



International EPI Cell Daily Evidence Digest – 05/05/2020

This Daily Evidence Digest is produced by the PHE COVID-19 Literature Digest Team as a resource for professionals working in public health. We do not accept responsibility for the availability, reliability or content of the items included in this resource and do not necessarily endorse the views expressed within them. The papers are organised under the following themes:

- Diagnostics
- Genomics
- Epidemiology and clinical - children and pregnancy
- Epidemiology and clinical - risk factors
- Epidemiology and clinical - other
- Infection control
- Treatment
- Social sciences
- Miscellaneous
- Modelling
- Guidance, consensus statements and hospital resources (no digest)
- Overviews, comments and editorials (no digest)

Please note that we are including preprints (**highlighted in red**), which are preliminary reports of work that have NOT been peer-reviewed.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

Publication Date	Title/URL	Journal/ Article type	Digest
04.05.2020	Is the 'Lifelight' app adequately validated for blood pressure measurement?	Oxford COVID-19 Evidence Service / Rapid review	<ul style="list-style-type: none">• 'Lifelight First' is a smartphone app that attempts to measure pulse, respiratory rate and blood pressure without making physical contact with the patient.• The authors believe that a Medtech Innovation Briefing (MIB213) by

			NICE (which links to other NICE guidance on three care pathways: management of hypertension, managing acutely ill patients with covid-19, and national early warning scores which aim to identify deteriorating patients) is premature and suggest that it should be withdrawn pending further studies.
03.05.2020	Detection of SARS-CoV-2-specific humoral and cellular immunity in COVID-19 convalescent individuals	Immunity / Report	<ul style="list-style-type: none"> • SARS-CoV-2-specific antibodies are detected in COVID-19 convalescent subjects. • Most COVID-19 convalescent individuals have detectable neutralizing antibodies. • Neutralization antibody titers correlate with the numbers of virus-specific T cells.
27.04.2020	Performance Characteristics of the Abbott Architect SARS-CoV-2 IgG Assay and Seroprevalence Testing in Idaho	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • Authors evaluated the Abbott SARS-CoV-2 IgG test for detection of anti-SARS-CoV-2 IgG antibodies by testing 3 distinct patient populations. Data demonstrate excellent analytical performance of the Abbott SARS-CoV-2 IgG test as well as the limited circulation of the virus on the West Coast.
26.04.2020	Comparing the analytical performance of three SARS-CoV-2 molecular diagnostic assays	J Clin Virol / Article	<ul style="list-style-type: none"> • Study comparing the validation of three different molecular assays at the Johns Hopkins Molecular Virology laboratory: the RealStar® SARS-CoV-2 RT-PCR, ePlex® SARS-CoV-2, and the CDC COVID-19 RT-PCR tests. • Overall, results indicate a comparable analytical performance of the three assays for the detection of SARS-CoV-2.
28.04.2020	Pre-test probability for SARS-Cov-2-related Infection Score: the PARIS score	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • PARIS score, based on complete white blood cell count, has good performance to categorize pre-test probability of SARS-CoV-2 infection. 100 subjects with clinical suspicion of COVID-19 in training cohort, 300 other consecutive individuals in validation cohort. • It could: help clinicians avoid diagnostic tests in patients with a low-probability score, conversely keep on testing individuals with high-probability score but negative RT-PCR or CT, prove helpful in countries with a low-availability of PCR and/or CT during the current period of pandemic.
02.05.2020	Immune environment modulation in pneumonia patients caused by coronavirus: SARS-CoV, MERS-CoV and SARS-CoV-2	Ageing (Albany NY) / Research article	<ul style="list-style-type: none"> • Study highlighting the key cytokines induced by coronavirus infections. • Subsequent investigation of 463 patients with COVID-19 disease revealed the decreased amount of total lymphocytes, CD3+, CD4+, and CD8+ T lymphocytes in the severe type patients which indicated COVID-19 can impose hard blows on human lymphocyte resulting in lethal pneumonia. Thus, taking control of changes in immune factors could be critical in the treatment of COVID-19.

29.04.2020	Plasma IP-10 and MCP-3 levels are highly associated with disease severity and predict the progression of COVID-19	Journal of Allergy and Clinical Immunology / Journal pre-proof	<ul style="list-style-type: none"> • Forty-eight cytokines in the plasma samples from 50 COVID-19 cases including 11 critically ill, 25 severe and 14 moderate patients were measured and analysed in combination with clinical data. • In this study, the authors report biomarkers that are highly associated with disease severity and progression of COVID-19.
29.04.2020	Type I IFN immunoprofiling in COVID-19 patients	Journal of Allergy and Clinical Immunology / Journal pre-proof	<ul style="list-style-type: none"> • In this study, the authors assessed the kinetics of plasma IFN-I in COVID-19 patients with a spectrum of severity degree. • The authors provide new arguments for an early intervention with recombinant IFN-α2 and highlight the window of opportunity for immunosuppressors at the second phase of the disease.
02.05.2020	Typical radiological progression and clinical features of patients with coronavirus disease 2019	Aging (Albany NY) / Research article	<ul style="list-style-type: none"> • CT was used to evaluate the radiological characteristics of 66 COVID-19 patients. • The predominant features of lesion were scattered (43/66, 65%), bilateral (50/66, 76%), ground-glass opacity (64/66, 97%), and air bronchogram sign (47/66, 71%). Forty-eight patients (48/66, 73%) had more than two lobes involved. • The typical radiology features of COVID-19 patients are scattered ground-glass opacity in the bilateral lobes.
28.04.2020	Postmortem Lung Findings in an Asthmatic with Coronavirus Disease 2019 (COVID-19)	Chest / Case report - pre-proof	<ul style="list-style-type: none"> • The authors report the post-mortem lung findings from a 37-year-old asthmatic man, who met the clinical criteria for severe acute respiratory distress syndrome and died of COVID-19 less than two weeks after presentation to the hospital. • His lungs showed mucus plugging and other histologic changes attributable to asthma, as well as early diffuse alveolar damage (DAD) and a fibrinous pneumonia.
27.04.2020	Distinguishing L and H phenotypes of COVID-19 using a single x-ray image	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • Two types of COVID-19 response: an H phenotype with high lung elastance and weight: patients have pneumonia-like thickening of lungs and require ventilation to survive; L phenotype with low measures: clearer lungs that may be injured by mechanical assistance. • L- and H-type patients identified from frontal chest x-rays using feature-embedded machine learning. Multiple images from same patient so detect and monitor progression and recovery. • Results give an immediate criterion for coronavirus triage and provide a methodology for respiratory diseases beyond COVID-19.
28.04.2020	The Diagnosis of Pneumonia in a Pregnant Woman with COVID-19 Using Maternal Lung Ultrasound	American Journal of Obstetrics and Gynecology / Journal pre-proof	<ul style="list-style-type: none"> • The authors suggest point of care lung ultrasound examination as a diagnostic imaging tool in pregnant women with suspected COVID-19.

Genomics

Publication Date	Title/URL	Journal/ Article type	Digest
28.04.2020	Genomic Epidemiology of SARS-CoV-2 in Guangdong Province, China	Cell / Article	<ul style="list-style-type: none"> Generated 53 genomes from infected individuals in Guangdong using a combination of metagenomic sequencing and tiling amplicon approaches. Combined epidemiological and phylogenetic analyses indicate multiple independent introductions to Guangdong, although phylogenetic clustering is uncertain because of low virus genetic variation early in the pandemic. Genomic and epidemiological analyses provide insights into how COVID-19 was contained in China's most populous province using a combination of surveillance and travel restriction measures.
01.05.2020	SARS-CoV-2 spike protein predicted to form stable complexes with host receptor protein orthologues from mammals, but not fish, birds or reptiles	bioRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> Authors analyse interactions between spike protein and orthologues of ACE2 and TMPRSS2 from a broad range of 215 vertebrate species. Also provide phylogenetic evidence that SARS-CoV-2 has recently transmitted from humans to animals. Results suggest that SARS-CoV-2 can infect a broad range of mammals - but not fish, birds or reptiles - which could serve as reservoirs of the virus, necessitating careful ongoing animal management and surveillance.
22.04.2020	Functional and Genetic Analysis of Viral Receptor ACE2 Orthologs Reveals a Broad Potential Host Range of SARS-CoV-2	bioRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> Study demonstrates that ACE2 from a broad range of species can facilitate SARS-CoV-2 entry. Functional assays showed that 44 of these mammalian ACE2 orthologs, including those of domestic animals, pets, livestock, and animals commonly found in zoos and aquaria, could bind SARS-CoV-2 spike protein and support viral entry. Findings highlight a potentially broad host tropism of SARS-CoV-2; suggest it might be distributed much more widely than previously recognized, underscoring necessity to monitor susceptible hosts to prevent future outbreaks.
01.05.2020	SARS-CoV-2 is well adapted for humans. What does this mean for re-emergence?	bioRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> Comparison of evolutionary dynamics shows SARS-CoV-2 resembles SARS-CoV in late phase of 2003 epidemic after it had developed several advantageous adaptations for human transmission. Observations suggest when SARS-CoV-2 first detected in late 2019, it was already pre-adapted to human transmission. Sudden appearance of a highly infectious SARS-CoV-2 is a major concern. Describe and advocate for measured and effective approaches

			implemented in 2002-2004 SARS outbreaks to identify lingering population(s) of progenitor virus.
28.04.2020	A Multibasic Cleavage Site in the Spike Protein of SARS-CoV-2 Is Essential for Infection of Human Lung Cells	Molecular Cell / Short article	<ul style="list-style-type: none"> • The spike protein of SARS-CoV-2 harbours a multibasic S1/S2 site. • The host cell protease furin cleaves the SARS-CoV-2 spike protein at the S1/S2 site. • Cleavage at the S1/S2 site is essential for spike-driven viral entry into lung cells.
01.05.2020	Rampant C->U hypermutation in the genomes of SARS-CoV-2 and other coronaviruses – causes and consequences for their short and long evolutionary trajectories	bioRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • Evidence that much of sequence change in SARS-CoV-2 may be driven by a host APOBEC-like editing process - profound implications for understanding short and long term evolution. • Repeated cycles of mutation and reversion in favoured mutational hotspots and widespread occurrence of amino acid changes with no adaptive value for the virus represents a different paradigm of virus sequence change from neutral and Darwinian evolutionary frameworks that are typically used in molecular epidemiology investigations.
26.04.2020	Emergence of Drift Variants That May Affect COVID-19 Vaccine Development and Antibody Treatment	Pathogens / Article	<ul style="list-style-type: none"> • As the disease has grown to become a pandemic, B-cell and T-cell epitopes predicted from SARS coronavirus have been reported. Using the epitope information along with variants of the virus, the authors have found several variants which might cause drifts. • Among such variants, 23403A>G variant (p.D614G) in spike protein B-cell epitope is observed frequently in European countries, such as the Netherlands, Switzerland, and France, but seldom observed in China.
03.05.2020	Design of an Epitope-Based Peptide Vaccine against the Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2): A Vaccine Informatics Approach	bioRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • Immunoinformatic study identified 15 antigenic peptides (including T and B Cells) in surface glycoprotein of SARS-CoV-2 which are 100% conserved with other SARS coronaviruses. • Population coverage analysis found CD4+ T-cell peptides showed higher cumulative population coverage over to CD8+ peptides in the 16 different geographical regions in the world. • Only 9 out of 15 peptides have 80%-90% identity with experimentally identified epitopes of different organisms including SARS-CoV. • Experimental validation by in vitro and in vivo needed.
30.04.2020	Dysregulation in mTOR/HIF-1 signaling identified by proteo-transcriptomics of SARS-CoV-2 infected cells	bioRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • Authors performed an integrative proteo-transcriptomics analysis in SARS-CoV-2 infected HuH7 cells to map cellular response to invading virus over time. Four pathways, ErbB, HIF-1, mTOR and TNF signalling, were markedly modulated during the course of the SARS-CoV-2 infection in vitro. • Western blot validation of the downstream effector molecules of these pathways revealed a significant reduction in activated S6K1 and 4E-BP1 at

			72 hours post infection. <ul style="list-style-type: none"> • Unlike other human respiratory viruses, significant inhibition of HIF-1α through entire time course of the infection, suggesting a crosstalk between the SARS-CoV-2 and the mTOR/HIF-1 signalling.
28.04.2020	Structural and Evolutionary Analysis Indicate That the SARS-CoV-2 Mpro Is a Challenging Target for Small-Molecule Inhibitor Design	International Journal of Molecular Sciences / Article	<ul style="list-style-type: none"> • The authors report on detailed classical and mixed-solvent molecular dynamics simulations of the main protease (Mpro) enriched by evolutionary and stability analysis of the protein.
01.05.2020	Insights into the inhibitory potential of selective phytochemicals against Mpro of 2019-nCoV: a computer-aided study	Struct Chem / Article	<ul style="list-style-type: none"> • Computational study to identify the effective inhibitor candidates against the main protease (Mpro) of 2019-nCoV. • Phytochemicals having immense medicinal properties as ligands were docked against the Mpro of 2019-nCoV to study their binding properties. ADMET and DFT analyses were also further carried out to analyze the potential of these phytochemicals as an effective inhibitor against Mpro of 2019-nCoV.
04.05.2020	A Chemographic Audit of anti-Coronavirus Structure-Activity Information from Public Databases (ChEMBL)	Molecular Informatics / Article	<ul style="list-style-type: none"> • The goal of this audit was to map medicinal chemistry efforts so far targeted against CoVs. • Definition of "anti-CoV" map zones led to selection of 380 potential anti-CoV agents, out of a vast pool of 800M organic compounds.

Epidemiology and clinical - children and pregnancy

Publication Date	Title/URL	Journal/ Article type	Digest
25.04.2020	Analysis of complement deposition and viral RNA in placentas of COVID-19 patients	Ann Diagn Pathol / Article	<ul style="list-style-type: none"> • Study of the placental pathology of five full-term births to COVID-19 patients. All five exhibited histology indicative of foetal vascular malperfusion characterized by focal avascular villi and thrombi in larger fetal vessels. Vascular complement deposition in the placentas was not abnormal, and staining for viral RNA and viral spike protein was negative. • While all cases resulted in healthy, term deliveries, these findings indicate the systemic nature of COVID-19 infection. The finding of vascular thrombosis without complement deposition may reflect the systemic nature of COVID-19's procoagulant effects unrelated to systemic complement activation.

Epidemiology and clinical - risk factors

Publication Date	Title/URL	Journal/ Article type	Digest
28.04.2020	COVID-19 presenting as stroke	Brain, Behavior, & Immunity / Corrected proof	<ul style="list-style-type: none"> • Present a series of four COVID-19 patients with acute stroke as a presenting symptom. • Stroke teams should be wary of the fact that COVID-19 patients can present with cerebrovascular accidents and dawn appropriate personal protective equipment in every suspected patient.
28.04.2020	Myocardial injury is associated with higher mortality in patients with coronavirus disease 2019: a meta-analysis	J Geriatr Cardiol / Letter	<ul style="list-style-type: none"> • Summary of the current literature and meta-analysis to explore the correlation between myocardial injury and mortality in patients with COVID-19. • Results showed that COVID-19 patients with myocardial injury have a higher mortality rate. Therefore, the existence of myocardial injury should be regarded as an important index in the risk stratification of disease severity and death for COVID-19. Continuous monitoring of myocardial injury markers and cardiac function during hospitalization should be strengthened.
27.04.2020	Association Between Clinical Manifestations and Prognosis in Patients with COVID-19	Clinical Therapeutics / Article	<ul style="list-style-type: none"> • Cross-sectional multicentre clinical study of 95 patients infected with COVID-19. • Multivariate analysis showed that older age and high body mass index were independent risk factors associated with patients with pneumonia. For patients with ARDS, multivariate analysis showed that only high systolic blood pressure and high lactate dehydrogenase level were independent risk factors associated with ARDS. • A total of 70 patients underwent CT imaging repeatedly after treatment. Patients were divided in a disease exacerbation group (n = 19) and a disease relief group (n = 51). High body mass index and tobacco smoking were independent risk factors associated with disease exacerbation after treatment.
28.04.2020	Predictive factors for disease progression in hospitalized patients with coronavirus disease 2019 in Wuhan, China	Journal of Clinical Virology / Article	<ul style="list-style-type: none"> • A single-centre, retrospective study. Clinical, laboratory, and treatment data were collected and analysed from 111 hospitalized patients with laboratory-confirmed COVID-19 in Union Hospital. • Male gender and comorbidity were the independent risk factors for death in COVID-19 patients. • Lymphopenia and high CRP were the independent risk factors for poor outcome in COVID-19.

28.04.2020	Clinical features and outcomes of inpatients with neurological disease and COVID-19	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • 173 patients in this single centre cohort study in a Neuro-COVID unit. 56 were positive for COVID-19 and 117 were negative. • COVID-19 patients admitted with neurological disease, including stroke, have a significantly higher in-hospital mortality, incident delirium and higher disability than patients without COVID-19.
27.04.2020	COVID-19 Infections and Outcomes in a Live Registry of Heart Failure Patients Across an Integrated Health Care System	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • COVID-19 testing was performed on 900 symptomatic patients, comprising 3.4% of Yale Heart Failure Registry (N=26,703). • 206 (23%) were COVID-19+. These patients were more likely to be older, black, have hypertension, coronary artery disease, and less likely to be on renin angiotensin blockers (P<0.05, all). • COVID-19- patients tended to be more diffusely spread across the state whereas COVID-19+ were largely clustered around urban centres.
26.04.2020	Spatial-temporal variations of atmospheric factors contribute to SARS-CoV-2 outbreak	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • Asymmetry in number of cases / severity of COVID-19 symptoms in countries/regions; authors introduce a binary classifier based on an artificial neural network to help explain differences. • Propose that air pollutants, specifically particulate matter (PM) 2.5 and ozone, are oppositely related with SARS-CoV-2 infection frequency; could serve as surrogate markers to complement the infection outbreak anticipation.
25.04.2020	Anomalous atmospheric circulation favored the spread of COVID-19 in Europe	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • Study shows unusual persistent anticyclonic situation prevailing in southwestern Europe; favourable air temperature and humidity in Italy and Spain may have led to quicker spread of the virus compared with the rest of the European countries. • Strong atmospheric stability and associated dry conditions may have favoured the virus's propagation, by short-range droplet transmission and likely by long-range aerosol (airborne) transmission.
22.04.2020	A spatio-temporal analysis for exploring the effect of temperature on COVID-19 early evolution in Spain	Sci Total Environ / Article	<ul style="list-style-type: none"> • Report of a spatio-temporal analysis for exploring the effect of daily temperature (mean, minimum and maximum) on the accumulated number of COVID-19 cases in the provinces of Spain. Non-meteorological factors such as population density, population by age, number of travellers and number of companies have also been considered for the analysis. • No evidence suggesting a reduction in COVID-19 cases at warmer mean, minimum and maximum temperatures has been found.
28.04.2020	Coronavirus in water environments: Occurrence, persistence and concentration methods - A scoping review	Water Research / Review	<ul style="list-style-type: none"> • SARS Coronavirus has been detected in wastewater but not as infectious particles. • Temperature is an important environmental factor affecting CoV survival in water.

			<ul style="list-style-type: none"> • CoV show limited environmental stability and sensitivity to oxidants as chlorine. • There is no evidence of CoV transmission through contaminated water.
28.04.2020	Effects of temperature and humidity on the daily new cases and new deaths of COVID-19 in 166 countries	Science of the Total Environment / Article	<ul style="list-style-type: none"> • The findings provide preliminary evidence that the COVID-19 pandemic may be partially suppressed with temperature and humidity increases.
27.04.2020	Incidence of COVID-19 and Connections with Air Pollution Exposure: Evidence from the Netherlands	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • Study investigates relationship between exposure to particulate matter and COVID-19 incidence in 355 municipalities in the Netherlands. • Results: atmospheric particulate matter with diameter less than 2.5 is highly significant predictor of number of confirmed COVID-19 cases and related hospital admissions. Estimates suggest that expected COVID-19 cases increase by nearly 100 percent when pollution concentrations increase by 20 percent. • Call for further investigation into association between air pollution and SARS-CoV-2 infection risk, as strong implications for the mitigation strategies required to prevent spreading.

Epidemiology and clinical – other

Publication Date	Title/URL	Journal/ Article type	Digest
27.04.2020	Clinical features of 95 sequential hospitalised patients with novel coronavirus 2019 disease (COVID-19), the first UK cohort	J Infect / Letter to the editor	<ul style="list-style-type: none"> • Describes a retrospective single-centre study of all patients hospitalised with SARS-COV-2 infection from Mar 10th to Mar 30th within North Bristol NHS Trust. • During this period, 95 cases were admitted to the trust and by the final day of follow up on April 6th, 21 patients (21%) had died, 44 patients (43%) had been discharged, and 30 (29%) were still inpatients. Of the 21 patients that died, 20 died within 14 days suggesting that most mortality occurs within two weeks. • The demographics, symptoms, radiology, laboratory findings and comorbidities of the patient group are presented.
28.04.2020	Cohort profile: Preliminary experience of 500 COVID-19 positive cases at a South West London District General Hospital	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • Retrospective cohort analysis reports demographic data and early outcome of first 500 COVID-19 patients admitted to a District General Hospital in South West London. • No evidence of a poorer outcome associated with a lower decile for Index of Multiple Deprivation or convincing evidence that any Ethnic minority groups more likely to die than White subgroups.

04.05.2020	Post-mortem examination of COVID19 patients reveals diffuse alveolar damage with severe capillary congestion and variegated findings of lungs and other organs suggesting vascular dysfunction	Histopathology / Research article	<ul style="list-style-type: none"> • This study reports autopsy findings of 21 COVID-19 patients to elucidate COVID-19-associated organ alterations. • The primary cause of death was respiratory failure with exudative diffuse alveolar damage with massive capillary congestion often accompanied by microthrombi despite anticoagulation. Ten cases showed superimposed bronchopneumonia. Further findings included pulmonary embolisms (n=4), alveolar haemorrhage (n=3) and vasculitis (n=1). • Pathologies in other organ systems were predominantly attributable to shock; three patients showed signs of generalised thrombotic microangiopathy. Six patients were diagnosed with senile cardiac amyloidosis upon autopsy. Most patients suffered from one or more comorbidities (hypertension, obesity, cardiovascular diseases, diabetes mellitus). Additionally, there was an overall predominance of males and individuals with blood group A (81% and 65%, respectively).
26.04.2020	COVID-19 in healthcare workers in three hospitals in the South of the Netherlands, March 2020	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • 1,796 healthcare workers (HCWs) (15% of total HCW) in three participating hospitals screened, based on clinical symptoms, of whom 96 (5%) tested positive for SARS-CoV-2. • Complete genome sequences of 50 HCWs and 18 patients. Most sequences grouped in 3 clusters, with 2 clusters displaying local circulation within the region. • Direct transmission in hospitals cannot be ruled out, but data doesn't support widespread nosocomial transmission as source of infection in patients or healthcare workers.
02.05.2020	A challenging case of psoriasis flare-up after COVID-19 infection	J Dermatolog Treat / Case study	<ul style="list-style-type: none"> • Case report of a 73-year-old male patient with severe psoriasis being treated with cyclosporine (CsA) 100mg daily plus methotrexate (MTX) 7.5 mg weekly who experienced disease flare-up after the discontinuation of psoriasis treatment during COVID-19 infection.
01.05.2020	COVID-19 Presenting with Seizures	IDCases / Case report	<ul style="list-style-type: none"> • This case report examines a male with no previous history of seizures initially admitting to the medical service later upgraded to ICU after respiratory failure developing multiple episodes of seizures. • Laboratory values on admission, neurological investigations, as well as review of current literature on COVID-19 encephalitis is provided.
29.04.2020	Epidemiological and Clinical Characteristics Analysis of COVID-19 in the Surrounding Areas of Wuhan, Hubei Province in 2020	Pharmacological Research / In press, journal pre-proof	<ul style="list-style-type: none"> • Retrospectively investigated COVID-19 patients positively confirmed by nucleic acid Q-PCR at Taihe Hospital from Jan 16 to Feb 4, 2020 (n=73). • According to the Shiyen experience, early diagnosis with multiple swaps of the Q-PCR test and timely treatment can reduce the death rate. • Diabetes could be one of the risk factors for progression to severe/critical outcomes.

			<ul style="list-style-type: none"> • No evidence exists that smoking protects COVID-19 patients from developing to severe/critical cases, and the absolute number of lymphocytes at initial diagnosis could not predict the progression risk from severe to critical condition.
28.04.2020	CovidCounties - an interactive, real-time tracker of the COVID-19 pandemic at the level of US counties	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • Authors report the development of CovidCounties.org, an interactive web application that depicts daily disease trends at the level of US counties using time series plots and maps. • Application accompanied by a manually curated dataset that catalogues all major public policy actions at state-level, and technical validation of the primary data. • Underlying code is open source, enabling others to validate and learn from this work.

Infection control

Publication Date	Title/URL	Journal/ Article type	Digest
04.05.2020	Report 20: Using mobility to estimate the transmission intensity of COVID-19 in Italy: A subnational analysis with future scenarios	Imperial College / Report	<ul style="list-style-type: none"> • These results suggest that SARS-CoV-2 transmission as well as mobility should be closely monitored in the next weeks and months. • To compensate for the increase in mobility that will occur due to the relaxation of the currently implemented non-pharmaceutical interventions (NPIs), adherence to the recommended social distancing measures alongside enhanced community surveillance including swab testing, contact tracing and the early isolation of infections are of paramount importance to reduce the risk of resurgence in transmission.
01.04.2020	Early Detection of Covid-19 through a Citywide Pandemic Surveillance Platform	New England Journal of Medicine / Correspondence	<ul style="list-style-type: none"> • As the Covid-19 pandemic progresses, widespread implementation of simple methods that are scalable and require minimal interaction for collection of samples from persons who may not seek clinical care is critical for early detection of community cases. • Looking beyond the current crisis, the authors envision ubiquitous, community-based sampling for respiratory illnesses as essential infrastructure for early detection and mitigation of future pandemics.
04.05.2020	Logistics of aggressive community screening for coronavirus 2019	JAMA Health Forum / Insights	<ul style="list-style-type: none"> • The authors detail a plan for aggressive community screening with the goal of controlling, if not eradicating, local severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) transmission.
04.05.2020	Rapid expert consultations on the COVID-19 pandemic	National Academies Press / Book	<ul style="list-style-type: none"> • Free to download, but registration is required. • These rapid expert consultations cover the following topics:- Severe

			illness in young adults.- Surface stability and incubation.- Social distancing.- Data elements and systems design for modelling and decision-making.- Crisis standards of care.- Possibility of bioaerosol spread of SARS-CoV-2- Survival in relation to temperature and humidity and potential for seasonality.- Laboratory testing.- Effectiveness of fabric masks.- SARS-CoV-2 viral shedding and antibody response.
04.05.2020	COVID-19 immunity passports and vaccination certificates: scientific, equitable, and legal challenges	Lancet / Comment	<ul style="list-style-type: none"> • Individuals in possession of an immunity passport could be exempt from physical restrictions and could return to work, school, and daily life. • However, on April 24, 2020, WHO highlighted current knowledge and technical limitations, advising “there is currently no evidence that people who have recovered from COVID-19 and have antibodies are protected from a second infection. • At this point in the pandemic, there is not enough evidence about the effectiveness of antibody-mediated immunity to guarantee the accuracy of an ‘immunity passport’”.
04.05.2020	Face masks for the general public	Royal Society DELVE Initiative / Report	<ul style="list-style-type: none"> • Face masks could offer an important tool for contributing to the management of community transmission of Covid19 within the general population. • Evidence supporting their potential effectiveness comes from analysis of: (1) the incidence of asymptomatic and pre-symptomatic transmission; (2) the role of respiratory droplets in transmission, which can travel as far as 1-2 meters; and (3) studies of the use of homemade and surgical masks to reduce droplet spread. • Please note: This report has prompted other scientists to express their reservations, warning that it amounted to no more than opinion and overstated the available evidence - https://www.theguardian.com/world/2020/may/04/scientists-disagree-over-face-masks-effect-on-covid-19
27.04.2020	Medical masks and Respirators for the Protection of Healthcare Workers from SARS-CoV-2 and other viruses	Pulmonology / Review	<ul style="list-style-type: none"> • Review summarizing the available evidence on the use of medical masks and respirators in the context of viral infections, especially the current COVID-19.
02.05.2020	Effectiveness of Ultraviolet-C Light and a High-Level Disinfection Cabinet for Decontamination of N95 Respirators	Pathog Immun / Article	<ul style="list-style-type: none"> • A modification of the American Society for Testing and Materials standard quantitative carrier disk test method (ASTM E-2197-11) was used to examine the effectiveness of 3 methods, including ultraviolet-C (UV-C) light, a high-level disinfection cabinet that generates aerosolized peracetic acid and hydrogen peroxide, and dry heat at 70°C for 30 minutes. • The authors assessed the decontamination of 3 commercial N95 respirators inoculated with MRSA and bacteriophages MS2 and Phi6; the

			<p>latter is an enveloped RNA virus used as a surrogate for coronaviruses.</p> <ul style="list-style-type: none"> • UV-C could be useful to reduce contamination on N95 respirators. <p>However, the UV-C technologies studied did not meet pre-established criteria for decontamination under the test conditions used. The high-level disinfection cabinet was more effective and met criteria for disinfection with an extended cycle.</p>
29.04.2020	COVID-19-associated shortage of alcohol-based hand rubs, face masks, medical gloves and gowns - proposal for a risk-adapted approach to ensure patient and healthcare worker safety	Journal of Hospital Infection / Journal pre-proof	<ul style="list-style-type: none"> • A shortage of essential equipment such as alcohol-based hand rubs, medical gloves and face masks is currently experienced by more and more healthcare facilities worldwide due to the COVID-19 pandemic. • The authors propose a risk-adapted approach to ensure adequate patient and healthcare worker safety for as long as possible.
28.04.2020	Mobile phones represent a pathway for microbial transmission: A scoping review	Travel Medicine and Infectious Disease / In press, journal pre-proof	<ul style="list-style-type: none"> • While this scoping review of literature regarding microbial identification on mobile phones in health care and community settings did not directly address the issue of SARS-CoV-2 responsible for COVID-19, this work exposes the possible role of mobile phones as a 'Trojan horse' contributing to the transmission of microbial infections in epidemics and pandemics.
28.04.2020	Global coronavirus disease 2019: what has daily cumulative index taught us?	International Journal of Antimicrobial Agents / In press, journal pre-proof	<ul style="list-style-type: none"> • Daily cumulative index (DCI) was defined as the average daily number of new cases of COVID-19 and calculated by cumulative cases/number of days between the first reported case and March 6, 2020 by country. • Reducing DCI through strict infection control measures can help slow the increasing number of COVID-19 cases and further improve outcome in COVID-19 patients.
29.04.2020	Improper use of germicidal range ultraviolet lamp for household disinfection leading to phototoxicity in COVID-19 suspects	Cornea / Case report	<ul style="list-style-type: none"> • Report on a family of three adults who experienced photophobia, intense eye pain, epiphora, blurred vision, and burning sensation over the face and neck area after a short period of unprotected exposure to UV germicidal lamps • This case report serves to emphasize the potential consequences of phototoxicity from improper use of UV germicidal lamps for household disinfection as well as to highlight the fact that UV germicidal lamps currently have no established role in household disinfection of SARS-CoV-2.
27.04.2020	Estimation of SARS-CoV-2 emissions from non-symptomatic cases	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • Study combined the size-distribution of exhaled breath aerosols for coughing and normal breathing with viral sputum concentrations as approximation for lung lining liquid to obtain an estimate of emitted virus levels, fed into a room of 50m³ (size of a small office or medical exam room). • Estimated viral load in aerosols emitted by patients while breathing

normally averaged 0.34 copies/cm³, up to 11.5 copies/cm³. Corresponding numbers for coughing patients were 10,900 copies/cm³ and 366,000 copies/cm³, respectively, per cough.

- Resulting concentrations in room with a coughing emitter were always very high, up to 2.02*10⁹ copies/m³. Regular breathing aerosol from high emitters predicted to lead to several thousand copies/m³.

Treatment

Publication Date	Title/URL	Journal/ Article type	Digest
04.05.2020	Silencing the cytokine storm: the use of intravenous anakinra in haemophagocytic lymphohistiocytosis or macrophage activation syndrome	Lancet Rheumatology / Viewpoint	<ul style="list-style-type: none"> • The authors describe current challenges in the management of cytokine storm syndromes and review the pharmacokinetic and safety profile of intravenous anakinra. • There is accumulating evidence to support the rationale for, and safety of, intravenous anakinra as a first-line treatment in patients with secondary haemophagocytic lymphohistiocytosis or macrophage activation syndrome (sHLH/MAS). • Intravenous anakinra has important clinical relevance when high doses of drug are required or if patients have subcutaneous oedema, severe thrombocytopenia, or neurological involvement. • Cross-speciality management and collaboration, with the generation of international, multi-centre registries and biobanks, are needed to better understand the aetiopathogenesis and improve the poor prognosis of cytokine storm syndromes.
25.04.2020	Cytokine storm intervention in the early stages of COVID-19 pneumonia	Cytokine Growth Factor Rev / Review	<ul style="list-style-type: none"> • Review of the current understanding of treatment of human coronavirus infections from the perspective of a dysregulated cytokine and immune response.
04.05.2020	Immunomodulation in COVID-19	Lancet Respiratory Medicine / Comment	<ul style="list-style-type: none"> • As insight is gained into the clinical phenotypes associated with COVID-19, the authors propose JAK and IL-1 inhibitors as therapeutic targets warranting rapid investigation. • Multidisciplinary collaboration with experts in haematology, inflammation, tissue damage, and repair and resolution is paramount.
29.04.2020	The first case of COVID-19 treated with the complement C3 inhibitor AMY-101	Clinical Immunology / Case report - pre-proof	<ul style="list-style-type: none"> • The authors report the clinical course of a patient with severe ARDS due to COVID-19 pneumonia who was safely and successfully treated with the compstatin-based complement C3 inhibitor AMY-101.

26.04.2020	Preliminary evidence from a multicenter prospective observational study of the safety and efficacy of chloroquine for the treatment of COVID-19	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • 197 patients completed chloroquine treatment - chloroquine phosphate 500mg, orally, once (half dose) or twice (full dose) daily - with 176 patients included as historical controls. • Median time to achieve an undetectable viral RNA shorter in chloroquine (absolute difference in medians -6.0 days; 95% CI -6.0 to -4.0). • Duration of fever shorter in chloroquine (geometric mean ratio 0.6; 95% CI 0.5 to 0.8). No serious adverse events; patients with half dose experienced lower rate of adverse events than full dose.
30.04.2020	Broad-spectrum antiviral activity of naproxen: from Influenza A to SARS-CoV-2 Coronavirus	bioRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • The antiviral properties of naproxen, belonging to the NSAID family, previously demonstrated against Influenza A virus, were evaluated against SARS-CoV-2. • Naproxen binding to the nucleoprotein of SARS-CoV2 was shown by molecular modelling. In VeroE6 cells and reconstituted human primary respiratory epithelium models of SARS-CoV-2 infection, naproxen inhibited viral replication and protected the bronchial epithelia against SARS-CoV-2 induced-damage. • The benefit of naproxen addition to the standard of care is tested in an on-going clinical study.
27.05.2020	COVID-19-induced acute respiratory failure: an exacerbation of organ-specific autoimmunity?	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • Study finds serological, radiological and histomorphological similarities between COVID-19-associated ARDS and acute exacerbation of connective tissue disease (CTD-ILD). • Authors postulate that SARS-CoV-2 infection might trigger or simulate a form of organ-specific autoimmunity in predisposed patients. • The detection of autoantibodies might identify patients who profit from immunosuppressive therapy to prevent the development of respiratory failure.
26.04.2020	Feasibility of Known RNA Polymerase Inhibitors as Anti-SARS-CoV-2 Drugs	Pathogens / Article	<ul style="list-style-type: none"> • The authors use computational and bioinformatics tools to present the feasibility of reported broad-spectrum RNA polymerase inhibitors as anti-SARS-CoV-2 drugs targeting its main RNA polymerase, suggesting that investigational and approved nucleoside RNA polymerase inhibitors have potential as anti-SARS-CoV-2 drugs.
27.04.2020	COVID-19 pandemic and non invasive respiratory management: Every Goliath needs a David. An evidence based evaluation of problems	Pulmonology / Narrative review	<ul style="list-style-type: none"> • Narrative review describing some problems with the management of Covid-19 induced acute respiratory failure (ARF) by pulmonologists. • High flow nasal cannula (HFNC) alone or with pronation (PP) could be offered for mild cases (PaO₂/FiO₂ between 200-300); non-invasive ventilation (NIV) alone or with PP may work in moderate cases (PaO₂/FiO₂ between 100-200). Rotation and coupled (HFNC/NIV) strategy

			<p>can be beneficial.</p> <ul style="list-style-type: none"> • A window of opportunity of 1-2h is advised. If PaO₂/FIO₂ significantly increases, Respiratory Rate decreases with a relatively low Exhaled Tidal Volume, the non-invasive strategy could be working and intubation delayed.
28.04.2020	Modulation of Hb-O(2) affinity to improve hypoxemia in COVID-19 patients	Clinical Nutrition / Opinion paper	<ul style="list-style-type: none"> • This opinion paper discusses the potential impact of modulating the Hb-O(2) affinity by the nutritional supplement 5-HMF on patients affected by COVID-19. • It describes the critical role of the oxygen affinity in hypoxemic COVID-19 patients and the potential positive effect of 5-HMF, a compound shown to increase the Hb-O(2) affinity.

Social sciences

Publication Date	Title/URL	Journal/ Article type	Digest
04.05.2020	Mental health and COVID-19: change the conversation	Lancet Psychiatry / Editorial	<ul style="list-style-type: none"> • The Royal College of Psychiatrists has issued guidance on the COVID-19 response, social media accounts such as @MadCovid on Twitter are coordinating service user and survivor-led projects. • The Position Paper on mental health research priorities in response to COVID-19 in The Lancet Psychiatry highlights the needs of vulnerable groups, including those with severe mental illness, learning difficulties, and neurodevelopmental disorders, as well as socially excluded groups such as prisoners, the homeless, and refugees.
04.05.2020	Community participation is crucial in a pandemic	Lancet / Comment	<ul style="list-style-type: none"> • Community participation is essential in the collective response to COVID-19, from compliance with lockdown, to the steps that need to be taken as countries ease restrictions, to community support through volunteering. • Meaningful relationships between communities and providers should be nurtured to ensure sustainable and inclusive participation. • Managing participatory spaces takes sensitivity and care to recognise and harness the different types of knowledge and experiences brought by diverse communities and individuals, and to avoid replicating social structures that could create harms such as stigma.
04.05.2020	A 5-point strategy for improved connection with relatives of critically ill patients with COVID-19	Lancet Respiratory Medicine / Correspondence	<ul style="list-style-type: none"> • This 5-S strategy to maintain the connection with families and patients with COVID-19 aims primarily to improve communication with highly vulnerable relatives.

			<ul style="list-style-type: none"> • Post-traumatic stress disorder has been shown to be associated with suboptimal communication, particularly in relatives of patients who died in the ICU. • In this setting, the quality of interactions between family and health-care professionals is a major determinant of complicated grief.
05.05.2020	The wellbeing costs of COVID-19 in the UK	Simetrica-Jacobs, London School of Economics / Report	<ul style="list-style-type: none"> • The authors estimate that about two-thirds of the wellbeing cost comes from the impact of social distancing alone. • The results of the report were drawn from a survey on wellbeing carried out by a representative sample of U.K. residents between April 9-19, 2020. • The survey found substantially worse levels of wellbeing and psychological distress amongst the U.K. population, a pattern consistent across all regions and groups in the U.K.; men and women, age groups and ethnicities.
26.04.2020	Mitigating the Psychological Impact of COVID-19 on Healthcare Workers: A Digital Learning Package	Int J Environ Res Public Health / E-learning	<ul style="list-style-type: none"> • Description of the development and evaluation of an e-learning package to support the psychological wellbeing of UK healthcare workers during and after the COVID-19 outbreak. • The e-package includes evidence-based guidance, support and signposting relating to psychological wellbeing for all UK healthcare employees. • Evaluation indicated high user satisfaction with content, usability and utility. Assessment of implementation qualities indicated that the package was perceived to be usable, practical, low cost and low burden. • The digital support package on 'psychological wellbeing for healthcare workers' is free to use, and is available here: https://www.nottingham.ac.uk/toolkits/play_22794.
04.05.2020	Impact of COVID-19 on the BAME community and voluntary sector	The Ubele Initiative / Report	<ul style="list-style-type: none"> • This report is based on two surveys administered between 19 March and 4 April and received 182 responses, of which 137 were Black, Asian and Minority Ethnic (BAME) led organisations. • The surveys focused particularly on the impact of COVID-19 on the BAME organisations who deliver services to their communities and covered:- Awareness and concerns of COVID-19.- Impact on the individual: initial and subsequent impact as the crisis worsened.- Financial impact on organisations.- Impact on service delivery and organisational preparedness.- Support and development needs. • The survey confirmed some areas of general concerns within the charity, community and voluntary sector but also flagged up some areas of concerns that seem to be particular to BAME organisations.

29.04.2020	Impact of home quarantine on physical activity for older adults living at home during the Covid-19 pandemic: Qualitative interview study	JMIR Aging / Preprints - not proof-read	<ul style="list-style-type: none"> • Quarantine and “social distancing” will exacerbate the epidemic of sedentary lifestyles previously found in older adults. • This paper looks at the impact of stopping group physical activities on the autonomy level of older adults in this quarantine period and which alternatives could be suggested to this population to avoid a sedentary lifestyle.
29.04.2020	Psychological Stress and Gender Differences during COVID-19 Pandemic in Chinese Population	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • Cross-sectional population-based study - 3088 questionnaires from 32 provinces in China were collected online. • Protect factors included: frequently contact with colleagues, calm mood, and high psychological resilience. Stress, anxiety and depression were mainly related to gender, age, education, and occupation during the epidemic of COVID-19.
03.05.2020	Prevalence and socio-demographic correlates of psychological health problems in Chinese adolescents during the outbreak of COVID-19	Eur Child Adolesc Psychiatry / Article	<ul style="list-style-type: none"> • Cross-sectional study to assess the prevalence rate and socio-demographic correlates of depressive and anxiety symptoms among Chinese adolescents affected by the outbreak of COVID-19. • The prevalence of depressive symptoms, anxiety symptoms, and a combination of depressive and anxiety symptoms was 43.7%, 37.4%, and 31.3%, respectively, among Chinese high school students during the COVID-19 outbreak. Female gender was the higher risk factor for depressive and anxiety symptoms. • In terms of grades, senior high school was a risk factor for depressive and anxiety symptoms; the higher the grade, the greater the prevalence of depressive and anxiety symptoms.

Miscellaneous

Publication Date	Title/URL	Journal/ Article type	Digest
04.05.2020	Choices for the “New Normal”	JAMA / Viewpoint	<ul style="list-style-type: none"> • The public has become suddenly avid consumers of trustworthy scientific guidance on what they should do and what may lie ahead, and people are adopting scepticism about fake science and untested assertions.
29.04.2020	What information can I share with my patients about nutrition during COVID-19?	Australian Journal of General Practice / Article	<ul style="list-style-type: none"> • Many people risk poor health while social distancing as a result of food insecurity, especially vulnerable populations such as older people, individuals with disability, and migrant and refugee families. • In the wake of the current COVID-19 pandemic, nutrition care that focuses on food security is imperative.

			<ul style="list-style-type: none"> • Healthy eating for preventing and managing chronic disease should also not be forgotten.
26.04.2020	How the COVID-19 pandemic is favoring the adoption of digital technologies in healthcare: a rapid literature review	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • Cross-sectional bibliometric review of COVID-19 literature with parallel search of MERS literature. • Most COVID-19 studies clinical reports (n=242; 60.8%) - majority of these case series (n=105; 43.4%) and single cases (n=65; 26.9%). Times from manuscript submission to acceptance (median: 5 days (IQR: 3-11) vs 71.5 days (38-106); P<0.001) and acceptance to publication (median: 5 days (IQR: 2-8) vs. 22.5 days (4-48.5-; P<0.001) were strikingly shorter for COVID-19. • Almost all studies open-access. Data sharing infrequent, with original data available for 104 (26.1%) COVID-19 and 10 (18.2%) MERS studies (P=0.203).
26.04.2020	Defining Facets of Social Distancing during the COVID-19 Pandemic: Twitter Analysis	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • Twitter data used to (1) define and quantify the prevalence and evolution of facets of social distancing during the COVID-19 pandemic in the US in a spatiotemporal context and (2) examine the most amplified tweets among social distancing facets.

Modelling

Publication Date	Title/URL	Journal/ Article type	Digest
04.05.2020	Smell and taste symptom-based predictive model for COVID-19 diagnosis	Int Forum Allergy Rhinol / Article	<ul style="list-style-type: none"> • Survey of 145 participants with positive COVID-19 testing and 157 with negative results, regarding 10 presenting symptoms, demographic information, and comorbidities. • Participants had a mean age of 39 years, and 214 (72%) were female. Smell or taste change, fever, and body ache were associated with COVID-19 positivity, and shortness of breath and sore throat were associated with a negative test result (p<0.05). A model using all 5 diagnostic symptoms had the highest accuracy with a predictive ability of 82% in discriminating between COVID-19 results. To maximize sensitivity and maintain fair diagnostic accuracy, a combination of 2 symptoms, change in sense of smell or taste and fever was found to have a sensitivity of 70% and overall discrimination accuracy of 75%.
28.04.2020	The SARS-CoV-2 seroprevalence is the key factor for deconfinement in France	Journal of Infection / Journal pre-proof	<ul style="list-style-type: none"> • The authors have designed a model for predicting the evolution of the SARS-CoV-2 epidemic in France, which is based on seroprevalence and makes it possible to anticipate the deconfinement strategy.

			<ul style="list-style-type: none"> • Seroprevalence must be at least 50% before confinement constraints can be relaxed.
24.04.2020	Modeling serological testing to inform relaxation of social distancing for COVID-19 control	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • Authors model social distancing measures relaxed to a greater extent for those who test positive compared to those who have not been tested or test negative. • Suggest serological testing can relax social distancing measures preferentially for seropositive individuals, insofar as antibodies can be established as a correlate of protection against SARS-CoV-2 infection. Implementing a strategy of serological testing and shielding can reduce population risk while offsetting the severe social and economic costs of a sustained shutdown.
26.04.2020	Accounting for super-spreading gives the basic reproduction number R0 of COVID-19 that is higher than initially estimated	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • A SEIR model that properly accounts for distribution of incubation period suggests that R0 lies in the range 4.4 - 11.7 - based on the doubling time observed in the near-exponential phases of the epidemic spread in China, United States, and six European countries. • In presence of super-spreaders, calculations based on individual cases reported during initial outbreak phase systematically overestimate the doubling time so underestimate actual value of R0.
26.04.2020	Estimates of the ongoing need for social distancing and control measures post-"lockdown" from trajectories of COVID-19 cases and mortality	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • Analysis based on behaviour of the SARS-CoV-2 pandemic to date across 67 countries suggests remarkably consistent effects of both exponential growth and slow decline in cases and mortality. • Data suggest few countries could have even one week per month unrestricted without seeing resurgence of epidemic. Similarly, restoring 20% of the activity that has been prevented by the lockdowns looks difficult to reconcile with preventing the resurgence of the disease in most countries.
26.04.2020	Impact of virus testing on COVID-19 case fatality rate: estimate using a fixed-effects model	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • Authors aimed to evaluate the impact of testing on the case fatality rate, using data on inpatients across French geographic areas and propose a novel methodology. • For each additional 1000 tests, one person would have remained alive.
26.04.2020	Modeling Return of the Epidemic: Impact of Population Structure, Asymptomatic Infection, Case Importation and Personal Contacts	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • Author investigates impact of population structure, case importation, asymptomatic cases, and number of contacts on a possible second wave of epidemic through mathematical modelling. • Reducing number of contacts among high risk populations alone can mitigate burden of epidemic in whole society. Interventions targeting high risk groups may be more effective in containing or mitigating the epidemic.

28.04.2020	Periodic COVID-19 Testing in Emergency Department Staff	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • Model predicts that after 30 days, with a transmission constant of 1.219e-4 new infections per person, weekly COVID-19 testing of healthcare workers (HCW) would reduce new HCW and patient infections by 5.1% and bi-weekly testing would reduce both by 2.3%. • Periodic COVID-19 testing for emergency department staff in regions heavily-affected by COVID-19 and/or facing resource constraints may reduce COVID-19 transmission significantly.
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Guidance, consensus statements and hospital resources

Publication Date	Title/URL	Journal/ Article type
01.05.2020	Investing in our first line of defense: Environmental services workers	Annals of Internal Medicine / Ideas and Opinions
04.05.2020	COVID-19 and paediatric health services: A survey of paediatric physicians in Australia and New Zealand	J Paediatr Child Health / Article
29.04.2020	Ramping Up the Delivery of Cardiac Surgery During the COVID-19 Pandemic: A Guidance Statement from the Canadian Society of Cardiac Surgeons	Canadian Journal of Cardiology / Pre-proof - guidance statement
03.05.2020	Management of acute ischemic stroke in patients with COVID-19 infection: Report of an international panel	Int J Stroke / Consensus statement

Overviews, comments and editorials

Publication Date	Title/URL	Journal/ Article type
04.05.2020	Coronavirus disease (COVID-19): Situation report - 105	World Health Organization / Report
28.04.2020	COVID-19-We urgently need to start developing an exit strategy	International Journal of Infectious Diseases / Journal pre-proof
02.05.2020	The Inadequacy of Regulatory Frameworks in Time of Crisis and in Low-Resource Settings: Personal Protective Equipment and COVID-19	Health Technol (Berl) / Article
28.04.2020	New understanding of the damage of SARS-CoV-2 infection outside the respiratory system	Biomedicine and Pharmacotherapy / Review
28.04.2020	Myocardial injury and COVID-19: Possible mechanisms	Life Sciences / Article

Produced by the PHE COVID-19 Literature Digest Team

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