



International EPI Cell Evidence Digest – 22/06/2020

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- Serology and immunology
- Diagnostics
- Genomics
- Epidemiology and clinical - children and pregnancy
- Epidemiology and clinical - risk factors
- Epidemiology and clinical - other
- Infection control
- Treatment
- 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Please note that we are including preprints (**highlighted in red**), which are preliminary reports of work that have NOT been peer-reviewed.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.

Serology and immunology

Publication Date	Title/URL	Journal/ Article type	Digest
18.06.2020	Clinical and immunological assessment of asymptomatic SARS-CoV-2 infections	Nat Med / Letter	<ul style="list-style-type: none">• Authors studied 37 diagnosed but asymptomatic individuals, without any relevant clinical symptoms in the preceding 14 d and during hospitalization.• These data suggest that asymptomatic individuals had a weaker immune response to SARS-CoV-2 infection.• The reduction in IgG and neutralizing antibody levels in the early convalescent phase might have implications for immunity strategy and serological surveys.

18.06.2020	Convergent antibody responses to SARS-CoV-2 in convalescent individuals	Nature / Article	<ul style="list-style-type: none"> • Authors report on 149 COVID-19 convalescent individuals. Plasmas collected an average of 39 days after the onset of symptoms had variable half-maximal pseudovirus neutralizing titres: less than 1:50 in 33% and below 1:1,000 in 79%, while only 1% showed titres above 1:5,000. • Most convalescent plasmas obtained from individuals who recover from COVID-19 do not contain high levels of neutralizing activity. • Nevertheless, rare but recurring RBD-specific antibodies with potent antiviral activity were found in all individuals tested, suggesting that a vaccine designed to elicit such antibodies could be broadly effective. <p><i>(Previously included as a preprint)</i></p>
16.06.2020	Seroprevalence and epidemiological characteristics of immunoglobulin M and G antibodies against SARS-CoV-2 in asymptomatic people in Wuhan, China	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Retrospective study of 18,391 asymptomatic back-to-work participants in Wuhan which estimated the seroprevalence of IgM and IgG and compared the epidemiological characteristics of asymptomatic SARS-CoV-2-infected population. • The seropositivity rate in Wuhan indicated that RT-PCR-confirmed patients only represented a small part of the total number of cases. Seropositivity progressively decreased in the Wuhan population from March 26 to April 28, 2020, comparable to Japan and Denmark, but well below the level reported in New York, Iran, Italy, and Germany. • The prevalence of asymptomatic infection was higher in women than in men among people who went back to work in Wuhan. The low seroprevalence suggests that most of the population remains susceptible to COVID-19.
20.06.2020	Evaluation of the immunogenicity of prime-boost vaccination with the replication-deficient viral vectored COVID-19 vaccine candidate ChAdOx1 nCoV-19	bioRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Study to compare the immunogenicity of one or two doses of the COVID-19 vaccine candidate ChAdOx1 nCoV-19 in both mice and pigs. • Whilst a single dose induced antigen-specific antibody and T cells responses, a booster immunisation enhanced antibody responses, particularly in pigs, with a significant increase in SARS-CoV-2 neutralising titres.
18.06.2020	A single dose of recombinant VSV-ΔG-spike vaccine provides protection against SARS-CoV-2 challenge	bioRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • In a golden Syrian hamster in vivo model for COVID-19, they show that vaccination of hamsters with recombinant VSV-ΔG-spike results in rapid and potent induction of neutralizing antibodies against SARS-CoV-2. • Importantly, single-dose vaccination was able to protect hamsters against SARS-CoV-2 challenge. • Furthermore, whereas lungs of infected hamsters displayed extensive tissue damage and high viral titres, immunized hamsters lungs showed only minor lung pathology, and no viral load.

Diagnostics

Publication Date	Title/URL	Journal/ Article type	Digest
17.06.2020	Dog Savior: Immediate Scent-Detection of SARS-COV-2 by Trained Dogs	bioRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • In this study, six dogs of three different breeds were trained to detect SARS-CoV-2 in respiratory secretions of infected patients and their performance was evaluated experimentally, comparing it against the gold standard (rRT-PCR). • Viral detection was found to take one second per specimen. After scent-interrogating 9,200 samples, the six dogs achieved independently and as a group very high sensitivity, specificity, predictive values, accuracy, and likelihood ratio, with very narrow confidence intervals. • The highest metric was the negative predictive value, indicating that with a disease prevalence of 7.6%, 99.9% of the specimens indicated as negative by the dogs did not carry the virus.

Genomics

Publication Date	Title/URL	Journal/ Article type	Digest
17.06.2020	COVIDep: a web-based platform for real-time reporting of vaccine target recommendations for SARS-CoV-2	Nat Protoc / Correspondence	<ul style="list-style-type: none"> • A critical part of vaccine design is to identify targets, or epitopes, that can induce an effective immune response against SARS-CoV-2. This process is challenged by our limited understanding of this novel coronavirus and of its interplay with the human immune system. • In response to this challenge, COVIDep (COVIDep.ust.hk) was developed, a first-of-its-kind web-based platform that pools genetic data for SARS-CoV-2 and immunological data for the 2003 SARS virus, SARS-CoV, to identify B-cell and • T-cell epitopes to serve as vaccine target recommendations for SARS-CoV-2. • For T-cell epitopes, it provides estimates of population coverage, globally and for specific regions. COVIDep is flexible and user-friendly, comprising an intuitive graphical interface and interactive visualizations. <p><i>(Previously included as a preprint)</i></p>
18.06.2020	Genetic variability of human angiotensin-converting enzyme 2 (hACE2) among various ethnic populations	Mol Genet Genomic Med / Article	<ul style="list-style-type: none"> • This study examined genetic differences in the human angiotensin-converting enzyme 2 (hACE2) gene, as its receptor serves as a cellular entry for SARS-CoV-2. At present, there is a paucity of data regarding the differences for ACE2 polymorphisms and expression levels between ethnicities. • Four missense mutations showed significant minor allele frequency

			<p>difference between Asians and Caucasians. Molecular dynamic demonstrated that two of these variants (K26R and I468V) may affect binding characteristics between S protein of the virus and hACE2 receptor. Also noted marginal differences in gene expression for some populations in HapMap3 as compared to the Chinese population.</p> <ul style="list-style-type: none"> • It revealed subtle changes in the genetics of hACE2 between human populations, but the magnitude of the difference was small and the significance is not clear in the absence of further in vitro and functional studies.
17.06.2020	Analysis of Genetic Host Response Risk Factors in Severe COVID-19 Patients	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Study to identify genetic risk factors that impact differential host responses to SARS-CoV-2, resulting in the development of severe COVID-19. • The variants they found in genes relating to immune response pathways and cytokine production cascades, were in equal proportions across all severe COVID-19 patients, regardless of their co-morbidities. This suggests that such variants are not associated with any specific co-morbidity, but are common amongst patients who develop severe COVID-19.
19.06.2020	ApoE e4e4 genotype and mortality with COVID-19 in UK Biobank	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Following on from a previous report that the ApoE e4e4 genotype was associated with COVID-19 test positivity in the UK Biobank (UKB) cohort, the authors used additional recent data to re-evaluate the ApoE e4 allele association with COVID-19 test positivity, and with all-cause mortality following test-confirmed COVID-19. • ApoE e4e4 genotype was associated with increased risks of test positivity (OR=2.24, 95% CI: 1.72 to 2.93, $p=3.24 \times 10^{-9}$) and of mortality with test-confirmed COVID-19 (OR=4.29, 95% CI: 2.38 to 7.72, $p=1.22 \times 10^{-6}$), compared to e3e3s.
16.06.2020	Distinct genetic spectrums and evolution patterns of SARS-CoV-2	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Four signature groups of single-nucleotide variants (SNVs) were identified using two-way clustering method in about 20,000 high quality and high coverage SARS-CoV-2 complete genome sequences. • Some frequently occurred SNVs predominate but are mutually exclusively presented in patients from different countries and areas. These major SNV signatures exhibited distinguished evolution patterns over time. • Although it was rare, the data indicated possible cross-infections with multiple groups of SNVs existed simultaneously in some patients, suggesting infections from different SARS-CoV-2 clades or potential re-combination of SARS-CoV-2 sequences.

Epidemiology and clinical - children and pregnancy

Publication Date	Title/URL	Journal/ Article type	Digest
17.06.2020	Novel Coronavirus Infection (COVID-19) in Children Younger Than One Year: A Systematic Review of Symptoms, Management and Outcomes	Acta Paediatr / Review article	<ul style="list-style-type: none"> • This aim of this systematic review and meta-analysis was to evaluate the clinical characteristics of COVID-19 in neonates and children under one year of age. • 77 peer-reviewed papers and 18 papers covering 160 infants were reviewed. • Infants and neonates were more vulnerable to more severe COVID-19 disease than older children, but morbidity and mortality were low.
19.06.2020	The Epidemiology of SARS-CoV-2 in a Pediatric Healthcare Network in the United States	J Pediatric Infect Dis Soc / Article	<ul style="list-style-type: none"> • Retrospective case series of 7,256 paediatric patients tested for SARS-CoV-2 across a paediatric healthcare network, including the clinical features and outcomes of those with positive test results (424, 5.8%). • In this large cohort, the rate of infection was low, but varied by testing indication. The majority of cases were mild, few children had critical illness, and two patients died.
14.06.2020	Multisystem Inflammatory Syndrome in Children (MIS-C) Associated with SARS-CoV-2 Infection: A Multi-institutional Study from New York City	J Pediatr / Article	<ul style="list-style-type: none"> • This study was conducted to assess clinical characteristics and outcomes of SARS-CoV-2 associated multisystem inflammatory syndrome in children (MIS-C). • 33 children with MIS-C admitted to paediatric intensive care units (PICU) in New York City between April 23 and May 23, 2020 were included. • Critically ill children with COVID-19 associated MIS-C have a spectrum of severity broader than described previously but still require careful supportive intensive care. Rapid, complete clinical and myocardial recovery was almost universal.
18.06.2020	Asthma and COVID-19 in children - a systematic review and call for data	Pediatr Pulmonol / Article	<ul style="list-style-type: none"> • Literature review undertaken to assess if asthma associated with higher COVID-19 risk or severity in paediatric populations. • Only 2 reports found; scarcely any data on whether childhood asthma (or other paediatric respiratory diseases) constitute risk factors for COVID-19 infection or severity. • Studies are needed that go beyond counting the number of cases in the paediatric age range.
18.06.2020	COVID-19 cardiac involvement in a 38-day old infant	Pediatr Pulmonol / Case report	<ul style="list-style-type: none"> • Authors share first report of cardiac involvement in an infant with SARS-CoV-2 infection, with comprehensive clinical, biochemical and multimodal imaging characterization. • Suggest that SARS-CoV-2 cardiac involvement should always be taken into account also in children; while this case was mild, it might be of concern especially in patients with other underlying conditions.

15.06.2020	Renal dysfunction in hospitalised children with COVID-19	Lancet Child Adolesc Health / Correspondence	<ul style="list-style-type: none"> This correspondence highlights the importance of renal function surveillance in all hospitalised paediatric cases of COVID-19, while simultaneously avoiding factors that exacerbate kidney injury, such as hypovolaemia and the use of nephrotoxic drugs.
15.06.2020	Maternal Mortality Among Women with COVID-19 Admitted to the Intensive Care Unit	Am J Obstet Gynecol / Article	<ul style="list-style-type: none"> The objective of this study was to determine the rate of maternal death among pregnant and postpartum women with COVID-19 admitted to ICU in a large integrated health system in the New York metropolitan area. 462 pregnant women tested positive for SARS-CoV-2, 70 (15%) were classified as severe or critical COVID-19.
18.06.2020	Associations Between Built Environment, Neighborhood Socioeconomic Status, and SARS-CoV-2 Infection Among Pregnant Women in New York City	JAMA / Research letter	<ul style="list-style-type: none"> In this study, SARS-CoV-2 transmission among pregnant women in New York City was associated with neighbourhood- and building-level markers of large household membership, household crowding, and low socioeconomic status. These data may aid policy makers in the design of interventions to reduce the spread of SARS-CoV-2. A key strength of this study was the use of a universally tested population, which allowed for ascertainment of asymptomatic cases among a defined at-risk population.

Epidemiology and clinical - risk factors

Publication Date	Title/URL	Journal/ Article type	Digest
19.06.2020	Greater risk of severe COVID-19 in Black, Asian and Minority Ethnic populations is not explained by cardiometabolic, socioeconomic or behavioural factors, or by 25(OH)-vitamin D status: study of 1326 cases from the UK Biobank	J Public Health (Oxf) / Article	<ul style="list-style-type: none"> This study examined whether the greater severity of COVID-19 amongst men and BAME individuals is explained by cardiometabolic, socio-economic or behavioural factors. 4510 UK Biobank participants tested for COVID-19 (positive, n = 1326). Sex and ethnicity differential pattern of COVID-19 was not adequately explained by variations in cardiometabolic factors, 25(OH)-vitamin D levels or socio-economic factors. Factors which underlie ethnic differences in COVID-19 may not be easily captured, and so investigation of alternative biological and genetic susceptibilities as well as more comprehensive assessment of the complex economic, social and behavioural differences should be prioritised.
17.06.2020	Black-White Risk Differentials in COVID-19 (SARS-COV2) Transmission, Mortality and Case Fatality in the United States: Translational Epidemiologic Perspective and Challenges	Int J Environ Res Public Health / Article	<ul style="list-style-type: none"> COVID-19 data on confirmed cases and deaths by selective US states health departments were assessed using a cross-sectional ecologic design Authors aimed to: (a) assess COVID-19 cumulative incidence (CmI) by race, (b) determine the Black-White case fatality (CF) and risk differentials, and (c) apply explanatory model for mortality risk differentials.

			<ul style="list-style-type: none"> • Substantial racial/ethnic disparities are observed in COVID-19 CF and mortality with Blacks/AA disproportionately affected across the United States
19.06.2020	Characteristics Associated With Out-of-Hospital Cardiac Arrests and Resuscitations During the Novel Coronavirus Disease 2019 Pandemic in New York City	JAMA Cardiol / Original investigation	<ul style="list-style-type: none"> • In this population-based cross-sectional study of 5325 patients with out-of-hospital cardiac arrests, the number undergoing resuscitation was 3-fold higher during the 2020 COVID-19 period compared with during the comparison period in 2019. • Patients with out-of-hospital cardiac arrest during 2020 were older, less likely to be white, and more likely to have specific comorbidities and substantial reductions in return and sustained return of spontaneous circulation. • Further research is needed to determine if early, targeted interventions in the outpatient setting for those at risk, such as regular telemedicine visits and home-based monitoring of vital signs, oxygen saturation, and biomarkers of tissue injury in those that test positive could lead to reductions in out-of-hospital fatalities.
18.06.2020	Racial and ethnic determinants of Covid-19 risk	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • A smartphone application in the UK and the US was used to recruit 2,414,601 participants who reported their race/ethnicity. • The authors documented 8,858 self-reported cases of Covid-19 among 2,259,841 non-Hispanic white; 79 among 9,615 Hispanic; 186 among 18,176 Black; 598 among 63,316 Asian; and 347 among 63,653 other racial minority participants. • Compared with non-Hispanic white participants, the risk for a positive Covid-19 test was increased across racial minorities. After adjustment for socioeconomic indices and Covid-19 exposure risk factors, the associations were attenuated but remained significant for Hispanic and Black participants in the U.S. and South Asian and Middle Eastern participants in the U.K.
15.06.2020	Does Gender or Religion Contribute to the Risk of COVID-19 in Hospital Doctors?	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Online questionnaire-based study to explore the impact of gender and religion in addition to workplace measures associated with risk of COVID-19 in hospital doctors in acute and mental health institutions in the UK. • A quarter of the 1206 respondents had either confirmed or suspected COVID-19, a similar proportion reported inadequate PPE and 2/3 could not comply with social distancing. One third reported being reprimanded in relation to PPE or avoidance of risk. • In univariate analysis, age over 50 years, being female, Muslim and inability to avoid exposure in the workplace was associated with risk of COVID-19. On multivariate analysis, inadequate PPE remained an independent predictor with a twofold risk of COVID-19.

18.06.2020	Cardiometabolic traits, sepsis and severe covid-19 with respiratory failure: a Mendelian randomization investigation	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Mendelian randomisation analysis of UK Biobank and HUNT study population-based cohorts to investigate whether there is a causal effect of cardiometabolic traits on risk of sepsis and severe covid-19. 12,455 sepsis cases (519,885 controls) and 1,610 severe covid-19 with respiratory failure cases (2,205 controls) were analysed. • Higher genetically proxied BMI and lifetime smoking score were associated with increased risk of sepsis in both UK Biobank and HUNT. • Higher genetically proxied BMI and lifetime smoking score were also associated with increased risk of severe covid-19, although with wider confidence intervals. • There was limited evidence to support associations of genetically proxied lipid traits, systolic blood pressure or type 2 diabetes liability with risk of sepsis or severe covid-19.
15.06.2020	Prevalence and characterization of asthma in hospitalized and non-hospitalized patients with COVID-19	J Allergy Clin Immunol / Article	<ul style="list-style-type: none"> • Authors assessed the clinical characteristics and comorbidities in asthmatic and non-asthmatic COVID-19 patients. Also determined the risk of hospitalization associated with asthma and/or inhaled corticosteroid use. • Medical records of patients with COVID-19 were searched by a computer algorithm (March 1-April 15, 2020), and chart review was used to validate the diagnosis of asthma and medications prescribed for asthma. Of 1,526 patients identified with COVID-19, 220 (14%) were classified as having asthma • Despite a substantial prevalence of asthma in COVID-19 cohort, asthma was not associated with an increased risk of hospitalization. Similarly, the use of ICS with or without systemic corticosteroids was not associated with COVID-19-related hospitalization.
19.06.2020	Inhaled corticosteroid use and risk COVID-19 related death among 966,461 patients with COPD or asthma: an OpenSAFELY analysis	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • To evaluate the association between inhaled corticosteroids (ICS) and COVID-19 related death, cohort studies were conducted on two groups of people (COPD and asthma), using the OpenSAFELY platform to analyse data from primary care practices linked to national death registrations. • Out of 148,588 people with COPD and 817,973 people with asthma receiving relevant respiratory medications, people with COPD receiving ICS were at a greater risk of COVID-19 related death compared to those receiving a long-acting beta agonist (LABA) and a long-acting muscarinic antagonist (LAMA). • People with asthma receiving high dose ICS were at an increased risk of death compared to those receiving a short-acting beta agonist (SABA) only; the adjusted HR for those receiving low-medium dose ICS was 1.10. These results do not support a major role of ICS in protecting against COVID-19 related deaths.

17.06.2020	Higher risk of COVID-19 hospitalization for unemployed: an analysis of 1,298,416 health insured individuals in Germany	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Study using routine data on hospitalizations in a study population of 1,298,416 persons enrolled in a German health insurance and active on the labour market (either employed or unemployed). • In the 1,311 persons who were hospitalized, Odds ratio for a hospitalization was 1.84 (1.64 - 2.07) for long-term and 1.18 (0.75 - 1.85) for short-term unemployed compared with employed persons. • These results are in line with earlier (mainly ecological) studies from the USA and Great Britain which found social inequalities in hospitalization risk.
17.06.2020	Risk of SARS-CoV-2 infection from contaminated water systems	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • The authors identify that the SARS-CoV-2 virus can remain stable within water for up to 25 days, and country specific relative risk of infection posed by faecal contaminated water is related to the environment. • Faecal contaminated rivers, waterways and water systems within countries with high infection rates can provide infectious doses >100 copies within 100 ml of water.

Epidemiology and clinical – other

Publication Date	Title/URL	Journal/ Article type	Digest
18.06.2020	Dynamic linkage of COVID-19 test results between Public Health England's Second Generation Surveillance System and UK Biobank	Microb Genom / Article	<ul style="list-style-type: none"> • In this study, they implemented rapid dynamic linkage (of UK Biobank and PHE's Second Generation Surveillance System), which allows them to provide a regular feed of new COVID-19 (SARS-CoV-2) test results to UKB to facilitate rapid and urgent research into the epidemiological and human genetic risk factors for severe infection in the cohort. • Have characterized the first 1352 cases of COVID-19 in UKB participants, of whom 895 met their working definition of severe COVID-19 as inpatients hospitalized on or after 16 March 2020.
17.06.2020	Clinical Characteristics and 28-Day Mortality of Medical Patients Admitted with COVID-19 to a Central London Teaching Hospital	J Infect / Article	<ul style="list-style-type: none"> • Prospective cohort study of adult COVID-19 patients (≥ 18 years old) admitted to Chelsea & Westminster Hospital during one-month period (7th March - 7th April 2020) to identify predictors of survival at 28-days. • Individuals with poorer outcomes characterised by advanced age, male gender and a greater burden of comorbid conditions, particularly hypertension. Blood profiling demonstrated higher levels of CRP, D-dimer, troponin, urea and creatinine, lower lymphocyte, platelet and albumin counts. • 28-day mortality was independently predicted by advanced age, male gender, higher number of pre-existing comorbidities, respiratory rate, and CRP

			on admission. Application of a UK-specific risk score ¹ demonstrated significant dichotomy in survival.
16.06.2020	Syndromic surveillance insights from a symptom assessment app before and during COVID-19 measures in Germany and the United Kingdom: results from repeated cross-sectional analyses	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Between 48,300-54,900 symptomatic users reported 140,500-170,400 symptoms during the Baseline and Measures periods (before and after the implementation of Phase One COVID-19 measures) in Germany. Between 34,200-37,400 symptomatic users in the UK reported 112,100-131,900 symptoms during the Baseline and Measures periods. • 103 symptoms were reported either more or less frequently (with statistically significant differences) during the Measures as compared to the Baseline period, and 34 of these were found in both countries. • Symptom assessment apps have an important role to play in facilitating improved understanding of the implications of public health policies such as COVID-19 lockdown measures.

Infection control

Publication Date	Title/URL	Journal/ Article type	Digest
22.06.2020	Heating, ventilation and air-conditioning systems in the context of COVID-19	European Centre for Disease Control and Prevention / Technical report	<ul style="list-style-type: none"> • This document aims to provide guidance for public health authorities in EU/EEA countries and the UK on the ventilation of indoor spaces in the context of COVID-19.
19.06.2020	COVID-19 Evidence is lacking for 2 meter distancing	Oxford COVID-19 Evidence Service / Review	<ul style="list-style-type: none"> • A transmission review which includes some studies recently published in The Lancet in relation to the 2 meter social distancing rule. • In assessing the distance measures reported in Figure 2 of this review they analysed the SARs and COVID-19 studies and found they could not replicate the results reported in the review for 13 out of the 15 papers.
20.06.2020	Nosocomial transmission of COVID-19: a retrospective study of 66 hospital-acquired cases in a London teaching hospital	Clin Infect Dis / Article	<ul style="list-style-type: none"> • In a major London teaching hospital, 66/435 (15%) of COVID-19 inpatient cases between 2 March and 12 April 2020 were definitely or probably hospital-acquired, through varied transmission routes. • The case fatality was 36%. Nosocomial infection rates fell following comprehensive infection prevention and control measures.
19.06.2020	Effective control of SARS-CoV-2 transmission between healthcare workers during a period of diminished community prevalence of COVID-19	Elife / Article	<ul style="list-style-type: none"> • Previously showed that 31/1,032 (3%) asymptomatic healthcare workers (HCW) from a large teaching hospital in Cambridge UK tested positive for SARS-CoV-2 in April 2020. • Here authors show that the proportion of both asymptomatic and symptomatic HCWs testing positive rapidly declined to near-zero between 25

		<p>April and 24 May 2020, corresponding with a decline in patient admissions with COVID-19 during the ongoing UK 'lockdown'.</p> <ul style="list-style-type: none"> • These data demonstrate how infection prevention and control measures including staff testing may help prevent hospitals from becoming independent 'hubs' of SARS-CoV-2 transmission, and illustrate how, with appropriate precautions, organisations in other sectors may be able to resume on-site work safely.
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Treatment

Publication Date	Title/URL	Journal/ Article type	Digest
19.06.2020	Feasibility and physiological effects of prone positioning in non-intubated patients with acute respiratory failure due to COVID-19 (PRON-COVID): a prospective cohort study	The Lancet Respiratory Medicine / Article	<ul style="list-style-type: none"> • Prone positioning in intubated patients is known to reduce mortality in moderate-to-severe ARDS. • The aim of this research is to investigate the feasibility and effect on gas exchange of prone positioning in awake, non-intubated patients with COVID-19-related pneumonia. • Prone positioning was feasible and effective in rapidly ameliorating blood oxygenation in awake patients with COVID-19-related pneumonia requiring oxygen supplementation. • The effect was maintained after resupination in half of the patients.
15.06.2020	Comparative efficacy and safety of pharmacological interventions for the treatment of COVID-19: A systematic review and network meta-analysis of confounder-adjusted 20212 hospitalized patients	medRxiv (non-peer reviewed) / Systematic review	<ul style="list-style-type: none"> • Systematic review and network meta-analysis to form the basis for an evidence-based guideline of COVID-19 management. 49 studies with a total of 20212 confounder-adjusted patients were included for analysis. • Anti-inflammatory agents (tocilizumab, anakinra, and IVIG) and remdesivir may safely and effectively improve outcomes of hospitalized COVID-19 patients. • Widely used hydroxychloroquine provides marginal clinical benefit in improving viral clearance rates whilst posing both cardiac and non-cardiac safety risks, especially in the vulnerable population. • Only 20% of current evidence on pharmacological management of COVID-19 is on moderate and high evidence certainty.
16.06.2020	Comparative Survival Analysis of Immunomodulatory Therapy for COVID-19 'Cytokine Storm': A Retrospective Observational Cohort Study	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Retrospective analysis of 3,098 patients. • Patients treated with a combination of tocilizumab and corticosteroids or corticosteroids alone had improved hospital survival compared to standard of care.

			<ul style="list-style-type: none"> • Corticosteroids and tocilizumab was associated with increased survival when compared to corticosteroids and anakinra.
19.06.2020	Observational Study of Metformin and Risk of Mortality in Patients Hospitalized with Covid-19	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Observational analyses of claims data from 6,256 individuals hospitalized with Covid-19, to identify whether metformin reduced mortality from Covid19 and if sex specific interactions exist. • Metformin was associated with decreased mortality in women by logistic regression, mixed effects, Cox proportional-hazards and propensity matching. • The Metformin sex-specific finding is consistent with metformin reducing TNF-alpha in females over males, and suggests that metformin conveys protection in Covid-19 through TNF-alpha effects.
17.06.2020	Prolonged low-dose methylprednisolone in patients with severe COVID-19 pneumonia	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Multicentre, observational study to explore the association between exposure to prolonged, low-dose, methylprednisolone (MP) treatment and need for ICU referral, intubation or death within 28 days in patients with severe COVID-19 pneumonia admitted to Italian respiratory high-dependency units. Findings are reported as MP (n=83) vs. control (n=90). • The composite primary endpoint was met by 19 vs. 40. Transfer to ICU and need for invasive MV was necessary in 15 vs. 27 (p=0.07) and 14 vs. 26 (p=0.10), respectively. • By day 28, the MP group had fewer deaths (6 vs. 21) and more days off invasive MV. • Study treatment was associated with rapid improvement in PaO₂:FiO₂ and CRP levels. The complication rate was similar for the two groups (p=0.84).

Overviews, comments and editorials

Publication Date	Title/URL	Journal/ Article type
18.06.2020	How Northern Ireland relaunched contact tracing for covid-19 a month before the rest of the UK	Bmj / Article
19.06.2020	Covid-19: public health expertise is being sidelined	Bmj / Letter
18.06.2020	Severe COVID-19 in the young and healthy: monogenic inborn errors of immunity?	Nat Rev Immunol / Comment
19.06.2020	Ethnic disparities in COVID-19 mortality: are comorbidities to blame?	The Lancet / Correspondence
19.06.2020	COVID-19 and ABO blood groups	Transfusion / Letter
19.06.2020	Prone positioning in non-intubated patients with COVID-19: raising the bar	The Lancet Respiratory Medicine / Comment