



International EPI Cell Daily Evidence Briefing – 18/03/2020

These papers are organised under the following themes:

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

Please note that we are including preprints, which are preliminary reports of work that have NOT been peer-reviewed.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

Diagnostics and genomics

Date of publication	Title / URL	Journal / Publication type	Digest
20.03.2020	Diagnostic Value of Chest CT in Coronavirus Disease 2019 (COVID-19)	Current medical imaging / Review	<ul style="list-style-type: none">• Editorial review of studies looking at chest CT in COVID-19 patients.• The overall chest imaging findings of COVID-19 presented by these studies are similar to those associated with coronavirus infection of severe acute respiratory syndrome (SARS-CoV) and Middle East respiratory syndrome (MERS-CoV), the appearances of GGO and consolidation are typical manifestations of viral pneumonia.• Analysis of chest CT imaging findings by these studies, in particular, demonstrating the image pattern changes over time of disease onset, provides guidance for clinicians to manage patients effectively.
20.03.2020	Antibody responses to SARS-CoV-2 in COVID-19 patients: the perspective application	medRxiv (not peer-reviewed) / Article	<ul style="list-style-type: none">• The authors investigated the profile of acute antibody response in COVID-19 patients, and provided proposed the usage of antibody tests in clinical practice. They concluded that IgM and IgG should be detected simultaneously at the early phase of infection. The serological diagnosis criterion of seroconversion or the “≥ 4-fold increase

	of serological tests in clinical practice		IgG titer” is suitable for a majority of COVID-19 patients. Serologic tests are helpful for the diagnosis of SARS-CoV-2 infection in suspects and close contacts.
20.03.2020	Laboratory Diagnosis of Emerging Human Coronavirus Infections - The State of the Art	Emerging microbes & infections / Review article	<ul style="list-style-type: none"> • Viral pneumonias typically do not result in the production of purulent sputum. Thus, a nasopharyngeal specimen is usually the collection method used to obtain a specimen for testing. • Nasopharyngeal specimens may miss some infections; a deeper specimen may need to be obtained by bronchoscopy. • Alternatively, repeated testing can be used because over time, the likelihood of the SARS-CoV-2 being present in the nasal-pharynx increases. • Several integrated, random-access, point-of-care molecular devices are currently under development for accurate diagnosis of SARS-CoV-2 infections. These assays are simple, fast and safe and can be used in the hospitals and clinics bearing the burden of identifying and treating patients.
16.03.2020	Drive-Through Screening Center for COVID-19: a Safe and Efficient Screening System against Massive Community Outbreak	Journal of Korean Medical Science / Article	<ul style="list-style-type: none"> • Drive-through screening centres have been implemented in Korea for safer and more efficient screening of COVID-19, and could be implemented in other countries. • This system may also evolve into a DT respiratory clinic, when rapid diagnostic kit, oral treatment options and vaccines for COVID-19 are available in the future.
21.03.2020	Profiling Early Humoral Response to Diagnose Novel Coronavirus Disease (COVID-19)	Clinical Infectious Diseases / Accepted manuscript	<ul style="list-style-type: none"> • The host humoral response against SARS-CoV-2 including IgA, IgM and IgG response were examined by a dot blot and ELISA based assay on the recombinant viral nucleocapsid protein. • Total 208 plasma samples were collected from 82 confirmed and 58 probable cases (qPCR negative but with typical manifestation). • Humoral response to SARS-CoV-2 can aid to the diagnosis of COVID-19, including subclinical cases.
23.03.2020	AI-assisted CT imaging analysis for COVID-19 screening: Building and deploying a medical AI system in four weeks	medRxiv (not peer-reviewed) / Article	<ul style="list-style-type: none"> •The authors present their experience in building and deploying an AI system that automatically analyses CT scan images to detect COVID-19 pneumonia features. Using 1,136 training cases (723 positives for COVID-19) from 16 hospitals, they were able to achieve a sensitivity of 0.974 and specificity of 0.922 on the test dataset, which included a variety of pulmonary diseases. As of today, they have deployed the system in 16 hospitals, and are performing over 1,300 screenings per day in China.
21.03.2020	The potential added value of FDG PET/CT for COVID-19 pneumonia	European Journal of Nuclear Medicine and Molecular Imaging / Letter to the editor	<ul style="list-style-type: none"> • As a non-invasive imaging method, FDG PET/CT plays an important role in evaluating inflammatory and infectious pulmonary diseases, monitoring disease progression and treatment effect, and improving patient management.
21.03.2020	RT-qPCR DETECTION OF SARS-CoV-2 RNA FROM PATIENT NASOPHARYNGEAL SWAB USING QIAGEN RNEASY KITS OR DIRECTLY VIA	bioRxiv (not peer-reviewed) / Article	<ul style="list-style-type: none"> •The current shortage of RNA extraction kit (Qiagen QIAamp DSP Viral RNA Mini kit) during the COVID-19 pandemic has resulted in a severe bottleneck in testing capacity in the US. •To address this problem, the authors tested two alternative strategies: the use of alternative RNA extraction kits or a direct RT-qPCR assay that omits an RNA extraction step altogether. They report here that the RT-qPCR can be performed directly on patient sample material from a nasal swab, without the need for an RNA extraction step of any kind. Collectively, the findings provide viable options to circumvent supply chain issues in COVID-19 testing. Further, the ability to omit the RNA extraction step from RT-qPCR screening protocols would drastically reduce the cost of testing.

	OMISSION OF AN RNA EXTRACTION STEP		<p>ease supply chokepoints of COVID-19 screening and should be applicable throughout the world.</p> <ul style="list-style-type: none"> • Findings are preliminary and based on a single pooled nasopharyngeal swab sample from two previously confirmed positive COVID-19 patients.
19.03.2020	Molecular Dynamics Simulations Indicate the SARS-CoV-2 Mpro Is Not a Viable Target for Small-Molecule Inhibitors Design	bioRxiv (not peer-reviewed) / Article	<ul style="list-style-type: none"> • The authors compared Mpros from SARS-CoV-2 and SARS-CoV. Despite a high level of sequence similarity, the binding sites of analysed proteins show major differences in both shape and size indicating that repurposing drugs for COVID-19 may be futile.
20.03.2020	Reverse transcription loop-mediated isothermal amplification combined with nanoparticles-based biosensor for diagnosis of COVID-19	medRxiv (not peer-reviewed) / Article	<ul style="list-style-type: none"> • A one-step reverse transcription loop-mediated isothermal amplification (RT-LAMP) coupled with nanoparticle-based biosensor (NBS) assay (RT-LAMP-NBS) was successfully established for rapidly and accurately diagnosing COVID-19.
20.03.2020	A Unique Protease Cleavage Site Predicted in the Spike Protein of the Novel Pneumonia Coronavirus (2019-nCoV) Potentially Related to Viral Transmissibility	Virologica Sinica / Research letter	<ul style="list-style-type: none"> • Summary of sequence analysis on the S protein of 2019-nCoV which has predicted a novel furin cleavage site (S1/S2 linkage). The ubiquitous expression of furin in different organs and tissues may be a reason for the high transmissibility and pathogenicity of 2019-nCoV observed in the current epidemic. • Findings were mainly based on bioinformatic analysis, so more laboratory studies on 2019-nCoV in cell and animal models are required.
20.03.2020	PRESCIENT: platform for the rapid evaluation of antibody success using integrated microfluidics enabled technology	Lab on a chip / Research article	<ul style="list-style-type: none"> • Description of the development of PRESCIENT (Platform for the Rapid Evaluation of antibody SucCess using Integrated microfluidics ENabled Technology), a droplet microfluidic system that can enable high-throughput, single-cell resolution identification of nAb repertoires elicited in response to viral infection. • The authors demonstrate PRESCIENT's ability to identify Abs that neutralize a model viral agent, Murine coronavirus (murine hepatitis virus), which causes high mortality rates in experimentally infected mice.
20.03.2020	The first-in-class peptide binder to the SARS-CoV-2 spike protein	bioRxiv (not peer-reviewed) / Article	<ul style="list-style-type: none"> • Using molecular dynamics simulations based on the recently solved ACE2 and SARS-CoV-2-RBD co-crystal structure, the authors observed that the ACE2 peptidase domain (PD) $\alpha 1$ helix is important for binding SARS-CoV-2 RBD. Using automated fast-flow peptide synthesis, they chemically synthesized a 23-mer peptide fragment mimicking the ACE2 PD $\alpha 1$ helix composed entirely of proteinogenic amino acids. • This peptide binder to SARS-CoV-2-RBD provides new avenues for COVID-19 treatment and diagnostic methods by blocking the SARS-CoV-2 spike protein interaction with ACE2 and thus precluding virus entry into human cells.
20.03.2020	Crystal structure of SARS-CoV-2 main	Science / Article	<ul style="list-style-type: none"> • The authors report the X-ray structures of the unliganded SARS-CoV-2 Mpro and its complex with an α-ketoamide inhibitor. This was derived from a previously designed inhibitor but with the P3-P2 amide bond incorporated.

	protease provides a basis for design of improved alpha-ketoamide inhibitors		pyridone ring to enhance the half-life of the compound in plasma. <ul style="list-style-type: none"> Based on the structure, the authors developed the lead compound into a potent inhibitor of the SARS-CoV-2 Mpro. The pharmacokinetic characterization of the optimized inhibitor reveals a pronounced lung tropism and suitability for administration by the inhalative route.
20.03.2020	Is there a role for lung ultrasound during the COVID-19 pandemic?	Journal of ultrasound in medicine / Clinical letter	<ul style="list-style-type: none"> The authors argue that the current clinical evidence (although not yet represented in the literature), the theoretical bases of LUS in the aerated lung, and LUS findings of similar aspects in other pathologies (ARDS, pneumonia) strongly suggest a potential diagnostic accuracy of LUS that may be useful for various aspects of diagnosis and management of COVID-19 patients.
21.03.2020	COVID-19: Epidemiology, Evolution, and Cross-Disciplinary Perspectives	Trends in Microbiology / Review - corrected proof	<ul style="list-style-type: none"> 2019-nCoV isolated from patients shows limited sequence diversity, suggesting that the interspecies transmission event was very recent and that the source of the virus was focused, possibly a point-source event. The amino acid sequence in the ACE2 receptor responsible for 2019-nCoV binding in farm animals and humans differs by only a few exchanges compared with the human receptor, suggesting that the species barrier for virus transmission is small.

Epidemiology and clinical

Date of publication	Title / URL	Journal / Publication type	Digest
20.03.2020	Incidence, clinical characteristics and prognostic factor of patients with COVID-19: a systematic review and meta-analysis	medRxiv (not peer-reviewed) / Article	<ul style="list-style-type: none"> The authors summarised and analysed the clinical characteristics and identify the predictors of disease severity and mortality. A total of 30 studies including 53000 patients with COVID-19 were included in this meta-analysis. The mean age was 49.8 years and 55.5% were male. The pooled incidence of severity and mortality was 20.2% and 3.1%, respectively. The predictor for disease severity included old age, male, smoking, comorbidity, especially chronic kidney disease, chronic obstructive pulmonary disease and cerebral palsy. In terms of laboratory results, increased lactate dehydrogenase (LDH), C-reactive protein (CRP) and a decreased blood platelet and lymphocytes count were highly associated with severe COVID-19. Male age, followed by cardiovascular disease, hypertension and diabetes were found to be independent risk factors for the COVID-19 related death.
20.03.2020	Coronaviruses and immunosuppressed patients. The facts during the third epidemic	Liver transplantation / Letter	<ul style="list-style-type: none"> Report of preliminary experience from the Papa Giovanni XXIII Hospital, Bergamo, Italy, in agreement with data from China, shows that, among patients in the follow-up for cirrhosis, liver transplantation, autoimmune disease, chemotherapy for hepatoblastoma, none developed a clinical pulmonary disease, despite being positive for SARS-CoV-2. The experience made so far on Coronavirus outbreaks suggests that immunosuppressed patients have an increased risk of severe complications compared to the general population, both children and adults.
20.03.2020	The clinical characteristics of pneumonia patients co-infected with SARS-CoV-2 and influenza A virus	Journal of Medical Virology / Research article	<ul style="list-style-type: none"> Patients with both COVID-19 and influenza virus infection did not appear to show a more severe clinical course because based on the laboratory findings, imaging studies, and patient prognosis, they showed similar characteristics as those patients with COVID-19 infection only.

	infected with 2019 novel coronavirus and influenza virus in Wuhan, China		<ul style="list-style-type: none"> • It is worth noting that the symptoms of nasal tampon and pharyngalgia may be more prone to appear for co-infection patients.
20.03.2020	Eleven Faces of Coronavirus Disease 2019	Allergy / Research article	<ul style="list-style-type: none"> • Demographics, clinical manifestations, outcomes, key laboratory results, and radiological images of 11 COVID-19 patients are discussed to demonstrate the complexity of the COVID-19 profile with different clinical presentations.
21.03.2020	Clinical Features and Treatment of COVID-19 Patients in Northeast Chongqing	Journal of Medical Virology / Research article	<ul style="list-style-type: none"> • Epidemiological, clinical features, laboratory findings, radiological characteristics, treatment, and clinical outcomes of 135 patients in northeast Chongqing were collected and analysed in this study.
20.03.2020	Case report of COVID-19 in a kidney transplant recipient: Does immunosuppression alter the clinical presentation?	American journal of transplantation / case report	<ul style="list-style-type: none"> • Case report of a COVID-19 infection in a solid organ transplant recipient, in which the first clinical symptoms were of gastrointestinal viral disease and fever, which further progressed to respiratory symptoms in 48h. • In these high risk populations, protocols for screening for SARS-Cov2 may be needed to be re-evaluated.
20.03.2020	Clinical features in paediatric COVID-19	Pediatric pulmonology / Letter	<ul style="list-style-type: none"> • The authors share observations from Thailand on clinical features in paediatric COVID-19 infection, concluding that early diagnosis of paediatric COVID-19 in their setting might result in mild clinical presentation.
16.03.2020	First Paediatric Case of Coronavirus Disease 2019 in Korea	Journal of Korean Medical Science / Case report	<ul style="list-style-type: none"> • The authors report the first paediatric case of COVID-19 in Korea. • The 10-year-old girl was a close contact of her uncle and her mother who were confirmed to have COVID-19. • They discuss optimal strategy of self-quarantine and patient care in a negative isolation room for children.
21.03.2020	Can COVID-19 present unusual GI symptoms?	Journal of Microbiology, Immunology and Infection / Preprint - not peer-reviewed	<ul style="list-style-type: none"> • A couple of weeks prior to the COVID-19 outbreak in Iran, the number of patients referred to the gastroenterology clinic in Shahid Beheshti Hospital in Qom increased unusually by 20%. • The patients (aged between 19–83 years, with a BMI of 17.5–22) exhibited various gastrointestinal (GI) symptoms, including epigastric pain, constipation, diarrhoea, nausea, vomiting, muscle pain, and melena; patients did not respond to treatment with common therapeutic agents. • All patients with unusual GI symptoms, tested positive for SARS-CoV-2 and various forms of lung involvement were seen in the chest CT scans.
20.03.2020	COVID-19 in gastroenterology: a clinical perspective	Gut / Letter	<ul style="list-style-type: none"> • As SARS-CoV2 spreads across all major continents, it is important that gastroenterologists remain vigilant for variant cases that mimic atypical pneumonia, gastroenteritis, viral hepatitis or dengue fever. • Another important consideration is endoscopy, which carries a risk of disease transmission if attending staff and workers are not wearing appropriate personal protective equipment.
20.03.2020	Rhabdomyolysis as Potential Late Complication	Emerging Infectious Diseases / Early release article - not final version	<ul style="list-style-type: none"> • General muscle pain and fatigue are common symptoms of COVID-19, but clinicians should consider the possibility of rhabdomyolysis when patients have focal muscle pain and fatigue. • CK and myoglobin levels are important indexes for rhabdomyolysis; however, they are not tested routinely and rhabdomyolysis is easily misdiagnosed.

	Associated with COVID-19		<ul style="list-style-type: none"> • The key to avoid acute renal failure from rhabdomyolysis is early detection and treatment with aggressive hydration
20.03.2020	Early Introduction of Severe Acute Respiratory Syndrome Coronavirus 2 into Europe	Emerging Infectious Diseases / Early release article - not final version	<ul style="list-style-type: none"> • Early infections with severe acute respiratory syndrome coronavirus 2 in Europe were detected in travel to Wuhan, China, in January 2020. In 1 tour group, 5 of 30 members were ill; 3 cases were laboratory confirmed. In addition, a healthcare worker was infected. This event documents early importation and subsequent spread of the virus in Europe.
20.03.2020	Non-severe vs severe symptomatic COVID-19: 104 cases from the outbreak on the cruise ship "Diamond Princess" in Japan	medRxiv (not peer-reviewed) / Article	<ul style="list-style-type: none"> • Analysed the difference between non-severe and severe cases with COVID-19 as a result of the mass infection on a cruise ship "Diamond Princess" in Japan (n=104). The high proportion of non-severe cases corrects the assessment of the trend of the outbreak. Consolidation on chest CT scan and lymphopenia were possible factors for deterioration of COVID-19 and contribute to the clinical management.
21.03.2020	[When COVID-19 encounters interstitial lung disease: challenges and management]	Chinese Journal of Tuberculosis and Respiratory Diseases / Chinese article	<ul style="list-style-type: none"> • The lung injury and repair caused by COVID-19 has many similarities with the onset and progression of interstitial lung disease (ILD) .
20.03.2020	Misguided drug advice for COVID-19	Science / Letter	<ul style="list-style-type: none"> • In response to French Health Minister Olivier Véran's claim that anti-inflammatory drugs like ibuprofen and cortisone could aggravate the infection, the author outlines his arguments for uncertainty about this claim on the mechanism of action of NSAIDs. He concludes that people taking NSAIDs for other reasons should not stop doing so for fear of increasing their COVID-19 risk.
22.03.2020	More awareness is needed for severe acute respiratory syndrome coronavirus 2019 transmission through exhaled air during non-invasive respiratory support: experience from China	The European respiratory journal / Letter	<ul style="list-style-type: none"> • Exhaled air dispersion during non-invasive respiratory support may increase the risk of coronavirus transmission and requires more attention from medical personnel and patients.
20.03.2020	Autopsy in suspected COVID-19 cases	Journal of clinical pathology / Guidance	<ul style="list-style-type: none"> • Summary and interpretation of Royal College of Pathologists' autopsy guidelines for suspected COVID-19 deaths. • It includes a description of hazard group 3 organisms to which SARS-CoV-2 has been assigned, a brief description of what is currently known about the pathological and autopsy findings in COVID-19, a summary of the recommendations for conducting autopsies in suspected COVID-19 cases and the techniques for making a diagnosis at autopsy. • It concludes by considering the clinicopathological correlation and notification of such cases.

21.03.2020	Loss of sense of smell as marker of COVID-19 infection	ENT UK / Letter	<ul style="list-style-type: none"> • There is already good evidence from South Korea, China and Italy that significant numbers of patients with proven COVID-19 infection have developed anosmia/hyposmia. • Given the potential for COVID-19 to present with anosmia, and the reports that corticosteroid use may increase the severity of infection, we would advise against use of oral steroids in the treatment of new onset anosmia during the pandemic, particularly if it is unrelated to head trauma or nasal pathology (such as nasal polyps). • There is potential that if any adult with anosmia but no other symptoms was asked to self-isolate for several weeks.
20.03.2020	Hypothesis for potential pathogenesis of SARS-CoV-2 infection--a review of immune changes in patients with viral pneumonia	Emerging microbes & infections / Review article	<ul style="list-style-type: none"> • This article reviews the immunological changes of coronaviruses like SARS, MERS and other viral pneumonias similar to SARS-CoV-2. • Combined with the published literature, the potential pathogenesis of COVID-19 is inferred, and the treatment recommendations for giving high-doses intravenous immunoglobulin and low-molecular-weight heparin and anticoagulant therapy to severe type patients are proposed.
20.03.2020	Navigating Coronavirus Disease 2019 (Covid-19) in Physiatry: A CAN report for Inpatient Rehabilitation Facilities	PM & R : the journal of injury, function, and rehabilitation / Guidance	<ul style="list-style-type: none"> • Guidance aiming to aid Physical Medicine and Rehabilitation specialists in acute Inpatient Rehabilitation Facilities (IRFs) to navigate patient care during this public health emergency.
20.03.2020	Coronavirus disease 2019 (COVID-19) outbreak in Iran; actions and problems	Infection control and hospital epidemiology / Letter	<ul style="list-style-type: none"> • Outlines the trajectory of COVID-19 spread in Iran • Describes official actions being taken to control infection • Identifies areas of concern such as inadequate infrastructure and resources, the wide distribution of the virus nationally, increased travel due to New Year (Nowruz) vacation
20.03.2020	Recommendations for the prevention, mitigation and containment of the emerging SARS-CoV-2 (COVID-19) pandemic in haemodialysis centres	Nephrology, dialysis, transplantation / Guidance	<ul style="list-style-type: none"> • European Dialysis (EUDIAL) Working Group of ERA-EDTA recommendations for the prevention, mitigation and containment in haemodialysis centres of the emerging COVID-19 pandemic.
20.03.2020	Will COVID-19 be a litmus test for post-Ebola Sub-Saharan Africa?	Journal of Medical Virology / Article	<ul style="list-style-type: none"> • The 2014 Ebola outbreak in Sub-Saharan Africa (SSA) is used to highlight lessons learned and how these lessons can apply to managing the COVID-19 pandemic, with advice for governments across 24 countries and warning of the impact of inadequate healthcare infrastructure and public funding
20.03.2020	Practical Aspects of Otolaryngologic Clinical Services During the 2019 Novel Coronavirus Epidemic: An Interview	JAMA otolaryngology-- head & neck surgery / Interview	<ul style="list-style-type: none"> • Otolaryngologists are at particularly high risk when performing routine aerosol-generating procedures. This interview describes measures being taken to mitigate risk in a Hong Kong hospital.

	Experience in Hong Kong		
20.03.2020	Expert consensus for managing pregnant women and neonates born to mothers with suspected or confirmed novel coronavirus (COVID-19) infection	International journal of gynaecology and obstetrics / Guidance	<ul style="list-style-type: none"> • Provides clinical management guidelines for novel coronavirus (COVID-19) in pregnancy.
20.03.2020	COVID-19 (Coronavirus)	Lymphatic research and biology / Article	<ul style="list-style-type: none"> • Guidelines for the Lymphatic Disease Community, focussing on common sense points and advising refer CDC and NHS guidance
21.03.2020	Hospitals as health factories and the coronavirus epidemic	Journal of Nephrology / Editorial	<ul style="list-style-type: none"> • A group of nephrologists, mainly from Lombardy, the Italian region most affected by the epidemics, provide suggestions on the management of SARS-CoV-2 infection in the dialysis ward, one of the most vulnerable wards • At a time when infectious diseases were the major cause of death, each disease was treated in a separate pavilion, with separate entrances and exits which made it possible to prevent contact between patients with different illnesses.
20.03.2020	Managing Cancer Care During the COVID-19 Pandemic: Agility and Collaboration Toward a Common Goal	Journal of the National Comprehensive Cancer Network : JNCCN / Special feature	<ul style="list-style-type: none"> • Special Feature article highlighting the unique circumstances and challenges of cancer treatment amidst a global pandemic, and the importance of organizational structure, preparation, agility, and a shared vision of continuing to provide cancer treatment to patients in the face of uncertainty and rapid change.
20.03.2020	Practical laboratory considerations amidst the COVID-19 outbreak: early experience from Singapore	Journal of clinical pathology / Short report	<ul style="list-style-type: none"> • This article presents one tertiary institution's early experience with managing this emerging crisis and offers practical considerations for the preanalytical, analytical and postanalytical phases of laboratory testing in a cohort of patients.

Infection control

Date of publication	Title / URL	Journal / Publication type	Digest
20.03.2020	Rational use of face masks in the COVID-19 pandemic	Lancet: Respiratory Medicine / Comment	<ul style="list-style-type: none"> • Recommendations on face masks vary across countries and the authors have seen that the use of masks is substantially once local epidemics begin, including the use of N95 respirators (without any other PPE equipment) in community settings. • Urgent research on the duration of protection of face masks, the measures to prolong life of disposable masks and the invention on reusable masks should be encouraged.

20.03.2020	Letter to editor: Role of masks/respirator protection against 2019-novel coronavirus (COVID-19)	Infection control and hospital epidemiology / Letter	<ul style="list-style-type: none"> • Summary of the evidence relating to the protective role of both N95 respirators and medical masks in or diseases, what is known so far about their role in protecting against COVID-19 infection, and discussion of in the fight against COVID-19
20.03.2020	Stopping the Spread of COVID-19	JAMA / Infographic	<ul style="list-style-type: none"> • Infographic on infection control and brief behavioural information aimed at the general public
21.03.2020	Prepare to adapt: Blood supply and transfusion support during the first 2 weeks of the 2019 Novel Coronavirus (COVID-19) pandemic affecting Washington State	Transfusion / Brief report	<ul style="list-style-type: none"> • This brief report describes the response from the hospital, the regional blood centre, and the hospital-based transfusion services to the events that took place in the community during the initial phases of the pandemic
20.03.2020	Public health measures to slow community spread of COVID-19	The Journal of infectious diseases / Article	<ul style="list-style-type: none"> • Given the evolving picture of the COVID-19 pandemic, the application of layered, multi faceted, location- and population-specific NPIs will need to be considered and initiated quickly to curb widespread transmission. • When NPIs are reactive to widespread transmission, instead of proactive to the potential for transmission, they often fail to reduce rates of illness. The types of proactive measures described by the authors were successful in mitigating the 1918/19 influenza pandemic and may be just as valuable almost a century later.
21.03.2020	Responding to the COVID-19 pandemic in complex humanitarian crises	International Journal for Equity in Health / Commentary	<ul style="list-style-type: none"> • As the international community responds to SARS-CoV-2, public health authorities in humanitarian crises face a disadvantage to enact appropriate infection control to prevent transmission in healthcare settings, identify and manage infectious cases, administer supportive care and novel treatments for the seriously ill, and trace contacts. • Interventions tailored to the needs of crisis-affected populations, delivered with transparent information and in the context of inclusive governance practices, are urgently needed in the global response to the COVID-19 pandemic

Treatment

Date of publication	Title / URL	Journal / Publication type	Digest
20.03.2020	SARS-CoV2: should inhibitors of the renin-angiotensin system be withdrawn in patients with COVID-19?	European heart journal / Article	<ul style="list-style-type: none"> • Based on currently available data and in view of the overwhelming evidence of mortality reduction in patients with cardiovascular disease, ACE-I and ARB therapy should be maintained or initiated in patients with hypertension, or myocardial infarction according to current guidelines as tolerated, irrespective of COVID-19 status. • Withdrawal of RAAS inhibition or pre-emptive switch to alternate drugs at this point seems not warranted and might even increase cardiovascular mortality in critically ill COVID-19 patients.

23.03.2020	Identification of antiviral drug candidates against SARS-CoV-2 from FDA-approved drugs	bioRxiv (not peer-reviewed) / Article	<ul style="list-style-type: none"> •The authors found 24 drugs which exhibited antiviral efficacy ($0.1 \mu\text{M} < \text{IC}_{50} < 10 \mu\text{M}$) against SARS-CoV-2. In particular, two FDA-approved drugs - niclosamide and ciclesonide – were notable in some respects. These will be tested in an appropriate animal model for their antiviral activities.
20.03.2020	Hiding in Plain Sight: an Approach to Treating Patients with Severe COVID-19 Infection	mBio / Commentary	<ul style="list-style-type: none"> • The tissue receptor for COVID-19 is ACE2, and higher levels of ACE2 can protect against ARDS. Angiotensin II receptor blockers and statins upregulate ACE2. Clinical trials are needed to determine whether this drug combination might be used to treat patients with severe COVID-19 infection.
20.03.2020	Incidence, clinical characteristics and prognostic factor of patients with COVID-19: a systematic review and meta-analysis	medRxiv (not peer-reviewed) / Article	<ul style="list-style-type: none"> •The authors summarised and analysed the clinical characteristics and identify the predictors of disease severity and mortality. A total of 30 studies including 53000 patients with COVID-19 were included in this study. •The mean age was 49.8 years and 55.5% were male. The pooled incidence of severity and mortality were 20.2% and 3.1%, respectively. The predictor for disease severity included old age, male, smoking and any comorbidity, especially chronic kidney disease, chronic obstructive pulmonary disease and cerebrovascular disease. •In terms of laboratory results, increased lactate dehydrogenase (LDH), C-reactive protein (CRP) and D-dimer, and decreased blood platelet and lymphocytes count were highly associated with severe COVID-19. Meanwhile, old age, followed by cardiovascular disease, hypertension and diabetes were found to be independent prognostic factors for the COVID-19 related death.
20.03.2020	A brief review of antiviral drugs evaluated in registered clinical trials for COVID-19	medRxiv (not peer-reviewed) / Article	<ul style="list-style-type: none"> •A review of currently registered clinical trials was performed on registries, including the Chinese (chictr.org) and US (clinicaltrials.gov) databases to identify relevant studies up to March, 7th 2020. Out of the 353 studies identified, 115 clinical trials were selected for data extraction.
20.03.2020	COVID-19: a recommendation to examine the effect of hydroxychloroquine in preventing infection and progression	The Journal of antimicrobial chemotherapy / Article	<ul style="list-style-type: none"> • Chloroquine (CQ) exhibits a promising inhibitory effect on uncontrolled cytokine release but can cause severe side effects. • The authors propose that hydroxychloroquine (HCQ), which exhibits an antiviral effect highly similar to CQ, could serve as a better therapeutic approach. HCQ is likely to attenuate the severe progression of COVID-19 by inhibiting the cytokine storm by suppressing T cell activation. It has a safer clinical profile and is suitable for patients who are pregnant. It is cheaper and more readily available in China. • They herein strongly urge that clinical trials are performed to assess the preventive effects of HCQ in both preventing infection and progression.
23.03.2020	An exploratory randomized, controlled study on the efficacy and safety of lopinavir/ritonavir or arbidol treating adult patients hospitalized	medRxiv (not peer-reviewed) / Article	<ul style="list-style-type: none"> •This study was an exploratory randomized (2:2:1) and controlled one, exploring the efficacy and safety of lopinavir/ritonavir (LPV/r) or arbidol monotherapy treating mild/moderate COVID-19 patients. •Concluded that LPV/r or arbidol monotherapy seems to have little benefit for improving the clinical outcome of mild/moderate COVID-19. LPV/r might lead to more adverse events. Due to the limitation of small sample size, further verification is needed in the future.

	with mild/moderate COVID-19 (ELACOI)		
20.03.2020	PREDICTING THE EVOLUTION OF COVID-19 IN PORTUGAL USING AN ADAPTED SIR MODEL PREVIOUSLY USED IN SOUTH KOREA FOR THE MERS OUTBREAK	medRxiv (not peer-reviewed) / Article	<ul style="list-style-type: none"> • Compared the efficacy and safety of favipiravir and arbidol to treat COVID-19 patients on 7 day's clinical rate. In ordinary COVID-19 patients untreated with antiviral previously, favipiravir can be considered as a treatment because of its' higher 7 day's clinical recovery rate and more effectively reduced incidence of febrile cough except some antiviral-associated adverse effects.
20.03.2020	An orally bioavailable broad-spectrum antiviral inhibits SARS-CoV-2 and multiple endemic, epidemic and bat coronavirus	bioRxiv (not peer-reviewed) / Article	<ul style="list-style-type: none"> • The authors show that the ribonucleoside analog Beta-D-N4-hydroxycytidine (NHC, EIDD-1931) has broad spectrum antiviral activity against SARS-CoV 2, MERS-CoV, SARS-CoV, and related zoonotic group 2b or 2c as well as increased potency against a coronavirus bearing resistance mutations to another nucleoside analog inhibitor. The potency of NHC/EIDD-2801 against multiple coronaviruses, its therapeutic efficacy, and oral bioavailability in vivo, all highlight its potential utility as an effective antiviral against SARS-CoV-2 and other zoonotic coronaviruses.

Social Sciences

Date of publication	Title / URL	Journal / Publication type	Digest
20.03.2020	Supporting Clinicians During the COVID-19 Pandemic	Annals of internal medicine / Opinion	<ul style="list-style-type: none"> • Opinion piece examining best practice to support maintaining the resilience of clinicians during COVID-19
20.03.2020	Knowledge and Perceptions of COVID-19 Among the General Public in the United States and the United Kingdom: A Cross-sectional Online Survey	Annals of internal medicine / research letter	<ul style="list-style-type: none"> • A total of 2986 and 2988 adults residing in the United States and United Kingdom, respectively, questionnaire assessing assess knowledge and perceptions about COVID-19. • Although participants generally had good knowledge of the main mode of disease transmission symptoms, the survey identified several important misconceptions on how to prevent acquisition including beliefs in falsehoods that have circulated on social media. • A substantial proportion of participants also expressed an intent to discriminate against individuals of different ethnicity for fear of acquiring COVID-19.
20.03.2020	Report 10: Public Response to UK Government Recommendations on COVID-19: Population	Imperial College / Report	<ul style="list-style-type: none"> • To capture public sentiment towards these recommendations, a YouGov survey was commissioned by the Experience Research Centre (PERC), Imperial College London. • The survey was completed by 2,108 UK adults between the dates of 17th – 18th March 2020. • Hand washing (63%), avoiding persons with symptoms (61%), and covering your sneeze (53%) were perceived as 'very effective' measures to prevent COVID-19 spread than common social distancing measures (avoiding going out (31%), to work (23%), to shops (16%) or to schools (19%).

	Survey, 17-18 March 2020		
20.03.2020	Social Capital and Sleep Quality in Individuals Who Self-Isolated for 14 Days During the Coronavirus Disease 2019 (COVID-19) Outbreak in January 2020 in China	Medical science monitor / Article	<ul style="list-style-type: none"> • During a period of individual self-isolation during the COVID-19 virus epidemic in central China, increase in social capital improved sleep quality by reducing anxiety and stress
20.03.2020	Covid-19: control measures must be equitable and inclusive	BMJ (Clinical research ed.) / Editorial	<ul style="list-style-type: none"> • Discusses the needs of vulnerable groups in the response to COVID-19, including inclusive messaging, financial support, equitable sharing of health resources, and employment rights
20.03.2020	COVID-19: Vulnerability and the power of privilege in a pandemic	Health promotion journal of Australia / Editorial	<ul style="list-style-type: none"> • Discusses the role of health promotion during pandemics, with a focus on the importance of coordinating messaging between various sectors. • Considers how pandemics can impact vulnerable populations.

Miscellaneous

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20.03.2020	A framework for identifying regional outbreak and spread of COVID-19 from one-minute population-wide surveys	medRxiv (not peer-reviewed) / Article	<ul style="list-style-type: none"> • The authors propose that daily population-wide surveys that assess the development of symptoms could serve as a strategic and valuable tool for identifying such clusters to inform epidemiological officials, and policymakers. Show preliminary results from a survey of over 38,000 Israelis and call for a consortium to extend this concept in order to develop predictive models.
20.03.2020	Seasonality of Respiratory Viral Infections	Annual review of virology / Early release article - not final version	<ul style="list-style-type: none"> • Review of evidence of how outdoor and indoor climates are linked to the seasonality of viral respiratory infections • Discussion of determinants of host response in the seasonality of respiratory viruses by highlighting findings from the field.
21.03.2020	Replication of SARS-CoV-2 in human respiratory epithelium	bioRxiv (not peer-reviewed) / Article	<ul style="list-style-type: none"> • The authors differentiated human airway epithelium cultures as a model for studies on the SARS-CoV-2 system.
21.03.2020	Respiratory disease and virus shedding in rhesus macaques	bioRxiv (not peer-reviewed) / Article	<ul style="list-style-type: none"> • The authors show that SARS-CoV-2 causes respiratory disease in infected rhesus macaques, with symptoms appearing within 16 days. Pulmonary infiltrates, a hallmark of human disease, were visible in lung radiographs of all animals. Viral loads were detected in swabs from the nose and throat of all animals as well as in bronchoalveolar lavage.

	macaques inoculated with SARS-CoV-2		<p>animal the authors observed prolonged rectal shedding.</p> <ul style="list-style-type: none"> • Taken together, the rhesus macaque recapitulates moderate disease observed in the majority of human establishment of the rhesus macaque as a model of COVID-19 will increase our understanding of the path of this disease and will aid development and testing of medical countermeasures.
20.03.2020	Telehealth for global emergencies: Implications for coronavirus disease 2019 (COVID-19)	Journal of telemedicine and telecare / Research article	<ul style="list-style-type: none"> • Examines the role of telehealth in emergency responses, highlighting advantages and limitations and development of a telehealth strategy to deal with global and national emergency responses, built on the premise that telehealth becomes a mainstream component of our health system.

Modelling

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23.03.2020	Assessing the potential impacts of COVID-19 in Brazil: Mobility, Morbidity and Impact to the Health System	medRxiv (not peer-reviewed) / Article	<ul style="list-style-type: none"> • The authors explore the most likely routes of spread of COVID-19 through Brazil, from the already exposed areas according to human mobility statistics. The resulting maps should help authorities in their efforts to prioritize and if resource allocation to mitigate the effects of the pandemic.
23.03.2020	From a single host to global spread. The global mobility based modelling of the COVID-19 pandemic implies higher infection and lower detection rates than current estimates	medRxiv (not peer-reviewed) / Article	<ul style="list-style-type: none"> • The authors propose a set of parameters for the first COVID-19 Global Epidemic and Mobility Model (GLEAM). Parameters that successfully model the pandemic are: the basic reproduction number R_0, ~ 4.4; a latent non-infectious period of 1-1. days followed by 4-6 days of the presymptomatic infectious period; the probability of developing severe symptoms, 0.01; the probability of being diagnosed when presenting severe symptoms, 0.01; the probability of diagnosis for cases with mild symptoms or asymptomatic, 0.001. Also, the higher the testing rate in a country, the lower the discrepancy between data (diagnosed cases) and model.