Public Health England

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

Please note that we are including preprints (highlighted in red), which are preliminary reports of work that have NOT been peer-reviewed.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

Diagnostics

Publication Date	Title/URL	Journal/ Article type	Digest
07.05.2020	Evaluation of commercial and automated SARS-CoV-2 IgG and IgA ELISAs using coronavirus disease (COVID-19) patient samples	Eurosurveillance / Rapid communication	• The authors evaluated an automated serological screening approach for SARS-CoV-2 IgG and IgA antibodies. • Overall specificities were 91.9% and 73.0% for IgG and IgA ELISAs, respectively. Of 39 coronavirus disease patients, 13 were IgG and IgA

			positive and 11 IgA alone at sampling. IgGs and IgAs were respectively detected at a median of 12 and 11 days after symptom onset.
08.05.2020	A comparison study of SARS-CoV-2 IgG antibody between male and female COVID-19 patients: a possible reason underlying different outcome between sex	Journal of Medical Virology / Research article	• In this study, to compare the differences of SARS-CoV-2 IgG antibody between male and female patients, a total number of 331 patients confirmed SARS-CoV-2 infection were enrolled. • The authors identified a discrepancy in SARS-CoV-2 IgG antibody level in male and female patients, which may be a potential cause leading to different outcome of COVID-19 between sex.
08.05.2020	COVID-19: PCR screening of asymptomatic health-care workers at London hospital	The Lancet / Correspondence	• Set up COVIDsortium, a bioresource focusing on asymptomatic health-care workers (HCWs—doctors, nurses, allied health professionals, administrators, and others) at Barts Health NHS Trust, London, UK, to collect data through 16 weekly assessments (unless ill, self-isolating, on holiday, or redeployed) with a health questionnaire, nasal swab, and blood samples and two concluding assessments at 6 month and 12 months.
08.05.2020	Prolonged Persistence of SARS-CoV-2 RNA in Body Fluids	Emerging infectious diseases / Dispatch	• These results show prolonged persistence of SARS-CoV-2 RNA in hospitalized patients with COVID-19.
08.05.2020	Prognostic Value of Leukocytosis and Lymphopenia for Coronavirus Disease Severity	Emerging Infectious Diseases / Dispatch	• Pooled data across early studies validate a significant correlation between elevated leukocyte count and decreased lymphocyte count among patients with severe cases of COVID-19 compared with those with mild cases.
07.05.2020	Comparison of Two High-Throughput Reverse Transcription-Polymerase Chain Reaction Systems for the Detection of Severe Acute Respiratory Syndrome Coronavirus 2	Journal of Clinical Microbiology / Article	• The authors analysed the diagnostic performance of two high-throughput systems: cobas 6800 and Panther Fusion, and their associated RT-PCR assays with a collection of 389 nasopharyngeal specimens. • The overall percent agreement between the platforms was 96.4% (375/389).
08.05.2020	Comparison of SARS-CoV-2 Detection from Nasopharyngeal Swab Samples by the Roche cobas® 6800 SARS-CoV-2 Test and a Laboratory-Developed Real-Time RT-PCR test	Journal of Medical Virology / Short communication	• The authors evaluated the concordance between the Roche Diagnostics cobas® 6800 SARS-CoV-2 Test and a laboratory- developed Real-Time RT-PCR test (LDT) based on a modified Centres for Disease Control and Prevention (CDC) protocol, for the detection of SARS-CoV-2 in samples submitted to the Clinical Laboratories of the Mount Sinai Health System. • An overall discordance rate of 4.2% between the two systems may reflect differences in primer sequences, assay limit of detection, or other factors, highlighting the importance of comparing the performance of different testing platforms.

04.05.2020	Detection of SARS-CoV-2 antibodies using commercial assays and seroconversion patterns in hospitalized patients	medRxiv (not peer reviewed) / Article	• Study evaluating the performance of six CE-marked point-of-care tests (POC) and three ELISA assays for the diagnosis of COVID-19. • Both the ELISA and POC tests were able to detect SARS-CoV-2 antibodies in at least half of the samples collected seven days or more after the onset of symptoms. After 15 days, the rate of detection rose to over 80% but without reaching 100%, irrespective of the test used. • Three assays suffer from a specificity below 90% (EUROIMMUN IgG and IgA, UNscience, Zhuhai Livzon). The second week of COVID-19 seems to be the best period for assessing the sensitivity of commercial serological assays.
06.05.2020	Willingness to seek laboratory testing for SARS-CoV-2 with home, drive-through, and clinic-based specimen collection locations	medRxiv (not peer reviewed) / Article	• Report of a cross-sectional, online survey in the Us measuring willingness to seek testing if feeling ill under different specimen collection scenarios: home-based saliva, home-based swab, drive-through facility swab, and clinic-based swab. • Of 1435 participants, comprising a broad range of sociodemographic groups, 92% were willing to test with a home saliva specimen, 88% with home swab, 71% with drive-through swab, and 60% with clinic collected swab. Moreover, 68% indicated they would be more likely to get tested if there was a home testing option.

Genomics

Publication Date	Title/URL	Journal/ Article type	Digest
07.05.2020	Tropism, replication competence, and innate immune responses of the coronavirus SARS-CoV-2 in human respiratory tract and conjunctiva: an analysis in ex-vivo and in-vitro cultures	The Lancet Respiratory Medicine / Article	• SARS-CoV-2 compared virus tropism and replication competence with SARS-CoV, MERS-CoV, 2009 pandemic influenza H1N1 (H1N1pdm) in ex-vivo cultures of human bronchus (n=5) and lung (n=4). • The conjunctival epithelium and conducting airways appear to be potential portals of infection for SARS-CoV-2. Both SARS-CoV and SARS-CoV-2 replicated similarly in the alveolar epithelium; SARS-CoV-2 replicated more extensively in the bronchus than SARS-CoV. • These findings provide important insights into the transmissibility and pathogenesis of SARS-CoV-2 infection and differences with other respiratory pathogens.
07.05.2020	Isolation of SARS-CoV-2-related coronavirus from Malayan pangolins	Nature / Article	• Results of comparative genomic analysis suggest that SARS-CoV-2 might have originated from the recombination of a Pangolin-CoV-like virus with a Bat-CoV-RaTG13-like virus.

			• Infected pangolins showed clinical signs and histological changes, and circulating antibodies against Pangolin-CoV reacted with the S protein of SARS-CoV-2. • The newly identified coronavirus in the most-trafficked mammal could represent a future threat to public health if wildlife trade is not effectively controlled.
07.05.2020	The pathogenicity of SARS-CoV-2 in hACE2 transgenic mice	Nature	• The authors have confirmed the pathogenicity of SARS-CoV-2 in hACE2 mice. The mouse model with SARS-CoV-2 infection will be valuable for evaluating antiviral therapeutics and vaccines as well as understanding the pathogenesis of COVID-19

Epidemiology and clinical - children and pregnancy

Publication Date	Title/URL	Journal/ Article type	Digest
07.05.2020	Multicentre Italian study of SARS-CoV-2 infection in children and adolescents, preliminary data as at 10 April 2020	Eurosurveillance / Rapid communication	• Authors report preliminary results of an Italian multicentre study comprising 168 laboratory-confirmed paediatric cases (median: 2.3 years, range: 1 day–17.7 years, 55.9% males), of which 67.9% were hospitalised and 19.6% had comorbidities. • Fever most common symptom, gastrointestinal manifestations frequent; two children required intensive care, five had seizures, 49 received experimental treatments, all recovered.
07.05.2020	Hyperinflammatory shock in children during COVID-19 pandemic	The Lancet / Correspondence	• South Thames Retrieval Service in London report unprecedented cluster of eight children with hyperinflammatory shock over 10 day period (typically one or two children per week). • Symptoms similar to atypical Kawasaki disease, Kawasaki disease shock syndrome, or toxic shock. All tested negative for SARS-CoV-2 on bronchoalveolar lavage or nasopharyngeal aspirates. • Suggest a new phenomenon affecting previously asymptomatic children with SARS-CoV-2 infection manifesting as a hyperinflammatory syndrome with multiorgan involvement. Multifaceted disease course underlines need for multispecialty input (intensive care, cardiology, infectious diseases, immunology, and rheumatology).

Epidemiology and clinical - risk factors

Publication Date	Title/URL	Journal/ Article type	Digest
08.05.2020	[Risk of Covid-19 among frontline healthcare workers](#)	medRxiv (not peer reviewed) / Article	• Prospective cohort study among 2,135,190 individuals using the COVID Symptom Tracker smartphone application to collect information among frontline HCWs and the general community since Mar 24, 2020 (UK) and Mar 29, 2020 (US). • Among 2,035,395 community individuals and 99,795 frontline HCWs, the authors documented 5,545 incident reports of a positive Covid-19 test over 34,435,273 person-days. • Frontline HCWs had a significantly increased risk of symptomatic Covid-19 infection, which was highest among HCWs with inadequate access to PPE who cared for Covid-19 patients. However, adequate supplies of PPE did not completely mitigate high-risk exposures.
05.05.2020	[Ethnicity and risk of death in patients hospitalised for COVID-19 infection: an observational cohort study in an urban catchment area](#)	medRxiv (not peer reviewed) / Article	• Retrospective cohort study set in Birmingham, UK. • 2217 patients admitted to UHB with a proven diagnosis of COVID19 were included. 58.2% were male, 69.5% White and the majority (80.2%) had co morbidities. 18.5% were of South Asian ethnicity, and these patients were more likely to be younger (median age 61 years vs.77 years), have no co morbidities (27.8% vs. 16.6%) but a higher prevalence of diabetes mellitus (48.0% vs 28.2%) than White patients. • Standardised Admission Ratio (SAR) and Standardised Mortality Ratio (SMR) suggested more admissions and deaths in South Asian patients than would be predicted. South Asian patients were also more likely to present with severe disease despite no delay in presentation since symptom onset. South Asian ethnicity was associated with an increased risk of death.
06.05.2020	[OpenSAFELY: factors associated with COVID-19-related hospital death in the linked electronic health records of 17 million adult NHS patients](#)	medRxiv (not peer reviewed) / Article	• Preliminary results from a large epidemiological study carried out on behalf of NHS England to establish who is at risk of death from COVID-19. • Cohort study of 17,425,445 adults analysed by Cox-regression to generate hazard ratios: age and sex adjusted, and multiply adjusted for co-variates selected prospectively on the basis of clinical interest and prior findings. • There were 5683 deaths attributed to COVID-19. In summary after full adjustment, death from COVID-19 was strongly associated with: being male; older age and deprivation (both with a strong gradient); uncontrolled diabetes ; severe asthma; and various other prior medical conditions.

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			• Compared to people with ethnicity recorded as white, people from Asian and black groups are at markedly increased risk of in-hospital death from COVID-19, and contrary to some prior speculation this is only partially attributable to pre-existing clinical risk factors or deprivation; further research into the drivers of this association is therefore urgently required.
07.05.2020	Association between ABO blood groups and risk of SARS-CoV-2 pneumonia	British Journal of Haematology / Letter	• Based on this research and combined with the reported data, which further confirmed that people with blood group A had a significantly higher risk of SARS-CoV-2 infection, whereas blood group O had a significantly lower risk of SARS-CoV-2 infection.
08.05.2020	Correlation between prevalence of tobacco smoking and risk and severity of COVID-19 at the national level in the European Union: an ecological study	medRxiv (not peer reviewed) / Article	*There has been a lot of media coverage around smoking and COVID-19. A number of studies including this one are reporting a link between smoking and lower severity of COVID-19.*
05.05.2020	Smoking Prevalence is Low in Symptomatic Patients Admitted for COVID-19	medRxiv (not peer reviewed) / Article	*As above*

Epidemiology and clinical – other

Publication Date	Title/URL	Journal/ Article type	Digest
07.05.2020	Epidemiological Analysis of the First 1389 Cases of COVID-19 in Poland: A Preliminary Report	Medical Science Monitor / Report	• The proportion of women and men with confirmed COVID-19 infection was similar to the sex ratio in the general population. Infections were relatively less common in those aged under 20 years. • The largest numbers of confirmed cases were detected in 3 of the 4 largest cities, each of which has an international airport.
04.05.2020	More than just smell - COVID-19 is associated with severe impairment of smell, taste, and chemesthesis	medRxiv (not peer reviewed) / Article	• Report of the development, implementation and initial results of a multi-lingual, international questionnaire to assess self-reported quantity and quality of perception in three distinct chemosensory modalities (smell, taste, and chemesthesis) before and during COVID-19. • 4039 participants (2913 women, 1118 men, 8 other, ages 19-79) reported a COVID-19 diagnosis either via laboratory tests or clinical assessment. Importantly, smell, taste and chemesthetic function were each significantly reduced compared to their status before the disease. Difference scores (maximum possible change ±100) revealed a mean reduction of smell (-79.7±28.7, mean±SD), taste (-69.0±32.6), and chemesthetic (-37.3±36.2) function during COVID-19.

| | | | • Qualitative changes in olfactory ability (parosmia and phantosmia) were relatively rare and correlated with smell loss. Importantly, perceived nasal obstruction did not account for smell loss. |

Infection control

Publication Date	Title/URL	Journal/ Article type	Digest
08.05.2020	[Respiratory surveillance wards as a strategy to reduce nosocomial transmission of COVID-19 through early detection: the experience of a tertiary hospital in Singapore](#)	Infection Control & Hospital Epidemiology / Article	• Over a six-week period during a COVID-19 outbreak, this institution introduced a "respiratory surveillance ward" (RSW) to segregate all patients with respiratory symptoms in designated areas, where appropriate personal protective equipment (PPE) could be utilised till COVID-19 testing was done. • Although effective, this was resource-intensive in terms of testing and bed capacity.
03.05.2020	[Contact tracing and isolation of asymptomatic spreaders to successfully control the COVID-19 epidemic among healthcare workers in Milan (Italy)](#)	medRxiv (not peer reviewed) / Article	• Epidemiological observational study set in two large hospitals and 40 territorial healthcare units, with a total of 143 HCWs with a SARS-CoV-2 positive nasopharyngeal (NF) swab in a population made of 5,700 HCWs. • Most workers were tested and found positive due to a close contact with a positive colleague (49%), followed by worker-initiated testing due to symptoms (and unknown contact, 28%), and a SARS-CoV-2 positive member of the family (9.8%). • HCWs rarely reported symptoms of a respiratory infection, and up to 90% were asymptomatic or with mild symptoms in the days surrounding the positive NF swab. During the 15-day follow-up period, up to 40% of HCWs reported anosmia and dysgeusia/ageusia as moderate or heavy, more frequently than any other symptom.

Treatment

Publication Date	Title/URL	Journal/ Article type	Digest
06.05.2020	[Pathological inflammation in patients with COVID-19: a key role for monocytes and macrophages](#)	Nature Reviews Immunolology / Article	• Several studies have now established that the hyperinflammatory response induced by SARS-CoV-2 is a major cause of disease severity and death in infected patients. • The authors describe the potentially pathological roles of macrophages

			during SARS-CoV-2 infection and discuss ongoing and prospective therapeutic strategies to modulate macrophage activation in patients with COVID-19.
07.05.2020	Interleukin-1 blockade with high-dose anakinra in patients with COVID-19, acute respiratory distress syndrome, and hyperinflammation: a retrospective cohort study	The Lancet Rheumatology / Article	• Observational study on use of rheumatoid arthritis drug anakinra for COVID-19 patients; previous evidence of efficacy and safety for patients with hyperinflammatory syndromes. • At 21 days, survival 90% in high-dose anakinra group and 56% in standard treatment group (p=0·009). Mechanical ventilation-free survival was 72% (21/29) in the anakinra group versus 50% (8/16) in the standard treatment group (p=0·15).
07.05.2020	Observational Study of Hydroxychloroquine in Hospitalized Patients with Covid-19	New England Journal of Medicine / Article	• In this observational study involving 1376 patients hospitalised with Covid-19, hydroxychloroquine administration was not associated with either a greatly lowered or an increased risk of the composite end point of intubation or death. • Randomized, controlled trials of hydroxychloroquine in patients with Covid-19 are needed.
08.05.2020	Triple combination of interferon beta-1b, lopinavir-ritonavir, and ribavirin in the treatment of patients admitted to hospital with COVID-19: an open-label, randomised, phase 2 trial	The Lancet / Article	• Randomised phase 2 trial of 127 patients, assessed efficacy and safety of combined interferon beta-1b, lopinavir–ritonavir, and ribavirin for treating COVID-19. • 86 in combination group had shorter median time from treatment start to negative nasopharyngeal swab (7 days) than control group (12 days). Adverse events included self-limited nausea and diarrhoea with no difference between the two groups. • Early triple antiviral therapy safe and superior to lopinavir–ritonavir alone in alleviating symptoms and shortening duration of viral shedding and hospital stay in patients with mild to moderate COVID-19. Future clinical study of a double antiviral therapy with interferon beta-1b as a backbone is warranted.
08.05.2020	Association between Angiotensin Blockade and Incidence of Influenza in the United Kingdom	New England Journal of Medicine / Correspondence	• Study used linked electronic health care records of 5.6 million persons in UK from Clinical Practice Research Datalink (CPRD) to investigate incidence of influenza among adults (≥18 years of age) who had received a prescription for an ACE inhibitor from 1998 through 2016 (700,994 persons). • During a median 8.7 years of follow-up, persons who had received a prescription for an ACE inhibitor had a lower risk of influenza than those who had not (adjusted hazard ratio, 0.66; 95% confidence interval [CI], 0.62 to 0.70). • Use of ACE inhibitors and ARBs was associated with either no effect on

Date	Title	Source / Type	Summary
			the incidence of influenza or a lower incidence, depending on the duration of use. May reflect mechanisms shared with SARS-CoV-2.
06.05.2020	Rapid development of an inactivated vaccine candidate for SARS-CoV-2	Science / Report	• Three immunizations using two different doses (3 µg or 6 µg per dose) provided partial or complete protection in macaques against SARS-CoV-2 challenge, respectively, without observable antibody-dependent enhancement of infection. • These data support clinical development of SARS-CoV-2 vaccines for humans.
07.05.2020	Exosomes Derived From Bone Marrow Mesenchymal Stem Cells as Treatment for Severe COVID-19	Stem Cells and Development / Article	• This prospective, non-randomized, open-label, cohort study addresses the safety and efficacy of exosomes (ExoFlo™) derived from allogeneic bone marrow mesenchymal stem cells as treatment for severe COVID-19. • A survival rate of 83% was observed. 17/24 (71%) of the patients recovered; 3/24 (13%) remained critically ill though stable; 4/24 (16%) expired for reasons unrelated to the treatment. • Due to its safety profile, capacity to restore oxygenation, downregulate cytokine storm, and reconstitute immunity, ExoFlo is a promising therapeutic candidate for severe COVID-19.
07.05.2020	Is oxygen an effective treatment option to alleviate the symptoms of breathlessness for patients dying with COVID-19 and what are the potential harms?	CEBM Research / Rapid review	• For COVID-19 patients, no evidence of benefit of oxygen therapy in management of breathlessness for dying patients, in absence of hypoxemia. Potential role weaning patients from ventilator support. • If oxygen therapy used, existing guidelines contain recommendations for management of oronasal face masks, potential adverse effects of oxygen therapy in palliative care setting (e.g. impaired communication between patient and family) and need to balance patient factors with cost effectiveness, resources and safety.
08.05.2020	COVID-19 and ECMO: the interplay between coagulation and inflammation-a narrative review	Critical Care / Review	• Veno-venous extracorporeal membrane oxygenation (V-V ECMO) may serve as life-saving rescue therapy for refractory respiratory failure in the setting of acute respiratory compromise such as that induced by SARS-CoV-2.
07.05.2020	Case Report: Right Bundle Brunch Block and QTc Prolongation in a Patient with Novel Coronavirus Disease (COVID-19) Treated with Hydroxychloroquine	American Journal of Tropical Medicine and Hygiene / Article	• The authors report the case of a 60-year-old woman without any cardiac history who developed right bundle brunch block and critically prolonged corrected electrocardiographic QT interval (QTc 631 ms) after treatment for 3 days with hydroxychloroquine (HCQ), which resolved on discontinuation of the medication. • This case highlights a significant and potentially life-threatening complication of HCQ use.

Social sciences

Publication Date	Title/URL	Journal/ Article type	Digest
06.05.2020	[Applying principles of behaviour change to reduce SARS-CoV-2 transmission](#)	Nature Human Behaviour / Perspective	• Effective interventions are needed to increase adherence to behaviours that individuals in communities can enact to protect themselves and others: use of tissues to catch expelled droplets from coughs or sneezes, use of face masks as appropriate, hand-washing on all occasions when required, disinfecting objects and surfaces, physical distancing, and not touching one's eyes, nose or mouth. • There is an urgent need for direct evidence to inform development of such interventions, but it is possible to make a start by applying behavioural science methods and models.

Modelling

Publication Date	Title/URL	Journal/ Article type	Digest
07.05.2020	[Modeling shield immunity to reduce COVID-19 epidemic spread](#)	Nature Medicine / Letter	• Developed and analysed an epidemiological intervention model that leverages serological tests to identify and deploy recovered individuals as focal points for sustaining safer interactions via interaction substitution, developing what they term 'shield immunity' at the population scale. • This shield immunity approach could substantively reduce the length and reduce the overall burden of the current outbreak, and can work synergistically with social distancing.
07.05.2020	[Estimating number of cases and spread of coronavirus disease (COVID-19) using critical care admissions, United Kingdom, February to March 2020](#)	Eurosurveillance / Rapid communication	• Exponential growth model fitted to critical care admissions from two surveillance databases to determine likely COVID-19 case numbers, critical care admissions and epidemic growth in the UK before the national lockdown. • Authors estimate, on 23 March, a median of 114,000 (95% credible interval (CrI): 78,000–173,000) new cases and 258 (95% CrI: 220–319) new critical care reports, with 527,000 (95% CrI: 362,000–797,000) cumulative cases since 16 February.

07.05.2020	A phased approach to unlocking during the COVID-19 pandemic - Lessons from trend analysis	International Journal of Clinical Practice / Original paper	• The daily published cases in England in each of 149 Upper Tier Local Authority (UTLA) areas were converted to Average Daily Infection Rate (ADIR), an R-value - the number of further people infected by one infected person during their infectious phase with Rate of Change of Infection Rate(RCIR) also calculated. Stepwise regression was carried out to see what local factors could be linked to differences in local infection rates. • Extrapolation of the results showed that unreported community infection may be >200 times higher than reported cases, providing evidence that by the end of the second week in April, 29% of the population may already have had the disease and so have increased immunity.
05.05.2020	Containing Covid-19 outbreaks with spatiallytargeted short-term lockdowns and mass-testing	medRxiv (not peer reviewed) / Article	• Using the UK as a case study, a stochastic branching process model for virus transmission shows that for outbreak scenarios where contact-tracing and moderate social distancing alone provide suppression but do not contain the spread, targeted lockdowns or mass-testing interventions at the level of individual communities (with just a few thousand inhabitants) can be effective at containing outbreaks.
27.03.2020	STeCC: Smart Testing with Contact Counting Enhances Covid-19 Mitigation by Bluetooth App Based Contact Tracing	medRxiv (not peer reviewed) / Article	• Study evaluating complementary mitigation strategies relying on virus-RNA testing to detect and quarantine both, symptomatic and asymptomatic cases. • Epidemic dynamics modelling shows that stopping the pandemic by mass testing alone is unrealistic, as we lack enough tests. However, realistic numbers of tests may suffice in a smart-testing strategy, e.g. when biasing tests towards people with exceptionally high numbers of contacts. These people are at particularly high risk to become infected (with or without symptoms) and transmit the virus. • A mitigation strategy combining smart testing with contact counting (STeCC) and contact tracing in one app would reduce R0 by 2.4-fold with realistic test numbers when a realistic fraction of smartphone owners use the app.
04.05.2020	COVID-19 and homelessness in England: a modelling study of the COVID-19 pandemic among people experiencing homelessness, and the impact of a residential intervention to isolate vulnerable people and care for people with symptoms	medRxiv (not peer reviewed) / Article	• The authors used a discrete-time Markov chain model to forecast COVID-19 infections among people experiencing homelessness, given strong containment measures in the general population and some transmission among 35,817 people living in 1,065 hostels, and 11,748 people sleeping rough (the 'do nothing' scenario). • In a 'do nothing' scenario, they estimate that 34% of the homeless population could get COVID-19 between March and August 2020, with

			364 deaths, 4,074 hospital admissions and 572 critical care admissions. In their 'base intervention' scenario, demand for COVID-PROTECT peaks at 9,934 beds, and demand for COVID-CARE peaks at 1,366 beds.
04.05.2020	Segmentation and shielding of the most vulnerable members of the population as elements of an exit strategy from COVID-19 lockdown	medRxiv (not peer reviewed) / Article	• Modelling study to demonstrate that the adoption of a segmenting and shielding (S&S) strategy could increase scope to partially exit COVID-19 lockdown while limiting the risk of an overwhelming second wave of infection.
03.05.2020	A seven-day cycle in COVID-19 infection and mortality rates: Are inter-generational social interactions on the weekends killing susceptible people?	medRxiv (not peer reviewed) / Article	• The authors observed a significant seven-day cycle in (i) reported COVID-19 new cases (in 7/12 countries), and in (ii) reported COVID-19 deaths (in 7/12 countries), based on data from the 12 developed North-American and European countries that reported more than 1,000 deaths by April 28th. • In all seven countries, numbers of new cases peaked on Thursday-Friday, five days after the weekend, corresponding with a reported ~5-day lag between contact with an infected person and the manifestation of clinical symptoms. Death tolls peaked on Wednesday-Thursday in all seven countries, ~12-14 days following a weekend, corresponding with the reported median of 14-day hospitalization before death. • The authors hypothesize that an increase in inter-generational social interactions occurs during the weekend, which facilitates transfer of COVID-19 from younger people to older vulnerable individuals. Additional explanations may include weekly rhythms in immune functions, hospital care quality, or other various health-related behaviours.

Overviews, comments and editorials

Publication Date	Title/URL	Journal/ Article type
08.05.2020	Diagnosing COVID-19-associated pulmonary aspergillosis	The Lancet Microbe / Comment
07.05.2020	Immune mechanisms of pulmonary intravascular coagulopathy in COVID-19 pneumonia	The Lancet Rheumatology / Viewpoint

Produced by the PHE COVID-19 Literature Digest Team

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