



COVID-19 Literature Digest – 18/01/2021

Dear all,

Since February 2020 we have produced this COVID-19 specific Literature Digest to ensure PHE response staff are aware of the latest scientific evidence on COVID-19. Early on it was decided to share this resource widely to assist other colleagues work on this unprecedented pandemic. The uptake has been considerable, from a distribution of ten people to >650, with more people signing-up each day.

As you will recognise, production of the Digest in its current form takes significant resource; it is likely that this product will be modified in the future to make its delivery more sustainable.

We are therefore seeking your feedback to gain an understanding of what the most valuable/least valuable aspects of this Digest are.

To this end, we ask you kindly to give five minutes of your time to complete the survey below. The survey will close Friday 22nd January 2021. (Please be patient as the survey may take a minute to load initially)

[Our survey can be accessed here.](#)

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

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 three times per week (Mon, Wed, 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 The reports include both preprints, which should be treated with caution as they are NOT peer-reviewed and may be subject to change, and also research that has been subject to peer review and wider scrutiny.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,

Bláthnaid Mahon, Emma Farrow, James Robinson
On behalf of the PHE COVID-19 Literature Digest Team

Report for 18.01.2021 (please note that papers that have **NOT been peer-reviewed** are highlighted in red).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
12.01.2021	Prior COVID-19 significantly reduces the risk of subsequent infection, but reinfections are seen after eight months	J Infect / Correspondence	<ul style="list-style-type: none">• Via London laboratory test results, authors identified 66,001 patients who had a PCR and/or serological SARS-CoV-2 assay before end July; 60% were female, with an average age of 50 years.• Of these, eight had a positive PCR assay between 1st Aug - 30th Dec 2020, more than 90 days after their previous positive assay (0.07%). All eight reinfections were in female patients.• Of 55,274 patients with no laboratory evidence of COVID-19 in the first wave, 713 subsequently had SARS-CoV-2 detected in the second wave (1.29%).• A small number of reinfections in Dec, eight months after first wave peak, suggests that immunity may begin to wane in some patients around this time.
15.01.2021	Do antibody positive healthcare workers have lower SARS-CoV-2 infection rates than antibody negative healthcare workers? Large multi-centre prospective	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none">• <i>The findings of this preprint were included as a press release in Friday's (15.01.2021) Digest.</i>• A prior history of SARS-CoV-2 infection was associated with an 83% lower risk of infection, with median protective effect observed five months following primary infection.

[cohort study \(the SIREN study\), England: June to November 2020](#)

Diagnosics and genomics

Publication Date	Title / URL	Journal / Article type	Digest
18.01.2021	ECDC rapid assessment of laboratory practices and needs related to COVID-19	European Centre for Disease Control and Prevention / Technical report	<ul style="list-style-type: none"> • This report assesses the current status of the EU/EEA and the UK COVID-19 laboratory response based on a short survey sent to all Member States and the UK. • Many countries are adding rapid antigen detection tests (RADT) to their testing strategies in order to reduce pressure on RT-PCR testing. • The main bottlenecks, such as shortages of laboratory consumables and human resources, as well as sample storing facilities, continue to exist and may affect the overall laboratory response to COVID-19.
15.01.2021	Comparison of Saliva and Nasopharyngeal Swab Nucleic Acid Amplification Testing for Detection of SARS-CoV-2: A Systematic Review and Meta-analysis	JAMA Intern Med / Original investigation	<ul style="list-style-type: none"> • Systematic review to assess the diagnostic accuracy of saliva nucleic acid amplification testing (NAAT) for COVID-19. • In the primary analysis, the saliva NAAT pooled sensitivity was 83.2% (95% credible interval [CrI], 74.7%-91.4%) and the pooled specificity was 99.2% (95% CrI, 98.2%-99.8%). The nasopharyngeal swab NAAT had a sensitivity of 84.8% (95% CrI, 76.8%-92.4%) and a specificity of 98.9% (95% CrI, 97.4%-99.8%). Results were similar in secondary analyses. • These results suggest that saliva NAAT diagnostic accuracy is similar to that of nasopharyngeal swab NAAT, especially in the ambulatory setting. These findings support larger-scale research on the use of saliva NAAT as an alternative to nasopharyngeal swabs.
15.01.2021	COVID-19: Rapid Antigen detection for SARS-CoV-2 by lateral flow assay: a national	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Four out of 64 new lateral flow devices (LFDs) tested by the UK Department of Health and Social Care have desirable performance characteristics from independent laboratory studies and early preliminary

	systematic evaluation for mass-testing		<p>field evaluations (Orient Gene, Deepblue and Innova SARS-CoV-2 Antigen Rapid Qualitative Test), of which one underwent extended clinical assessment in field studies (Innova).</p> <ul style="list-style-type: none"> • The Innova LFD shows good viral antigen detection/sensitivity with excellent specificity, although kit failure rates and the impact of training are potential issues.
18.01.2021	Sequencing of SARS-CoV-2 - first update	European Centre for Disease Prevention and Control / Technical guidance	<ul style="list-style-type: none"> • First update of this guidance. • In the context of the recently identified new variant (SARS-CoV-2 VOC 202012/01) reported by the UK, and the urgent need to assess the extent to which it is circulating in EU/EEA countries, the document includes a section on sampling approaches.
15.01.2021	Early analysis of a potential link between viral load and the N501Y mutation in the SARS-COV-2 spike protein	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Preliminary analysis found higher (sequence derived) viral loads in samples from individuals infected with the new SARS-CoV-2 variant B.1.1.7, with median inferred viral loads three-fold higher in individuals with the new variant. • Outside Greater London, the variant has higher viral loads, whereas within Greater London, the new variant does not have significantly higher viral loads compared to other lineages. • Further work is needed to investigate any potential causal link between the new variant and higher viral loads, and whether this results in higher transmissibility, severity of infection, or affects relative rates of symptomatic and asymptomatic infection.
15.01.2021	Emergence of multiple SARS-CoV-2 mutations in an immunocompromised host	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Study describes the detection of high levels of replication-competent SARS-CoV-2 in specimens taken from the respiratory tract of a B-cell depleted patient up to 154 days after initial COVID-19 diagnosis concomitant with the development of high mutation rate. • In this patient, a total of 11 nonsynonymous mutations were detected in addition to the Y144 deletion in the spike protein of SARS-CoV-2. • Findings highlight the urgent need for continuous

real-time surveillance of genetic changes of SARS-CoV-2 adaptation alongside immunological investigations in patients with severely compromised humoral responses who may shed infectious virus over prolonged periods of time.

Epidemiology and clinical – children / pregnancy

Publication Date	Title / URL	Journal / Article type	Digest
15.01.2021	Indirect effects of the COVID-19 pandemic on paediatric healthcare use and severe disease: a retrospective national cohort study	Arch Dis Child / Original research	<ul style="list-style-type: none"> • In this retrospective cohort study, authors found a reduction in paediatric emergency care utilisation rates at a national level in Scotland, associated with lockdown. • This reduction is likely to be due to combination of changes in healthcare-seeking behaviour, and a fall in the overall burden of paediatric infectious disease. • These measures did not appear to be associated with severe harm to children in Scotland evidenced by severity scores on PICU presentation or overall mortality.
15.01.2021	Clinical Characteristics and Outcomes of Hospitalized Women Giving Birth With and Without COVID-19	JAMA Intern Med / Research letter	<ul style="list-style-type: none"> • Among 406 446 U.S. women hospitalized for childbirth over 8 months of the study, 6380 (1.6%) had COVID-19. Pregnant women with COVID-19 were younger and more often Black and/or Hispanic and with diabetes and obesity. • Although the absolute risk differences were small, in-hospital death, venous thromboembolism (VTE), and preeclampsia were considerably higher among women who gave birth with COVID-19. • Higher rates of preterm birth, preeclampsia, thrombotic events, and death in women giving birth with COVID-19 highlight the need for strategies to minimize risk. As studies investigating therapies for COVID-19 have largely excluded pregnant women, the data also underscore the importance of including this population in clinical trials of treatments and vaccines.

Epidemiology and clinical – risk factors

Publication Date	Title / URL	Journal / Article type	Digest
14.01.2021	Occupational and environmental exposure to SARS-CoV-2 in and around infected mink farms	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • An occupational and environmental risk assessment was performed in infected mink farms, at farm premises and at residential sites. • Inside the farms, high levels of SARS-CoV-2 RNA were found in airborne dust,

on surfaces, and on various other environmental matrices.

- This exposure was substantiated by considerable SARS-CoV-2 RNA concentrations in personal air samples.
- Dispersion of SARS-CoV-2 to outdoor air was found to be limited and SARS-CoV-2 RNA was not detected in air samples collected beyond farm premises, implying a negligible environmental exposure risk for nearby communities.

Epidemiology and clinical – long-term complications / sequelae

Publication Date	Title / URL	Journal / Article type	Digest
15.01.2021	Long COVID in the skin: a registry analysis of COVID-19 dermatological duration	Lancet Infectious Diseases / Comment	<ul style="list-style-type: none"> • Authors evaluated the duration of dermatological signs and symptoms of COVID-19 and assessed the presence of patients with persistent skin manifestations. • Morbilliform lasted a median of 7 days and urticarial eruptions lasted a median of 4 days among patients with laboratory-confirmed COVID-19, with a maximum duration of 28 days. Papulosquamous eruptions lasted 20 days in laboratory-confirmed cases, with one case having a confirmed long-hauler eruption lasting 70 days. • Pernio lasted a median of 15 days in patients with suspected COVID-19, and 12 days in laboratory-confirmed cases. Seven (6.8%) of the 103 cases with pernio were long-haulers with pernio lasting for more than 60 days, of whom two cases were laboratory-confirmed.

Epidemiology and clinical – other

Publication Date	Title / URL	Journal / Article type	Digest
15.01.2021	Emergence of SARS-CoV-2 B.1.1.7 Lineage — United States, December 29, 2020–January 12, 2021	MMWR / Report	<ul style="list-style-type: none"> • A more highly transmissible variant of SARS-CoV-2, B.1.1.7, has been detected in 10 U.S. states. • Modelling data indicate that B.1.1.7 has the potential to increase the U.S. pandemic trajectory in the coming months. CDC's system for genomic surveillance and the effort to expand sequencing will increase the availability of timely U.S. genomic surveillance data.
15.01.2021	Increased infections, but not viral burden, with a new SARS-CoV-2 variant	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Analysis of 1,553,687 swabs from the UK's nationally representative surveillance study from 28 Sept 2020 to 2 Jan 2021 estimates that the SARS-CoV-2 variant B.1.1.7 leads to higher infection rates, but does not seem particularly adapted to any age group.

15.01.2021	Characterisation of the first 250 000 hospital admissions for COVID-19 in Brazil: a retrospective analysis of nationwide data	Lancet Respiratory Medicine / Article	<ul style="list-style-type: none"> • Aimed to analyse characteristics of patients admitted to hospital with COVID-19 in Brazil, and to examine the impact of COVID-19 on health-care resources and in-hospital mortality. • Between Feb 16 and Aug 15, 2020, 254 288 patients with RT-qPCR-confirmed COVID-19 were admitted to hospital and registered in SIVEP-Gripe. The mean age of patients was 60 (SD 17) years, 119 657 (47%) of 254 288 were aged younger than 60 years, 143 521 (56%) of 254 243 were male, and 14 979 (16%) of 90 829 had no comorbidities. • In-hospital mortality was high, even in patients younger than 60 years, and worsened by existing regional disparities within the health system.
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Infection control / non-pharmaceutical interventions

Publication Date	Title / URL	Journal / Article type	Digest
13.01.2021	COVID-19 testing in outbreak free care homes: What are the public health benefits?	J Hosp Infect / Article	<ul style="list-style-type: none"> • A two-point prevalence survey of COVID-19, in 34 Liverpool care homes, was performed in April and May 2020. • Asymptomatic COVID-19 care homes showed no evidence of disease transmission or development of outbreaks; suggesting that current infection prevention and control measures are effective in preventing transmission. • Male residents and nursing homes were identified as more likely to have infections than female residents and residential homes. The use of agency staff was associated with an 8-fold increased risk. • Repeat testing at 2-3 weeks had limited or no public health benefits over regular daily monitoring of staff and residents for symptoms. These results should inform policies calling for regular testing of asymptomatic residents.
13.01.2021	COVID-19 outbreaks in care homes during the first wave: Are Care Quality Commission ratings a good predictor of at risk homes?	J Hosp Infect / Article	<ul style="list-style-type: none"> • An audit was performed, April 2020, of Liverpool care homes to identify associations between COVID-19 status and care quality ratings from the Care Quality Commission. • There was no significant association between any of the Care Quality Commission rating domains and the presence of COVID-19 outbreaks and/or asymptomatic cases. • Infection prevention and control components of Care Quality Commission ratings need to be strengthened to identify care homes at a potential risk of infectious disease outbreaks that may require targeted support.

Transmission

Publication Date	Title / URL	Journal / Article type	Digest
15.01.2021	Isolation of SARS-CoV-2 from the air in a car driven by a COVID patient with mild illness	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none">• The authors use a Sioutas personal cascade impactor sampler (PCIS) to screen for SARS-CoV-2 in a car driven by a COVID-19 patient with mild illness.• SARS-CoV-2 was detectable at all PCIS stages by PCR and was cultured from the section of the sampler collecting particles in the 0.25 to 0.50 μm size range.

Overviews, comments and editorials

Publication Date	Title / URL	Journal / Article type
15.01.2021	Keeping childhood immunisation rates stable during the COVID-19 pandemic	Lancet Infectious Diseases / Correspondence

Produced by the PHE COVID-19 Literature Digest Team

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A selection of previous digests [can be found here](#)

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