Public Health England

COVID-19 Literature Digest – 13/08/2021

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 The reports include both preprints, which should be treated with caution as they are NOT peer-reviewed and may be subject to change, and also research that has been subject to peer review and wider scrutiny.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, Kester Savage, Michael Cook and Rachel Gledhill
On behalf of the PHE COVID-19 Literature Digest Team

Report for 13.08.2021 (please note that papers that have **NOT been peer-reviewed** are highlighted in red).

Sections:

Treatment
Modelling
Guidance and consensus statements (no digest)
Overviews, comments and editorials (no digest)

Serology and immunology

Publication Date	Title/URL	Journal / Article type	Digest
09.08.2021	The cytokines HGF and CXCL13 predict the severity and the mortality in COVID-19 patients	Nat Commun / Article	• Blood and serum samples collected from 98 patients in Lausanne, Switzerland to determine the immune profile of ICU and non-ICU Covid-19 positive patients. • Findings suggest HGF and CXCL13 were the best predictors of COVID-19 severity and ICU admission.
12.08.2021	Durability of mRNA-1273 vaccine–induced antibodies against SARS-CoV-2 variants	Science / Report	• U.S study of variants impact - B.1.1.7(Alpha), B.1.351 (Beta), P.1 (Gamma), B.1.429 (Epsilon), B.1.526 (Iota),B.1.617.2 (Delta) - on antibodies elicited by mRNA-1273 (Moderna) vaccine over 7 months. • Cross-reactive neutralising responses rare after single dose. At peak of second dose response, all subjects had robust responses to all variants. • Binding and functional antibodies against variants persisted in most subjects for 6 months, albeit at low levels. • Across all assays, B.1.351 had the lowest antibody recognition. • Preprint previously included
12.08.2021	Neutralising antibodies after COVID-19 vaccination in UK haemodialysis patients	Lancet / Correspondence	• In UK, most in-centre haemodialysis patients rapidly vaccinated as priority group 4. • Interim report: mRNA vaccine (BNT162b2 [Pfizer] or AZD1222 [AstraZeneca]) induces comparable nAb titres in haemodialysis patients / healthy controls • 2 doses consolidate antibody immunity in infection-experienced individuals. • AZD1222 alone in seronaive individuals induces suboptimal nAbT against all VOCs, including delta variant.
12.08.2021	Neutralization of VOCs including Delta one year post COVID-19 or vaccine	medRxiv (non-peer reviewed) / Article	• Wild type spike IgG and NAb remained detectable in 80% (83/104) of unvaccinated participants one year post mild infection; neutralising capacity was similar against wild type (reference), Alpha (0.95) and Delta (1.03) but significantly reduced against Beta (0.54) and Gamma (0.51). • Two dose regimen of Pfizer (n=67) and AstraZeneca (n=82) elicited sustained capacity against Alpha (1.01 and 0.96) and Delta (1.03 and 0.82),

			with reduced capacity against Beta (0.67 and 0.53) and Gamma (0.12 and 0.54). • Similar trend found for regimen of AstraZeneca followed by Pfizer (0.74 and 0.70 against Alpha and Delta and 0.29 and 0.13 against Beta and Gamma).
13.08.2021	Reduced Risk of Reinfection with SARS-CoV-2 After COVID-19 Vaccination - Kentucky, May-June 2021	MMWR Morb Mortal Wkly Rep / Article	• Case-control study in Kentucky, USA during May-June 2021 investigated reinfection among persons previously infected with SARS-CoV-2 in 2020. • Being unvaccinated was associated with 2.34 times the odds of SARS-CoV-2 reinfection compared with being fully vaccinated; suggests full vaccination provides additional protection against reinfection.
09.08.2021	Serological markers of SARS-CoV-2 infection; anti-nucleocapsid antibody positivity may not be the ideal marker of natural infection in vaccinated individuals	Journal of Infection / Letter to the Editor	• Large seroprevalence study of over 4000 hospital healthcare workers including questionnaire about previous symptoms and confirmed infection. • In total 23 participants reported breakthrough infection post-vaccination, representing 0.6% (23/4111) of all fully vaccinated participants in the study [Pfizer vaccine]; 5/18 were symptomatic. • All 23 participants had detectable anti-S antibodies; only 6/23 (26%) had detectable anti-N antibodies in response to their infection, compared to 663/812 (82%) of all participants in the study with previous PCR-confirmed infection. • Low number of seroconversions might suggest that anti-N antibodies may be insensitive as a marker of natural infection post vaccination; viral neutralisation, perhaps even at mucosal surfaces, might modify the natural humoral response and limit the development of anti-N antibodies.

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Vaccines

Publication Date	Title/URL	Journal / Article type	Digest
10.08.2021	Association of Myocarditis With BNT162b2 Messenger RNA COVID-19 Vaccine in a Case Series of Children	JAMA Cardiol / Brief report	• Case series of 15 children (<19 years old) hospitalised with myocarditis within 30 days of receipt of the BNT162b2 (Pfizer-BioNTech) COVID-19 vaccine. • Boys were most often affected after the second vaccine dose; 3 patients had ventricular systolic dysfunction; and 12 patients had late gadolinium enhancement on cardiac magnetic resonance imaging. • No mortality, and all but 1 patient had normal echocardiogram results on follow-up 1 to 13 days after discharge.

11.08.2021	Durability of Response to SARS-CoV-2 BNT162b2 Vaccination in Patients on Active Anticancer Treatment	JAMA Oncol / Research Letter	• Israeli study: seropositivity rate among 95 patients with cancer remained high (87%) approximately 4 months after the second BNT162b2 vaccination dose. • The median IgG titer in the patients and the 66 controls decreased over time. • Notably, in both the previous and the current analysis, the IgG titers were statistically significantly lower in the patients with cancer vs the controls.
27.09.2021	Efficacy of COVID-19 vaccination in individuals designated as clinically extremely vulnerable in Scotland	F1000 (non-peer reviewed) / Article	• All cases of COVID-19 in Scotland from 1 December 2020 to 16 March 2021 (n=111,295) were matched to 1,093,449 population controls; this was linked to national data on vaccinations and eligibility for shielding. • Rate ratio for severe COVID-19 associated with vaccination (at least 14 days before) was 0.29 in both the eligible and ineligible for shielding groups. • Rate ratio for hospitalised or fatal COVID-19 was 0.39 in those eligible and 0.37 in those not eligible for shielding. Rates for specific conditions: 0.33 in those with specific cancers; 0.74 in solid organ transplant recipients; and 0.53 in others on immunosuppressants (excluding solid organ transplant recipients).
11.08.2021	Evaluation of mRNA-1273 SARS-CoV-2 Vaccine in Adolescents	N Engl J Med / Article	• U.S ongoing phase 2–3 trial; 3732 adolescents (12-17) received two doses mRNA-1273 [Moderna] vaccine or placebo, 28 days apart. • No serious adverse events related to mRNA-1273 or placebo were noted. • Safety and reactogenicity similar to that observed in adults between the ages of 18 and 64 years
05.08.2021	Novavax Announces COVID-19 Vaccine Booster Data Demonstrating Four-Fold Increase in Neutralizing Antibody Levels Versus Peak Responses After Primary Vaccination	Novavax (non-peer reviewed) / Press Release	• Preliminary data from an ongoing Phase 2 study suggests that a single booster dose of NVX-CoV2373 (Novavax) vaccine, given six months after initial two-dose regimen, elicited a 4.6-fold increase in functional antibody titers against wild-type • Functional ACE-2 binding inhibition antibodies cross-reactive with the Delta (B.1.617.2) variant were more than 6-fold higher than the primary vaccination series • Analysis of sera from primary vaccination suggests cross-reactive functional antibodies to Alpha, Beta and Delta variants increased 6- to 10-fold with booster.
11.08.2021	Randomized Trial of a Third Dose of mRNA-1273 Vaccine in Transplant Recipients	N Engl J Med / Correspondence	• 120 organ transplant recipients randomly assigned to receive third dose of mRNA-1273 (Moderna) 3 months after first two doses,or saline placebo. • Third dose had substantially higher immunogenicity than placebo; % patients above 30% threshold for neutralizing antibody positivity 60% versus 25%.

			• Linked editorial: https://www.nejm.org/doi/full/10.1056/NEJMe2112866
08.08.2021	Safety and Immunogenicity of CpG 1018 and Aluminium Hydroxide-Adjuvanted SARS-CoV-2 S-2P Protein Vaccine MVC-COV1901: A Large-Scale Double-Blinded, Randomised, Placebo-Controlled Phase 2 Trial	medRxiv (non-peer reviewed) / Article	• Phase 2 study: 3,844 participants (≥ 20 years) were randomly assigned 6:1 to receive 2 doses [28 days apart] of either MVC-COV1901 (Medigen) COVID-19 vaccine or placebo • For all participants in the vaccine group, at 28 days after the second dose against wild type SARS-CoV-2 virus, geometric mean titres (GMT) were 662.3 (408 IU/mL), the GMT ratio was 163.2, and the seroconversion rate was 99.8%; no vaccine-related Serious Adverse Events (SAEs) were recorded.
06.08.2021	Safety and immunogenicity of heterologous versus homologous prime-boost schedules with an adenoviral vectored and mRNA COVID-19 vaccine (Com-COV): a single-blind, randomised, non-inferiority trial	Lancet / Article	• UK authors report safety and immunogenicity of heterologous prime-boost COVID-19 vaccine schedules with ChAdOx1 nCoV-19 [AstraZeneca] and BNT162b2 [Pfizer]. • First participant-blinded randomised clinical trial: 830 participants, 4 permutations of prime-boost schedules, at 28 days and 84 days: ChAd/ChAd, ChAd/BNT, BNT/BNT, BNT/ChAd. • Cellular and humoral responses of two heterologous vaccine schedules at 28 days after boost dose are no lower than those of the ChAd/ChAd schedule. • Associated comment: https://www.sciencedirect.com/science/article/pii/S0140673621017293
08.08.2021	A booster dose is immunogenic and will be needed for older adults who have completed two doses vaccination with CoronaVac: a randomised, double-blind, placebo-controlled, phase 1/2 clinical trial	medRxiv (non-peer reviewed) / Article	• Phase 1/2 trial among healthy adults ≥60 years examined neutralising antibody titres 6+ months after second dose of CoronaVac vaccine; a third dose was provided to 303 participants recruited in phase 2. • Neutralising antibody titres dropped below seropositive cutoff at 6 months after the primary vaccination in all vaccine groups. • A third dose given 8+ months after the second dose significantly increased neutralising antibody levels. In the 3 µg group GMT increased to 305 one week after the third dose (approximately 7-fold increase compared with GMT 28 days after second dose).
10.08.2021	Transmission of SARS-CoV-2 Delta Variant Among Vaccinated Healthcare Workers, Vietnam	SSRN (non-peer reviewed) / Article	• Vietnamese study (11–25 June 2021) of 62 breakthrough SARS-CoV-2 Delta variant infections among hospital healthcare workers; all recovered uneventfully. • 23 complete-genome sequences: all Delta variant, phylogenetically distinct from contemporary community transmission sequences, suggestive of ongoing transmission between the workers.
07.08.2021	Recording of "COVID-19 vaccine declined" among vaccination priority groups: a cohort study on 57.9 million NHS patients'	medRxiv (non-peer reviewed) / Article	• Authors analyse primary care records, identifying 24.5 million UK patients in vaccine priority groups as of 25 May 2021 (aged 50+, or 16+ and at

	primary care records in situ using OpenSAFELY		increased risk from COVID-19 (Clinically Extremely Vulnerable [CEV] or otherwise "at risk")). • Among priority group patients, 89.2% had received a vaccine, 8.8% had neither a vaccination nor a decline recorded, and 663,033 (2.7%) had a decline code recorded. • Of patients with recorded decline, 125,587 (18.9%) were subsequently vaccinated. Subsequent vaccination slightly more common in South Asian population than other ethnicities. • Proportion of declining-unvaccinated patients varied strongly with ethnicity (Black 15.3%, South Asian 5.6%, White 1.5% in over 80s) and was higher in patients from more deprived areas. Among all priority groups, declining-unvaccinated status was most common in CEV (3.3%).

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Diagnostics and genomics

Publication Date	Title/URL	Journal / Article type	Digest
06.08.2021	SARS-CoV-2 variants of concern and variants under investigation in England: technical briefing 20	Gov.uk / Research and analysis	• Provides an update on previous briefings up to 23 July2021 • Delta variant accounted for approximately 99% of sequenced and 98% genotyped cases from 25 July to 31 July 2021 • Routinely undertaken tests in England show that Ct values (and by inference viral load) are similar between individuals who are unvaccinated and vaccinated. • UK Genotype to Phenotype Consortium reports new data relating to VUI-21 JUL-01 (B.1.621): some evidence of reduction in pseudovirus neutralisation by serum from individuals who have been vaccinated or previously infected with Delta.
06.08.2021	Quantitative SARS-CoV-2 tracking of variants Delta, Delta plus, Kappa and Beta in wastewater by allele-specific RT-qPCR	medRxiv (non-peer reviewed) / Article	• The authors report allele-specific and multiplex-compatible RT-qPCR assays for quantitative detection and discrimination of the Delta, Delta plus, Kappa and Beta variants in wastewater. • This method is open-sourced and can be implemented using commercially available RT-qPCR protocols.

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Epidemiology and clinical - children and pregnancy

Publication Date	Title/URL	Journal / Article type	Digest
09.08.2021	SARS-CoV-2 Infection Among Maternal-Infant Dyads in Ontario, Canada	JAMA Netw Open / research letter	• Cohort study of all infants (n=96,689) delivered alive in Ontario, Canada during the COVID-19 pandemic period: 6176 (6.4%) had a record of receiving a diagnostic test for SARS-CoV-2; 1724 (1.8%) were tested perinatally. • In total 177 infants (0.1% of births; 2.9% of those tested) were positive for SARS-CoV-2. Of these, 90 (50.9%) had mothers who tested positive for SARS-CoV-2 during the pandemic period; only 6 (3.4%) were perinatal cases. • Only 156 of 82,484 delivering mothers (0.2%) were known to be positive for SARS-CoV-2 infection within 2 weeks of delivery; 6 infants (3.9%) born to positive mothers were known to have acquired SARS-CoV-2 perinatally, and another 9 (5.8%) had positive tested results later in early infancy.

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Epidemiology and clinical – risk factors

Publication Date	Title/URL	Journal / Article type	Digest
09.08.2021	Combined association of obesity and other cardiometabolic diseases with severe COVID-19 outcomes: a nationwide cross-sectional study of 21 773 Brazilian adult and elderly inpatients	BMJ Open / Article	• Study of 8848 adults and 12,925 elders in Brazil. Among adults, obesity with diabetes mellitus (DM) and/or cardiovascular disease (CVD) showed higher prevalence of invasive (prevalence ratio 3.76) and non-invasive mechanical ventilation use (2.06), ICU admission (1.60) and death (1.79) compared with the group without obesity, DM and CVD • Combined association of obesity, diabetes and/or CVD with severe COVID-19 outcomes may be stronger in adults than in elders • Obesity alone and combined with DM and/or CVD had more impact on the risk of COVID-19 severity than DM and/or CVD in both age groups. • Study also supports an independent relationship of obesity with severe outcomes, including a dose–response association between degrees of obesity and death in adults.
05.08.2021	COVID-19 hospitalisation, mortality, vaccination, and postvaccination trends among people with schizophrenia in Israel: a longitudinal cohort study	Lancet Psychiatry / Article	• Longitudinal cohort study included people with schizophrenia (n=25 539) and controls (n=25 539) (61·0% male, mean age 51·94 years). • People with schizophrenia showed higher risk for COVID-19 hospitalisation (HR 4·81) and mortality (HR 2·52), and showed a sharper decline in survival as time progressed.

			• Comorbidity of diabetes, hypertension, obesity, or ischaemic heart disease played a significant role in predicting vaccination rates in the schizophrenia group, but not in the control group. • Hospitalisation and mortality disparities remained higher among people with schizophrenia who had not been vaccinated in comparison to controls (incidence rate difference of 6·2 and 3·2, respectively) but substantially declined in fully vaccinated groups (incidence rate difference of 1·1 and -0·9, respectively). • Associated commentary: https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366(21)00291-1/fulltext

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Epidemiology and clinical – other

Publication Date	Title/URL	Journal / Article type	Digest
12.08.2021	Asymptomatic SARS-CoV-2 infection: A systematic review and meta-analysis	Proc Natl Acad Sci U S A / Research article	• By analysing 350+ studies, authors estimate % of infections that never developed clinical symptoms, so truly asymptomatic, was 35.1% • At time of testing, 42.8% of cases exhibited no symptoms (asymptomatic / presymptomatic infections) • Asymptomaticity significantly lower in elderly (19.7%)compared with children (46.7%)
10.08.2021	Characteristics and outcomes of acute kidney injury in hospitalized COVID-19 patients: A multicenter study by the Turkish society of nephrology	PLoS One / Article	• Multicentre retrospective observational study of 578 Turkish patients with COVID-19 and acute kidney injury (AKI). • Advanced-stage AKI was associated with very high mortality among hospitalised COVID-19 patients. Age, male gender, comorbidities, which are risk factors for mortality in patients with COVID-19 in the general population, are also related to in-hospital mortality in patients with AKI.
01.08.2021	Management of endocrine disease: Dysnatraemia in COVID-19: Prevalence, prognostic impact, pathophysiology and management	Eur J Endocrinol / Article	• Review (6 studies up to March 2021) examines dysnatraemia in hospitalised COVID-19 patients. • Several studies reported 20-35% prevalence for hyponatraemia and 2-5% for hypernatraemia. • Hyponatraemia on admission was a risk factor for progression to severe disease, being associated with an increased likelihood for the need for invasive mechanical ventilation (odds ratio of 1.83 – 3.30).

			• Hyponatraemia may be independent risk factor for mortality compared to normonatraemia (odds ratio of 1.40-1.50), and hypernatraemia is related to worse outcomes than hyponatraemia. • Preliminary data shows inverse association between serum sodium and interleukin-6 levels, suggesting hyponatraemia might be used as a surrogate marker for risk of cytokine storm.
10.08.2021	Clinical Trends Among U.S. Adults Hospitalized With COVID-19, March to December 2020 : A Cross-Sectional Study	Ann Intern Med / Original Research	• Among 116,743 US adults hospitalised with COVID-19 monthly rates of hospitalisation (105.3 per 100,000 persons), ICU admission (20.2), and death (11.7) peaked during December 2020; rates of all outcomes were highest among adults aged 65+, males, and Hispanic or non-Hispanic Black persons. • Among 18,508 sampled patients, use of remdesivir and systemic corticosteroids increased between March (1.7% and 18.9%) and December (53.8% and 74.2%). • Frequency of ICU admission, mechanical ventilation, and vasopressor use decreased from March (37.8%, 27.8%, and 22.7%) to December (20.5%, 12.3%, and 12.8%); use of noninvasive respiratory support increased from March to December.
10.08.2021	SARS-CoV-2 Viremia is Associated with COVID-19 Severity and Predicts Clinical Outcomes	Clin Infect Dis / Accepted manuscript	• Observational cohort study of 51 COVID-19 patients (9 outpatients, 19 hospitalised (non-ICU), and 23 ICU patients) • Visualization of virus particles in plasma indicates that SARS-CoV-2 RNAemia is due, at least in part, to viremia. • Levels of SARS-CoV-2 RNAemia quantified by ultrasensitive RT-PCR correlate strongly with disease severity, patient outcome and specific inflammatory biomarkers but not neutralising antibody titers.
09.08.2021	Utility of the FebriDx point-of-care assay in supporting a triage algorithm for medical admissions with possible COVID-19: an observational cohort study	BMJ Open / Article	• Retrospective observational cohort comprising 3443 emergency department admissions in a London NHS hospital (10 August 2020 and 4 November 2020) found that a triage algorithm including the FebriDx assay had a sensitivity of 93%, a specificity of 86.4%, and was useful to 'rule-out' COVID-19 among medical admissions to hospital. • While 2033 patients were deemed not to require isolation using clinical criteria alone, addition of FebriDx to clinical triage allowed a further 826 patients to be released from isolation, reducing need for isolation rooms by 9.5 per day.
12.08.2021	Hospital-acquired SARS-CoV-2 infection in the UK's first COVID-19 pandemic wave	Lancet / Article	• Authors estimate that: (i) 11·3% of patients with COVID-19 in 314 UK hospitals became infected after hospital admission; (ii) 6·8% of all patients with COVID-19 had nosocomial infections. • Study informed by ISARIC WHO CCP-UK patient data.

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Infection control / non-pharmaceutical interventions

Publication Date	Title/URL	Journal / Article type	Digest
27.09.2021	Comparison of COVID-19 outcomes among shielded and non-shielded populations	Sci Rep / Article	• Population cohort study of 1.3 million residents of NHS Greater Glasgow and Clyde: 27,747 (2.03%) were advised to shield, and 353,085 (26.85%) were classified a priori as moderate risk • Compared to low-risk, the shielded had higher risk of confirmed infection (RR 8.45), case-fatality (RR 5.62) and population mortality (RR 57.56). • The moderate risk group had intermediate risk of confirmed infection (RR 4.11) and population mortality (RR 25.41). Due to their higher prevalence they accounted for a higher proportion of deaths (PAF 75.30%). • Age ≥ 70 years accounted for 49.55% of deaths. • Suggests shielding has not been effective at preventing deaths in those with highest risk. • Preprint previously included. Associated press release: https://www.gla.ac.uk/news/headline_802923_en.html
09.08.2021	The effect of eye protection on SARS-CoV-2 transmission: a systematic review	medRxiv (non-peer reviewed) / Article	• Systematic review included 6 reports of 5 observational studies from 4 countries (USA, India, Columbia, and United Kingdom) that tested face shields, googles and wraparound eyewear on 7567 healthcare workers. • Three before-and-after and one retrospective cohort study showed significant reductions in SARS-CoV-2 infections favouring eye protection: odds ratios ranged from 0.04 to 0.6, corresponding to relative risk reductions of 96% to 40%. Reductions were not explained by changes in community rates. • One case-control study reported odds ratio favouring no eye protection (OR 1.7). • High heterogeneity precluded any meaningful meta-analysis, and none of the studies adjusted for potential confounders. Robust comparative trials are needed.
09.08.2021	Learnings from the design and acceptance of the German COVID-19 tracing app for IS-driven crisis management: a design science research	BMC Med Inform Decis Mak / Article	• Authors present concrete enhancements for the German Corona-Warn-App transferable to other pandemic apps, based on an iterative DSR approach, and derived further learnings for crisis management applications.

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Transmission

Publication Date	Title/URL	Journal / Article type	Digest
10.06.2021	Investigation of superspreading COVID-19 outbreak events in meat and poultry processing plants in Germany: A cross-sectional study	PLoS One / Article	• Cross-sectional study assessed risk factors for COVID-19 outbreaks in German meat and poultry plants (22 plants and 19,072 employees participating). • Prevalence of COVID-19 in the seven plants with more than 10 cases was 12.1% and was highest in the deboning and meat cutting area (16.1%). • Subsample analysis revealed an association with ventilation rate (adjusted odds ratio (AOR) 0.996). When including temperature as an interaction term in the working area, the association with the ventilation rate did not change. • When room temperatures increased, chance of testing positive for COVID-19 (AOR 0.90) decreased, and chance for testing positive for COVID-19 for the interaction term (AOR 1.001) increased. • Employees working under a social distancing policy of less than 1.5 m between workers had higher chance of testing positive (AOR 3.61).

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Treatment

Publication Date	Title/URL	Journal / Article type	Digest
10.08.2021	Inhaled budesonide for COVID-19 in people at high risk of complications in the community in the UK (PRINCIPLE): a randomised, controlled, open-label, adaptive platform trial	Lancet / Article	• 4700 participants randomly assigned to budesonide (n=1073), usual care alone (n=1988), or other treatments (n=1639). • Inhaled budesonide improves time to recovery, potentially also reducing hospital admissions or deaths, in people with COVID-19 in the community at higher risk of complications. • Preprint previously included
04.08.2021	An adaptive randomized controlled trial of non-invasive respiratory strategies in acute respiratory failure patients with COVID-19	medRxiv (non-peer reviewed) / Article	• In a multicentre trial of 1272 hospitalised adults with acute respiratory failure due to COVID-19, continuous positive airway pressure (CPAP), compared with conventional oxygen therapy, reduced the composite outcome of intubation or death within 30 days of randomisation (36.3% vs 44.4%; unadjusted odds ratio 0.72).

			• No effect was observed with the use of high-flow nasal oxygenation (HFNO), compared with conventional oxygen therapy (44.4% vs 45.1%; unadjusted odds ratio 0.97). • Associated commentary: https://www.bmj.com/content/374/bmj.n1950

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Modelling

Publication Date	Title/URL	Journal / Article type	Digest
07.08.2021	Epidemiological characteristics of the B.1.526 SARS-CoV-2 variant	medRxiv (non-peer reviewed) / Article	• Modelling for New York City suggests that B.1.526 (Iota) variant had transmissibility about 15-25% higher than previously circulating variants and that it could escape immunity in 0-10% of previously infected persons. • B.1.526 increased infection fatality risk in older adults compared to estimated baseline for previously circulating variants (46% among 45-64 year-olds; 82% among 65-74 year-olds; 62% among 75+) during Nov. 2020 to April 2021.
08.08.2021	Modelling the effectiveness and social costs of daily lateral flow antigen tests versus quarantine in preventing onward transmission of COVID-19 from traced contacts	medRxiv (non-peer reviewed) / Article	• Modelling suggests that 7 days of daily contact testing (DCT) using rapid lateral flow antigen tests, starting 3 days after exposure to a case, reduces transmission from contacts with similar effectiveness to 10-day quarantine, at much lower social/economic costs, especially for highly vaccinated populations. • Findings were robust across a spectrum of scenarios with varying assumptions on the speed of contact tracing, sensitivity of tests, adherence to quarantine and uptake of testing.
09.08.2021	Predicted COVID-19 positive cases, hospitalisations, and deaths associated with the Delta variant of concern, June–July, 2021	Lancet Digit Health / Comment	• Prediction model of Scotland's COVID-19 cases, hospitalisations, deaths. • Model trained for Delta variant, vaccination status, school closures, surge in cases around EURO 2020. • Daily hospitalisations forecast in July 2021 expected to increase to 100 per day. • Caution recommended when proceeding to lift lockdown restrictions until a higher proportion of the population is double vaccinated.
09.08.2021	Threshold analyses on combinations of testing, population size, and vaccine coverage for COVID-19 control in a university setting	PLoS One / Article	• Models a potential COVID-19 outbreak in a residential university population in the US under varying combinations of asymptomatic tests (5% to 33% per day), transmission rates (2.5% to 14%), and contact rates (1 to 25), to identify the contact rate threshold needed to avoid exponential growth in infections.

			• Campus can be kept at full population provided at least 95% are vaccinated. • If vaccine coverage is under 95%, keeping at full population would require asymptomatic mass tests (25% per day if vaccine coverage is at 63-79%, or 33% per day if vaccine coverage is at 53-68%). • Vaccine coverage is below 53% would require mass tests at 33% per day, and lowering the population size to 90%, 75%, and 60%, if vaccine coverage is at 38-53%, 23-38%, and below 23%, respectively.
05.08.2021	Vaccine effectiveness against SARS-CoV-2 transmission and infections among household and other close contacts of confirmed cases, the Netherlands, February to May 2021	Eurosurveillance / Rapid communication	• Authors use contact monitoring data in the Netherlands (February to May 2021) to estimate vaccine effectiveness against transmission (VET) to household and other close contacts . • Secondary attack rate among household contacts was lower for fully vaccinated than unvaccinated index cases (11% vs 31%), with an adjusted VET of 71%.

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Guidance and consensus statements

Publication Date	Title/URL	Journal / Article type
10.08.2021	Use of COVID-19 Vaccines After Reports of Adverse Events Among Adult Recipients of Janssen (Johnson & Johnson) and mRNA COVID-19 Vaccines (Pfizer-BioNTech and Moderna): Update from the Advisory Committee on Immunization Practices — United States, July 2021	MMWR Morb Mortal Wkly Rep / Early release

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Overviews, comments and editorials

Publication Date	Title/URL	Journal / Article type
10.08.2021	Antigen Testing Every 3 Days Is Highly Sensitive for SARS-CoV-2	JAMA / Biotech Innovations
09.08.2021	Covid-19: How effective are vaccines against the delta variant?	BMJ / Feature
11.08.2021	Reasons for success and lessons learnt from nanoscale vaccines against COVID-19	Nat Nanotechnol / Comment

12.08.2021	Heterologous ChAdOx1-nCoV19-BNT162b2 vaccination provides superior immunogenicity against COVID-19	The Lancet Respiratory Medicine / Comment
05.08.2021	Covid-19: WHO calls for booster shot ban until end of September	BMJ / News
10.08.2021	Interim statement on COVID-19 vaccine booster doses	World Health Organization / News
03.08.2021	New study into COVID-19 vaccine dose interval for pregnant women	Gov.uk / Press Release
09.08.2021	Lessons about COVID-19 vaccine hesitancy among minority ethnic people in the UK	The Lancet Infectious Diseases / Comment
09.08.2021	Towards a European strategy to address the COVID-19 pandemic	The Lancet / Correspondence
12.08.2021	Covid-19: Schools are not hubs of infection and are safe to reopen after summer break, study shows	BMJ / News

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Produced by the PHE COVID-19 Literature Digest Team

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