Public Health England

International EPI Cell Daily Evidence Digest – 08/06/2020

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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
- Social sciences
- Modelling
- 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Please note that we are including preprints (highlighted in red), which are preliminary reports of work that have NOT been peer-reviewed.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
05.06.2020	Seroprevalence of immunoglobulin M and G antibodies against SARS-CoV-2 in China	Nat Med / Article	• Evaluated the host serologic response, measured by the levels of immunoglobulins M and G in 17,368 individuals, in the city of Wuhan, and geographic regions in the country, during the period from 9 March 2020 to 10 April 2020. • In their cohorts, the seropositivity in Wuhan varied between 3.2% and 3.8% in different sub-cohorts. Seropositivity progressively decreased in other cities as

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			the distance to the epicentre increased. • Patients who visited a hospital for maintenance haemodialysis and healthcare workers also had a higher seroprevalence of 3.3% and 1.8%, respectively.
04.06.2020	Neutralizing Antibodies Responses to SARS-CoV-2 in COVID-19 Inpatients and Convalescent Patients	Clin Infect Dis / Article	• A total of 117 blood samples were collected from 70 COVID-19 inpatients and convalescent patients. Antibodies were determined with a modified cytopathogenic neutralization assay (NA) based on live SARS-CoV-2 and enzyme linked immunosorbent assay (ELISA). The dynamics of neutralizing antibody levels at different time points with different clinical characteristics were analysed. • The seropositivity rate reached up to 100.0% within 20 days since onset, and remained 100.0% till day 41-53. • The antibody level by NA and ELISA peaked on day 31-40 since onset, and then decreased slightly. In multivariate GEE analysis, patients at age of 31-45, 46-60, and 61-84 had a higher neutralizing antibody level than those at age of 16-30. Patients with a worse clinical classification had a higher neutralizing antibody titre.
05.06.2020	Serology confirms SARS-CoV-2 infection in PCR-negative children presenting with Paediatric Inflammatory Multi-System Syndrome	medRxiv (non-peer reviewed) / Article	• 8 children hospitalised for symptoms consistent with Paediatric Inflammatory Multisystem Syndrome associated with SARS-CoV-2 pandemic (PIMS-TS) and who were PCR-negative for SARS-CoV-2, were tested for antibodies to viral spike glycoprotein using an ELISA test. • All patients exhibited significant IgG and IgA responses to viral spike glycoprotein. Further assessment showed that the IgG isotypes detected in children with PIMS-TS were of the IgG1 and IgG3 subclasses, a distribution similar to that observed in samples from hospitalised adult COVID-19 patients. • In contrast, IgG2 and IgG4 were not detected in children or adults. IgM was not detected in children, which contrasts with adult hospitalised adult COVID-19 patients of whom all had positive IgM responses. This is consistent with infection having occurred weeks previously and that the syndrome onset occurs well after the control of SARS-CoV-2 viral load. This implies that the disease is largely immune-mediated.

Diagnostics

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20.05.2020	The utility of beta-2-microglobulin testing as a human cellular control in COVID-19 testing	J Clin Virol / Article	• Poorly taken clinical samples can result in false negative tests resulting in misinformed decisions. • To address this, the authors at the Public Health England laboratory in Manchester have used beta-2-microglobulin as a marker of human cellular control alongside COVID-19 testing (RpRd gene; Roche FLOW system). Samples failing the control and testing negative for COVID-19 were reported as inadequate thereby ensuring samples with no human tissue present were not reported as true negatives. • From 11/02/2020, 15,485 respiratory tract samples have been tested. A total of 241 (1.6%) samples were human cellular control failures, all of these were swabs of the upper respiratory tract.
05.06.2020	Longitudinal COVID-19 profiling associates IL-1Ra and IL-10 with disease severity and RANTES with mild disease	JCI Insight / Article	• A total of 71 patients with laboratory-confirmed COVID-19 admitted to Beijing You'an hospital in China with either mild (53 patients) or severe disease (18 patients) were enrolled with 18 healthy volunteers. Measured 34 immune mediators, cytokines and chemokines in peripheral blood every 4-7 days over one month per patient using a bio-plex multiplex immunoassay. • Data suggest early intervention to increase expression of CCL5 may prevent patients from developing severe illness. The data also suggest that measurement of levels of CCL5, as well as IL-1Ra, IL-10 in blood individually and in combination might be useful prognostic bio-markers to guide treatment strategies.

Genomics

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05.06.2020	ACE2 levels are altered in comorbidities linked to severe outcome in COVID-19	medRxiv (non-peer reviewed) / Article	• In a single centre population-based study of 5457 Icelanders, the Age, Gene/Environment Susceptibility Reykjavik Study (AGES-RS), they found that ACE2 levels are significantly elevated in serum from smokers, obese and diabetic individuals, while reduced in males.
03.06.2020	Suppressive myeloid cells are a hallmark of severe COVID-19	medRxiv (non-peer reviewed) / Article	• This study combined two single-cell RNA-sequencing technologies and single-cell proteomics in whole blood and peripheral blood mononuclear cells (PBMC) to determine changes in immune cell composition and activation in two independent dual-centre patient cohorts (n=46 + n=54 COVID-19 samples), each with mild and severe cases of COVID-19. • Results showed a specific increase of HLA-DR high CD11c high inflammatory monocytes that displayed a strong interferon (IFN)-stimulated gene signature in patients with mild COVID-19, which was absent in severe disease.

| | | | • There was also evidence of emergency myelopoiesis, marked by the occurrence of immunosuppressive pre-neutrophils and immature neutrophils and populations of dysfunctional and suppressive mature neutrophils, as well as suppressive HLA-DR low monocytes in severe COVID-19. |

Epidemiology and clinical – children and pregnancy

Publication Date	Title/URL	Journal/ Article type	Digest
05.06.2020	[SARS-CoV-2 infection in infants under 1 year of age in Wuhan City, China](#)	World J Pediatr / Article	• Retrospectively retrieved data of 36 infants with SARS-CoV-2 infection in Wuhan Children's Hospital from Jan 26 to Mar 22, 2020. Clinical features, chest imaging findings, laboratory tests results, treatments and clinical outcomes were analysed. • Discovered that lymphocytosis, elevated CD4 and IL-10, and co-infections were common in infants with COVID-19, which were different from adults with COVID-19. Most infants with COVID-19 have mild clinical symptoms and good prognosis.

Epidemiology and clinical - risk factors

Publication Date	Title/URL	Journal/ Article type	Digest
04.06.2020	[Elevation of blood glucose level predicts worse outcomes in hospitalized patients with COVID-19: a retrospective cohort study](#)	BMJ Open Diabetes Res Care / Article	• Investigated the prognostic value of blood glucose level in patients with COVID-19. • Collected clinical and survival information of 2041 consecutive hospitalized patients with COVID-19 from two medical centres in Wuhan. • Elevation of blood glucose level predicted worse outcomes in hospitalized patients with COVID-19.
05.06.2020	[TRACKing Excess Deaths (TRACKED): an interactive online tool to monitor excess deaths associated with COVID-19 pandemic in the United Kingdom](#)	medRxiv (non-peer reviewed) / Article	• Using mortality data from the Office for National Statistics (ONS), National Records of Scotland (NRS), and Northern Ireland Statistics and Research Agency (NISRA), the authors calculate that up to 22nd May (24th May for NRS), there were 56,961 excess deaths and 8,986 were non-COVID excess deaths. • England had the highest number of excess deaths per 100,000 population (85) and Northern Ireland the lowest (34). Non-COVID mortality increased from 23rd March and returned to the 5-year average on 10th May. • In Scotland, where underlying cause mortality data besides COVID-related

			deaths was available, the percentage excess over the 8-week period when COVID-related mortality peaked was: dementia 49%, other causes 21%, circulatory diseases 10%, and cancer 5%.
06.06.2020	COVID-19: age, Interleukin-6, C-Reactive Protein and lymphocytes as key clues from a multicentre retrospective study in Spain	medRxiv (non-peer reviewed) / Article	• Multicentre retrospective study of demographic, clinical, laboratory and immunological features of 574 Spanish COVID-19 hospitalized patients and their outcomes. The use of use of renin-angiotensin system blockers was also analysed as a risk factor. • Age and age-related comorbidities, such as dyslipidaemia, hypertension or diabetes, determined more frequent severe forms of the disease in this study than in previous literature cohorts. These cases are older than those so far reported and clinical course of the disease is found to be impaired by age. • Immunosenescence might be therefore a suitable explanation for immune system effectors severity-related hampering. Renin-angiotensin system blockers treatment in hypertensive patients has a protective effect as regarding COVID-19 severity.
06.06.2020	Identification of Immune complement function as a determinant of adverse SARS-CoV-2 infection outcome	medRxiv (non-peer reviewed) / Article	• Retrospective observational study of 11,116 patients who presented with suspected SARS-CoV-2 infection, to determine if conditions associated with dysregulation of the complement or coagulation systems impact adverse clinical outcomes. • A history of macular degeneration and history of coagulation disorders are risk factors for morbidity and mortality in SARS-CoV-2 infected patients - effects that could not be explained by age, sex, or history of smoking. • Further, transcriptional profiling of nasopharyngeal (NP) swabs demonstrated that in addition to innate Type-I interferon and IL-6 dependent inflammatory immune responses, infection results in robust engagement and activation of the complement and coagulation pathways. • Finally, a candidate driven genetic association study of severe SARS-CoV-2 disease identified putative complement and coagulation associated loci including missense, eQTL and sQTL variants of critical regulators of the complement and coagulation cascades.
04.06.2020	HIGH LIVER FAT ASSOCIATES WITH HIGHER RISK OF DEVELOPING SYMPTOMATIC COVID-19 INFECTION - INITIAL UK BIOBANK OBSERVATIONS	medRxiv (non-peer reviewed) / Article	• Study to assess pre-existing liver disease as a risk factor for developing symptomatic COVID-19, using data from a COVID-19-positive subset of 42,146 UK Biobank participants who underwent MRI (aged 45-82), and had measures of liver fat, liver fibroinflammatory disease and liver iron. • Increased liver fat was associated with a higher risk for symptomatic confirmed COVID-19 in this population in univariate analysis (OR:1.85, p=0.03). • In obese participants, only those with concomitant fatty liver (≥10%) were at

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			increased risk, with those having normal liver fat (<5%) showing no increased risk.
05.06.2020	Different adiposity measures across sex, age, ethnicity, and COVID-19	medRxiv (non-peer reviewed) / Article	• UK biobank study of the link between several adiposity measures taken at baseline visits over a decade ago to risk for in-hospital COVID-19 positive tests. • Each measure of adiposity was associated strongly with positive in-hospital test, in a broadly linear fashion, despite the model allowing for non-linear associations. • There was a stronger gradient of risk across BMI (Pinteraction=0.09) and fat-mass index (Pinteraction=0.048) in men compared with women. • The associations between BMI and COVID-19 were largely consistent by age group and ethnicity.
04.06.2020	Anemia and iron metabolism in COVID-19: A systematic review and meta-analysis	medRxiv (non-peer reviewed) / Systematic review	• Systematic review and meta-analysis to evaluate biomarkers of anaemia and iron metabolism in patients diagnosed with COVID-19, and explore their prognostic value. • Haemoglobin levels decreased with advancing age and increasing percentage of comorbid and critically ill patients, while levels of ferritin increased with increasing male proportion and mean haemoglobin levels. • Compared to moderate cases, severe cases had lower pooled mean haemoglobin [weighted mean difference (WMD), -4.21 (95% CI -6.63; -1.78)] and higher ferritin [WMD, -730.55 ng/mL (95% CI 413.24; 1047.85)]. • A significant difference in mean ferritin level of 1027.23 ng/mL (95% CI 819.53; 1234.94) was found between survivors and non-survivors, but not in haemoglobin levels.

Epidemiology and clinical – other

Publication Date	Title/URL	Journal/ Article type	Digest
03.06.2020	SARS-CoV-2 infection, clinical features and outcome of COVID-19 in United Kingdom nursing homes	J Infect / Article	• An outbreak investigation involving 394 residents and 70 staff, was carried out in 4 nursing homes affected by COVID-19 outbreaks in central London. • Overall, 26% (95% CI 22 to 31) of residents died over the two-month period. All-cause mortality increased by 203% (95% CI 70 to 336) compared with previous years. Systematic testing identified 40% (95% CI 35 to 46) of residents as positive for SARS-CoV-2, and of these 43% (95% CI 34 to 52) were asymptomatic and 18% (95% CI 11 to 24) had only atypical symptoms; 4% (95% CI -1 to 9) of asymptomatic staff also tested positive. • The SARS-CoV-2 outbreak in four UK nursing homes was associated with very

			high infection and mortality rates. Many residents developed either atypical or no discernible symptoms. A number of asymptomatic staff members also tested positive, suggesting a role for regular screening of both residents and staff in mitigating future outbreaks.
07.06.2020	Characteristics and risk factors for COVID-19 diagnosis and adverse outcomes in Mexico: an analysis of 89,756 laboratory-confirmed COVID-19 cases	medRxiv (non-peer reviewed) / Article	• Estimated the association between patients' characteristics and COVID-19 diagnosis, hospitalization and adverse outcome in Mexico. • Overall, 236,439 patients were included, with 89,756 (38.0%) being diagnosed with COVID-19. • Male gender, older age, having one or more comorbidities, and chronic renal disease, diabetes, obesity, COPD, immunosuppression and hypertension were associated with hospitalization and adverse outcome. Current smoking was not associated with adverse outcome.
04.06.2020	Dying with SARS-CoV-2 infection-an autopsy study of the first consecutive 80 cases in Hamburg, Germany	Int J Legal Med / Article	• In the northern German Federal State of Hamburg, all deaths of Hamburg citizens with ante- or post-mortem PCR-confirmed SARS-CoV-2 infection have been autopsied since the outbreak of the pandemic in Germany. This evaluation provides a systematic overview of the first 80 consecutive full autopsies. • A proposal for the categorisation of deaths with SARS-CoV-2 infection is presented (category 1: definite COVID-19 death; category 2: probable COVID-19 death; category 3: possible COVID-19 death with an equal alternative cause of death; category 4: SARS-CoV-2 detection with cause of death not associated to COVID-19). • This study provides the largest overview of autopsies of SARS-CoV-2-infected patients presented so far.
04.06.2020	Olfactory transmucosal SARS-CoV-2 invasion as port of Central Nervous System entry in COVID-19 patients	bioRxiv (non-peer reviewed) / Article	• By investigating and anatomically mapping oro- and pharyngeal regions and brains of 32 patients dying from COVID-19, the authors describe CNS infarction due to cerebral thromboembolism, and also demonstrate SARS-CoV-2 neurotropism. • SARS-CoV-2 enters the nervous system via trespassing the neuro-mucosal interface in the olfactory mucosa by exploiting the close vicinity of olfactory mucosal and nervous tissue including delicate olfactory and sensitive nerve endings. • Subsequently, SARS-CoV-2 follows defined neuroanatomical structures, penetrating defined neuroanatomical areas, including the primary respiratory and cardiovascular control centre in the medulla oblongata.
04.06.2020	Diet and physical activity during the COVID-19 lockdown period (March-May 2020): results from the French NutriNet-Sante cohort study	medRxiv (non-peer reviewed) / Article	• Nutritional behaviours for 37,252 French adults were compared before and during lockdown • During the lockdown, trends for unfavourable nutritional behaviours were observed: weight gain (for 35%; +1.8kg on average), decreased physical activity

			(53%), increased sedentary time (63%), increased snacking, decreased consumption of fresh food products (especially fruit and fish), increased consumption of sweets, biscuits and cakes. • Yet, opposite trends were also observed: weight loss (for 23%, -2kg on average), increased home-made cooking (40%), increased physical activity (19%). • These behavioural trends related to sociodemographic and economic position, professional situation during the lockdown, initial weight status, having children at home, anxiety and depressive symptoms, as well as diet quality before the lockdown.
05.06.2020	First detection and genome sequencing of SARS-CoV-2 in an infected cat in France	Transbound Emerg Dis / Article	• Investigated the putative infection by SARS-CoV-2 in 22 cats and 11 dogs from owners previously infected or suspected of being infected by SARS-CoV-2. • All dogs were SARS-CoV-2 negative. One cat tested positive by RT-qPCR on rectal swab. Nasopharyngeal swabs from this animal were negative. This cat showed mild respiratory and digestive signs. • Serological analysis confirms the presence of antibodies against the SARS-CoV-2 in the both serum samples taken 10 days apart. Genome sequence analysis revealed that the cat SARS-CoV-2 belongs to the phylogenetic clade A2a like most of the French human SARS-CoV-2.

Infection control

Publication Date	Title/URL	Journal/ Article type	Digest
04.06.2020	Infection prevention guidelines and considerations for paediatric risk groups when reopening primary schools during COVID-19 pandemic, Norway, April 2020	Eurosurveillance / Rapid communication	• In response to the COVID-19 pandemic, most countries implemented school closures. In Norway, schools closed on 13 Mar 2020. The evidence of effect on disease transmission was limited, while negative consequences were evident. • Before reopening, risk-assessment for paediatric risk groups was performed, concluding that most children can attend school with few conditions requiring preventative home-schooling. Here the authors present infection prevention and control guidelines for primary schools and recommendations for paediatric risk groups.
03.06.2020	Belief of Previous COVID-19 Infection and Unclear Government Policy are Associated with Reduced Willingness to Participate in App-Based Contact Tracing:	medRxiv (non-peer reviewed) / Article	• Observational study of 47,708 registered NHS users of the Care Information Exchange (CIE), to measure the determinants of willingness to participate in an NHS app-based contact tracing programme. • In this large UK-wide questionnaire of wellbeing in lockdown, a willingness for app-based contact tracing is 60% - close to the estimated 56% population

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	A UK-Wide Observational Study of 13,000 Patients		uptake, and substantially less than the smartphone-user uptake considered necessary for an app-based contact-tracing to be an effective intervention to help suppress an epidemic. • Given this marginal level of support over an appropriate age range, the impacts of difficulty comprehending government advice and a policy of not testing to confirm self-reported COVID-19 infection during lockdown indicate that uncertainty in communication and diagnosis in adopted public health policies will negatively impact the effectiveness of a government contact tracing app.
04.06.2020	A rapid systematic review and case study on test, contact tracing, testing, and isolation policies for Covid-19 prevention and control	medRxiv (non-peer reviewed) / Rapid review	• Rapid review on the efficacy and policy of contact tracing, testing, and isolation (TTI) in Covid-19 prevention and control, including a case study for their delivery. • 30 eligible studies are included in the review. A narrative synthesis with a tabulation system details the diverse research designs, methods, and implications. • A case study on TTI delivery is summarised based on policy and procedures in Taiwan.
04.06.2020	Extended use or re-use of single-use surgical masks and filtering facepiece respirators: A rapid evidence review	medRxiv (non-peer reviewed) / Article	• Rapid review of guidance and systematic reviews on extended use, re-use or reprocessing of single-use surgical masks or filtering facepiece respirators. • Six guidance documents identified all note that extended use or re-use of single-use surgical masks and respirators (with or without reprocessing) should be considered only in situations of critical shortage. Extended use was generally favoured over re-use because of reduced risk of contact transmission. • Four high-quality systematic reviews focused on reprocessing (decontamination) of N95 respirators or reprocessing of surgical masks. Vaporised hydrogen peroxide and ultraviolet germicidal irradiation were highlighted as the most promising reprocessing methods, but evidence on the relative efficacy and safety of different methods was limited.

Treatment

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05.06.2020	COVID 19 rapid evidence summary: Remdesivir for treating hospitalised patients with suspected or confirmed COVID-19	NICE / Evidence summary	• This review aims to establish the clinical effectiveness, safety and cost effectiveness of remdesivir in adults, young people and children hospitalised with suspected or confirmed COVID-19. • The included studies in this review suggest some benefit with remdesivir

			compared with placebo for reducing supportive measures including mechanical ventilation and time to recovery in patients with mild or moderate, or severe COVID-19 disease who are on supplemental oxygen treatment. • However, no statistically significant differences were found for mortality and serious adverse events (fewer reported with remdesivir compared with placebo). More treatment discontinuations were reported with remdesivir compared with placebo due to adverse events. • A subgroup analysis reported in Beigel et al (2020) suggests that some groups may benefit more than others however this data needs to be interpreted with caution given the wide confidence intervals and lack of adjustment for multiplicity. Therefore this limits the applicability to clinical practice when assessing which patients are most likely to benefit from remdesivir.
05.06.2020	Prone positioning in conscious patients on medical wards: A review of the evidence and its relevance to patients with COVID-19 infection	Clin Med (Lond) / Rapid report	• The prone position in conscious non-ventilated patients with COVID-19 infection may improve oxygenation in the short term and defer or prevent the need for intubation in some. • However, clinicians must be aware that there is a small evidence base for this intervention currently. This review sets out evidence regarding the use of this technique to aid the decision making of frontline staff.
05.06.2020	Tracheostomy intervention in intubated COVID positive patients: A survey of current clinical practice among ENT surgeons	Head Neck / Article	• Prolonged intubation and mechanical ventilation has resulted in the need for tracheostomy in some patients. The purpose of this international survey was to assess optimal timing, technique and outcome for this intervention. • An online survey was generated. Otorhinolaryngologists from both the United Kingdom and Abroad were polled with regards to their experience of tracheostomy in COVID-19 positive ventilated patients. • The survey was completed by 50 respondents from 16 nations. The number of ventilated patients totalled 3403, on average 9.7% required a tracheostomy. • The results of this brief survey suggest that tracheostomy is of benefit in selected patients. There was insufficient data to suggest improved outcomes with either percutaneous vs an open surgical technique.
04.06.2020	Mechanical ventilation utilization in COVID-19: A systematic review and meta-analysis	medRxiv (non-peer reviewed) / Systematic review	• Systematic review to provide insight into the initial Invasive Mechanical Ventilation (IMV) practices for COVID-19 patients in the initial phase of the pandemic. • Out of 16 included studies with a total of 9988 patients, the overall cases of COVID-19 requiring IMV ranged from 2-77%. • Increased age and pre-existing comorbidities increased the likelihood of IMV requirement. The reported mortality rate in patients receiving IMV ranged between 50-100%. • On average, IMV was initiated between 10-10.5 days from symptoms onset.

			When ventilated, COVID-19 patients required IMV for a median of 10-17 days across studies.
05.06.2020	Simulated Assessment of Pharmacokinetically Guided Dosing for Investigational Treatments of Pediatric Patients With Coronavirus Disease 2019	JAMA Pediatrics / Original investigation	• This analysis provides paediatric-specific dosing suggestions for hydroxychloroquine and remdesivir and raises concerns regarding hydroxychloroquine use for COVID-19 treatment because concentrations were less than those needed to mediate an antiviral effect.
01.06.2020	Tocilizumab for patients with COVID-19 pneumonia. The TOCIVID-19 phase 2 trial	medRxiv (non-peer reviewed) / Article	• Multicentre single-arm phase 2 trial, powered to detect 10% absolute lethality rate reduction at 14 and 30-days, with 20% and 35% expected rates. A consecutive prospective validation cohort was also evaluated. • Tocilizumab reduced lethality rate at 30 but not at 14-days, compared with the expectations, without significant toxicity. Efficacy was more evident among patients not requiring mechanical respiratory support. • Limitations identified include: single-arm design; also, delayed availability of the drug induced indication bias and immortal time bias.
05.06.2020	Tocilizumab is associated with reduction of the risk of ICU admission and mortality in patients with SARS-CoV-2 infection	medRxiv (non-peer reviewed) / Article	• Retrospective study of 171 patients with SARS-CoV-2 infection, to describe the influence of tocilizumab on the need of transfer to ICU or death in non-critically ill patients. • 77 patients received tocilizumab and 94 did not. The tocilizumab group had less ICU admissions (10.3% vs. 27.6%, P= 0.005) and need of invasive ventilation (0 vs 13.8%, P=0.001). • In the multivariable analysis, tocilizumab remained as a protective variable (OR: 0.03, CI 95%: 0.007-0·1, P=0.0001) of ICU admission or death. • The mortality rate of 10.3% among patients receiving tocilizumab appears to be lower than other reports.
04.06.2020	An OpenData portal to share COVID-19 drug repurposing data in real time	bioRxiv (non-peer reviewed) / Article	• The National Centre for Advancing Translational Sciences (NCATS) has developed an online open science data portal for its COVID-19 drug repurposing campaign, named OpenData, with the goal of making data across a range of SARS-CoV-2 related assays available in real-time. • In total, over 10,000 compounds are being tested in full concentration-response ranges from across multiple annotated small molecule libraries, including approved drug, repurposing candidates and experimental therapeutics designed to modulate a wide range of cellular targets.
05.06.2020	A systematic review of convalescent plasma treatment for COVID19	medRxiv (non-peer reviewed) / Systematic review	• A systematic review of ten studies reporting results of CP treatment for COVID-19 from a total of 61 patients. • Decreased symptoms of severe COVID-19 and clearance of SARS-CoV-2 RNA were the most direct observations. • Patients over the age of sixty who received CP treatment for COVID-19 had a significantly prolonged recovery estimated by viral clearance (from 10 to 29 days

			since first dose of CP) compared to younger patients, who recovered from the infection in less than a week after receiving CP treatment.

Social sciences

Publication Date	Title/URL	Journal/ Article type	Digest
05.06.2020	Are we all in this together? Longitudinal assessment of cumulative adversities by socioeconomic position in the first 3 weeks of lockdown in the UK	J Epidemiol Community Health / Article	• This study explored the changing patterns of adversity relating to the COVID-19 pandemic by socioeconomic position (SEP) during the early weeks of lockdown in the UK. • Data were from 12,527 UK adults in the University College London COVID-19 Social Study (a panel study that involves online weekly data collection from participants during the COVID-19 pandemic). • There were clear inequalities in adverse experiences during the COVID-19 pandemic in the early weeks of lockdown in the UK. Results suggest that measures taken to try to reduce such adverse events did not go far enough in tackling inequality.

Modelling

Publication Date	Title/URL	Journal/ Article type	Digest
04.06.2020	The impact of school reopening on the spread of COVID-19 in England	medRxiv (non-peer reviewed) / Article	• Modelling study comparing eight strategies for reopening schools in England from 1st June, focusing on the return of particular year groups and the associated epidemic consequences. • They predict that reopening schools in a way that allows half class sizes or that is focused on younger children is unlikely to push R above one, although there is noticeable variation between the regions of the country. • Given that older children have a greater number of social contacts, our findings suggest reopening secondary schools results in larger increases in case burden than only reopening primary schools; reopening both generates the largest increase and could push R above one in some regions. • The impact of less social-distancing in the rest of the population, generally has far larger effects than reopening schools and exacerbates the impacts of reopening.

| 05.06.2020 | Augmenting contact matrices with time-use data for fine-grained intervention modelling of disease dynamics: A modelling analysis | medRxiv (non-peer reviewed) / Article | • Explored the impact on the epidemic curve of fewer contacts when individuals reduce the time they spend on selected daily activities.
• Successfully augmented contact matrices with time-use data to predict the highest impact of social distancing measures from reduced contacts when spending less time at work, school, and on social visits. Although the predicted impact from other leisure activities with potential for close physical contact were minimal, changes in mixing patterns and time-use immediately after re-allowing social activities may pose increased short-term transmission risks, especially in potentially crowded environments indoors. |

Overviews, comments and editorials

Publication Date	Title/URL	Journal/ Article type
05.06.2020	No clinical benefit from use of hydroxychloroquine in hospitalised patients with COVID-19	University of Oxford / News
05.06.2020	False Negative Tests for SARS-CoV-2 Infection — Challenges and Implications	N Engl J Med / Perspective
05.06.2020	Putting the Public Back in Public Health — Surveying Symptoms of Covid-19	N Engl J Med / Perspective
05.06.2020	The Importance of Long-term Care Populations in Models of COVID-19	JAMA / Viewpoint
05.06.2020	How to Rapidly Determine First-in-Children Dosing for COVID-19 Therapeutics	JAMA Pediatrics / Editorial

Produced by the PHE COVID-19 Literature Digest Team

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