Public Health England

International EPI Cell Daily Evidence Digest – 24/06/2020

This Daily Evidence Digest is produced by the PHE COVID-19 Literature Digest Team as a resource for professionals working in public health. We do not accept responsibility for the availability, reliability or content of the items included in this resource and do not necessarily endorse the views expressed within them. The papers are organised under the following themes:

- Serology and immunology
- Diagnostics
- Epidemiology and clinical - children and pregnancy
- Epidemiology and clinical - risk factors
- Epidemiology and clinical - other
- Infection control
- Treatment
- Overviews, comments and editorials (no digest)

Please note that we are including preprints (highlighted in red), which are preliminary reports of work that have NOT been peer-reviewed. They should not be relied on to guide clinical practice or health-related behaviour and should NOT be reported in news media as established information.

Serology and immunology

Publication Date	Title/URL	Journal/ Article type	Digest
22.06.2020	First results from the UK COVID-19 Serology in Oncology Staff Study (CSOS)	medRxiv (non-peer reviewed) / Article	• Report of the first results from the COVID-19 Serology in Oncology Staff (CSOS) study with the aim of informing non-surgical oncology management guidelines. • All 70 participants were nasopharyngeal-swab PCR negative, although 4/70 (5.7%) had previously tested positive. 15/70 (21.4%) had positive SARS-CoV-2 antibodies using the Luminex test. • Nurses had the highest incidence of positive antibodies (13/45; 28.9%), with a lower incidence in doctors (2/15; 13.3%) although this difference was not statistically significant. No receptionists had

			positive antibody tests. • All four participants with a previously reported positive PCR test were antibody-positive. 9/15 (60%) of antibody-positive participants reported previous symptoms suggestive of SARS-CoV-2 infection: a 3.6-fold higher odds than antibody-negative participants, of whom 16/55 reported symptoms (p=0.03).

Diagnostics

Publication Date	Title/URL	Journal/ Article type	Digest
22.06.2020	Organisms causing secondary pneumonias in COVID-19 patients at 5 UK ICUs as detected with the FilmArray test	medRxiv (non-peer reviewed) / Article	• 94 COVID-19 ICU patients with clinically-suspected secondary infection at 5 UK hospitals were tested with the FilmArray at point of care, to define the bacteria causing secondary pneumonias. • FilmArray had a higher diagnostic yield than culture for ICU COVID-19 patients with suspected secondary pneumonias. The bacteria found mostly were *Enterobacterales*, *S. aureus* and *P. aeruginosa*, as in typical HAP/VAP, but with *Klebsiella spp*. more prominent. They found almost no viral co-infection. • Turnaround from sample to results is around 1h 15 min compared with the usual 72h for culture.

Epidemiology and clinical - children and pregnancy

Publication Date	Title/URL	Journal/ Article type	Digest
21.06.2020	Paediatric COVID-19 admissions in a region with open schools during the two first months of the pandemic	Acta Paediatr / Brief report	• Because many Swedish schools have remained open during the pandemic, there is a unique opportunity to assess the impact of this strategy on the incidence and severity of paediatric admissions. • Carried out a two-month review of paediatric admissions aged 0-17 years who tested positive for SARS-CoV-2 in the Stockholm region, where approximately 514,000 (24%) of all Swedish children live. • The cumulative incidence for hospitalization with a non-incidental diagnosis of COVID -19 among children was nine per 100,000 children. This compares to 230/100,000 hospitalized and 99/100,000 deaths due to Covid-19 amongst the adult population in Stockholm during the

			same time period. • Results point toward a low incidence of severe illness due to COVID-19 among Swedish children, even though day care centres and primary schools remained open.
25.05.2020	Rapid systematic review of neonatal COVID-19 including a case of presumed vertical transmission	BMJ Paediatr Open / Article	• Carried out a systematic review of the available studies on COVID-19 in neonates seen globally since the onset of the COVID-19 global pandemic in 2020. The paper also describes a premature baby with RT-PCR-positive COVID-19 seen at the Blackpool Teaching Hospitals NHS Foundation Trust, UK. • The systematic review has revealed eight studies where neonates have been described to have confirmed COVID-19, with low risk of bias. • Of the 10 reported cases elsewhere, only three are likely to be vertically transmitted, while seven occurred in the post perinatal period and are likely to have been postnatally acquired.
18.06.2020	SARS-CoV-2 Infection in Infants Less than 90 Days Old	J Pediatr / Article	• This is a single-centre US case series of 18 infants <90 days old who tested positive for SARS-CoV-2. • These infants had a mild febrile illness without significant pulmonary disease. • One half were hospitalized; one had bacterial urinary tract co-infection. • Nasopharyngeal viral loads were notably high, and Latinx ethnicity was overrepresented.

Epidemiology and clinical - risk factors

Publication Date	Title/URL	Journal/ Article type	Digest
23.06.2020	Association Between Nursing Home Crowding and COVID-19 Infection and Mortality in Ontario, Canada	medRxiv (non-peer reviewed) / Article	• Population-based retrospective cohort study of over 78,000 residents of 618 distinct nursing homes in Ontario, Canada. • COVID-19 infection was distributed unevenly across nursing homes: 4,496 (86%) of infections occurred in just 63 (10%) of homes. The crowding index ranged across homes from 1.3 (mainly single-occupancy rooms) to 4.0 (exclusively quadruple occupancy rooms); 308 (50%) homes had high crowding index (>=2). Incidence in high crowding index homes was 9.7%, versus 4.5% in low crowding index homes (p<0.001), while COVID-19 mortality was 2.7%, versus 1.3%.

			• Simulations suggested that converting all 4-bed rooms to 2-bed rooms would have averted 988 (18.9%) infections of COVID-19 and 271 (18.7%) deaths.

Epidemiology and clinical – other

Publication Date	Title/URL	Journal/ Article type	Digest
23.06.2020	The prevalence of symptoms in 24,410 adults infected by the novel coronavirus (SARS-CoV-2; COVID-19): A systematic review and meta-analysis of 148 studies from 9 countries	PLoS One / Article	• 148 articles were included which comprised 24,410 adults with confirmed COVID-19 from 9 countries. • Most prevalent symptoms were fever (78% [95% CI 75%-81%]; 138 studies, 21,701 patients; I2 94%), a cough (57% [95% CI 54%-60%]; 138 studies, 21,682 patients; I2 94%) and fatigue (31% [95% CI 27%-35%]; 78 studies, 13,385 patients; I2 95%). • Overall, 19% of hospitalised patients required non-invasive ventilation (44 studies, 6,513 patients), 17% required intensive care (33 studies, 7504 patients), 9% required invasive ventilation (45 studies, 6933 patients) and 2% required extra-corporeal membrane oxygenation (12 studies, 1,486 patients). The mortality rate was 7% (73 studies, 10,402 patients). • The results of this review confirm that fever and cough are the most prevalent symptoms of adults infected by SARS-CoV-2, however, there is a large proportion of infected adults which symptoms-alone do not identify.
10.06.2020	Clusters of Coronavirus Disease in Communities, Japan, January–April 2020	Emerg Infect Dis / Dispatch	• This study investigated clusters of COVID-19 cases and probable primary cases in Japan during Jan 15–April 4, 2020. • It was found that healthcare facilities, such as hospitals, and care facilities, such as nursing homes, were the primary sources of clusters, some of which had >100 cases. Japan experienced 2 waves of imported COVID-19 cases, after which local transmission occurred and the epidemic grew. • Of note, clusters of COVID-19 cases at healthcare and care facilities predominated at epidemiologic weeks 11 (March 9–15) and 14 (March 30–April 4), which corresponds to ≈3 weeks after the 2 waves of imported cases. • Healthcare and care facilities might be located at the end of the local

			transmission chain because clusters in those facilities only became evident several weeks after community transmission persisted.
23.06.2020	Asymptomatic SARS-CoV-2 Infection in Nursing Homes, Barcelona, Spain, April 2020	Emerg Infect Dis / Research Letter	• From April 10–24, 2020, a total of 5,869 persons were screened for SARS-CoV-2 at nursing homes. • Among residents, 768 (23.9%) tested positive; among staff, 403 (15.2%). • Of those testing positive, 69.7% of residents and 55.8% of staff were asymptomatic.
22.06.2020	Clinical Course of Asymptomatic and Mildly Symptomatic Patients with Coronavirus Disease Admitted to Community Treatment Centers, South Korea	Emerg Infect Dis / Synopsis	• The clinical course of asymptomatic and mildly symptomatic patients with laboratory-confirmed COVID-19 admitted to community treatment centres (CTCs) for isolation in South Korea were evaluated. • Of 632 patients, 75 (11.9%) had symptoms at admission, 186 (29.4%) were asymptomatic at admission but developed symptoms during their stay, and 371 (58.7%) remained asymptomatic during their entire clinical course. • The virologic remission period was longer in symptomatic patients than in asymptomatic patients. In mildly symptomatic patients, the mean duration from symptom onset to virologic remission was 11.7 days (SD + 8.2 days).
19.06.2020	Characteristics of 1,573 healthcare workers who underwent nasopharyngeal swab for SARS-CoV-2 in Milano, Lombardy, Italy	Clin Microbiol Infect / Article	• Positive tests were 139 among 1,573 HCWs (8.8%, 95% confidence interval [CI]: 7.5-10.3), with a marked difference between symptomatic (122/503, 24.2%) and asymptomatic (17/1,070, 1.6%) workers ($p<0.001$). • Physicians were the group with the highest frequency of positive tests (61/582, 10.5%), whereas clerical workers and technicians displayed the lowest frequency (5/137, 3.6%). • Among symptomatic workers, the key symptoms to guide diagnosis are taste and smell alterations and fever. • In median, almost four weeks are necessary to achieve negativity of nasopharyngeal swab.
21.06.2020	Early Pandemic Evaluation and Enhanced Surveillance of COVID-19 (EAVE II): protocol for an observational study using linked Scottish national data	BMJ Open / Protocol	• This study aims to repurpose and expand an existing pandemic reporting platform to determine the attack rate of SARS-CoV-2, the uptake and effectiveness of any new pandemic vaccine (once available) and any protective effect conferred by existing or new antimicrobial drugs and other therapies. • A prospective observational cohort will be used to monitor daily/weekly the progress of the COVID-19 epidemic and to evaluate the effectiveness of therapeutic interventions in approximately

			5.4 million individuals registered in general practices across Scotland. • The primary outcomes will measure association between: (A) laboratory confirmed SARS-CoV-2 infection, morbidity and mortality, and demographic, socioeconomic and clinical population characteristics; and (B) healthcare burden of COVID-19 and demographic, socioeconomic and clinical population characteristics.

Infection control

Publication Date	Title/URL	Journal/ Article type	Digest
22.06.2020	What is the evidence to support the 2-metre social distancing rule to reduce COVID-19 transmission?	Oxford COVID-19 Evidence Service / COVID-19	• The 2-metre social distancing rule assumes that the dominant routes of transmission of SARS-CoV-2 are via respiratory large droplets falling on others or surfaces. A one-size-fits-all 2-metre social distancing rule is not consistent with the underlying science of exhalations and indoor air. • Such rules are based on an over-simplistic picture of viral transfer, which assume a clear dichotomy between large droplets and small airborne droplets emitted in isolation without accounting for the exhaled air. The reality involves a continuum of droplet sizes and an important role of the exhaled air that carries them. • Social distancing should be adapted and used alongside other strategies to reduce transmission, such as air hygiene, involving in part maximizing and adapting ventilation to specific indoor spaces, effective hand washing, regular surface cleaning, face coverings where appropriate and prompt isolation of affected individuals.
22.06.2020	Current infection control behaviour patterns in the UK, and how they can be improved by 'Germ Defence', an online behavioural intervention to reduce the spread of COVID-19 in the home	medRxiv (non-peer reviewed) / Article	• Observational study of 28,285 UK and international users of the Germ Defence (https://germdefence.org/) website, whose results showed self-reported infection control behaviours other than handwashing are lower than is optimal for infection prevention, although reported handwashing is much higher. • The advice using behaviour change techniques in Germ Defence led to intentions to improve these behaviours.
04.06.2020	REALM Systematic Literature Review of SARS-CoV-2: Spread, Environmental Attenuation, Prevention, and Decontamination	REALM project / Review	• The REopening Archives, Libraries, and Museums (REALM) Project has produced a systematic literature review to help inform the scope of the project's research and the information needs of libraries, archives, and museums (LAMs).

			• This review focused on studies of virus attenuation on commonly found materials, such as paper, plastic, cloth, and metal; methods of virus transmission; and effectiveness of prevention and decontamination measures.
22.06.2020	Persistence of Severe Acute Respiratory Syndrome Coronavirus 2 in Aerosol Suspensions	Emerg Infect Dis / Dispatch	• Aerosolized SARS-CoV- 2 and determined that its dynamic aerosol efficiency surpassed those of SARS and MERS. • Although they performed experiment only once across several laboratories, the findings suggest retained infectivity and virion integrity for up to 16 hours in respirable-sized aerosols.
18.06.2020	Hand Sanitizers: A Review of Ingredients, Mechanisms of Action, Modes of Delivery, and Efficacy Against Coronaviruses	Am J Infect Control / Research article	• In this review, an extensive literature search was performed to succinctly summarize the primary active ingredients and mechanisms of action of hand sanitizers, compare the effectiveness and compliance of gel and foam sanitizers, and predict whether alcohol and non-alcohol hand sanitizers would be effective against SARS-CoV-2. • Most alcohol based hand sanitizers are effective at inactivating enveloped viruses, including coronaviruses. • By extrapolating effectiveness of hand sanitizers on viruses of similar structure to SARS-CoV-2, this virus should be effectively inactivated with current hand hygiene products, though future research should attempt to determine this directly.
19.06.2020	Low-cost measurement of facemask efficacy for filtering expelled droplets during speech	medRxiv (non-peer reviewed) / Article	• The authors applied a simple optical measurement method to evaluate the efficacy of masks to reduce the transmission of respiratory droplets during regular speech. • They compare a variety of commonly available mask types and observe that some mask types approach the performance of standard surgical masks, while some mask alternatives, such as neck fleece or bandanas, offer very little protection.

Treatment

Publication Date	Title/URL	Journal/ Article type	Digest
22.06.2020	Effect of Dexamethasone in Hospitalized Patients with COVID-19: Preliminary Report	medRxiv (non-peer reviewed) / Article	• Report of preliminary results from the RECOVERY trial for the comparison of dexamethasone 6 mg given once daily for up to ten days vs. usual care alone. 2104 patients randomly allocated to receive dexamethasone were compared with 4321 patients concurrently allocated to usual care.

			• Overall, 454 (21.6%) patients allocated dexamethasone and 1065 (24.6%) patients allocated usual care died within 28 days. • The proportional and absolute mortality rate reductions varied significantly depending on level of respiratory support at randomization: Dexamethasone reduced deaths by one-third in patients receiving invasive mechanical ventilation, by one-fifth in patients receiving oxygen without invasive mechanical ventilation, but did not reduce mortality in patients not receiving respiratory support at randomization.
22.06.2020	Inhaled corticosteroids: A rapid review of the evidence for treatment or prevention of COVID-19	Oxford COVID-19 Evidence Service / Rapid review	• This review aimed to synthesise the current literature on the role of inhaled corticosteroids in moderating the disease course or severity of COVID-19 disease. • Inhaled ciclesonide has been shown to suppress SARS-CoV-2 replication in cultured cells and it is suggested that it exhibits direct acting anti-viral activity in addition to its intrinsic anti-inflammatory function. • Inhaled ciclesonide has therefore been proposed as a candidate drug for treatment of patients suffering Covid19. • However, further in vitro research is required to investigate whether this finding is replicable, and at the time this review was written, there has been no clinical trials or observational studies examining the use of ICS in COVID-19.

Overviews, comments and editorials

Publication Date	Title/URL	Journal/ Article type
22.06.2020	Between-centre differences for COVID-19 ICU mortality from early data in England	Intensive Care Med / Letter
19.06.2020	Association of mediastinal lymphadenopathy with COVID-19 prognosis	Lancet Infect Dis / Correspondence
22.06.2020	Children with COVID-19 at a specialist centre: initial experience and outcome	The Lancet Child & Adolescent Health / Correspondence

Produced by the PHE COVID-19 Literature Digest Team