Public Health England

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Theme	Publication Date	Title/URL	Journal/Publication type	Digest
Diagnostics and genomics	14.03.2020	Development of CRISPR as a prophylactic strategy to combat novel coronavirus and influenza	bioRxiv (not peer-reviewed) / New results	• The authors demonstrate a CRISPR-Cas13-based strategy, PAC-MAN (Prophylactic Antiviral CRISPR in huMAN cells), for viral inhibition that can effectively degrade SARS-CoV-2 sequences and live influenza A virus (IAV) genome in human lung epithelial cells.: • Bioinformatic analysis showed a group of only six crRNAs can target more than 90% of all coronaviruses. : • The PAC-MAN approach is potentially a rapidly implementable pan-coronavirus strategy to deal with emerging pandemic strains.
Diagnostics and genomics	15.03.2020	A Generic Computer-Assisted Four-Pronged Approach for the Management of Emerging Global Pathogens: Some Comments on COVID-19	Curr Comput Aided Drug Des / Article	•A combination of in vivo, in vitro, and in silico methods will be needed for the surveillance and characterization of COVID-19 and discovery of drugs/ vaccines for this pathogen: •Computer-assisted in silico approaches, being fast and less expensive as: compared to the other two, may act as decision support systems in the management of the COVID-19 menace.
Diagnostics and genomics	12.03.2020	The SARS-CoV-2 exerts a distinctive strategy for interacting with the ACE2 human receptor	bioRxiv (not peer-reviewed) / New results	• The authors compare the interaction between the human ACE2 receptor and the SARS-CoV-2 spike protein with that of other pathogenic coronaviruses using molecular dynamics simulations. : • SARS-CoV, SARS-CoV-2, and HCoV-NL63 recognize ACE2 as the natural receptor but present a distinct binding interface to ACE2 and a different network of residue-residue contacts. : • SARS-CoV and SARS-CoV-2 have comparable binding affinities achieved by balancing

				energetics and dynamics. : • The SARS-CoV-2 - ACE2 complex contains a higher number of contacts, a larger interface area, and decreased interface residue fluctuations relative to SARS-CoV.
Diagnostics and genomics	16.03.2020	Ocular manifestations and clinical characteristics of 534 cases of COVID-19 in China: A cross-sectional study	medRxiv (not peer-reviewed) / Article	• Conjunctival congestion was one of the COVID-19 related ocular symptoms, which may have clinical diagnostic significance.: • A total of five hundred and thirty-four patients were recruited at Mobile Cabin Hospital and Tongji Hospital.: • It is essential to provide eye-care equipment and strengthen education on eye protection, as dirty hand-eye contact might be a high risk factor of COVID-19. :
Diagnostics and genomics	15.03.2020	Differential antibody recognition by Novel SARS-CoV-2 and SARS-CoV Spike Protein Receptor Binding Domains: Mechanistic insights and implications for the design of diagnostics and therapeutics	bioRxiv (not peer-reviewed) / New results	• Results highlight structural and sequence differences among the regions that are predicted to be immunoreactive and bind/elicit antibodies. : • These results provide a rational basis to the observation that several SARS-CoV RDB-specific monoclonal antibodies fail to appreciably bind the SARS-CoV-2 counterpart.
Diagnostics and genomics	13.03.2020	Diagnosis of Acute Respiratory Syndrome Coronavirus 2 Infection by detection of nucleocapsid protein	medRxiv (not peer-reviewed) / Article	• The authors included a cohort of 239 participants with suspected SARS-CoV-2 infection from 7 centers for the study. : • Findings indicate that nucleocapsid protein assay is an accurate, rapid, early and simple method for diagnosis of COVID-19. Appearance of nucleocapsid protein in urine coincides our finding of the SARS-CoV-2 invading kidney and might be of diagnostic value.

Diagnostics and genomics	14.03.2020	[Dark proteome of newly emerged SARS-CoV-2 in comparison with human and bat coronaviruses](#)	bioRxiv (not peer-reviewed) / New results	• The multiple sequence alignment data correlated with already published reports on SARS-CoV-2 indicated that it is closely related to Bat-Severe Acute Respiratory Syndrome like coronavirus (Bat CoV SARS-like) and well-studied Human SARS. : • The findings, SARS-CoV-2 proteome contains a significant amount of ordered proteins except Nucleocapsid, Nsp8, and ORF6.: • Cleavage sites in replicase 1ab polyprotein are found to be highly disordered.
Diagnostics and genomics	16.03.2020	[Candidate targets for immune responses to 2019-Novel Coronavirus (nCoV): sequence homology- and bioinformatic-based predictions](#)	bioRxiv (not peer-reviewed) / New results	• The authors used the Immune Epitope Database and Analysis Resource (IEDB) resource to catalog available data related to other coronaviruses, including SARS-CoV, which has high sequence similarity to 2019-nCoV, and is the best-characterized coronavirus in terms of epitope responses. : • They identified multiple specific regions in 2019-nCoV that have high homology to SARS virus. : • Parallel bionformatic predictions identified a priori potential B and T cell epitopes for 2019-nCoV.
Diagnostics and genomics	16.03.2020	[Heat inactivation of serum interferes with the immunoanalysis of antibodies to SARS-CoV-2](#)	medRxiv (not peer-reviewed) / Article	• By comparing the levels of SARS-CoV-2 antibodies before and after heat inactivation of serum at 56 ? for 30 minutes using a quantitative fluorescence immunochromatographic assay, the authors show that heat inactivation significantly interferes with the levels of antibodies to SARS-CoV-2. : • Their results indicate that heat inactivation of serum at 56 ? for 30 minutes interferes with the immunoanalysis of antibodies to SARS-CoV-2. : • Heat inactivation prior to immunoanalysis is not recommended and the possibility of false-negative results should be considered if the sample was pre-inactivated by heating.

Diagnostics and genomics	16.03.2020	[Triaging patients in the outbreak of the 2019 novel coronavirus](#)	medRxiv (not peer-reviewed) / Article	• This retrospective study analyzed the data collected during the triage period and found that COVID-19 patients were enriched seven folds into the Section A designated for rapid detection and quarantine. : • On the other side, roughly triple amounts of visits were received at the Section B for patients without obvious epidemiological history.: • Besides comorbidities, delayed sharing of epidemiological history added another layer of complexity to the diagnosis in practice.
Diagnostics and genomics	12.03.2020	[Clinical significance of IgM and IgG test for diagnosis of highly suspected COVID-19 infection](#)	medRxiv (not peer-reviewed) / Article	• 57 suspected COVID-19 infection patients were enrolled in our study. 24 patients with positive and 33 patients with negative nucleic acid test.: • The authors suggest a quick, simple, accurate aided detection method for the suspected patients and on-site screening in close contact with the population.
Diagnostics and genomics	14.03.2020	[Nucleotide analogues as inhibitors of SARS-CoV Polymerase](#)	bioRxiv (not peer-reviewed) / New results	• Using model polymerase extension experiments, the authors demonstrate that the activated triphosphate form of Sofosbuvir is incorporated by low-fidelity polymerases and SARS-CoV RNA-dependent RNA polymerase (RdRp), and blocks further incorporation by these polymerases; the activated triphosphate form of Sofosbuvir is not incorporated by a host-like high-fidelity DNA polymerase. : • The authors demonstrate the ability of two HIV reverse transcriptase inhibitors, 3?-fluoro-3?-deoxythymidine triphosphate and 3?-azido-3?-deoxythymidine triphosphate (the active triphosphate forms of Alovudine and AZT), to be incorporated by SARS-CoV RdRp where they also terminate further polymerase extension.

Diagnostics and genomics	15.03.2020	The architecture of SARS-CoV-2 transcriptome	bioRxiv (not peer-reviewed) / New results	• Utilizing two complementary sequencing techniques, the authors here present a high-resolution map of the SARS-CoV-2 transcriptome and epitranscriptome.
Diagnostics and genomics	14.03.2020	High sensitivity detection of SARS-CoV-2 using multiplex PCR and a multiplex-PCR-based metagenomic method	bioRxiv (not peer-reviewed) / New results	• With the goal of improving sensitivity and accommodate various application settings, the authors developed a multiplex-PCR-based method comprised of 172 pairs of specific primers, and demonstrate its efficiency to detect SARS-CoV-2 at low copy numbers.
Diagnostics and genomics	14.03.2020	Accurate identification of SARS-CoV-2 from viral genome sequences using deep learning	bioRxiv (not peer-reviewed) / New results	• The proposed approach employs a state-of-the-art deep convolutional neural network, able to automatically create features starting from the genome sequence of the virus.: • Experiments on data from the Novel Coronavirus Resource (2019nCoVR) show that the proposed approach is able to correctly classify SARS-CoV-2, distinguishing it from other coronavirus strains, such as MERS-CoV, HCoV-NL63, HCoV-OC43, HCoV-229E, HCoV-HKU1, and SARS-CoV regardless of missing information and errors in sequencing (noise).
Diagnostics and genomics	14.03.2020	SARS-CoV-2 receptor ACE2 and TMPRSS2 are predominantly expressed in a transient secretory cell type in subsegmental bronchial branches	bioRxiv (not peer-reviewed) / New results	• The authors investigate ACE2 and TMPRSS2 expression levels and their distribution across cell types in lung tissue (twelve donors, 39,778 cells) and in cells derived from subsegmental bronchial branches (four donors, 17,521 cells) by single nuclei and single cell RNA sequencing, respectively.
Diagnostics and genomics	12.03.2020	Development of Reverse Transcription Loop-mediated Isothermal Amplification (RT-LAMP) Assays targeting SARS-CoV-2	bioRxiv (not peer-reviewed) / New results	• Diagnosis of COVID-19 is currently performed by RT-qPCR methods, but the capacity of RT-qPCR methods is limited by its requirement of high-level facilities and instruments. : • The authors developed and evaluated RT-LAMP assays to detect genomic RNA of SARS-CoV-2, the causative virus of

				COVID-19. RT-LAMP assays in this study can detect as low as 100 copies of SARS-CoV-2 RNA. : • Cross-reactivity of RT-LAMP assays to other human Coronaviruses was not observed.
Diagnostics and genomics	13.03.2020	Immunopathological characteristics of coronavirus disease 2019 cases in Guangzhou, China	medRxiv (not peer-reviewed) / Article	• Data indicate that patients with severe COVID-19 exhibited an overall decline of lymphocytes including CD4+ and CD8+ T cells, B cells, and NK cells. : • The study shows that the comprehensive decrease of lymphocytes, and the elevation of IL-2 and IL-6 are reliable indicators of severe COVID-19.
Diagnostics and genomics	12.03.2020	Discovery of a 382-nt deletion during the early evolution of SARS-CoV-2	bioRxiv (not peer-reviewed) / New results	• The authors report a 382-nt deletion covering almost the entire open reading frame 8 (ORF8) of SARS-CoV-2 obtained from eight hospitalized patients in Singapore. : • They hypothesise that the major deletion revealed in this study may lead to an attenuated phenotype of SARS-CoV-2.
Diagnostics and genomics	14.03.2020	SARS-CoV-2 invades host cells via a novel route: CD147-spike protein	bioRxiv (not peer-reviewed) / New results	• The authors reported a research finding that SARS-CoV-2 invaded host cells via a novel route of CD147-spike protein (SP). SP bound to CD147, a receptor on the host cells, thereby mediating the viral invasion.: • The discovery of the new route CD147-SP for SARS-CoV-2 invading host cells provides a critical target for development of specific antiviral drugs.

| Diagnostics and genomics | 12.03.2020 | [Rigidity, normal modes and flexible motion of a SARS-CoV-2 (COVID-19) protease structure](#) | bioRxiv (not peer-reviewed) / New results | • The rigidity and flexibility of two recently reported crystal structures (PDB entries 6Y2E and 6LU7) of a protease from the SARS-CoV-2 virus, the infectious agent of the COVID-19 respiratory disease, has been investigated using pebble-game rigidity analysis, elastic network model normal mode analysis, and all-atom geometric simulations. : • A database of generated PDB files representing natural flexible variations on the crystal structures has been produced and made available for download from an institutional data archive. : • This information may inform structure-based drug design and fragment screening efforts aimed at identifying specific antiviral therapies for the treatment of COVID-19. |
| Diagnostics and genomics | 12.03.2020 | [Novel and potent inhibitors targeting DHODH, a rate-limiting enzyme in de novo pyrimidine biosynthesis, are broad-spectrum antiviral against RNA viruses including newly emerged coronavirus SARS-CoV-2](#) | bioRxiv (not peer-reviewed) / New results | • The authors identified two potent inhibitors of DHODH, S312 and S416, with favorable drug-like and pharmacokinetic profiles, which all showed broad-spectrum antiviral effects against various RNA viruses, including influenza A virus (H1N1, H3N2, H9N2), Zika virus, Ebola virus, and particularly against the recent novel coronavirus SARS-CoV-2. : • This work demonstrates that both their self-designed candidates and old drugs (Leflunomide/Teriflunomide) with dual actions of antiviral and immuno-repression may have clinical potentials not only to influenza but also to COVID-19 circulating worldwide, no matter such viruses mutate or not. |

Diagnostics and genomics	16.03.2020	Immune phenotyping based on neutrophil-to-lymphocyte ratio and IgG predicts disease severity and outcome for patients with COVID-19	medRxiv (not peer-reviewed) / Article	• Anti-SARS-CoV-2 IgG and IgM antibodies were determined by chemiluminescence analysis (CLIA) in COVID-19 patients from a single center in Wuhan. : • COVID-19 severity is associated with increased IgG response, and an immune response phenotyping based on late IgG response and NLR could act as a simple complementary tool to discriminate between severe and nonsevere COVID-19 patients, and further predict their clinical outcome.
Diagnostics and genomics	13.03.2020	Infrared assessment of human facial temperature in the presence and absence of common cosmetics	medRxiv (not peer-reviewed) / Article	• The authors tested a family of 10 commonly-used cosmetic products and find that volatile liquids and creams lower thermal skin temperature by at least 2 C for up to 5-10 min and at least 1 C for up to 20 min, respectively. : • They found that for human subjects whose face was treated with certain cosmetics and lotions, infrared-based screening for elevated facial temperature (fever) can be unreliable.
Diagnostics and genomics	14.03.2020	Coronavirus Disease 2019 (COVID-19): A Systematic Review of Imaging Findings in 919 Patients	AJR Am J Roentgenol / Review	•This systematic review of current literature on COVID-19 provides insight into the initial and follow-up CT characteristics of the disease.
Diagnostics and genomics	16.03.2020	Probable Pangolin Origin of 2019-nCoV Associated with Outbreak of COVID-19	Cell / Article (not peer-reviewed)	•This study suggests that pangolin species are a natural reservoir of SARS: CoV-2-like CoVs.

Epidemiology and clinical	14.03.2020	[Reinfection could not occur in SARS-CoV-2 infected rhesus macaques](#)	bioRxiv (not peer-reviewed) / New results	• The longitudinal tracking of re-exposure after the disappeared symptoms of the SARS-CoV-2-infected monkeys was performed in this study. : • Notably, neither viral loads in nasopharyngeal and anal swabs along timeline nor viral replication in all primary tissue compartments at 5 days post-reinfection (dpr) was found in re-exposed monkeys.
Epidemiology and clinical	16.03.2020	[Editorial Concern-Possible Reporting of the Same Patients With COVID-19 in Different Reports](#)	Jama / Editorial	•The JAMA editors have become aware that some of the patients described in some COVID-19 manuscripts, sometimes with overlapping authorship, have been reported in more than 1 submission: •This inclusion of the same patients in more than 1 report has not been clearly indicated in the submitted manuscripts and is of concern and may represent a lapse in ethical standards of scientific reporting
Epidemiology and clinical	13.03.2020	[Estimation of instant case fatality rate of COVID-19 in Wuhan and Hubei based on daily case notification data](#)	medRxiv (not peer-reviewed) / Article	• The fatality rate and cure rate of COVID-19 in Wuhan City and Hubei Province were underestimated. Wuhan showed higher fatality rate and cure rate than the whole Hubei Province did.: • The authors collected the daily case notification data of COVID-19 from Dec 8, 2019 to Mar 10, 2020 in Wuhan City and Hubei Province officially announced by the Chinese authority. The numbers of daily confirmed/deaths/cured cases and the numbers of daily cumulative confirmed/deaths/cured cases were obtained.
Epidemiology and clinical	13.03.2020	[The serial interval of COVID-19 from publicly reported confirmed cases](#)	medRxiv (not peer-reviewed) / Article	• The authors analyze the serial intervals-the time period between the onset of symptoms in an index (infector) case and the onset of symptoms in a secondary (infectee) case-of 468 infector-infectee pairs with confirmed COVID-19 cases reported by health departments

				in 18 Chinese provinces between January 21, 2020, and February 8, 2020. : • The reported serial intervals range from -11 days to 20 days, with a mean of 3.96 days (95% confidence interval: 3.53-4.39), a standard deviation of 4.75 days (95% confidence interval: 4.46-5.07), and 12.1% of reports indicating pre-symptomatic transmission.
Epidemiology and clinical	16.03.2020	Influence factors of death risk among COVID-19 patients in Wuhan, China: a hospital-based case-cohort study	medRxiv (not peer-reviewed) / Article	• Older age, lower oxygenation index and comorbidities on admission elevate death risk of COVID-19 patients. : • AST/ALT ratio, urea nitrogen, TBIL and LDH on admission may be potential prognostic indicators. : • Early hospitalization is of great significance to prevent multiple organ damage and improve the survival of COVID-19 patients.
Epidemiology and clinical	16.03.2020	Systematic review and meta-analysis of predictive symptoms and comorbidities for severe COVID-19 infection	medRxiv (not peer-reviewed) / Article	• Dyspnoea was the only symptom strongly predictive for both severe disease and ICU admission, and could be useful in guiding clinical management decisions early in the course of illness. : • When looking at ICU-admitted patients, who represent the more severe end of the spectrum of clinical severity, COPD patients are particularly vulnerable, and those with cardiovascular disease and hypertension are also at a high-risk of severe illness.
Epidemiology and clinical	13.03.2020	Epidemiological, clinical characteristics and outcome of medical staff infected with COVID-19 in Wuhan, China: A retrospective case series analysis	medRxiv (not peer-reviewed) / Article	• In this retrospective study, 64 confirmed cases of novel coronavirus-infected medical staff admitted to Union Hospital, Wuhan between 16 Jan, 2020 to 15 Feb, 2020 were included. : • In this study, medical staff infected with COVID-19 have relatively milder symptoms and favorable clinical course, which may be partly due to their medical expertise, younger age and less underlying diseases.

Epidemiology and clinical	16.03.2020	Active or latent tuberculosis increases susceptibility to COVID-19 and disease severity	medRxiv (not peer-reviewed) / Article	• Infection with M. tuberculosis (MTB), the pathogen that causes TB and latently infects ~25% of the global population, may be a risk factor for SARS-CoV-2 infection and severe COVID-19 pneumonia.: • Risk factors associated with COVID-19, the viral pneumonia originating in Wuhan, China, in Dec 2019, require clarification so that medical resources can be prioritized for those at highest risk of severe COVID-19 complications.
Epidemiology and clinical	16.03.2020	Clinical features and outcomes of 2019 novel coronavirus-infected patients with cardiac injury	medRxiv (not peer-reviewed) / Article	• Cardiac injury is a common condition among patients infected with 2019-nCoV.Compared with patients without cardiac injury, the clinical outcomes of patients with cardiac injury are relatively worse.: • Data were collected from 291 patients medical records, and the authors defined cardiac injury according to cardiac biomarker troponin I level > 0.03>ug/L.
Epidemiology and clinical	13.03.2020	Clinical characteristics of 101 non-surviving hospitalized patients with COVID-19: A single center, retrospective study	medRxiv (not peer-reviewed) / Article	• 101 non-surviving patients with confirmed COVID-19 were included in this retrospective study. : • Older patients (>70 years) with comorbidities had a steeply increased risk of death with COVID-19. : • Respiratory failure, acute cardiac and kidney injury played a crucial role in the death of patients. : • Elevated high sensitivity troponin, neutrophils and depressed oxygen saturation predicted the rapid death of patients.
Epidemiology and clinical	16.03.2020	Clinical characteristics of 34 children with Coronavirus Disease-2019 in the West of China: a Multiple-center case series	medRxiv (not peer-reviewed) / Article	• This retrospective, observational study was a case series performed at 4 hospitals in the west of China. Thirty-four paediatric patients with COVID-19 were included from January 1 to February 25, 2020. : • The data presented the clinical and epidemiological features of paediatric patients systemically. : • The findings offer new insight into the early identification and intervention

				of paediatric patients with COVID-19.
Epidemiology and clinical	16.03.2020	Relationship between the ABO blood group and the COVID-19 susceptibility	medRxiv (not peer-reviewed) / Article	• People with blood group A have a significantly higher risk for acquiring COVID-19 compared with non-A blood groups, whereas blood group O has a significantly lower risk for the infection compared with non-O blood groups.: • The study was conducted by comparing the blood group distribution in 2,173 patients with COVID-19 confirmed by SARS-CoV-2 test from three hospitals in Wuhan and Shenzhen, China with that in normal people from the corresponding regions. :
Epidemiology and clinical	16.03.2020	Coronavirus fulminant myocarditis saved with glucocorticoid and human immunoglobulin	Eur Heart J / Case report	•A case of coronavirus infection was characterized by heart damage and the heart grew rapidly in a short period of time and quickly returns to normal after treatment.: •It is suggested that early glucocorticoid anti-inflammatory therapy and immunoglobulin therapy are of important value to this type of patient.
Epidemiology and clinical	16.03.2020	Report on the Epidemiological Features of Coronavirus Disease 2019 (COVID-19) Outbreak in the Republic of Korea from January 19 to March 2, 2020	J Korean Med Sci	•This report summarizes the epidemiologic features and the snapshots of the outbreak in the Republic of Korea from January 19 and March 2, 2020.

Epidemiology and clinical	16.03.2020	[Clinical features of deaths in the novel coronavirus epidemic in China](#)	Rev Med Virol / Article	•The present work presents the first review of the fatal novel coronavirus cases in China - as of 2 February 2020, the clinical data of 46 fatal cases were identified: •The case fatality rate was significantly higher in Hubei province than the rest of China. : •While 67% of all deceased patients were male, gender was unlikely to be associated with mortality, but diabetes was likely to be associated with mortality
Epidemiology and clinical	16.03.2020	[COVID-19 and the Risk to Health Care Workers: A Case Report](#)	Ann Intern Med/ Letter	•To describe the clinical outcome of health care workers who took care of a patient with severe pneumonia before the diagnosis of COVID-19 was known: •85% of 41 health care workers were exposed during an aerosol-generating procedure exposed while wearing a surgical mask, and the remainder were wearing N95 masks: •None of the health care workers in this situation acquired infection suggesting that surgical masks, hand hygiene, and other standard procedures protected them from being infected.

Epidemiology and clinical	16.03.2020	Investigation of three clusters of COVID-19 in Singapore: implications for surveillance and response measures	The Lancet / Article	•SARS-CoV-2 is transmissible in community settings, and local clusters of COVID-19 are expected in countries with high travel volume from China before the lockdown of Wuhan and institution of travel restrictions: •Enhanced surveillance and contact tracing is essential to minimise the risk of widespread transmission in the community
Epidemiology and clinical	16.03.2020	Can the Coronavirus Disease 2019 (COVID-19) Affect the Eyes? A Review of Coronaviruses and Ocular Implications in Humans and Animals	Ocul Immunol Inflamm / Review	•In this article, the current evidence suggesting possible human CoV infection of ocular tissue is reviewed: •The review article will also highlight animal CoVs and their associated ocular infections.
Epidemiology and clinical	16.03.2020	Estimation of Coronavirus Disease 2019 (COVID-19) Burden and Potential for International Dissemination of Infection From Iran	Ann Intern Med / Article	•Aims to quantify the COVID-19 outbreak size in Iran on the basis of known exported case counts and air travel links between Iran and other countries: •A total of 212 000 persons traveled from Iranian airports to international destinations in February 2019. : •Among the top 10 traveler-receiving cities, 4 (Najaf, Baghdad, Damascus, and Baku) are in countries with an IDVI score lower than 0.6, suggesting

				elevated vulnerability to infectious disease outbreaks as well as limited ability to detect cases
Epidemiology and clinical	16.03.2020	[Advances in the research of mechanism of pulmonary fibrosis induced by Corona Virus Disease 2019 and the corresponding therapeutic measures]	Zhonghua Shao Shang Za Zhi / Chinese Article	•Extensive epidemiological, viral immunological, and current clinical evidences support the possibility that pulmonary fibrosis may be one of the major complications in COVID-19 patients.
Epidemiology and clinical	16.03.2020	Clinical Features of 69 Cases with Coronavirus Disease 2019 in Wuhan, China	Clin Infect Dis / Article	•We reviewed 69 patients who were hospitalized in Union hospital in Wuhan between January 16 to January 29, 2020 with confirmed SARS-CoV-2.: •COVID-19 appears to show frequent fever, dry cough, and increase of inflammatory cytokines, and induced a mortality rate of 7.5%, with older patients or those with underlying comorbidities at higher risk of death
Infection control	16.03.2020	Spread of SARS-CoV-2 Coronavirus likely to be constrained by climate	medRxiv (not peer-reviewed) / Article	• Using existing data, the authors develop a large ensemble of ecological niche models that project monthly variation in climate suitability of SARS-CoV-2 Coronavirus throughout a typical climatological year. : • The model shows that people in temperate warm and cold climates are more vulnerable. Those in arid climates follow next in vulnerability, while the disease will likely marginally affect the tropics.

Infection control	17.03.2020	[COVID-19: towards controlling of a pandemic](#)	The Lancet / Guidance	•The WHO Strategic and Technical Advisory Group for Infectious Hazards (STAG-IH) makes recommendations for prevention of transmission of COVID-19 infection to others
Infection control	12.03.2020	[The effectiveness of full and partial travel bans against COVID-19 spread in Australia for travellers from China](#)	medRxiv (not peer-reviewed) / Article	• Travel restrictions were highly effective for containing the COVID-19 epidemic in Australia and averted a much larger epidemic.: • The authors modelled three scenarios to test the impact of travel bans on epidemic control in Australia.: • This research can inform decisions on placing or lifting travel bans as a control measure for the COVID-19 epidemic.
Infection control	16.03.2020	[Impact assessment of non-pharmaceutical interventions against COVID-19 and influenza in Hong Kong: an observational study](#)	medRxiv (not peer-reviewed) / Article	• Containment measures, social distancing measures and changes in population behaviour have successfully prevented spread of COVID-19. : • The social distancing measures and behavioural changes led to a substantial reduction in influenza transmission in early February 2020. : • It may be challenging to avoid fatigue and sustain these measures and population behaviours as COVID-19 continues to spread globally.
Infection control	16.03.2020	[Managing COVID-19 in Low- and Middle-Income Countries](#)	Jama / Viewpoint	•China has illustrated that the COVID-19 pandemic can be limited when public health outbreak response strategies and tactics are implemented early: •In Low- and Middle-Income Countrie, infection prevention and control (IPC) programs must be strengthened by ensuring that at least minimum requirements for IPC8 are in place as soon as possible, and media partnerships should be created to prevent societal fear

Infection control	12.03.2020	[The effect of control strategies that reduce social mixing on outcomes of the COVID-19 epidemic in Wuhan, China](#)	medRxiv (not peer-reviewed) / Article	• Restrictions on activities in Wuhan, if maintained until April, would likely contribute to the reduction and delay the epidemic size and peak, respectively. : • However, there are some limitations to the analysis, including large uncertainties around estimates of R0 and the duration of infectiousness.
Infection control	16.03.2020	[Preliminary evaluation of voluntary event cancellation as a countermeasure against the COVID-19 outbreak in Japan as of 11 March, 2020](#)	medRxiv (not peer-reviewed) / Article	• The authors applied a simple susceptible?infected?recovery model to data of patients with symptoms in Japan during 14 January to voluntary event cancellation (VEC) introduction and after VEC introduction to 8 March. : • Results demonstrated that VEC can reduce COVID?19 infectiousness by 35%, but R0 remains higher than one.
Infection control	16.03.2020	[Duration of viral detection in throat and rectum of a patient with COVID-19](#)	medRxiv (not peer-reviewed) / Article	• The authors report the duration of viral detection in throat and rectum of a COVID-19 patient treated at the Hospital for Tropical Diseases in Ho Chi Minh City, Vietnam.: • Despite clinical recovery, SARS-CoV-2 RNA remained detectable by real time RT-PCR in throat and rectal swabs until day 11 and 18 of hospitalization, respectively. : • Because live SARS-CoV-2 has been successfully isolated from a stool sample from a COVID-19 patient in China, the results demonstrate that COVID-19 patients may remain infectious for long periods, and fecal-oral transmission may be possible.
Infection control	16.03.2020	[Impact of self-imposed prevention measures and short-term government intervention on mitigating and delaying a COVID-19 epidemic](#)	medRxiv (not peer-reviewed) / Article	• The authors developed a transmission model to evaluate the impact of self-imposed prevention measures (handwashing, mask-wearing, and social distancing) due to COVID-19 awareness and of short-term government-imposed social distancing on the peak number of diagnoses, attack rate and time until the peak number of diagnoses. : • For fast awareness spread in the population, self-imposed

				measures can significantly reduce the attack rate, diminish and postpone the peak number of diagnoses. A large epidemic can be prevented if the efficacy of these measures exceeds 50%. : • Early-initiated short-term government-imposed social distancing can buy time for healthcare systems to prepare for an increasing COVID-19 burden.
Infection control	12.03.2020	Effects of Chinese strategies for controlling the diffusion and deterioration of novel coronavirus-infected pneumonia in China	medRxiv (not peer-reviewed) / Article	• This study suggests that Chinese strategies are highly effective on controlling the diffusion and deterioration of the novel coronavirus-infected pneumonia. : • These strategies supply experience and guidelines for other countries to control the COVID-19 epidemic.
Infection control	16.03.2020	Environmental contamination of the SARS-CoV-2 in healthcare premises: An urgent call for protection for healthcare workers	medRxiv (not peer-reviewed) / Article	• The most contaminated zones were the intensive care unit specialized for taking care of novel coronavirus pneumonia (NCP) (31.9%), Obstetric Isolation Ward specialized for pregnant women with NCP (28.1%), and Isolation Ward for NCP (19.6%). : • The authors classified the 13 zones into four contamination levels. The most contaminated objects are self-service printers (20.0%), desktop/keyboard (16.8%), and doorknob (16.0%). Both hand sanitizer dispensers (20.3%) and gloves (15.4%) were most contaminated personal protection equipment (PPE).: • These findings emphasize the urgent need to ensure adequate environmental cleaning, strengthen infection prevention training, and improve infection prevention precautions among health care workers during the outbreak of COVID-19.

Treatment	12.03.2020	A data-driven drug repositioning framework discovered a potential therapeutic agent targeting COVID-19	bioRxiv (not peer-reviewed) / New results	•The retrospective study using the past SARS-CoV and MERS-CoV data demonstrated that the authors' machine learning based method can successfully predict effective drug candidates against a specific coronavirus. : • The PARP1 inhibitor CVL218 discovered by their data-driven drug repositioning framework can serve as a potential therapeutic agent for the treatment of COVID-19.
Treatment	12.03.2020	The inhaled corticosteroid ciclesonide blocks coronavirus RNA replication by targeting viral NSP15	bioRxiv (not peer-reviewed) / New results	• These results suggest that the effect of ciclesonide was specific to coronavirus, suggesting this is a candidate drug for treatment of patients suffering MERS or COVID-19.
Treatment	12.03.2020	A human monoclonal 1 antibody blocking SARS-CoV-2 infection	bioRxiv (not peer-reviewed) / New results	• The authors report a human monoclonal antibody that neutralizes SARS-CoV-2 (and SARS-CoV). : • This cross-neutralizing antibody targets a communal epitope on these viruses and offers potential for prevention and treatment of COVID-19.

Treatment	16.03.2020	[Recommendations for standardized management of CML patients in the core epidemic area of COVID-19 (Multi-center survey results in Hubei Province, China)](#)	medRxiv (not peer-reviewed) / Article	• Patients who failed to achieved an optimal response to Chronicmyelogenousleukemia (CML) therapy appear more likely to have a symptomatic infection with SARS-CoV-2. : • Older patients with comorbidities are at increased risk of death.
Treatment	12.03.2020	[Early, low-dose and short-term application of corticosteroid treatment in patients with severe COVID-19 pneumonia: single-center experience from Wuhan, China](#)	medRxiv (not peer-reviewed) / Article	• Forty-six hospitalized patients with severe COVID-19 pneumonia hospitalized at Wuhan Union Hospital from January 20 to February 25, 2020, were retrospectively reviewed. : • The authors' data indicate that in patients with severe COVID-19 pneumonia, early, low-dose and short-term application of corticosteroid was associated with a faster improvement of clinical symptoms and absorption of lung focus.
Treatment	12.03.2020	[Inhibition of SARS-CoV-2 infection (previously 2019-nCoV) by a highly potent pan-coronavirus fusion inhibitor targeting its spike protein that harbors a high capacity to mediate membrane fusion](#)	bioRxiv (not peer-reviewed) / New results	• The authors used a SARS-CoV-2 spike (S) protein-mediated cell-cell fusion assay and found that SARS-CoV-2 showed plasma membrane fusion capacity superior to that of SARS-CoV.: • Intranasal application of EK1C4 before or after challenge with HCoV-OC43 protected mice from infection, suggesting that EK1C4 could be used for prevention and treatment of infection by currently circulating SARS-CoV-2 and emerging SARSr-CoVs.

Treatment	16.03.2020	[Management strategies for patients with gynecological malignancies during the outbreak of COVID19]	Zhonghua Fu Chan Ke Za Zhi / Chinese Article	•Patients with gynecological malignant tumors are high-risk groups prone to COVID-19 infection, and gynecological oncologists need to carry out education, prevention, control and treatment according to specific conditions.
Social sciences	16.03.2020	Social distance and SARS memory: impact on the public awareness of 2019 novel coronavirus (COVID-19) outbreak	medRxiv (not peer-reviewed) / Article	• The data analysed in this study, indicate that forty-eight such cities developed awareness up to 19 days earlier than 255 comparable cities, giving them an opportunity to better prepare. : • This study suggests that it is important to consider memory of prior catastrophic events as they will influence the public response to emerging threats.
Social sciences	16.03.2020	Health, distress, and life satisfaction of people one-month into COVID-19 outbreak in China	medRxiv (not peer-reviewed) / Article	• One month into the outbreak, in China, on Feb 20/21, 2020, the authors sampled 369 adults on the eight dimensions of health (SF12), distress (K6), and life satisfaction in 64 cities that varied in their densities of coronavirus confirmed cases.: • In general, life of normal adults was severely disrupted. 33% of the participants had not left their home at all during the one-month period due to the restrictive measures to contain COVID-19 in China. 27% of the participants worked at office; 38% resorted to working from home; and 25% suspended working due to the outbreak. : • Those who suspended working reported worse health conditions by SF12 as well as distress (K6).
Social sciences	16.03.2020	COVID-19 in Wuhan: Immediate psychological impact on 5062 health workers	medRxiv (not peer-reviewed) / Article	• Women and those who have more than 10 years of working, concomitant chronic diseases, history of mental disorders, and family members or relatives confirmed or suspected are susceptible to stress, depression and anxiety among health workers during the COVID-19 pandemic.

Miscellaneous	17.03.2020	Evidence informing the UK's COVID-19 public health response must be transparent	The Lancet / Comment	•The UK Government asserts that its response to the coronavirus disease 2019 (COVID-19) pandemic is based on evidence and expert modelling: •However, different scientists can reach different conclusions based on the same evidence, and small differences in assumptions can lead to large differences in model predictions
Miscellaneous	16.03.2020	Impact of COVID-19 outbreak on rehabilitation services and Physical and Rehabilitation Medicine (PRM) physicians' activities in Italy. An official document of the Italian PRM Society (SIMFER)	Eur J Phys Rehabil Med / Article	•An official document of the Italian Physical and Rehabilitation Medicine (PRM) Society outlining recommendations for the impact of COVID-19 outbreak on rehabilitation services
Miscellaneous	16.03.2020	Radiology Department Preparedness for COVID-19: Radiology Scientific Expert Panel	Radiology / Guidance	•Radiology preparedness is a set of policies and procedures directly applicable to imaging departments designed to achieve sufficient capacity for continued operation during a health care emergency of unprecedented proportions, to support the care of patients with COVID-19, and to maintain radiologic diagnostic and interventional support for the entirety of the hospital and health system
Miscellaneous	16.03.2020	COVID-19: delay, mitigate, and communicate	The Lancet Respiratory Medicine / Editorial	•All governments must now take decisive action to more aggressively combat the outbreak: •As the outbreak

				progresses, balanced, coherent, and consistent public health communication, based on science, will be essential
Modelling	12.03.2020	Data-Based analysis, modelling and forecasting of the COVID-19 outbreak	medRxiv (not peer-reviewed) / Article	• Based on the publicly available epidemiological data for Hubei, China from January 11 to February 10, 2020, the authors provide an estimation of the case fatality and case recovery ratios, along with their 90% confidence intervals as the outbreak evolves. : • Simulations suggest a slow down of the outbreak in Hubei at the end of February.
Modelling	16.03.2020	Evaluating the effect of public health intervention on the global-wide spread trajectory of Covid-19	medRxiv (not peer-reviewed) / Article	• To help governments with policy-making, the authors developed modified auto-encoders (MAE) method to forecast spread trajectory of Covid-19 of countries affected, under different levels and timing of intervention strategies. : • The analysis showed public health interventions should be executed as soon as possible. Delaying intervention 4 weeks after March 8, 2020 would cause the maximum number of cumulative cases of death increase from 7,174 to 133,608 and the ending points of the epidemic postponed from Jun 25 to Aug 22.
Modelling	16.03.2020	Impact of non-pharmaceutical interventions (NPIs) to reduce COVID19 mortality and healthcare demand	Imperial College / Report	•We present the results of epidemiological modelling which has informed policymaking in the UK and other countries in recent weeks: •We apply a previously published microsimulation model to two countries: the UK (Great Britain specifically) and the US. : •We conclude that the effectiveness of any one intervention in isolation is likely to be limited, requiring multiple interventions to be combined to have a substantial impact on transmission.: •Suppression is the preferred policy option - in the UK and US context, suppression will minimally require a combination of social

				distinguishing of the entire population, home isolation of cases and household quarantine of their family members.
Modelling	13.03.2020	Predicting the cumulative number of cases for the COVID-19 epidemic in China from early data	medRxiv (not peer-reviewed) / Article	• The authors use early reported case data to predict the cumulative number of reported cases to a final size.: • The key features of the model are the timing of implementation of major public policies restricting social movement, the identification and isolation of unreported cases, and the impact of asymptomatic infectious cases.
Modelling	13.03.2020	Early epidemiological assessment of the transmission potential and virulence of coronavirus disease 2019 (COVID-19) in Wuhan City: China, January-February, 2020	medRxiv (not peer-reviewed) / Article	• The authors estimated key epidemiological parameters of the transmissibility and virulence of COVID-19 in Wuhan, China during January-February, 2020 using an ecological modelling approach.
Modelling	09.03.2020	Potential impact of seasonal forcing on a SARS-CoV-2 pandemic	Swiss Med Wkly / Article	•We explore how seasonal variation in transmissibility could modulate a SARS-CoV-2 pandemic: •The model simulations of different scenarios show that plausible parameters result in a small peak in early 2020 in temperate regions of the Northern Hemisphere and a larger peak in winter 2020/2021.
Modelling	16.03.2020	A method to model outbreaks of new infectious diseases with pandemic potential such as COVID-19	medRxiv (not peer-reviewed) / Article	• This is an engineering approach to model the spread of a new infectious disease from sparse data when little is known about the infectious agent itself.: • Imposing early travel restrictions from infected countries slowed down the outbreak in the USA by about 26 days.

Modelling	12.03.2020	[Revealing the influence of national public health policies for the outbreak of the SARS-CoV-2 epidemic in Wuhan, China through status dynamic modeling](#)	medRxiv (not peer-reviewed) / Article	• The authors constructed a new real-time status dynamic model of SEIO (MH) to reveal the influence of national public health policies and to model the epidemic in Wuhan. : • The study, which simulated the epidemic in Wuhan, the first city in the world fighting against SARS-CoV-2, may provide useful guidance for other countries in dealing with similar situations.
Modelling	16.03.2020	[Strongly heterogeneous transmission of COVID-19 in mainland China: local and regional variation](#)	medRxiv (not peer-reviewed) / Article	• The authors estimated the average serial interval was 4.8 days. : • For early transmission in Wuhan, any infectious case produced as many as four new cases, transmission outside Wuhan was less intense, with reproduction numbers below two. : • During the rapid growth phase of the outbreak the region of Wuhan city acted as a hot spot, generating new cases upon contact, while locally, in other provinces, transmission was low.
Modelling	16.03.2020	[Generalized logistic growth modeling of the COVID-19 outbreak in 29 provinces in China and in the rest of the world](#)	medRxiv (not peer-reviewed) / Article	• The extreme containment measures implemented by China were very effective with some instructive variations across provinces.
Modelling	13.03.2020	[The prediction for development of COVID-19 in global major epidemic areas through empirical trends in China by utilizing state transition matrix model](#)	medRxiv (not peer-reviewed) / Article	• The authors can affirm that the end of the burst of the epidemic is still inapproachable, and the number of confirmed cases is still escalating. : • They extracted data from reports released by the National Health Commission of the People's Republic of China (Dec 31, 2019 to Mar 5, 2020) and World Health Organization (Jan 20, 2020 to Mar 5, 2020) as the training set to deduce the arrival of the inflection point (IFP) of new cases in Hubei and non-Hubei on subsequent days and the data from Mar 6 to Mar 9 as validation set.