Public Health England

COVID-19 Literature Digest – 22/01/2021

Dear all,

Please give <5 minutes of your time to complete our survey to help inform future changes to the Literature Digest.
Our survey can be accessed here. (Please be patient as the survey may take a minute to load initially)

The survey will close at 10am Monday (25.01.2021).

This week's guest editor is Dr. Paul Plant - Deputy Regional Director PHE London, who leads the region's strategy and health inequalities teams working with all of their COVID-19 partners.

If you only read three papers this week…

The pace with which SARS-CoV-2 spreads and the profound and wide ranging impacts it has means a whole range of decisions are having to be made based on evidence and newly crafted science, early insights from real world interventions and the sharing of intelligence from what is being seen in terms of COVID-19's impact from front line responses. The papers I have selected all fall into these categories and are important to some of the key questions I and colleagues are grappling with now working with local partners. The need to balance the science and art of public health has never been greater.

Community testing and the use of Lateral Flow Devices that provide more timely test results is being rolled out at scale and pace. Agencies are asking for advice on where best to target asymptomatic testing within high risk groups and settings and to reduce isolation times for front line key workers. Having to hand the information from Liverpool's early community testing pilot (Liverpool Covid-SMART pilot evaluation) is therefore helpful. The slide presentation (which has not been peer-reviewed) documenting how the local population has taken up the offer of testing, the results of the pilot and an indication of the extent to which it adds to community infection control will be looked at with interest.

The full pathway from testing through contact tracing to isolating is important. Weaknesses and delays in the pathway have a serious impact on controlling community infection levels when case rates are at such high levels across the country. The study my colleagues in London's Corona Virus Response Cell published in Jnl Public Health (12.01.21), looking at self-reported behaviours of symptomatic cases associated with workplaces is therefore helpful. Of the sample they contacted (n=130), they found that

32% (n=42) reported that they still attended their workplace after symptom onset (including 16 with recorded COVID-19 symptoms) and 4% whilst still awaiting their COVID-19 test results. We have more to do to stress how important it is to immediately isolate and enable this, recognising also how difficult many people find it.

The scale of pressure on the NHS is of concern at the moment, but even when the peak in infections subsides and the national vaccine programme starts to take effect, some people will be living with the consequences of having had COVID-19 for a long time. New NHS services are being put in place to help, so the study by Huang et al, looking at the range of post infection symptoms experienced by a large sample of Chinese residents from Wuhan makes for sobering reading. Of the 1733 cases followed up after having had COVID-19 and treated in hospital, 63% continued to experience fatigue and muscle weakness, 26% sleep difficulties and 23% anxiety and depression, in addition to some patients with more severe illness reporting limited mobility for some time after discharge.

Paul

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, Emma Farrow
On behalf of the PHE COVID-19 Literature Digest Team

Report for 22.01.2021 (please note that papers that have **NOT been peer-reviewed** are highlighted in red).

Sections:

Infection control / non-pharmaceutical interventions
Treatment
Modelling
Overviews, comments and editorials (no digest)

Serology and immunology

Publication Date	Title / URL	Journal / Article type	Digest
15.01.2021	SARS-CoV-2 reinfection in a cohort of 43,000 antibody-positive individuals followed for up to 35 weeks	medRxiv (non-peer reviewed) / Article	• Risk and incidence rate of SARS-CoV-2 reinfection were assessed in a cohort of 43,044 antibody-positive persons in Qatar, followed for a median of 16.3 weeks (range: 0-34.6). • 314 individuals (0.7%) had at least one PCR positive swab ≥14 days after first-positive antibody test. Of these, 129 (41.1%) had supporting epidemiological evidence for reinfection. • Applying viral-genome-sequencing confirmation rate, risk of reinfection estimated at 0.10%. Incidence rate of reinfection estimated at 0.66 per 10,000 person-weeks. • Reinfection is rare. Natural infection appears to elicit strong protection against reinfection with an efficacy >90% for at least seven months.
19.01.2021	Impact of SARS-CoV-2 B.1.1.7 Spike variant on neutralisation potency of sera from individuals vaccinated with Pfizer vaccine BNT162b2	medRxiv (non-peer reviewed) / Article	• Authors tested immune responses in patients 3 weeks after first dose of Pfizer BioNTech vaccine BNT162b2. • Lower proportion of over 80 year olds achieved threshold neutralisation titre of >1:4 for 50% neutralisation, compared to patients under 80 years old (8/15 versus 8/8 P=0.052). • Titres not significantly impacted by combination of three Spike mutations tested, but reduced against full set of Spike mutations present in the B.1.1.7 variant.
19.01.2021	mRNA vaccine-elicited antibodies to SARS-CoV-2 and circulating variants	bioRxiv (non-peer reviewed) / Article	• Report on the antibody and memory B cell responses in a cohort of 20 volunteers who received either the Moderna (mRNA-1273) or Pfizer-BioNTech (BNT162b2) vaccines. Consistent with prior reports, 8 weeks after the second vaccine injection volunteers showed high levels of IgM, and IgG anti-SARS-CoV-2 spike protein (S), receptor binding domain (RBD) binding titers. • The plasma neutralizing activity, and the relative numbers of RBD-specific memory B cells were equivalent to individuals who recovered from natural infection. • However, activity against SARS-CoV-2 variants encoding E484K or N501Y or the K417N:E484K:N501Y combination was reduced by a small but significant margin.

Vaccines

Publication Date	Title / URL	Journal / Article type	Digest
21.01.2021	Safety and immunogenicity of an inactivated SARS-CoV-2 vaccine, BBV152: a double-blind, randomised, phase 1 trial	Lancet Infectious Diseases / Article	• BBV152 is a whole-virion inactivated SARS-CoV-2 vaccine formulated with a toll-like receptor 7/8 agonist molecule adsorbed to alum (Algel-IMDG) or alum (Algel). • Carried out a double-blind, multicentre, randomised, controlled phase 1 trial to assess the safety and immunogenicity of BBV152 at 11 hospitals across India. • BBV152 led to tolerable safety outcomes and enhanced immune responses. Both Algel-IMDG formulations were selected for phase 2 immunogenicity trials. Further efficacy trials are warranted.
21.01.2021	Attitudes of healthcare workers towards COVID-19 vaccination: a survey in France and French-speaking parts of Belgium and Canada, 2020	Eurosurveillance / Rapid communication	• In Oct and Nov 2020, authors conducted a survey of 2,678 healthcare workers (HCWs) involved in general population immunisation in France, French-speaking Belgium and Quebec, Canada to assess acceptance of future COVID-19 vaccines and its determinants. • Of the HCWs, 48.6% (n = 1,302) showed high acceptance, 23.0% (n = 616) moderate acceptance and 28.4% (n = 760) hesitancy/reluctance. • Hesitancy was mostly driven by vaccine safety concerns.

Diagnostics and genomics

Publication Date	Title / URL	Journal / Article type	Digest
21.01.2021	Two-step strategy for the identification of SARS-CoV-2 variant of concern 202012/01 and other variants with spike deletion H69–V70, France, August to December 2020	Eurosurveillance / Rapid communication	• Report the strategy leading to the first detection of variant of concern 202012/01 (VOC) in France (21 Dec 2020).

Epidemiology and clinical – risk factors

Publication Date	Title / URL	Journal / Article type	Digest
21.01.2021	Risk related to the spread of new SARS-CoV-2 variants of concern in the EU/EEA – first update	European Centre for Disease Prevention and Control / Risk assessment	• This risk assessment presents the latest available information on the recent emergence of three variants of concern, VOC 202012/01 identified in the UK, 501Y.V2 identified in South Africa, and P.1 identified in Brazil and Japan. • ECDC update is also summarised in this Eurosurveillance article

20.01.2021	Association of Social and Economic Inequality With Coronavirus Disease 2019 Incidence and Mortality Across US Counties	JAMA Netw Open / Original investigation	• This cross-sectional ecological analysis of cumulative COVID-19 incidence and mortality rates for the first 200 days of the pandemic in 3141 US counties confirmed positive associations of incidence and mortality rates with racial/ethnic composition and with income inequality well as a joint association of incidence and mortality with both structural factors.

Epidemiology and clinical – other

Publication Date	Title / URL	Journal / Article type	Digest
21.01.2021	REACT-1 study of coronavirus transmission: January 2021 interim results	Gov.uk / Official statistics	• During the period 6 Jan to 15 Jan, SARS-CoV-2 virus was circulating in England with a higher prevalence than between 25 Nov to 3 Dec with 158 in 10,000 infected. • There was no strong evidence for either growth or decay in prevalence averaged across the period 6 Jan to 15 Jan. • Large household size, living in a deprived neighbourhood, and Black and Asian ethnicity were all associated with increased prevalence.
18.01.2021	The burden of nosocomial covid-19: results from the Wales multi-centre retrospective observational study of 2518 hospitalised adults	medRxiv (non-peer reviewed) / Article	• Defines the burden of hospital-acquired covid-19 infection among adults hospitalised across Wales. • Inpatient mortality rates for nosocomial covid-19 ranged from 38% to 42% and remained consistently higher than participants with community acquired infection (31% to 35%) across a range of case definitions. • Participants with nosocomial-acquired infection were an older, frailer, and multi-morbid population than those with community-acquired infection.
18.01.2021	COVID-19: Frailty scores and outcomes in older people	British Geriatrics Society / Rapid review	• This page brings together studies specifically examining the link between frailty and COVID-19 outcomes in acute care. • It is intended that it will be updated every month following a review of the literature to provide an update on any frailty and COVID-19 papers.

Infection control / non-pharmaceutical interventions

Publication Date	Title / URL	Journal / Article type	Digest
22.01.2021	COVID-19 Case Investigation and Contact Tracing Efforts from Health Departments - United States, June 25-July 24, 2020	MMWR Morb Mortal Wkly Rep / Article	• Analysis of case investigation and contact tracing metric data reported by 56 U.S. health departments found wide variation in capacity and ability to conduct timely and effective contact tracing. • Investigator caseload was inversely related to timely interviewing of patients and number of contacts identified per case.

18.01.2021	Secondary attack rate in household contacts of COVID-19 Paediatric index cases: a study from Western India	J Public Health (Oxf) / Article	• Secondary attack rate (SAR) study of COVID-19 in household contacts of paediatric index cases from Gujarat, India; 72 paediatric index cases having 287 household contacts were included. • SAR was 1.7% (95% CI: 0.74–4%). Majority of index cases males (94.4%); 50 (74%) aged 12-18 years. 66% of patients admitted to hospitals / isolation facilities (45%); 37% were home quarantine. • Family size of the index cases causing secondary infection was comparatively larger than index cases without secondary household infection (6.75 ± 2.3 versus 4.9 ± 1.9; P = 0.034). • Household SAR from paediatric patients is low, closely associated with family size.
19.01.2021	Use Of Canine Olfactory Detection For COVID-19 Testing Study On U.A.E. Trained Detection Dog Sensitivity	bioRxiv (non-peer reviewed) / Article	• Evaluated the sensitivity of 21 dogs belonging to different United Arab Emirates (UAE) Ministry of Interior (MOI), trained for COVID-19 olfactory detection. • A total of 1368 trials were performed during validation, including 151 positive and 110 negative samples. • The calculated overall sensitivities were between 71% and 79% for three dogs, between 83% and 87% for three other dogs, and equal to or higher than 90% for the remaining 15 dogs.

Treatment

Publication Date	Title / URL	Journal / Article type	Digest
21.01.2021	Effect of Bamlanivimab as Monotherapy or in Combination With Etesevimab on Viral Load in Patients With Mild to Moderate COVID-19: A Randomized Clinical Trial	JAMA / Original Investigation	• A phase 2 portion of a randomized phase 2/3 clinical trial with 577 patients found that treatment with bamlanivimab and etesevimab combination therapy, but not bamlanivimab monotherapy, resulted in a reduction in SARS-CoV-2 log viral load at day 11 in patients with mild to moderate COVID-19.

Modelling

Publication Date	Title / URL	Journal / Article type	Digest
20.01.2021	Quarantine and testing strategies in contact tracing for SARS-CoV-2: a modelling study	Lancet Public Health / Article	• Assessed the merit of testing contacts to avert onward transmission and to replace or reduce the length of quarantine for uninfected contacts. • Assuming moderate levels of adherence to quarantine and self-isolation, self-isolation on symptom onset alone can prevent 37% of onward transmission potential from secondary cases. • 14 days of post-exposure quarantine reduces transmission by 59%. Quarantine

			with release after a negative PCR test 7 days after exposure might avert a similar proportion to that of the 14-day quarantine period, as would quarantine with a negative LFA test 7 days after exposure or daily testing without quarantine for 5 days after tracing if all tests are returned negative.

Overviews, comments and editorials

Publication Date	Title / URL	Journal / Article type
21.01.2021	The European tiered approach for virucidal efficacy testing – rationale for rapidly selecting disinfectants against emerging and re-emerging viral diseases	Eurosurveillance / Perspective
21.01.2021	An action plan for pan-European defence against new SARS-CoV-2 variants	Lancet / Correspondence
21.01.2021	Optimism and caution for an inactivated COVID-19 vaccine	Lancet Infectious Diseases / Comment
21.01.2021	Neutralizing Monoclonal Antibody for Mild to Moderate COVID-19	JAMA / Editor's Note

Produced by the PHE COVID-19 Literature Digest Team

To sign-up, email COVID.LitDigest@phe.gov.uk
A selection of previous digests can be found here

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