1-7) administration, thus preventing SARS-CoV-2-induced damage to the lung.</li> <li>• Based on the current clinical evidence treatment with ACE-inhibitors I (ACEis) or angiotensin receptor blockers (ARBs) continues to provide cardiovascular and renal protection in patients diagnosed with COVID-19. Discontinuing these medications may therefore be potentially harmful in this patient population.</li> </ul>

## Social sciences

Publication Date	Title/URL	Journal/ Article type	Digest
08.04.2020	<a href="#">COVID-19, school closures, and child poverty: a social crisis in the making</a>	The Lancet Public Health / Comment	<ul style="list-style-type: none"> <li>• Two mechanisms through which school closures will affect poor children in the USA and Europe are discussed.</li> <li>• At the local level, an adequate response must include targeted education and material support for children from low-income households to begin to close the learning gap that is likely to have occurred.</li> <li>• From a policy perspective, legislators should consider providing regular income support for households with children during the impending economic crisis to prevent a deepening and broadening of child poverty</li> </ul>
08.04.2020	<a href="#">The French response to COVID-19: intrinsic difficulties at the interface of science, public health, and policy</a>	The Lancet Public Health / Correspondence	<ul style="list-style-type: none"> <li>• Faced with criticisms, French authorities claim that their policy towards the SARS-CoV-2 pandemic has been evidence-based—they appointed an advisory board of 11 scientists to help manage the crisis.</li> </ul>

			<ul style="list-style-type: none"> <li>• However, in situations where decision makers face radical uncertainty, sticking to conventional approaches might jeopardise the science-policy interface.</li> </ul>
06.04.2020	<a href="#">A global needs assessment in times of a global crisis: world psychiatry response to the COVID-19 pandemic</a>	BJPsych Open / Editorial	<ul style="list-style-type: none"> <li>• The COVID-19 pandemic has social and psychological ramifications. This editorial outlines 8 key challenges for psychiatry, 5 key psychiatric research themes, and serves as a preliminary framework of what needs to be addressed - at an international level.</li> </ul>
06.04.2020	<a href="#">Mitigating and learning from the impact of COVID-19 infection on addictive disorders</a>	Addiction / Editorial	<ul style="list-style-type: none"> <li>• People with addictive disorders are particularly badly affected by the pandemic and measures used to address it, as a result of poverty, physical and mental health vulnerabilities and disruption of access to services. The pandemic may well increase the extent and severity of some addictive disorders.</li> <li>• Current research is suffering from the termination of face-to-face data collection and other restrictions.</li> <li>• This editorial summarises many of the issues and calls for a co-ordinated national and international effort to address them and find innovative ways of continuing to provide clinical and public health services to help people with addictive disorders.</li> </ul>
31.03.2020	<a href="#">Balancing Health Privacy, Health Information Exchange and Research in the Context of the COVID-19 Pandemic</a>	J Am Med Inform Assoc / Article	<ul style="list-style-type: none"> <li>• This paper discusses proposed changes to privacy regulations such as the Health Insurance Portability and Accountability act (HIPAA) designed to let health information seamlessly flow between the health entities that need to collaborate on treatment of patients and, also, allow it to flow to researchers trying to understand how to limit its impacts.</li> </ul>
08.04.2020	<a href="#">Understanding and Addressing Sources of Anxiety Among Health Care Professionals During the COVID-19 Pandemic</a>	JAMA / Viewpoint	<ul style="list-style-type: none"> <li>• This Viewpoint summarizes key considerations for supporting the health care workforce so health care professionals are equipped to provide care for their patients and communities.</li> <li>• Few of these considerations and suggestions have substantial evidence to support them; they are based on experience, direct requests from health care professionals, and common sense.</li> </ul>
08.04.2020	<a href="#">US Public Concerns About the COVID-19 Pandemic From Results of a Survey Given via Social Media</a>	JAMA Internal Medicine / Survey	<ul style="list-style-type: none"> <li>• This survey study aimed to rapidly assess public concerns about the COVID-19 crisis in the US before shelter-in-place orders were widely implemented</li> <li>• Concerns about COVID-19, symptoms, and individual actions in response to the pandemic were assessed.</li> </ul>
02.04.2020	<a href="#">Preventive Behaviors Conveyed on YouTube to Mitigate Transmission of COVID-19: Cross-Sectional Study</a>	JMIR Public Health and Surveillance / Article	<ul style="list-style-type: none"> <li>• At the time of this study, there were no published studies investigating the content of YouTube videos related to COVID-19. This study aims to address this gap in the current knowledge.</li> <li>• The 100 most widely viewed YouTube videos uploaded throughout the month of January 2020 were reviewed and the content covered was described. Collectively, these videos were viewed over 125 million times.</li> </ul>

			<ul style="list-style-type: none"> <li>• Fewer than one-third of the videos covered any of the seven key prevention behaviours listed on the US Centres for Disease Control and Prevention website. These results represent an important missed opportunity for disease prevention.</li> </ul>
07.04.2020	<a href="#">An "Infodemic": Leveraging High-Volume Twitter Data to Understand Public Sentiment for the COVID-19 Outbreak</a>	medRxiv (not peer-reviewed)/Article	<ul style="list-style-type: none"> <li>• Observational study to quantify and understand early changes in Twitter activity, content, and sentiment about the COVID-19 epidemic.</li> <li>• Nearly half of all tweets expressed fear and nearly 30% expressed surprise.</li> <li>• The frequency of racially charged tweets closely paralleled the number of newly diagnosed cases of COVID-19.</li> <li>• The economic and political impact of the COVID-19 was the most commonly discussed topic, while public health risk and prevention were among the least discussed.</li> </ul>

### Miscellaneous

Publication Date	Title/URL	Journal/ Article type	Digest
08.04.2020	<a href="#">Making decisions to mitigate COVID-19 with limited knowledge</a>	The Lancet Infectious Diseases / Correspondence	<ul style="list-style-type: none"> <li>• During this urgent phase of the COVID-19 pandemic, decisions at the level of the public health response or clinical management have to be made using the scarce data available.</li> </ul>
01.04.2020	<a href="#">The fiscal value of human lives lost from coronavirus disease (COVID-19) in China</a>	BMC Res Notes / Article	<ul style="list-style-type: none"> <li>• Estimated the fiscal value of human lives lost due to COVID-19 in China as of 24th February 2020.</li> <li>• The deaths from COVID-19 had a discounted (at 3%) total fiscal value of Int\$ 924,346,795 in China. Out of which, 63.2% was borne by people aged 25-49 years, 27.8% by people aged 50-64 years, and 9.0% by people aged 65 years and above. The average fiscal value per death was Int\$ 356,203. Re-estimation of the economic model alternately with 5% and 10 discount rates led to a reduction in the expected total fiscal value by 21.3% and 50.4%, respectively. Furthermore, the re-estimation of the economic model using the world's highest average life expectancy of 87.1 years (which is that of Japanese females), instead of the national life expectancy of 76.4 years, increased the total fiscal value by Int\$ 229,456,430 (24.8%).</li> </ul>
06.04.2020	<a href="#">Richard Lehman's covid-19 reviews—6 April 2020</a>	BMJ / Review	<ul style="list-style-type: none"> <li>• In this weekly round-up, Richard Lehman looks at a personal selection of articles of relevance to clinicians dealing with covid-19</li> </ul>

### Modelling

Publication Date	Title/URL	Journal/ Article type	Digest
08.04.2020	<a href="#">Invisible spread of SARS-CoV-2</a>	The Lancet Infectious Diseases / Correspondence	<ul style="list-style-type: none"> <li>• Covid-19 modelling would be more instructive if it considered comparisons between absence of, presence of, or delays in lockdown.</li> </ul>
07.04.2020	<a href="#">Estimating number of cases and spread of Coronavirus disease 2019 (COVID-19) in the United Kingdom using critical care admissions, February to March 2020</a>	medRxiv (not peer-reviewed)/ Article	<ul style="list-style-type: none"> <li>• Reported cases in the UK are likely a small fraction of total infections because most COVID19 cases are mild or even asymptomatic.</li> <li>• An exponential growth model was fitted to critical care admissions to determine likely case numbers and growth in the UK from 16 February - 23 March 2020.</li> <li>• They estimate that on 23 March, there were 102,000 new cases and 320 new critical care reports, with 464,000 cumulative cases since 16 February.</li> </ul>
07.04.2020	<a href="#">Generic probabilistic modelling and non-homogeneity issues for the UK epidemic of COVID-19</a>	medRxiv (not peer-reviewed)/ Article	<ul style="list-style-type: none"> <li>• The authors describe a flexible modelling approach to analyse different scenarios relevant to the COVID-19 situation in the UK</li> <li>• The analysis shows that due to variation in timing of the epidemic across different areas of the UK, the severity of the epidemic might be lower than expected from other models.</li> <li>• They find that one of the most crucial control parameters <math>c</math> is the degree of separation of vulnerable people and people aged 70 years and over.</li> </ul>
07.04.2020	<a href="#">Feasibility of Controlling COVID-19 Outbreaks in the UK by Rolling Interventions</a>	medRxiv (not peer-reviewed)/ Article	<ul style="list-style-type: none"> <li>• The authors describe a model to attempt to measure the impact of mitigation, suppression and multiple rolling interventions for controlling COVID-19 outbreaks in London and the UK.</li> <li>• They estimated that given that multiple interventions have an intensity range from 3 to 15, an optimal strategy was to take suppression with intensity 3 in London from 23rd March for 100 days, and 3 weeks rolling intervention with intensity between 3 and 5 in non-London regions.</li> <li>• In this scenario, the total infections and deaths in the UK were limited to 2.43 million and 33.8 thousand.</li> </ul>
07.04.2020	<a href="#">Explaining the Bomb-Like Dynamics of COVID-19 with Modeling and the Implications for Policy</a>	medRxiv (not peer-reviewed)/ Article	<ul style="list-style-type: none"> <li>• The authors demonstrate the bomb-like behaviour of exponential growth in COVID-19 cases can be explained by transmission of asymptomatic and mild cases that are typically unreported at the beginning of pandemic events due to lower prevalence of testing.</li> </ul>
07.04.2020	<a href="#">COVID-19 health care demand and mortality in Sweden in response to non-pharmaceutical (NPIs) mitigation and suppression scenarios</a>	medRxiv (not peer-reviewed) / Article	<ul style="list-style-type: none"> <li>• The authors analyse the potential consequences of different response strategies to COVID-19 within Sweden, the resulting demand for care, critical care, deaths and their associated direct health care related costs.</li> </ul>
07.04.2020	<a href="#">Mitigating COVID-19 outbreak via high testing capacity and strong transmission-intervention in the United States</a>	medRxiv (not peer-reviewed)/ Article	<ul style="list-style-type: none"> <li>• Results from a mathematical model for the United States that characterizes infections by state and incorporates movement of travellers.</li> <li>• Modelling reveals that curbing interstate travel when the disease is already widespread will make little difference.</li> </ul>

			<ul style="list-style-type: none"> <li>• Increased testing capacity and strict social-distancing and self-quarantine rules are effective in abating the outbreak.</li> </ul>
07.04.2020	<a href="#">Estimate of the development of the epidemic reproduction number <math>R_t</math> from Coronavirus SARS-CoV-2 case data and implications for political measures based on prognostics</a>	medRxiv (not peer-reviewed)/ Article	<ul style="list-style-type: none"> <li>• Authors completed estimation of the evolution of the reproduction number for viral spreading in Germany and its federal states.</li> <li>• Germany is currently, April 3rd, 2020, at the border line of a reproduction number between the scenarios of major immunisation of the population or eradication of the virus.</li> <li>• The authors recommend to keep all non-pharmaceutical interventions (NPIs) such as social distancing in place and strengthen the measures in order to control transmission and limiting collateral damage of the NPIs.</li> </ul>
07.04.2020	<a href="#">Susceptible supply limits the role of climate in the COVID-19 pandemic</a>	medRxiv (not peer-reviewed)/Article	<ul style="list-style-type: none"> <li>• This modelling study suggests that climate may drive only modest changes to COVID-19 pandemic size and duration, and that summer temperatures will not substantially limit pandemic growth.</li> </ul>
07.04.2020	<a href="#">A mechanistic population balance model to evaluate the impact of interventions on infectious disease outbreaks: Case for COVID19</a>	medRxiv (not peer-reviewed)/Article	<ul style="list-style-type: none"> <li>• The authors developed a population balanced model to predict impact of interventions on COVID-19.</li> <li>• The impact of social distancing, use of PPE, number of critical care beds and testing on the total fatalities is described.</li> </ul>
07.04.2020	<a href="#">Proteomic and Metabolomic Characterization of COVID-19 Patient Sera</a>	medRxiv (not peer-reviewed)/Article	<ul style="list-style-type: none"> <li>• The authors used a machine learning model to successfully predict disease severity in 46 COVID-19 patients using proteomic and metabolomic profiling of sera.</li> </ul>

**Produced by the PHE COVID-19 Literature Digest Team**

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