



COVID-19 Literature Digest – 16/04/2021

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, contain new data, insights or emerging trends. The Digest Team generate a report once per week (Fri). The reports include both preprints, which should be treated with caution as they are NOT peer-reviewed and may be subject to change, and also research that has been subject to peer review and wider scrutiny.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,

Emma Farrow, James Robinson

On behalf of the PHE COVID-19 Literature Digest Team

Report for 16.04.2021 (please note that papers that have **NOT been peer-reviewed** are highlighted in red).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
09.04.2021	SARS-CoV-2 infection rates of antibody-positive compared with antibody-negative health-care workers in England: a large, multicentre, prospective cohort study (SIREN)	Lancet / Article	<ul style="list-style-type: none">• In a large cohort study (SIREN; n=25,661) previous history of SARS-CoV-2 infection was associated with an 84% lower risk of infection, with median protective effect observed 7 months following primary infection.• Preprint previously included.• Associated commentary: https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)00782-0/fulltext
15.04.2021	SARS-CoV-2 seropositivity and subsequent infection risk in healthy young adults: a prospective cohort study	The Lancet Respiratory Medicine / Article	<ul style="list-style-type: none">• Study risk of subsequent SARS-CoV-2 infection among young adults, US Marine recruits aged 18–20 years, seropositive from a previous infection.• 19/189 (10%) seropositive participants tested positive during 6-week follow-up (1.1 cases per person-year); compared to 1079/2247 (48%) seronegative participants (6.2 cases per person-year).• Infected seropositive participants had viral loads about 10-times lower.• Antibodies induced by initial infection are largely protective, but do not guarantee effective SARS-CoV-2 neutralisation activity or immunity against subsequent infection.
12.04.2021	LRR protein RNH1 inhibits inflammasome activation through proteasome-mediated degradation of Caspase-1 and is associated with adverse clinical outcomes in COVID-19 patients	bioRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none">• Authors propose RNH1 is a new inflammasome regulator with relevance to COVID-19 severity.• In this study, RNH1 decreased pro-IL1b expression and induced proteasome-mediated caspase-1 degradation. Further, RNH1 protein levels were negatively correlated with inflammation and disease severity in hospitalised COVID-19 patients.

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Vaccines

Publication Date	Title/URL	Journal / Article type	Digest
26.03.2021	Public Health England vaccine effectiveness report	Public Health England / Report	<ul style="list-style-type: none"> • Analysis of routine testing data finds vaccine effectiveness of a single vaccine dose or Pfizer or AstraZeneca vaccine reaches ~60% in those aged 70 years and over. • SIREN continues to show high protection against infection in health care workers, with no decline in protection after a single dose beyond 56 days (the study length). • Among persons who develop symptomatic infection, risk of hospitalisation is reduced by 35 to 45% after one dose of either vaccine. • Data continues to show encouraging effects from a single dose of Pfizer vaccine on risk of mortality in symptomatic cases over 80 who have been vaccinated; risk of death is reduced by 54%.
13.04.2021	Single Vaccination with BNT162b2 or ChAdOx1 in Older People Induces Equivalent Antibody Generation but Enhanced Cellular Responses after ChAdOx1	Preprints with the Lancet (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Participants aged 80+ years (n=165) received a single dose of either BNT162b2 mRNA or ChAdOx1 adenovirus vaccine. • After 5 weeks antibody responses against spike protein were detectable in 93% and 87% of mRNA or ChAdOx1 recipients respectively. • Spike-specific T cell responses were observed in 12% and 31% of mRNA and ChAdOx1 recipients respectively; median responses were 3-fold higher in ChAdOx1 vaccinees at 2 vs 6 spots/million respectively.
09.04.2021	Trends and clinical characteristics of COVID-19 vaccine recipients: a federated analysis of 57.9 million patients' primary care records in situ using OpenSAFELY	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Reports data from rapid mass COVID-19 vaccination by the NHS in England. • By 17 March, 36% (n=20,852,692) of 57.9m patients had received a vaccine, including 94.7% of patients aged ≥80 and not living in a care home. • Targeted activity may be needed to address lower vaccination rates observed among certain key groups: ethnic minorities, people living in areas of higher deprivation, and those with severe mental illness or learning disabilities. • Preprint (interim data) previously included in Digest.
08.04.2021	COVID-19 vaccination acceptability in the UK at the start of the vaccination programme: a nationally	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Cross-sectional survey of 1,500 UK adults from 13–15 January 2021 on intention to be vaccinated: 73.5% reported likely; 17.3% unsure, and 9.3% unlikely.

	representative cross-sectional survey (CoVAccS wave 2)		<ul style="list-style-type: none"> • Intention was associated with: i) having been/intending to be vaccinated for influenza last winter/this winter; ii) stronger beliefs about social acceptability of COVID-19 vaccine; iii) need for vaccination; iv) adequacy of vaccine information; and v) weaker beliefs that the vaccine is unsafe. • Negative intention associated with beliefs that only those at serious risk of illness should be vaccinated and that vaccines are just profit-seeking.
14.04.2021	Behavioral nudges increase COVID-19 vaccinations: Two randomized controlled trials	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Text-based nudges were delivered to UCLA Health patients one day (first RCT; N=113,229) and eight days (second RCT; N=90,662) after notifications of vaccine eligibility. • In first RCT, text messages designed to make vaccination salient and easy to schedule boosted appointment and vaccination rates by 86% and 26%, respectively; a video-based information intervention does not yield benefits beyond simple text. These results hold across ethnicity and age groups. • In second RCT, receiving a second reminder boosted appointment and vaccination rates by 52% and 16%, respectively.
29.03.2021	Infliximab is associated with attenuated immunogenicity to BNT162b2 and ChAdOx1 nCoV-19 SARS-CoV-2 vaccines	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • In a cohort of patients with inflammatory bowel disease, treatment with infliximab (n=865) was associated with attenuated immunogenicity to a single-dose of Pfizer–BioNTech or Oxford-AstraZeneca COVID-19 vaccines when compared to treatment with vedolizumab (n=428). • Vaccination after SARS-CoV-2 infection, or a second dose of vaccine, led to seroconversion in most patients. Authors suggest delayed second dosing should be avoided in patients treated with infliximab.
09.04.2021	Evidence for increased breakthrough rates of SARS-CoV-2 variants of concern in BNT162b2 mRNA vaccinated individuals	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Case-control study in Israel. Vaccinees infected at least a week after the second dose of BNT162b2 (Pfizer vaccine) disproportionately infected with B.1.351 (odds ratio 8:1). • Those infected between two weeks after the first dose and one week after the second dose disproportionately infected by B.1.1.7 (odds ratio 26:10), suggesting reduced vaccine effectiveness against both VOCs under different dosage/timing conditions. • Nevertheless, B.1.351 incidence in Israel to-date remains low and vaccine effectiveness remains high against B.1.1.7, among those fully vaccinated.

15.04.2021	Cerebral venous thrombosis: a retrospective cohort study of 513,284 confirmed COVID-19 cases and a comparison with 489,871 people receiving a COVID-19 mRNA vaccine	OFS (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Study estimated the absolute incidence of cerebral venous thrombosis (CVT) in the two weeks following COVID-19 diagnosis (N=513,284), influenza (N=172,742), or receipt of mRNA (Pfizer or Moderna) COVID-19 vaccines (N=489,871). • Compared to the mRNA vaccines [where CVT occurred in 4 in a million], the risk of a CVT from COVID-19 is about 10 times greater. • Compared to the Oxford-AstraZeneca vaccine [where CVT reportedly occurs in about 5 in a million people after first dose], the risk of a CVT from COVID-19 is about 8 times greater. • Associated press release: https://www.ox.ac.uk/news/2021-04-15-risk-rare-blood-clotting-higher-covid-19-vaccines
09.04.2021	Thrombotic Thrombocytopenia after ChAdOx1 nCov-19 Vaccination	NEJM / Original Article	<ul style="list-style-type: none"> • German study, clinical and laboratory features of 11 patients in whom thrombosis or thrombocytopenia had developed after vaccination with ChAdOx1 (AstraZeneca). • Of patients with one or more thrombotic events: cerebral venous thrombosis (9), splanchnic-vein thrombosis (3), pulmonary embolism (3), 4 had other thromboses; 6 died. • Propose rare vaccine-related immune thrombotic thrombocytopenia mediated by platelet-activating antibodies against PF4, which clinically mimics autoimmune heparin-induced thrombocytopenia. • Associated commentary: https://www.cidrap.umn.edu/news-perspective/2021/04/studies-suggest-link-between-blood-clots-astrazeneca-covid-vaccine
09.04.2021	Anti-SARS-CoV-2 Spike Protein and Anti-Platelet Factor 4 Antibody Responses Induced by COVID-19 Disease and ChAdOx1 nCov-19 vaccination	Research Square (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Study if Covid-19 induced antibodies cross-react with platelet factor 4 (PF4/CXLC4), the protein targeted in vaccine-induced thrombotic thrombocytopenia (VITT) and autoimmune heparin-induced thrombocytopenia. Sera from 222 Covid-19 patients. • Antibody responses to PF4 in SARS-CoV-2 infection and after AstraZeneca vaccination differ. Antibodies against SARS-CoV-2 spike protein do not cross-react with PF4 or PF4/heparin complexes through molecular mimicry. • These findings make it very unlikely that the intended vaccine-induced immune response against SARS-CoV-2 spike protein would itself induce VITT. • NOTE: at time of posting, the WHO has stated that “a causal relationship between the vaccine and the occurrence of blood clots with low platelets is considered plausible but is not confirmed.”

07.04.2021	Effectiveness of CoronaVac in the setting of high SARS-CoV-2 P.1 variant transmission in Brazil: A test-negative case-control study	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Matched test-negative case-control study of healthcare workers (HCWs) in Manaus, Brazil where P.1 accounted for 75% of genotyped SARS-CoV-2 samples at the peak of its epidemic. Of 53,176 HCWs, 46,884 (88%) received at least one dose of CoronaVac and 2,656 (5%) underwent RT-PCR testing (776 (28%) tested positive). • Vaccination with at least one dose of Coronavac was associated with a 0.50-fold reduction (adjusted vaccine effectiveness, 49.6%) in the odds of symptomatic infection during the period 14 days or more after receiving the first dose. • Estimated vaccine effectiveness of at least one dose against any SARS-CoV-2 infection was 35.1% in the same time period.
08.04.2021	Neutralizing activity of Sputnik V vaccine sera against SARS-CoV-2 variants	Research Square (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Only 1 of 12 serum samples from a cohort of recipients of Gamaleya Sputnik V Ad26 / Ad5 vaccine showed effective neutralization (IC90) of rcVSV-CoV2-S: B.1.351 [S.Africa] at full serum strength. • Same set of sera efficiently neutralized S from B.1.1.7 [UK]; showed only moderately reduced activity against S carrying E484K substitution alone. • Data suggest that control of some emergent SARS-CoV-2 variants may benefit from updated vaccines. • NOTE: the authors disclose conflicts of interest including patents for some materials used in this work and advisory panel work for BioNTech.

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Diagnostics and genomics

Publication Date	Title/URL	Journal / Article type	Digest
12.04.2021	Genomic characteristics and clinical effect of the emergent SARS-CoV-2 B.1.1.7 lineage in London, UK: a whole-genome sequencing and hospital-based cohort study	The Lancet Infectious Diseases / Article	<ul style="list-style-type: none"> • Cohort study of 496 hospitalised COVID-19 patients in two London hospitals found increased virus load by proxy for variant B.1.1.7. There was no association of the variant with severe disease.
12.04.2021	Changes in symptomatology, reinfection, and transmissibility associated with the SARS-CoV-2 variant B.1.1.7: an ecological study	The Lancet Public Health / Article	<ul style="list-style-type: none"> • UK study of changes in symptom type / duration and community reinfection rates associated with B.1.1.7 (UK identified) variant. • Self-reported symptom logs from 36 920 users of COVID Symptom

			<p>Study app who reported positive test results between Sept 28 and Dec 27, 2020.</p> <ul style="list-style-type: none"> • Lack of change in symptoms indicates that existing testing and surveillance infrastructure do not need to change specifically for B.1.1.7 variant. • Rt fell below 1 during regional and national lockdowns, even in regions with high proportions of infections with B.1.1.7; suggests vaccines are likely to remain effective.
08.04.2021	The impact of viral mutations on recognition by SARS-CoV-2 specific T-cells	bioRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Identifies amino acid variants within dominant SARS-CoV-2 T-cell epitopes. Several variants within nucleocapsid and ORF3a epitopes have arisen independently in multiple lineages and result in loss of recognition by epitope-specific T-cells assessed by IFN-γ and cytotoxic killing assays.

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Epidemiology and clinical - children and pregnancy

Publication Date	Title/URL	Journal / Article type	Digest
09.04.2021	UKOSS/ISARIC/CO-CIN: Females in Hospital with SARS-CoV-2 infection, the association with pregnancy and pregnancy outcomes, 25 March 2021	Gov.uk (non-peer reviewed) / Research and analysis	<ul style="list-style-type: none"> • The apparent excess of hospitalisations in women of reproductive age with COVID-19 compared to men is likely to be due to admission screening of women admitted for pregnancy-related complications. • Of 2,642 symptomatic pregnant women hospitalised with COVID-19, 10% received critical care and 1% died; 18% had a preterm birth, about 2.5 times the background rate. • Pregnant women hospitalised in areas/periods since the B.1.1.7 variant became predominant were more likely to require respiratory support.
09.04.2021	Preliminary Evidence on Long Covid in children	Acta Paediatr / Brief Report	<ul style="list-style-type: none"> • 129 children diagnosed with COVID-19 between March - Nov 2020 (mean age of 11 ± 4.4 years, 62 (48.1%) female) assessed on average 162.5 ± 113.7 days after diagnosis. • 41.8% completely recovered, 35.7% had 1 or 2 symptoms, 22.5% had 3 or more; including insomnia (18.6%), respiratory symptoms (14.7%), fatigue (10.8%), muscle (10.1%) and joint pain (6.9%). • These symptoms, in children with symptomatic and asymptomatic acute COVID-19, were particularly frequent in those assessed > 60 days after the initial diagnosis.

			<ul style="list-style-type: none"> • 35 of 68 children assessed (27.1%) had at least one symptom 120 days or more after diagnosis (21 had one or two symptoms, 14 had three or more).
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Epidemiology and clinical - long-term complications / sequelae

Publication Date	Title/URL	Journal / Article type	Digest
13.04.2021	Post-acute COVID-19 sequelae in cases managed in the community or hospital in the UK: a population based study	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Population-based cohort study of 46,687 COVID-19 patients in England: 45,272 non-hospitalised (community group); 1,415 hospitalised. • Hospitalised had higher rates of 13/26 symptoms and 11/19 diseases post-COVID-19 than the community group, received more prescriptions and utilised more healthcare. Largest differences were noted for breathlessness, joint pain, diabetes, and hypertension. • Although low, rates of chest tightness, tinnitus and lung fibrosis were higher in the community group.

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Epidemiology and clinical – risk factors

Publication Date	Title/URL	Journal / Article type	Digest
09.04.2021	COVID-19 Ethnicity subgroup: Interpreting differential health outcomes among minority ethnic groups in wave 1 and 2, 24 March 2021	Gov.uk (non-peer reviewed) / Research and analysis	<ul style="list-style-type: none"> • Study draws on qualitative and sociological evidence. Suggests higher COVID-19 mortality rates in Bangladeshi and Pakistani groups in the second pandemic wave in England are due to the amplifying interaction of i) health inequities, ii) disadvantages associated with occupation and household circumstances, iii) barriers to accessing health care, and iv) potential influence of policy and practice on COVID-19 health-seeking behaviour.

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Epidemiology and clinical – other

Publication Date	Title/URL	Journal / Article type	Digest
12.04.2021	Postoperative In-Hospital Morbidity and Mortality of Patients With COVID-19 Infection Compared With Patients Without COVID-19 Infection	JAMA Netw Open / Research Letter	<ul style="list-style-type: none"> • U.S retrospective cohort study of 10 940 surgical patients: 5470 with positive COVID-19 test results / 5470 with negative results • COVID-19 infection positivity was an independent risk factor for increased perioperative mortality but not complications. • Overall mortality rate in cohort with COVID-19 (14.8%) was more than double that in cohort without COVID-19 (7.1%).
08.04.2021	Determining the communicable period of SARS-CoV-2: A rapid review of the literature, March to September 2020	Eurosurveillance / Review	<ul style="list-style-type: none"> • Findings from rapid review (160 studies) supports a minimum 10-day period of isolation but certain cases where virus was isolated after 10 days were identified. • Authors say future research should ensure standard reporting of RT-PCR protocols and results, bearing in mind the extended time to viral clearance from RT-PCR tests.
09.04.2021	ISARIC COVID-19 Clinical Data Report: 8 April 2021	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • This report is a part of a series and includes results of data analysis on 8 April 2021 (264,496 COVID-19 cases; Median Age 61) • Most common symptoms: shortness of breath, cough, history of fever, fatigue/malaise, and altered consciousness/confusion. Children and older adults less likely to display typical symptoms; around 40% of patients >80 years experienced confusion. Overall, elderly patients less likely to present with URTI symptoms. • Antibiotic use is high (79.9% of patients). ICU admission rate was 19%.

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Infection control / non-pharmaceutical interventions

Publication Date	Title/URL	Journal / Article type	Digest
15.04.2021	Coronavirus and self-isolation after testing positive in England: 8 March to 13 March 2021	Office for National Statistics / Report	<ul style="list-style-type: none"> • Presents experimental statistics on self-reported behaviour of 1,122 respondents during self-isolation. • Between 8 and 13 March 2021 the majority (82%) of those required to self-isolate reported fully adhering; 28% reported having lost income because of self-isolation. • Adherence following a positive result: 97% in first 24 hours; 94%

			<p>in the period after the first 24 hours until end of isolation (day 10).</p> <ul style="list-style-type: none"> • Non-adherent behaviour most likely to take place between onset of symptoms (prompting a test) and receiving a positive coronavirus (COVID-19) test result.
15.04.2021	Do people reduce compliance with COVID-19 guidelines following vaccination? A longitudinal analysis of matched UK adults	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Study of a sample population (23,296 participants) taken from the UK COVID-19 Social Study found limited evidence that vaccinated individuals reduced compliance with COVID-19 guidelines or social distancing after receiving vaccination. • Vaccinated individuals in the sample were broadly keyworkers or older individuals and the follow-up was relatively short (1-2 months): replication in other populations required.
15.04.2021	Trajectories of compliance with COVID-19 related guidelines: longitudinal analyses of 50,000 UK adults	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Models compliance with voluntary measures to tackle COVID-19 (e.g. hand washing) using self-reported data from 50,851 adults in the COVID-19 Social Study collected across the first and second waves of the pandemic in the UK. • Most individuals maintained high levels of compliance and reported similar levels of compliance across both waves. • Approximately one in seven participants had decreasing levels of compliance across the pandemic; noticeably lower levels of compliance in the second wave. • Characteristics of non-compliance included: young age; better physical health; lower empathy and conscientiousness; and greater willingness to take risks.
14.04.2021	Laboratory Modeling of SARS-CoV-2 Exposure Reduction Through Physically Distanced Seating in Aircraft Cabins Using Bacteriophage Aerosol — November 2020	MMWR Morb Mortal Wkly Rep	<ul style="list-style-type: none"> • Based on laboratory modelling of exposure to SARS-CoV-2 on single-aisle and twin-aisle aircraft, exposures in scenarios in which the middle seat was vacant were reduced by 23% to 57%, compared with full aircraft occupancy, depending upon the model. This laboratory-based model predicts a 23% to 57% reduction in exposure to viable virus particles when middle seats on an airline are kept vacant. The current study addresses only exposure and not transmission
12.04.2021	Genetic evidence for the association between COVID-19 epidemic severity and timing of non-pharmaceutical interventions	Nat Commun / article	<ul style="list-style-type: none"> • For 57 locations studies (24 Europe, 20 North America, 5 Middle East, 6 Asia, 1 South America, 1 Africa) the time elapsed between epidemic origin and stringent non-pharmaceutical interventions (NPIs) was associated with different measures of epidemic severity and explained 11% of the variance in reported deaths one month after the most stringent intervention. • Locations where strong non-pharmaceutical interventions were

			implemented earlier experienced much less severe COVID-19 morbidity and mortality during the period of study.
15.04.2021	Covid-19: Early evening curfews are not effective and may backfire	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> Findings suggest shifting curfew from 9pm to 6pm in one Region of Greece (Athens) led to a 4.63 percentage point relative increase in time spent at home and had no effect on time spent in groceries and pharmacies, compared to a Region which maintained 9pm curfew. As this was a result of a 18.75% reduction in hours where people were allowed to leave home, the authors suggest early evening curfew led to more crowding in indoor spaces.

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Transmission

Publication Date	Title/URL	Journal / Article type	Digest
09.04.2021	Transmission of COVID-19 in school settings and interventions to reduce transmission: A rapid review (update 2)	Public Health England / Rapid review	<ul style="list-style-type: none"> Evidence from 39 observational studies suggests transmission within schools can be limited when infection prevention and control (IPC) measures are in place. It was not always possible to determine transmission routes. Evidence from 17 studies, mainly modelling, suggests a combination of interventions including testing, isolation of cases and cohorting, in addition to other mitigations (physical distancing, face coverings, increased ventilation), may reduce likelihood and size of outbreaks within schools. Most studies were not peer reviewed. Impact of new variants not known. Findings suggest transmission within schools increases with community prevalence. Supplementary tables: https://phe.koha-ptfs.co.uk/cgi-bin/koha/opac-retrieve-file.pl?id=838f44e1b9601e5815daf179f483bc68
14.04.2021	Risk factors associated with respiratory infectious disease-related presenteeism: a rapid review	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> Rapid review aim to determine the prevalence of respiratory infectious disease (RID)-related presenteeism in the workplace: 54 studies included (4 investigating COVID-19) Prevalence of work presenteeism ranged from 14.1% to 55% for confirmed RID, and 6.6% to 100% for those working with suspected or subclinical RID.

			<ul style="list-style-type: none"> • RID-related presenteeism is associated with occupation, sick pay policy, age, gender, health behaviour and perception, vaccination, and organisational factors including workplace culture and peer pressure.
09.04.2021	A Comparison of Persistence of SARS-CoV-2 Variants on Stainless Steel	bioRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Stainless-steel coupons were inoculated over seven days with liquid cultures of three SARS-Cov-2 variants: i) EPI_ISL_407073 England, ii) B.1.1.7, and iii) B.1.351. • After drying, there was no significant difference in inactivation rates between variants; indicates there is no increased environmental persistence from these variants.
09.04.2021	Social, demographic and behavioural determinants of SARS-CoV-2 infection: A case-control study carried out during mass community testing of asymptomatic individuals in South Wales, December 2020	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Case-control study in Wales (199 cases and 2,621 controls) found transmission within the household was the most important source of SARS-CoV-2 infection. • Working in the hospitality sector and visiting the pub were associated with infection but at the time of this study were relatively infrequent exposures. Smoking or vaping had a small but significant effect. • No association with infection found for: working in education; living with someone working in education; having caring responsibilities; attending a healthcare appointment; and visiting a supermarket, restaurant, gym or leisure centre.

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Treatment

Publication Date	Title/URL	Journal / Article type	Digest
09.04.2021	Inhaled budesonide in the treatment of early COVID-19 (STOIC): a phase 2, open-label, randomised controlled trial	Lancet Respir Med / Article	<ul style="list-style-type: none"> • In a phase 2 trial (n=146), early administration of inhaled budesonide (n=73) reduced likelihood of needing urgent medical care and reduced time to recovery after early COVID-19 compared to usual care. • Associated commentary: https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(21)00171-5/fulltext • Preprint previously included

12.04.2021	Inhaled budesonide for COVID-19 in people at higher risk of adverse outcomes in the community: interim analyses from the PRINCIPLE trial	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Updated interim analysis. Inhaled budesonide reduced time to recovery by a median of 3 days in people with COVID-19 with risk factors for adverse outcomes. • Final analyses of time to recovery and hospitalisation/death will be published once 28 day follow up is complete. • Associated press release: https://www.principletrial.org/news/asthma-drug-budesonide-shortens-recovery-time-in-non-hospitalised-patients-with-covid-19
12.04.2021	Phase 3 Prevention Trial Showed 81% Reduced Risk of Symptomatic SARS-CoV-2 Infections with Subcutaneous Administration of REGEN-COV™ (casirivimab with imdevimab)	Regeneron (non-peer reviewed) / Press release	<ul style="list-style-type: none"> • Data from Phase 3 trial suggests REGEN-COV (casirivimab with imdevimab) protects household contacts from exposure to SARS-CoV-2 at home, with an 81% reduction in risk of symptomatic infection at day 29 in those who were not infected when they entered the trial.
12.04.2021	Phase 3 Treatment Trial in Recently Infected Asymptomatic Patients Showed REGEN-COV™ (casirivimab with imdevimab) Significantly Reduced Progression to Symptomatic COVID-19	Regeneron (non-peer reviewed) / Press release	<ul style="list-style-type: none"> • Data from Phase 3 trial suggests REGEN-COV (casirivimab with imdevimab) reduced overall risk of progressing to symptomatic COVID-19 by 31% (primary endpoint), and by 76% after the third day. Also demonstrates that REGEN-COV shortened symptom duration and reduced viral levels.

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Modelling

Publication Date	Title/URL	Journal / Article type	Digest
05.04.2021	SPI-M-O: Summary of further modelling of easing restrictions – Roadmap Step 2	Gov.uk (non-peer reviewed) / Research and analysis	<ul style="list-style-type: none"> • Modelling suggests a further resurgence in hospitalisations and deaths is highly likely after the later steps of the roadmap out of lockdown in England; the scale, shape, and timing remain highly uncertain. • Maintaining baseline measures to reduce transmission once restrictions are lifted is almost certain to save lives and minimise threat to hospital capacity.
13.04.2021	Improving SARS-CoV-2 cumulative incidence estimation through mixture modelling of antibody levels	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Compared to a mixture model estimate, standard threshold-based seroprevalence estimates underestimated cumulative incidence by 31% on average in a study analysing data from several Kenyan serosurveys. Authors suggest mixture modelling may reduce bias in estimates of cumulative incidence until more discriminating assays are available.

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Overviews, comments and editorials

Publication Date	Title/URL	Journal / Article type
22.03.2021	COVID-19 vaccine safety questions and answers for healthcare providers (CONSIDER)	Vaccine / Commentary
01.04.2021	Covid-19: Brazil's spiralling crisis is increasingly affecting young people	BMJ / News
12.04.2021	Lack of detail in population-level data impedes analysis of SARS-CoV-2 variants of concern and clinical outcomes	Lancet Infect Dis / Comment
13.04.2021	Is IL-6 a key cytokine target for therapy in COVID-19?	Nat Rev Immunol / Comment
12.04.2021	Overcoming spectrum bias for accurate SARS-CoV-2 seroprevalence estimates	BMJ / Letter
15.04.2021	Ten scientific reasons in support of airborne transmission of SARS-CoV-2	The Lancet / Comment
14.04.2021	Covid-19 has redefined airborne transmission	BMJ / Editorial
09.04.2021	COVID-19 severity and obesity: are MAIT cells a factor?	Lancet Respir Med / Comment

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Produced by the PHE COVID-19 Literature Digest Team

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