



UK Health
Security
Agency

COVID-19 Literature Digest – 15.10.2021

OFFICIAL

Dear all,

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

UKHSA'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 The reports include both preprints, which should be treated with caution as they are NOT peer-reviewed and may be subject to change, and also research that has been subject to peer review and wider scrutiny.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 UKHSA. 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 Behavioural Sciences Weekly Report.

Best wishes,

Emma Farrow, James Robinson, Kester Savage
On behalf of the UKHSA COVID-19 Literature Digest Team

Report for 15.10.2021 (please note that papers that have **NOT been peer-reviewed** are highlighted in red).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
11.10.2021	Association Between Risk of COVID-19 Infection in Nonimmune Individuals and COVID-19 Immunity in Their Family Members	JAMA Intern Med / Article	<ul style="list-style-type: none">• Cohort study of 1,789,728 individuals from 814,806 families in Sweden, using data from nationwide registries in Sweden• Immunity was defined as having been acquired from either a COVID-19 infection before the baseline date (01.04.2021) or vaccination with 2 doses of the mRNA-1273 (Moderna), BNT162b2 mRNA (Pfizer-BioNTech), or ChAdOx1 nCoV-19 (Oxford/AstraZeneca) vaccine before the index date (14.04.2021)• In families with only 1 immune family member, the remaining nonimmune family members were at around 45% - 61% lower risk of contracting COVID-19 regardless of family size. In families with 2 immune family members, nonimmune family members had up to 86% lower risk, and in families with 3 or 4 immune family members, the nonimmune family members had 91% to 97% lower risk of contracting COVID-19.
07.10.2021	Anti-SARS-CoV-2 receptor binding domain antibody evolution after mRNA vaccination	Nature / Article	<ul style="list-style-type: none">• Between 21.01.2021 and 20.07.2021, 32 volunteers with no history of prior SARS-CoV-2 infection received either Moderna (mRNA-1273; n=8) or Pfizer-BioNTech (BNT162b2; n=24) mRNA vaccines• Between prime and boost, memory B cells produce antibodies that evolve increased neutralizing activity, but there is no further increase in potency or breadth thereafter.• Individual memory antibodies selected over time by natural infection have greater potency and breadth than antibodies elicited by vaccination; however the overall neutralizing potency of plasma is greater following vaccination.
12.10.2021	Serologic response to COVID-19 infection and/or vaccine in cancer patients on active treatment	ESMO Open / Article	<ul style="list-style-type: none">• Israeli study of immunologic response of 202 actively treated cancer patients with solid tumours to COVID-19 and/or BNT162b2 [Pfizer] vaccine.

			<ul style="list-style-type: none"> • Chemotherapy associated with reduced humoral response (81.3%), compared with 96.2% in patients on other treatments. • Vaccinated patients on chemotherapy had 77.5% positive response rate.
11.10.2021	Impact of circulating SARS-CoV-2 variants on mRNA vaccine-induced immunity	Nature / Article	<ul style="list-style-type: none"> • Among 40 healthcare workers, both previously infected (recovered) and uninfected (naive) individuals retained neutralisation capacity against all variants (Alpha, Beta, Gamma, Delta, Epsilon, Eta, Iota and Kappa). • Plasma from previously infected vaccinated individuals displayed overall better neutralisation capacity compared to plasma from uninfected individuals that also received two vaccine doses; suggests vaccine boosters as a relevant strategy against emerging variants. • Preprint previously included
11.10.2021	Immunity to SARS-CoV-2 up to 15 months after infection	bioRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Monitored SARS-CoV-2 specific immune response in 136 convalescent COVID-19 patients up to 15 months after symptoms onset. • Following a peak at day 15-28 post-infection, IgG antibody response and plasma neutralising titers gradually decreased over time, stabilising after 6 months. • Plasma neutralising activity against G614 was still detected in 87% of the patients at 6-15 months. • Compared to G614, the median neutralising titers against Beta, Gamma and Delta variants in plasma collected at early (15-103 days) and late (9-15 month) convalescence were 16- and 8-fold lower, respectively. • Memory B and T cells peaked at 3-6 months and persisted in the majority of patients up to 15 months, although significant decrease in specific T cells was observed at 6-15 months.
01.10.2021	The durability of immunity against reinfection by SARS-CoV-2: a comparative evolutionary study	Lancet Microbe / Article	<ul style="list-style-type: none"> • Phylogenetic analyses was used to provide the first estimates of the expected probability of infection given IgG antibody levels to the spike protein for SARS-CoV-2, as well as other coronaviruses, under endemic conditions • Due to the fast rate of antibody decline and higher probability of infection given a specified antibody level, SARS-CoV-2 showed the lowest probability of remaining reinfection-free through time, compared to other coronaviruses • The estimated median time to reinfection following peak antibody response for SARS-CoV-2 was estimated at 16 months, with alternate compositions of the antibody waning datasets producing estimates ranging from 16 to 21 months.

Vaccines

Publication Date	Title/URL	Journal / Article type	Digest
14.10.2021	Effectiveness of COVID-19 vaccines against SARS-CoV-2 infection with the Delta (B.1.617.2) variant: second interim results of a living systematic review and meta-analysis, 1 January to 25 August 2021	Eurosurveillance / Rapid communication	<ul style="list-style-type: none"> • Living systematic review of vaccine effectiveness (VE) against Delta variant (up to 25.08.2021) included 17 studies • Pooled VE was 63.1% against asymptomatic infection, 75.7% against symptomatic infection and 90.9% against hospitalisation. • Compared with Alpha variant, VE against mild outcomes was reduced by 10–20%, but fully maintained against severe COVID-19.
13.10.2021	Heterologous SARS-CoV-2 Booster Vaccinations: Preliminary Report	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Phase 1/2 trial included 458 US adults vaccinated against COVID-19 at least 12 weeks prior to enrolment and with no reported history of SARS-CoV-2 infection • Participants received a booster injection with one of three vaccines (Moderna, n=154; Janssen, n=150; or Pfizer-BioNTech, n=154) • Booster vaccines increased the neutralising activity against a D614G pseudovirus (4.2-76-fold) and binding antibody titers (4.6-56-fold) for all combinations • Homologous boost increased neutralising antibody titers 4.2-20-fold whereas heterologous boost increased titers 6.2-76-fold • Day 15 neutralising and binding antibody titers varied by 28.7-fold and 20.9-fold, respectively, across the nine prime-boost combinations.
10.10.2021	Efficacy and Safety of NVX-CoV2373 in Adults in the United States and Mexico	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Phase 3 trial: participants randomised to receive two doses of NVX-CoV2373 (Novavax; n=19,714) or placebo (n=9868) 21 days apart. • There were 77 Covid-19 cases (14 among vaccine and 63 among placebo groups); vaccine efficacy (VE) was 90.4%. • All moderate-to-severe cases occurred in placebo recipients (VE 100%). • Most sequenced viral genomes (48/61, 78.7%) were variants of concern/interest (VOC/VOI), mainly represented by Alpha; VE against any VOC/VOI was 92.6%. • Reactogenicity was mostly mild-to-moderate and transient, but more frequent in NVX-CoV2373 recipients and after second dose.
10.10.2021	Safety and immunogenicity of a SARS-CoV-2 recombinant protein vaccine with AS03 adjuvant in healthy adults: interim findings from a phase 2, randomised, dose-finding, multi-centre study	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Phase 2 trial included 722 participants, of whom 721 received ≥1 injections of candidate vaccine CoV2 preS dTM (5µg, n=240; 10µg, n=239; 15µg, n=242). • By day thirty-six, 96.9%, 97.0% and 97.6% of SARS-CoV-2 naïve participants had ≥4-fold-rise in NAb titres from baseline in the 5µg-, 10µg- and 15µg-dose groups, respectively.

			<ul style="list-style-type: none"> • NAb titres increased with antigen dose in younger (GMTs: 2954, 3951 and 5142 for 5µg-, 10µg- and 15µg-dose groups) but not older adults (GMTs: 1628, 1393 and 1736, respectively). • NAb titres in non-naïve adults after one injection were higher than titres after two injections in naïve adults.
04.10.2021	Immunological responses to SARS-CoV-2 vaccines in kidney transplant recipients	Lancet / Correspondence	<ul style="list-style-type: none"> • Immunological responses to two-dose vaccination with BNT162b2 [Pfizer] / ChAdOx1 [AstraZeneca] in kidney transplant recipients. • Vaccine dosing interval: (i) 74 days (n=920); (ii) 63 days (n=106); (iii) 67 days (n=65) included health-care workers. • Markedly diminished humoral and cellular immune responses to both vector and mRNA vaccines. • Planning of intervention studies to optimise vaccine platform and dosing are urgently required.
10.10.2021	Immunogenicity of the Ad26.CoV2.S vaccine in people living with HIV	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Observational cohort study: 26 people living with HIV (PLWH) and 73 HIV-uninfected participants from a phase 3b clinical trial of Ad26.CoV2.S (Janssen) vaccine in South African healthcare workers (HCW). • Unvaccinated PLWH showed 6-fold reduced neutralisation of Delta variant (GMT=15) relative to HIV-uninfected participants (GMT=105) • Among participants who were both vaccinated and previously SARS-CoV-2 infected: i) Delta variant neutralisation was 9-fold higher compared to the infected only group (GMT=306 versus 36) and 26-fold higher relative to the vaccinated only group (GMT=12); ii) there was no significant difference in Delta variant neutralisation in PLWH (GMT=300) relative to HIV-uninfected participants (GMT=307). • Vaccinated only participants showed low neutralisation of Delta, with a stronger response in PLWH (GMT=73 for PLWH; GMT=6 for HIV-uninfected).
12.10.2021	Characterizing menstrual bleeding changes occurring after SARS-CoV-2 vaccination	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Study of 39,129 menstruating or formerly menstruating women: after COVID-19 vaccination • Of those with regular menstrual cycles, 42% bled more heavily than usual, while 44% reported no change. • Among those who typically do not menstruate, 71% of people on long-acting reversible contraceptives, 39% of people on gender-affirming hormones, and 66% of post-menopausal people reported breakthrough bleeding. • Increased/breakthrough bleeding was significantly associated with age, other vaccine side effects (fever, fatigue), history of pregnancy or birth, and ethnicity.

09.10.2021	COVID-19 Vaccine Effectiveness by Product and Timing in New York State	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Prospective study of 8,834,604 New York adults • Estimated VE for cases declined contemporaneously across age, products, and time-cohorts, from high levels beginning 01.05.2021 (1.8% Delta variant prevalence), to a nadir around 10.07.2021 (85.3% Delta), with limited changes thereafter (>95% Delta); suggests declines in VE may be driven by factors other than waning • Estimated vaccine effectiveness (VE) decreases were greatest for Pfizer-BioNTech (-24.6%, -19.1%, -14.1% for 18-49, 50-64 years, and ≥65 years, respectively), and similar for Moderna (-18.0%, -11.6%, -9.0%, respectively) and Janssen (-19.2%, -10.8, -10.9%, respectively). • Among persons ≥65 years, VE declined from May to August for Pfizer-BioNTech (95.0% to 89.2%) and Moderna (97.2% to 94.1%); VE was lower for Janssen, without trend, ranging 85.5%-82.8%. • VE for hospitalisations remained high among adults (>86% across cohorts), supporting targeted booster dosing.
11.10.2021	Mapping Global Acceptance of COVID-19 Vaccination Updated to June 2021: A Systematic Review and Meta-Analysis	SSRN (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Systematic review (Dec. 2019 to Jun. 2021) included 238 studies with 2,484,071 participants. • In the 185 studies with high quality, overall acceptance rate of COVID-19 vaccination was 64.1%; patients with chronic diseases had highest acceptance rate (69.3%); healthcare workers had rate of 62.8%; and pregnant/breastfeeding women had the lowest rate (56.5%). • Acceptance rate for residents varied widely across countries (19.9% to 92.1%). • Lower acceptance has more common in females, those aged <60 years old, black individuals, lower educated persons, and lower income persons.
11.10.2021	The impact of mandatory COVID-19 certificates on vaccine uptake: Synthetic Control Modelling of Six Countries	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Modelling study comparing six countries (Denmark, Israel, Italy, France, Germany, Switzerland) that introduced certification (May-August 2021), with 20 control countries. • COVID-19 certification led to increased vaccinations 20 days prior to implementation, with a lasting effect up to 40 days after. • Countries with lower-than-average pre-intervention uptake had a more pronounced increase. • There was no effect in countries with higher uptake (Germany) or when introduced during limited supply (Denmark). • There was higher uptake for <20 years and 20-29 years. • Access restrictions linked to certain settings (nightclubs, events >1,000) were associated with higher uptake <20 years; when extended to broader settings, uptake remained high in the youngest group, but also observed in older age groups.

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Diagnostics and genomics

Publication Date	Title/URL	Journal / Article type	Digest
12.10.2021	The use of nanobodies in a sensitive ELISA test for SARS-CoV-2 Spike 1 protein	R Soc Open Sci / Research article	<ul style="list-style-type: none"> • Authors investigated various combinations of engineered nanobodies in a sandwich ELISA to detect the Spike protein of SARS-CoV-2. • Nanobodies were selectively functionalized to further improve antigen capture, enabling measurement of sub-picomolar amounts of SARS-CoV-2 Spike protein in solution. • Routine detection limit in samples inactivated by heat and detergent corresponded to less than seven focus-forming units of infectious SARS-CoV-2.
02.10.2021	SARS-CoV-2 whole-genome sequencing using reverse complement PCR: For easy, fast and accurate outbreak and variant analysis	J Clin Virol / Article	<ul style="list-style-type: none"> • Study describing the first application of Reverse Complement-PCR implemented in the EasySeq™ RC-PCR SARS-CoV-2 WGS kit to sequence the SARS-CoV-2 genome. • Using this method, epidemiological clusters from the hospital and the community were supported by phylogenetic outbreak analysis. Variants of interest were detected among samples and validated against an Oxford Nanopore sequencing amplicon strategy, illustrating its suitability for surveillance and monitoring of current circulating variants. • Results confirm the robustness of the method which can be used for high throughput sequencing of SARS-CoV-2. WGS of SARS-CoV-2 accompanied with bioinformatic analysis support the identification of chains of transmission of SARS-CoV-2 and the spread of different lineages including mutation profiles and variant detection.
11.10.2021	Defining the analytical and clinical sensitivity of the ARTIC method for the detection of SARS-CoV-2	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Findings suggest the ARTIC SARS-CoV-2 sequencing protocol is highly sensitive, being capable of detecting SARS-CoV-2 in samples with Cts in the high 30s; however, to routinely obtain whole genome coverage, samples with Ct <31 are recommended • For diagnostic tests that do not provide a quantifiable Ct value, adding a quantification step is recommended
11.10.2021	The Ensembl COVID-19 resource: ongoing integration of public SARS-CoV-2 data	Nucleic Acids Res / Article	<ul style="list-style-type: none"> • Article details the development and launch of the Ensembl COVID-19 browser, a resource designed to support the maximal use of genomic information for SARS-CoV-2 research, incorporating a new Ensembl gene set,

			multiple variant sets, and annotation from several relevant resources aligned to the reference SARS-CoV-2 assembly.
14.10.2021	Recalibrating SARS-CoV-2 Antigen Rapid Lateral Flow Test Relative Sensitivity from Validation Studies to Absolute Sensitivity for Indicating Individuals Shedding Transmissible Virus	Clin Epidemiol / Original research	<ul style="list-style-type: none"> • LFTs (intended to detect individuals shedding SARS-CoV-2 antigens) validated against PCR (intended to diagnose infection) are not reporting against a gold standard of equivalent measurements. • Authors derive a formula for recalibrating relative performance statistics from LFT vs PCR validation studies to give likely absolute sensitivity of LFT for detecting individuals who are shedding SARS-CoV-2 antigens.
14.10.2021	Genomic reconstruction of the SARS-CoV-2 epidemic in England	Nature / Article	<ul style="list-style-type: none"> • Authors reconstruct the dynamics of 71 different lineages in each of 315 English local authorities between Sept 2020 - June 2021.

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Epidemiology and clinical - children and pregnancy

Publication Date	Title/URL	Journal / Article type	Digest
06.10.2021	The legacy of maternal SARS-CoV-2 infection on the immunology of the neonate	Nat Immunol / Article	<ul style="list-style-type: none"> • UK study investigating immune profiles of 30 neonates born to mothers with SARS-CoV-2 exposure. • Limited vertical transmission but multiple immunological perturbations. • Findings are suggestive of an immunological legacy imprinted on the neonate following maternal SARS-CoV-2 exposure, with potential far-reaching consequences.
08.10.2021	SARS-CoV-2 RNAemia and clinical outcomes in children with COVID-19	J Infect Dis / Accepted manuscript	<ul style="list-style-type: none"> • Cohort study with 103 children and adolescents hospitalized with COVID-19 between March 2020 to May 2021 with diverse clinical manifestations • SARS-CoV-2 RNAemia was detected in 27 (26%) patients, lasted for a median of 6 days, and was associated with worse clinical outcomes, including higher rates of oxygen administration, intensive care admission and longer hospitalisation • Whilst outcomes were favourable and no fatalities were recorded, 44% of viremic children were less than 1 years old and 52% were less than 2 years, indicating that younger children may be at increased risk for severe COVID-19
02.10.2021	The immune landscape of SARS-CoV-2-associated Multisystem Inflammatory Syndrome in Children (MIS-C) from acute disease to recovery	iScience / Article	<ul style="list-style-type: none"> • Deep immune profiling of acute MIS-C patients: highly activated neutrophils, classical monocytes and memory CD8+ T-cells; increased frequencies of B-cell plasmablasts and double-negative B-cells. • Plasma profiling identified multiple features shared by MIS-C, Kawasaki Disease, COVID-19.

			<ul style="list-style-type: none"> • Cytokine profile of acute MIS-C suggests inhibiting IL6 rather than IL1 or TNF. • Raised plasma C5b-9 identifies complement inhibitors as potential MIS-C therapy.
08.10.2021	Incidence Rates, Household Infection Risk, and Clinical Characteristics of SARS-CoV-2 Infection Among Children and Adults in Utah and New York City, New York	JAMA Pediatr / Original Investigation	<ul style="list-style-type: none"> • US cohort study: 1236 participants in 310 households with at least 1 child aged 0 to 17, Sept 2020 - April 2021. • Incidence rates per 1000 person-weeks were similar by age group: 6.3 (0 to 4 year old); 4.4 (5 to 11 year old); 6.0 (12 to 17 year old); 5.1 for adults (aged ≥18 years). • Asymptomatic fractions of infection by age group were 52%, 50%, 45%, and 12% respectively. • Children had similar incidence rates of infection to adults, but a larger proportion were asymptomatic. • Linked editorial: https://dx.doi.org/10.1001/jamapediatrics.2021.4225
10.10.2021	Does the presence of symptoms affect pregnancy outcomes in third trimester in women with SARS-CoV-2	J Matern Fetal Neonatal Med / Article	<ul style="list-style-type: none"> • Retrospective cohort study of pregnant women: 2299 were COVID-19-negative and 172 were diagnosed with COVID-19 during the study period (26.03.2020 and 30.09.2020). Divided into three groups: COVID-19 negative, asymptomatic COVID-19, and symptomatic COVID-19. • Gestational diabetes mellitus significantly less common in COVID-19-negative patients. • Incidence of preterm deliveries and composite maternal adverse outcomes were not significantly different among the three groups. • Among COVID-19-positive cases there was no significant increase in caesarean delivery, only one needed mechanical ventilation and there were no maternal deaths. • No cases of severe neonatal asphyxia or neonatal death. • The aOR for composite neonatal adverse outcome and overall composite adverse outcome for COVID-19 positive and negative women was 2.1 and 1.6, respectively.
14.10.2021	The association of COVID-19 infection in pregnancy with preterm birth: A retrospective cohort study in California	Lancet Reg Health Am / Research Article	<ul style="list-style-type: none"> • Data analysed from California Vital Statistics birth certificates (n=240,147) between July 2020 and January 2021. • Births were classified as very preterm (VPTB, <32 weeks), preterm (PTB, < 37 weeks), early term (37 and 38 weeks), and term (39-44 weeks). The joint effects of COVID-19 diagnosis, hypertension, diabetes, and obesity on PTB and VPTB were also calculated. • COVID-19 diagnoses between July 2020 and January 2021 were highest for American Indian/Alaska Native (12.9%), Native Hawaiian/Pacific Islander (11.4%), and Latinx (10.3%) birthing people and was associated with an

		increased risk of VPTB, PTB, and early term birth. COVID-19 diagnosis was associated with elevated risk of PTB in people with hypertension, diabetes, and/or obesity.
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Epidemiology and clinical - long-term complications / sequelae

Publication Date	Title/URL	Journal / Article type	Digest
11.10.2021	Intriguing findings of liver fibrosis following COVID-19	BMC Gastroenterol / Article	<ul style="list-style-type: none"> Assessed liver fibrosis an acute COVID-19 group (n=66 patients), a post-COVID group (n=58 patients in 3–6 months after the recovery), and a control group (n=17 people). In the acute COVID-19 group 65% had increased FIB-4 (> 1.45), and 38% of patients had FIB-4 ≥ 3.25. After matching by demographics, 52% of acute COVID-19 and 5% of the post-COVID group had FIB-4 > 1.45, and 29% and 2% of patients had FIB-4 ≥ 3.25, respectively. Increased serum HA (≥ 75 ng/ml) was observed in 54% of the acute COVID-19 and 15% of the post-COVID group. Findings suggest possible liver fibrosis in about 5% of the post-COVID group.
08.10.2021	Dysphagia, Dysphonia and Dysarthria Outcomes amongst Adults Hospitalized with COVID-19 across Ireland	Laryngoscope / Report	<ul style="list-style-type: none"> Among 315 adults from 14 participating hospitals an initial speech and language therapy (SLT) assessment found 84% required modified oral diets and 31% required tube feeding, and there were high rates of dysphonia (42%) and dysarthria (23%). History of intubation, COVID-19 neurological manifestations, and age were predictive of oral intake status. History of intubation was predictive of voice quality and COVID-19 neurological manifestations were predictive of dysarthria. At discharge, there were significant improvements in oral intake, voice quality, and dysarthria severity, although need for modified oral intake (59%), dysphonia (23%), and dysarthria (14%) persisted.

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Epidemiology and clinical – risk factors

Publication Date	Title/URL	Journal / Article type	Digest
13.10.2021	The prevalence, predictors and outcomes of acute liver injury among patients with COVID-19: A systematic review and meta-analysis	Rev Med Virol / Systematic review	<ul style="list-style-type: none"> • Systematic review up to June 2021 including 16 studies. (1254 COVID-19 patients with acute liver injury (ALI) and 4999 COVID-19 without ALI) • Randomised controlled trial (RCT), non-RCT or observational studies (case-control, cross-sectional or cohort) were considered eligible. • The prevalence of ALI among patients with COVID-19 is 22.8%. Male and having lower lymphocyte level are more likely to be associated with ALI. COVID-19 patients with ALI had higher risk of developing severe COVID-19 compared with those without ALI
08.10.2021	Drug-Induced Liver Injury in COVID-19 Patients: A Systematic Review	Front Med (Lausanne) / Systematic review	<ul style="list-style-type: none"> • 22 related articles, published up to January 2021: 5 case reports, 5 case series, 4 randomizes control trial (RCT), 7 cohort studies, and 1 cross-sectional study. • 11 studies evaluated the safety of remdesivir for liver function and 6 reported safety of lopinavir/ritonavir. Other drugs under investigation included tocilizumab, hydroxychloroquine and favipiravir • Liver injury in COVID-19 patients could be caused by the virus itself or the administration of some types of drug.
06.10.2021	Deaths involving COVID-19 by self-reported disability status during the first two waves of the COVID-19 pandemic in England: a retrospective, population-based cohort study	Lancet Public Health / Article	<ul style="list-style-type: none"> • Retrospective, population-based cohort study of 29 million adults, aged 30-100, living in private households or communal establishments in England. • Disability associated with increased risk of death from causes involving COVID-19 during first two waves; largely attributable to a combination of disadvantageous circumstances. • Higher relative risks: younger disabled people (aged 30 - 69 years), disabled women, people with greater levels of activity limitation. • Adverse socioeconomic, demographic, health-related risk factors combined accounted for some elevated risk.
07.10.2021	A genetic link between risk for Alzheimer's disease and severe COVID-19 outcomes via the OAS1 gene	Brain / Article	<ul style="list-style-type: none"> • Data support a link between genetic risk for Alzheimer's disease and susceptibility to critical illness with COVID-19 centred on oligoadenylate synthetase 1 (OAS1). • A single nucleotide polymorphism (SNP) within OAS1 associated with Alzheimer's disease is in same locus that predisposes to critical illness with COVID-19. This may contribute to high incidence of Alzheimer's disease or critical illness with COVID-19 in the population.
28.09.2021	Outcomes of COVID-19 among patients treated with subcutaneous interferon beta-1a for multiple sclerosis	Mult Scler Relat Disord / Article	<ul style="list-style-type: none"> • In a cohort of 603 patients with COVID-19 during treatment with sc IFN β-1a, 136 (22.6%) patients experienced serious COVID-19, and 5 patients (0.8%) died

			<ul style="list-style-type: none"> • Patients receiving sc IFN β-1a for treatment of relapsing multiple sclerosis (MS) have relatively low rates of serious disease and/or severe outcomes with COVID-19. The case fatality rate in this study compares favorably with COVID-19-related fatality rates for MS patients globally (3.5%)
05.10.2021	Increased risk for COVID-19 breakthrough infection in fully vaccinated patients with substance use disorders in the United States between December 2020 and August 2021	World Psychiatry / Research Report	<ul style="list-style-type: none"> • US study: 579,372 individuals (30,183 with substance use disorders (SUDs) diagnosis / 549,189 without), fully vaccinated between Dec 2020 - Aug 2021, no COVID-19 infection prior to vaccination. [Note pre-Delta in US] • Among SUD patients, risk for breakthrough infection ranged from 6.8% for tobacco use disorder to 7.8% for cannabis use disorder, significantly higher than 3.6% in non-SUD population • When SUD / non-SUD matched for lifetime comorbidities and adverse socioeconomic determinants of health, risk for breakthrough infection only differed for patients with cannabis use disorder.
12.10.2021	Antibody Responses After SARS-CoV-2 mRNA Vaccination in Adults With Inflammatory Bowel Disease	Ann Intern Med / Letter	<ul style="list-style-type: none"> • US study: antibody response after mRNA vaccination in 582 adults with IBD receiving various medication. • 99% of participants had detectable antibodies after 2 weeks regardless of medication regimen; levels decreased for all groups subsequently. • Quantitative levels at 8 weeks highest in “no immunosuppression” group / those treated with anti-integrin and anti-interleukin-12/23; lowest among those treated with anti-tumour necrosis factor combination therapy or corticosteroids. • Study was not powered to assess differences across medication subgroups.

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Epidemiology and clinical – other

Publication Date	Title/URL	Journal / Article type	Digest
12.10.2021	Comparison of characteristics and outcomes of patients admitted to hospital with COVID-19 during wave 1 and wave 2 of the current pandemic	Intern Emerg Med / Article	<ul style="list-style-type: none"> • UK study analysing data from 12,471 hospital admissions between 01.03.2020 – 31.03.2021. • Wave 1 is defined as falling between 01.03.2020 – 30.08.2020; wave 2 between 10.09.2020 – 17.02.2021. • Patient characteristics differed between the two waves of the pandemic. Consistent with other European countries, in the second wave, COVID-19 patients in the UK were younger, with fewer co-morbidities and suffered lower rates of mortality

14.10.2021	Effect of Delta variant on viral burden and vaccine effectiveness against new SARS-CoV-2 infections in the UK	Nat Med / Article	<ul style="list-style-type: none"> • Effectiveness of BNT162b2 [Pfizer] / ChAdOx1 [AstraZeneca] vaccines in large, community-based survey of randomly selected households across UK. • Effectiveness against infections with symptoms or high viral burden reduced with B.1.617.2 [Delta] (absolute difference of 10–13% for BNT162b2 / 16% for ChAdOx1) compared to B.1.1.7 [Alpha] variant. • No evidence that effectiveness varied by dosing interval; protection higher in vaccinated individuals after a prior infection and in younger adults.
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Transmission

Publication Date	Title/URL	Journal / Article type	Digest
11.10.2021	The impact of heating, ventilation, and air conditioning design features on the transmission of viruses, including the 2019 novel coronavirus: a systematic review of ventilation and coronavirus	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Systematic review (up to Jan. 2021) included 32 studies (16 modelling, 3 experimental and 1 observational) • Main findings: increased ventilation rate was associated with decreased transmission, transmission probability/risk, infection probability/risk, droplet persistence, virus concentration, and increased virus removal and virus particle removal efficiency; increased ventilation rate decreased risk at longer exposure times; some ventilation was better than no ventilation; airflow patterns affected transmission; ventilation feature (e.g. supply/exhaust, fans) placement influenced particle distribution.
13.10.2021	Transmission of community- and hospital-acquired SARS-CoV-2 in hospital settings in the UK: A cohort study	PLoS Med / Research article	<ul style="list-style-type: none"> • UK observational cohort study using data from 4 teaching hospitals from January to October 2020. • 920 of 66,184 (1.4%) hospitalised patients had a positive SARS-CoV-2 PCR test within the same period. Of these, 571 patients (62.1%) had their first positive PCR tests while hospitalised and 97 of these occurred at least 7 days after admission (10.5%). • Among the 5,596 HCWs, 615 (11.0%) tested positive during the study period using PCR or serological tests. • Exposure to patients with hospital-acquired SARS-CoV-2 was associated with a substantial infection risk to both HCWs and other hospitalised patients. For susceptible patients, 1 day in the same ward with another patient with hospital-acquired SARS-CoV-2 was associated with an additional 7.5 infections per 1,000 susceptible patients

		<ul style="list-style-type: none"> • Exposure to an infectious patient with community-acquired COVID-19 or to an infectious HCW was associated with substantially lower risks (2 infections per 1,000 susceptible patients per day)
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Treatment

Publication Date	Title/URL	Journal / Article type	Digest
08.10.2021	The effect of glucocorticoids on mortality in severe COVID-19 patients: Evidence from 13 studies involving 6612 cases	Medicine (Baltimore) / Systematic review	<ul style="list-style-type: none"> • Systematic review (up to 26.06.2021) identified 13 studies (6 cohort, 5 case control, 1 RCT) with 6612 confirmed severe COVID-19 patients. • Results suggest that using glucocorticoids could: i) significantly decrease COVID-19 mortality (hazard ratio (HR) 0.60); ii) significantly decrease the risk of progression to invasive mechanical ventilation for severe COVID-19 patients (HR = 0.69). • Compared with using dexamethasone (HR = 0.68), methylprednisolone use had a better therapeutic effect for reducing the mortality of patients (HR = 0.35).
11.10.2021	AZD7442 reduced risk of developing severe COVID-19 or death in TACKLE Phase III outpatient treatment trial	AstraZeneca (non-peer reviewed) / Press release	<ul style="list-style-type: none"> • Phase III multinational trial of AZD7442 [a combination of tixagevimab and cilgavimab] included 903 participants, with 90% being at high risk of progression to severe COVID-19. • Participants were randomised to a single 600mg dose of AZD7442 (n = 452) or placebo (n = 451) via intramuscular injection. • AZD7442 reduced risk of severe COVID-19 or death (from any cause) by 50% in outpatients who had been symptomatic for seven days or less (18/407 events in AZD7442 group vs 37/415 in placebo group). • Among participants who received treatment within five days of symptom onset, AZD7442 reduced risk of severe COVID-19 or death (from any cause) by 67% (9/253 events in AZD7442 group vs 27/251 in placebo group).

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Guidance and consensus statements

Publication Date	Title/URL	Journal / Article type
14.10.2021	Face coverings and COVID-19: statement from an expert panel	Gov.uk / Research and analysis

09.10.2021	Alignment of national COVID-19 vaccine recommendations for pregnant and lactating women	Bull World Health Organ / Article
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Overviews, comments and editorials

Publication Date	Title/URL	Journal / Article type
11.10.2021	Covid-19: Sweden, Norway, and Finland suspend use of Moderna vaccine in young people "as a precaution"	Bmj / News
11.10.2021	COVID-19 vaccination in patients receiving dialysis	Nat Rev Nephrol / Comment
24.09.2021	Transmissibility of COVID-19 among vaccinated individuals: a rapid literature review: update #2	SPOR Evidence Alliance / Rapid Review
12.10.2021	India's New COVID-19 DNA Vaccine for Adolescents and Adults Is a First	Jama / News
01.10.2021	COVID-19 Testing and Diagnostics: A Review of Commercialized Technologies for Cost, Convenience and Quality of Tests	Sensors (Basel) / Article
14.10.2021	Genomic reconstruction of the SARS-CoV-2 epidemic in England	Nature / Article
06.10.2021	A clinical case definition of post COVID-19 condition by a Delphi consensus, 6 October 2021	World Health Organization / Overview
12.10.2021	Under-reporting of deaths limits our understanding of true burden of covid-19	BMJ / Analysis

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