



COVID-19 Literature Digest – 16/11/2020

OFFICIAL

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 The reports include both preprints, which should be treated with caution as they are NOT peer-reviewed and may be subject to change, and also research that has been subject to peer review and wider scrutiny.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

On behalf of the PHE COVID-19 Literature Digest Team

Report for 16.11.2020 (please note that papers that have **NOT been peer-reviewed** are highlighted in red).

Sections:

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[Infection control / non-pharmaceutical interventions](#)

Serology and immunology

Publication Date	Title / URL	Journal / Article type	Digest
12.11.2020	Low SARS-CoV-2 seroprevalence in blood donors in the early COVID-19 epidemic in the Netherlands	Nat Commun / Article	<ul style="list-style-type: none"> • Present the prevalence and distribution of antibodies to SARS-CoV-2 in a healthy adult population of the Netherlands, which is a highly affected country, using a high-performance immunoassay. • Results indicate that one month into the outbreak (i) the seroprevalence in the Netherlands was 2.7% with substantial regional variation, (ii) the hardest-hit areas showed a seroprevalence of up to 9.5%, (iii) the seroprevalence was sex-independent throughout age groups (18–72 years), and (iv) antibodies were significantly more often present in younger people (18–30 years).
12.11.2020	Critical care workers have lower seroprevalence of SARS-CoV-2 IgG compared with non-patient facing staff in first wave of COVID19	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • In a cohort of over 500 health care workers (HCW) in a UK hospital 45% reported potential COVID-19 symptoms although overall seroprevalence was 14%, with anosmia and fever being the most discriminating symptoms for seropositive status. • There was a significant difference in seropositive status between staff working in clinical and non-clinical roles (9% patient facing critical care, 15% patient facing non-critical care, 22% non-patient facing). • Among seropositive HCW, symptom severity increased with age for men and not for women. • Of the 12 staff screened PCR positive (10 symptomatic), 3 showed no evidence of seroconversion in convalescence.
12.11.2020	Characterization of pre-existing and induced SARS-CoV-2-specific CD8(+) T cells	Nat Med / Letter	<ul style="list-style-type: none"> • The authors define a set of optimal and dominant SARS-CoV-2-specific CD8(+) T cell epitope and perform a high-resolution ex vivo analysis of pre-existing and induced SARS-CoV-2-specific CD8(+) T cells, applying peptide-loaded major histocompatibility complex class I (pMHCI) tetramer technology. • Results suggest cross-reactive and induced SARS-CoV-2-specific CD8(+) T cell responses are potentially important determinants of immune protection in mild SARS-CoV-2 infection.
13.11.2020	SARS-CoV-2 serological tests can generate false positive results for samples from patients with chronic inflammatory diseases	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Assessed SARS-CoV-2 serological tests (17 lateral flow assays (LFA), 2 ELISA kits, and 1 in-house IgG assay) using samples from COVID-19 negative patients with chronic inflammatory diseases: multiple sclerosis (MS, n=10), rheumatoid arthritis (RA, n=47) with or without rheumatoid factor (RF) and/or anti-cyclic citrullinated peptide antibodies (anti-CCP2), and RF +/- systemic lupus

			<p>erythematosus (SLE, n=10).</p> <ul style="list-style-type: none"> • Six LFA and the in-house IgG assay gave the correct negative results for all samples. • However, the majority of assays (n=13), gave false positive signal with samples from patients with RA and SLE. This was most notable in RF positive RA samples. • MS samples did not give any false positive in any of the assays.
12.11.2020	Comparison of seven commercial SARS-CoV-2 rapid Point-of-Care Antigen tests	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Compare Antigen point of care tests (AgPOCT) products by seven suppliers: the Abbott Panbio COVID-19 Ag Rapid Test; the RapiGEN BIOCREDIT COVID-19 Ag; the Healgen Coronavirus Ag Rapid Test Cassette (Swab); the Coris Bioconcept Covid.19 Ag Respi-Strip; the R-Biopharm RIDA QUICK SARS-CoV-2 Antigen; the NAL von minden NADAL COVID19-Ag Test; and the Roche/SD Biosensor SARS-CoV Rapid Antigen Test. • Concluded that the sensitivity range of most AgPOCT overlaps with viral load figures typically observed during the first week of symptoms, which marks the infectious period in the majority patients. AgPOCTs with a limit of detection that approximates the virus concentration above which patients are infectious may enable shortcuts in decision-making in various areas of healthcare and public health.

Diagnosics

Publication Date	Title / URL	Journal / Article type	Digest
12.11.2020	What items should be included in an early warning score for remote assessment of suspected COVID-19? qualitative and Delphi study	BMJ Open / Original research	<ul style="list-style-type: none"> • Within a UK primary healthcare context, the authors develop items for an early warning score (RECAP: REMote COVID-19 Assessment in Primary Care) for patients with suspected COVID-19 who need escalation to next level of care. • The prevalidation RECAP-V0 comprises a red flag alert box and 10 assessment items: pulse, shortness of breath or respiratory rate, trajectory of breathlessness, pulse oximeter reading (with brief exercise test if appropriate) or symptoms suggestive of hypoxia, temperature or fever symptoms, duration of symptoms, muscle aches, new confusion, shielded list and known risk factors for poor outcome. • Items on RECAP-V0 align strongly with published evidence, clinical judgement and patient experience. Sensitivity/specificity is still to be established. • The validation phase of this study is ongoing.
12.11.2020	Performance of Nucleic Acid Amplification Tests for Detection of Severe Acute Respiratory	Emerg Infect Dis / Research	<ul style="list-style-type: none"> • The authors tested 1,648 prospectively pooled specimens using 3 nucleic acid amplification tests: a laboratory-developed real-time reverse transcription PCR targeting the envelope gene, and 2 commercially available Panther System

	Syndrome Coronavirus 2 in Prospectively Pooled Specimens		<p>assays targeting open reading frame 1ab.</p> <ul style="list-style-type: none"> • Positive percent agreement (PPA) of pooled versus individual testing ranged from 71.7% to 82.6% for pools of 8, and from 82.9% to 100.0% for pools of 4. • The authors develop and validate an independent stochastic simulation model to estimate effects of dilution on PPA and efficiency of a 2-stage pooled real-time reverse transcription PCR testing algorithm. • PPA was dependent on proportion of tests with positive results, cycle threshold distribution, and assay limit of detection.
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Epidemiology and clinical

Publication Date	Title / URL	Journal / Article type	Digest
10.11.2020	Natural history, trajectory, and management of mechanically ventilated COVID-19 patients in the United Kingdom	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Analysis of 623 patients undergoing invasive mechanical ventilation (IMV) from Mar to Aug 2020. • Mortality, intensity of mechanical ventilation and severity of organ injury increased with severity of hypoxaemia. • Non-resolution of hypoxaemia over the first week of IMV was associated with higher ICU mortality (59.4% versus 16.3%; P<0.001). • Multivariate analysis showed prone non-responsiveness being independently associated with higher lactate, respiratory SOFA, and cardiovascular SOFA score.

Epidemiology and clinical – risk factors

Publication Date	Title / URL	Journal / Article type	Digest
11.11.2020	Excess mortality for care home residents during the first 23 weeks of the COVID-19 pandemic in England: a national cohort study	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Up to 7 Aug 2020 there were an estimated 29,542 excess deaths in all care homes in England. • Odds of experiencing COVID-19 attributable deaths were higher in homes providing nursing services (OR: 1.8); to older people and/or with dementia (OR: 5.5); among larger (vs. small) homes (OR: 13.3); belonging to a large provider/brand (OR: 1.2). There was no significant association with for-profit status of providers.

Infection control / non-pharmaceutical interventions

Publication Date	Title / URL	Journal / Article type	Digest
11.11.2020	Isolation gown contamination during health care of confirmed SARS-CoV-2 infected patients	J Hosp Infect / Letter	<ul style="list-style-type: none"> • Investigates long-sleeve gown contamination in a COVID-19 ward with patients considered at high risk of transmission in four situations: long-sleeved gown kept in place near the head of the patient (<50 cm) for 24 hours, clinical examination, nursing care and pulmonary rehabilitation. • Two of the 21 samples from sleeves were positive for SARS-CoV-2, taken from long-sleeved gowns after nursing care (patient N°3, duration of care 25 min) and after pulmonary rehabilitation (patient N°2, duration 30 min). • The authors suggest long-sleeved gowns should be mandatory for high-exposure care, and that plastic aprons could be an alternative, but only in low-exposure environment and in association with hand hygiene extended to the forearms.

Modelling

Publication Date	Title / URL	Journal / Article type	Digest
11.11.2020	Short-term forecasts to inform the response to the COVID-19 epidemic in the UK	medRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • Reports on multi-model forecasts of Covid-19 in the UK that were generated at regular intervals starting at the end of March 2020, in order to monitor expected healthcare utilisation and population impacts in real time. • In most cases, individual models performed better than the null model, and ensemble models were well calibrated and performed comparatively to the best individual models. • The quantile regression average did not noticeably outperform the mean ensemble. • Ensembles of multi-model forecasts can inform the policy response to the Covid-19 pandemic by assessing future resource needs and expected population impact of morbidity and mortality.

Overviews, comments and editorials

Publication Date	Title / URL	Journal / Article type
13.11.2020	Hospital-Acquired SARS-CoV-2 Infection: Lessons for Public Health	JAMA / Viewpoint

Produced by the PHE COVID-19 Literature Digest Team

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