



COVID-19 Literature Digest – 26/10/2020

Dear all,

Please find [today's report](#) below.

PHE's COVID-19 Literature Digest has been produced since February 2020. A selection of our previous Digests [can be found here](#). This resource aims to highlight a small selection of recent COVID-19 papers that are relevant to UK settings, contains new data / insights or emerging trends. The Digest team generate a report three times per week (Mon, Wed, Fri), which includes both preliminary reports of work (preprints) that have NOT been peer-reviewed and research that has been subject to peer review and wider scrutiny. The Digest is very rapidly produced and does not claim to be a perfect product; the inclusion or omission of a publication should not be viewed as an endorsement or rejection by PHE. We do not accept responsibility for the availability, reliability or content of the items included in this resource.

To join our email distribution list please send a request to COVID.LitDigest@phe.gov.uk. If you are interested in papers relating to behaviour and social science please contact COVID19.behaviouralscience@phe.gov.uk to sign up to receive the PHE Behavioural Sciences Weekly Report.

Best wishes,

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On behalf of the PHE COVID-19 Literature Digest Team

Report for 26.10.2020 (please note that papers that have **NOT been peer-reviewed** are highlighted in red).

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Serology and immunology

Publication Date	Title / URL	Journal / Article type	Digest
21.10.2020	Serological surveillance of SARS-CoV-2: trends and humoral response in a cohort of public health workers	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • A serosurveillance cohort of staff and healthcare workers in 4 sites in England (2,014 participants), tested monthly for SARS-CoV-2 spike protein and nucleoprotein IgG between 23rd Mar and 20th Aug 2020 . • Overall, 272 (12.1%) of individuals had at least one positive/equivocal spike protein IgG result, with the highest proportion in a hospital site (22%), 14% in London and 2.1% in a rural area. Results were similar for nucleoprotein IgG. • Following a positive result, 39/587 (6.6%) tested negative for nucleoprotein IgG and 52/515 (10.1%) for spike protein IgG. • Nucleoprotein IgG declined by 6.4% per week (95% CI, 5.5-7.4%; half-life, 75 [95% CI, 66-89] days) and spike protein IgG by 5.8% (95% CI, 5.1-6.6%; half-life, 83 [95% CI, 73-96] days).
23.10.2020	Seropositive Prevalence of Antibodies Against SARS-CoV-2 in Wuhan, China	JAMA Netw Open / Research letter	<ul style="list-style-type: none"> • Seropositive prevalence was 3.9% in a cohort of 35 040 individuals in Wuhan, China. Adult participants aged 18 years or older were enrolled in the study. None of the participants had a history of COVID-19. Most tested positive for SARS-CoV-2 IgG antibodies only, indicating a prior infection. • Seropositive prevalence: higher in urban districts than in suburban and rural areas, consistent with geographical distribution of confirmed cases; significantly higher among elderly individuals than in other age groups.

Diagnostics

Publication Date	Title / URL	Journal / Article type	Digest
21.10.2020	Viral dynamics of SARS-CoV-2 infection and the predictive value of repeat testing	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Reports the viral RNA trajectories for 68 individuals using quantitative PCR testing. • On average, symptomatic and asymptomatic individuals reached similar peak viral RNA concentrations (22.2 Ct, 95% credible interval [19.1, 25.1] vs. 22.4 Ct [20.2, 24.5]) within similar amounts of time (2.9 days [0.7, 4.7] vs. 3.0 days [1.3, 4.3]), but acute shedding lasted longer for symptomatic individuals (10.5 days [6.5, 14.0] vs. 6.7 days [3.2, 9.2]). • A second test within 2 days after an initial positive PCR result reliably

			indicated whether viral RNA concentration was increasing, decreasing, or in a low-level persistent phase.
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Genomics

Publication Date	Title / URL	Journal / Article type	Digest
23.10.2020	NERVTAG: Is there evidence for genetic change in SARS-CoV-2 and if so, do mutations affect virus phenotype? - 30 September 2020	Gov.uk / Research and analysis	<ul style="list-style-type: none"> Concluded that there is no evidence that the limited number of genetic changes reported and investigated to date have brought about major shifts in viral tropism or virulence of SARS-CoV-2.

Epidemiology and clinical – risk factors

Publication Date	Title / URL	Journal / Article type	Digest
23.10.2020	Evaluation of excess mortality in European all-cause mortality data	Gov.uk / Research and analysis	<ul style="list-style-type: none"> All-age, all-cause mortality data from 24 European countries for the period 2015-2020 was analysed using EuroMOMO Z-scores (number of standard deviations from expected mortality). Z-scores greater than four, signifying high excess mortality and reason for concern, were identified in 13/24 countries during 2020-H1. Maximum 2018-H1 mortality was positively correlated with 2020-H1 mortality, implying past high excess mortality predicts high 2020-H1 excess mortality. Lower per capita spending on healthcare, increased residential care and high previous excess mortality are significant predictors of countries with high 2020-H1 excess mortality.
23.10.2020	Outcomes of COVID-19 related hospitalization among people with HIV in the ISARIC WHO Clinical Characterization Protocol (UK): a prospective observational study	Clin Infect Dis / Accepted manuscript	<ul style="list-style-type: none"> <i>This paper was previously included in the Digest as a preprint.</i> A study of 47,592 hospitalised COVID-19 patients to describe outcomes of HIV-positive patients (n=122) compared to HIV-negative. Mortality was higher among HIV-positive patients after adjusting for age (adjusted hazard ratio [aHR] 1.47, 95% confidence interval [CI] 1.01-2.14; p=0.05), and the association persisted after adjusting for the other variables (aHR 1.69; 95% CI 1.15-2.48; p=0.008) and when restricting the analysis to people aged <60 years (aHR 2.87; 95% CI 1.70-4.84; p<0.001).

Epidemiology and clinical – other

Publication Date	Title / URL	Journal / Article type	Digest
23.10.2020	COVID-19: time from symptom onset until death in UK hospitalised patients	Gov.uk / Research and analysis	<ul style="list-style-type: none"> • In patients admitted to hospital with COVID-19, what is the time from symptom onset to death? Does this differ by age, sex, and first/second wave? • Patients were prospectively enrolled into the ISARIC-CCP-UK study (n = 76707). In those in whom symptom onset date was unknown, hospital admission date was used (7802 [9.8%]). • Median (interquartile range) of time from symptom onset to death is currently shorter in the second wave (7 days [IQR 11 days]) compared to the first wave (13 days [IQR 14 days]). However, it should be noted that insufficient time has elapsed since 1st Aug 2020 to provide sufficient follow-up for this and second-wave records are more incomplete. • Little difference is seen in time from hospital admission to death between first and second waves.
21.10.2020	Mortality among Adults Ages 25-44 in the United States During the COVID-19 Pandemic	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Performed an observational cohort study using public data from the National Centre for Health Statistics at the US CDC and CDC Wonder. Analysed all-cause mortality among adults ages 25-44 during the COVID-19 pandemic in the US. • Found that COVID-19 has likely become the leading cause of death (surpassing unintentional overdoses) among young adults aged 25-44 in some areas of the US during substantial COVID-19 outbreaks.

Infection control / non-pharmaceutical interventions

Publication Date	Title / URL	Journal / Article type	Digest
23.10.2020	EMG: Role of ventilation in controlling SARS-CoV-2 transmission, 30 September 2020	Gov.uk / Research and analysis	<ul style="list-style-type: none"> • Paper by Environmental and Modelling group on the role of ventilation. • Ventilation is an important factor in mitigating against the risk of far-field (>2m) aerosol transmission, but has no impact on other transmission routes (high confidence). The importance of far-field aerosol transmission is not yet known, but evidence suggests it is a risk in poorly ventilated spaces (medium confidence).
23.10.2020	Decrease in Hospitalizations for COVID-19 after Mask Mandates in 1083 U.S. Counties	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Aimed to determine if facial mask mandates instituted in U.S. counties over the spring and summer of 2020 were associated with declining severity of infection as measured by the number of hospitalizations for COVID-19. • Concluded that facial masking may decrease COVID-19 severity by decreasing the viral inoculum to which individuals are exposed. • Mask mandates across 1083 counties in the U.S. in 49 states decreased

hospitalization rates from COVID-19 even when controlling for other factors that could impact disease severity, including age, testing access, number of cases, and mobility.

Treatment

Publication Date	Title / URL	Journal / Article type	Digest
23.10.2020	Ventilation management and clinical outcomes in invasively ventilated patients with COVID-19 (PRoVENT-COVID): a national, multicentre, observational cohort study	Lancet Respiratory Medicine / Article	<ul style="list-style-type: none"> • Aimed to describe the practice of ventilation management and to establish outcomes in invasively ventilated patients with COVID-19 in a single country during the first month of the outbreak. • Between Mar 1 and Apr 1, 2020, 553 patients were included in the study. • In patients with COVID-19 who were invasively ventilated during the first month of the outbreak in the Netherlands, lung-protective ventilation with low tidal volume and low driving pressure was broadly applied and prone positioning was often used. The applied PEEP varied widely, despite an invariably low respiratory system compliance.
22.10.2020	Convalescent plasma in the management of moderate covid-19 in adults in India: open label phase II multicentre randomised controlled trial (PLACID Trial)	BMJ / Research	<ul style="list-style-type: none"> • Multicentre, randomised controlled trial to investigate effectiveness of convalescent plasma to treat moderate COVID-19 in adults in India. • Participants (n=464) were assigned to either: i) convalescent plasma (n=235 ; two doses of 200 mL, transfused 24 hours apart) with best standard of care (intervention group), or; ii) best standard of care only (n=229) (control group). • Findings suggest convalescent plasma was not associated with a reduction in progression to severe covid-19 or all-cause mortality.
15.10.2020	Melatonin is significantly associated with survival of intubated COVID-19 patients	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Retrospective study examined whether mortality following intubation was associated with melatonin exposure in 791 COVID-19 patients (948 intubation periods in total), and 2,981 patients who were not infected with COVID-19 (3,497 intubation periods). • Melatonin exposure after intubation was statistically associated with a positive outcome in COVID-19 (demographics and comorbidities adjusted HR: 0.131, 95% CI: 7.76E-02 - 0.223, p-value = 8.19E-14) and non-COVID-19 (demographics and comorbidities adjusted HR: 0.278, 95% CI: 0.142 - 0.542, p-value = 1.72E-04) intubated patients.
21.10.2020	Early use of nitazoxanide in mild Covid-19 disease: randomized, placebo-controlled trial	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Adult COVID-19 patients (n=392) randomised to receive either 500mg nitazoxanide (n=194) or placebo (n=198) for 5 days. • At the 5-day study visit, symptom resolution (dry cough, fever, and/or fatigue) did not differ between the nitazoxanide and placebo arms. • However, at the 1-week follow-up, 78% in the nitazoxanide arm and 57% in

		<p>the placebo arm reported complete resolution of symptoms ($p=0.048$).</p> <ul style="list-style-type: none"> • Swabs collected were negative for SARS-CoV-2 in 29.9% of patients in the nitazoxanide arm versus 18.2% in the placebo arm ($p=0.009$). • Viral load was reduced after nitazoxanide compared to placebo ($p=0.006$). • No serious adverse events were observed.
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Vaccine development

Publication Date	Title / URL	Journal / Article type	Digest
26.10.2020	Key aspects regarding the introduction and prioritisation of COVID-19 vaccination in the EU/EEA and the UK	European Centre for Disease Prevention and Control / Technical report	<ul style="list-style-type: none"> • This document provides an overview of the key aspects related to the initial phases following the introduction of one or more COVID-19 vaccines in the European Union and European Economic Area (EU/EEA) and the United Kingdom (UK). The aim is to support but not define EU policy on COVID-19 vaccination.

Modelling

Publication Date	Title / URL	Journal / Article type	Digest
22.10.2020	The temporal association of introducing and lifting non-pharmaceutical interventions with the time-varying reproduction number (R) of SARS-CoV-2: a modelling study across 131 countries	Lancet Infectious Diseases / Article	<ul style="list-style-type: none"> • Aimed to understand the association of introducing and lifting non-pharmaceutical interventions (NPIs) with the level of transmission of SARS-CoV-2, as measured by the time-varying reproduction number (R), from a broad perspective across 131 countries. • Individual NPIs, including school closure, workplace closure, public events ban, ban on gatherings of more than ten people, requirements to stay at home, and internal movement limits, are associated with reduced transmission of SARS-CoV-2, but the effect of introducing and lifting these NPIs is delayed by 1–3 weeks, with this delay being longer when lifting NPIs.
23.10.2020	Modeling COVID-19 scenarios for the United States	Nat Med / Article	<ul style="list-style-type: none"> • Authors use SEIR model and COVID-19 case and mortality data 1 Feb–21 Sept 2020 to model possible trajectories of severe COVID-19 in US 22 Sept 2020 – 28 Feb 2021. • Projections of current non-pharmaceutical intervention strategies by state— with social distancing mandates reinstated when a threshold of 8 deaths per million population is exceeded (reference scenario)—suggest that, cumulatively, 511,373 (469,578–578,347) lives could be lost to COVID-19 across US by 28 Feb 2021. • Universal mask use (95% mask use in public) could ameliorate worst effects of

		epidemic resurgences in many states - by saving an additional 129,574 (85,284–170,867) lives, or an additional 95,814 (60,731–133,077) lives assuming a lesser adoption of mask wearing (85%), when compared to the reference scenario.
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Overviews, comments and editorials

Publication Date	Title / URL	Journal / Article type
22.10.2020	Quarterly report on progress to address COVID-19 health inequalities	Gov.uk / Correspondence
23.10.2020	Consequences of COVID-19 for cancer care - a CRUK perspective	Nat Rev Clin Oncol / Comment
23.10.2020	Virology, transmission, and pathogenesis of SARS-CoV-2	Bmj / Review
22.10.2020	Understanding protection from SARS-CoV-2 by studying reinfection	Nat Med / News and views
25.10.2020	Treating COVID-19: are we missing out the window of opportunity?	Journal of Antimicrobial Chemotherapy / Article
23.10.2020	Dexamethasone and remdesivir: finding method in the COVID-19 madness	Lancet Microbe / Comment
23.10.2020	The engines of SARS-CoV-2 spread	Science / Perspective
22.10.2020	Covid-19: Vaccine trials need more transparency to enable scrutiny and earn public trust, say experts	Bmj / Feature

Produced by the PHE COVID-19 Literature Digest Team

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