Public Health England

International EPI Cell Daily Evidence Digest – 29/06/2020

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
- Genomics
- Epidemiology and clinical - children and pregnancy
- Epidemiology and clinical - risk factors
- Epidemiology and clinical - other
- Infection control
- Treatment
- Modelling
- 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Please note that we are including preprints (highlighted in red), which are preliminary reports of work that have NOT been peer-reviewed.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
26.06.2020	Sex, age, and hospitalization drive antibody responses in a COVID-19 convalescent plasma donor population	medRxiv (non-peer reviewed) / Article	• In this study there was substantial heterogeneity in the antibody response among potential convalescent plasma donors, but sex, age and hospitalization emerged as factors that can be used to identify individuals with a high likelihood of having strong antiviral antibody levels.

Genomics

Publication Date	Title/URL	Journal/ Article type	Digest
26.06.2020	COVID-19 severity correlates with airway epithelium-immune cell interactions identified by single-cell analysis	Nat Biotechnol / Article	• The authors' performed single-cell RNA sequencing on nasopharyngeal and bronchial samples from 19 clinically well-characterized patients with moderate or critical COVID-19; and from five healthy controls. • In patients with COVID-19, epithelial cells showed an average three-fold increase in expression of the SARS-CoV-2 entry receptor ACE2 and critical cases exhibited stronger interactions between epithelial and immune cells. • The data suggest that pharmacologic inhibition of the CCR1 and/or CCR5 pathways might suppress immune hyperactivation in critical COVID-19.

Epidemiology and clinical - children and pregnancy

Publication Date	Title/URL	Journal/ Article type	Digest
26.06.2020	Children's emergency presentations during the COVID-19 pandemic	The Lancet Child & Adolescent Health / Correspondence	• This article describes a rapid, multicentre surveillance project with three main aims: (1) to identify the number of children with delayed presentations to hospital in large emergency departments; (2) to find out what proportion of these delays was due to hesitance of parents in attending versus the proportion that was due to advice from primary care staff or NHS 111 referrals; and (3) to find out whether these delays might have resulted in harm to children (using admission to hospital as a proxy). • Although the lockdown message in the UK was to stay at home, delayed presentations were rare, but there were some that seemed to be related to the COVID-19 pandemic. • If lockdown persists or has to be reinstated, then public health messages should reinforce the message that emergency services are open and accessible to children and young people.

Epidemiology and clinical - risk factors

Publication Date	Title/URL	Journal/ Article type	Digest
26.06.2020	Coronavirus (COVID-19) related deaths by occupation, England and Wales: deaths registered between 9 March and 25 May 2020	Office for National Statistics / Statistical bulletin	• This bulletin presents analysis of deaths involving COVID-19 in different occupational groups among those aged 20 to 64 years in England and Wales. • The bulletin highlights occupations that have statistically significantly higher rates of death involving COVID-19 when compared with the rate of death involving COVID-19 among people of the same age and sex in the general population. • The results of the analysis do not prove conclusively that the observed rates of death involving COVID-19 are necessarily caused by differences in occupational exposure.
25.06.2020	COVID-19: a retrospective cohort study with focus on the over-80s and hospital-onset disease	BMC Med / Research article	• This was a retrospective cohort study from electronic case records of the first 450 patients admitted to a London hospital with PCR-confirmed COVID-19. • This study found that inpatient mortality was high, especially among the over-80s, who are more likely to present atypically. • The ethnic composition of this caseload was similar to the underlying population. • While a significant number of patients acquired COVID-19 while already in hospital, their outcomes were no worse.
27.06.2020	COVID-19 in-patient hospital mortality by ethnicity	Wellcome Open Res / Research note	• Mortality rates in 1,276 inpatients in Bradford with test results for COVID-19 were analysed by ethnic group. • The age-adjusted risk of dying from COVID-19 was slightly lower in South Asian compared to White British patients. (RR =0.87, 95% CI: 0.41 to 1.84).
26.06.2020	Ethnic variation in outcome of people hospitalised with Covid-19 in Wales (UK): A rapid analysis of surveillance data using Onomap, a name-based ethnicity classification tool	medRxiv (non-peer reviewed) / Article	• In this study, hospitalised Black, Asian and minority ethnic cases were younger and more likely to be admitted to intensive care (ICU). Pakistani, Bangladeshi and White - other than British or Irish, ethnic groups were most at risk. • However, older age and male gender, but not ethnicity, were associated with death in hospitalised patients.
26.06.2020	Clinical Characteristics and Outcomes in Patients With Coronavirus Disease 2019 and Multiple Sclerosis	JAMA Neurol / Original investigation	• In this cohort study of 347 patients with MS, risk factors for severe forms of COVID-19 were neurological disability, age, and obesity, but no association was found between disease-modifying therapies exposure and COVID-19 severity.

			• The identification of these risk factors should provide the rationale for an individual strategy regarding clinical management of patients with MS during the COVID-19 pandemic.
24.06.2020	Household infection: The predominant risk factor for close contacts of patients with COVID-19	Travel Med Infect Dis / Letter	• The authors' analysed the associations between exposure factors (relation to index case-patient (ICP), contact frequency, places and methods) and the risk of infecting COVID-19 in 1587 close contacts who were indexed by 560 confirmed patients from Jan 14, 2020 to Feb 14, 2020. • During the 14-day quarantine and medical observation, 150 close contacts were confirmed as COVID-19 cases, indicating that one ICP transmitted infection to 0.27 close contacts (150/562) on average.
24.06.2020	Serum ferritin as an independent risk factor for severity in COVID-19 patients	J Infect / Article	• This retrospective study performed in a Chinese population demonstrated that a high level of serum ferritin is an independent risk factor for the severity of COVID-19. • Assessing serum ferritin levels during hospitalization may be important to recognize high-risk individuals with COVID-19.
26.06.2020	Hypoferremia predicts hospitalization and oxygen demand in COVID-19 patients	medRxiv (non-peer reviewed) / Article	• The study finds that measurement of serum iron can help predict severity of COVID-19. • The differences in serum iron availability observed between the low and high oxygen demand group suggest that disturbed iron metabolism likely plays a causal role in the pathophysiology leading to lung injury.

Epidemiology and clinical – other

Publication Date	Title/URL	Journal/ Article type	Digest
27.06.2020	Positive SARS-CoV-2 RNA recurs repeatedly in a case recovered from COVID-19: dynamic results from 108 days of follow-up	Pathog Dis / Article	• This study performed a 108 days follow-up on dynamic clinical presentations in a case, who was hospitalized three times due to the positive recurrence of SARS-CoV-2 RNA after discharge. • In this case, positive SARS-CoV-2 recurred even after apparent recovery (normal CT imaging, no clinical symptoms, negative SARS-CoV-2 on stool sample and negative serum IgM test) from COVID-19, viral shedding duration lasted for 65 days, the time from symptom onset to disappearance was up to 95 days.

26.06.2020	Meningoencephalitis associated with COVID-19: A systematic review	medRxiv (non-peer reviewed) / Systematic review	• A total of 43 cases from 24 studies revealed consistent presentations towards association of COVID-19 with meningoencephalitis. • SARS-CoV-2 has been isolated from CSF as well as cerebrum of cases with meningoencephalitis depicting the natural tendency of the virus to invade the central nervous system.
26.06.2020	Influenza Vaccination and COVID19 Mortality in the USA	medRxiv (non-peer reviewed) / Article	• Analysis of COVID-19 data until June 10, 2020 together with population health data for the United States at the county level suggest that influenza vaccination coverage in the elderly population is negatively associated with mortality from COVID-19. • Results suggest a potential protective effect of the influenza vaccine on COVID-19 mortality in the elderly population. The significant public health implications of this possibility point to an urgent need to study the relationship between influenza vaccination and COVID-19 mortality at the individual level.

Infection control

Publication Date	Title/URL	Journal/ Article type	Digest
23.06.2020	Severe COVID-19 and Healthcare Associated Infections on the ICU: Time to Remember the Basics?	J Hosp Infect / Article	• St George's Hospital is a 1000 bedded tertiary care hospital in SW London. From an initial ICU capacity of 60 beds spread over 3 purpose-built units, ICU beds expanded at peak surge in Apr 2020 to 83 COVID-19 beds and 13 non-COVID-19 beds. • During a 16 day period in Apr, 20 Gram-negative bloodstream infections were identified in patients across all of the COVID ICUs. • This equated to 17.95 Gram neg bloodstream infections/1000 bed days on the COVID ICUs over this 16 day period. This contrasted to 1.04 Gram-negative bloodstream infections/1000 bed days over the same 16 day period in the preceding year (2019). • Eleven of these were wild type *Klebsiella pneumoniae* species, with three demonstrating identical typing patterns.
23.06.2020	Do established infection prevention and control measures prevent spread of SARS-	J Hosp Infect / Article	• Study demonstrating effective IPC protocols in a hospital to prevent spread of SARS-CoV-2 from contaminated patient rooms

	CoV-2 to the hospital environment beyond the patient room?		to general ward areas. • Patient rooms were easily contaminated with the bed controller and bed side rail being the most frequent sites positive for SARS-CoV-2. • One positive sample from a cleaned room found that a damaged piece of equipment had been contaminated.

Treatment

Publication Date	Title/URL	Journal/ Article type	Digest
26.06.2020	Dexamethasone	Oxford COVID-19 Evidence Service / Drug vignette	• If the full published data from the RECOVERY trial of dexamethasone in the treatment of hospitalized patients with COVID-19 confirm the results in the preliminary publications, the decision to adopt it in the NHS before publication of the final paper will have been justified. • The results in the patients who did not need oxygen seem to show no beneficial effect. However, it is not clear that in those individuals mortality is not increased by an average of 22% and perhaps up to 61%. • More of the area under the probability curve certainly lies towards harm rather than benefit, although not more than 97.5%, as needed for conventional statistical significance. • That being so, it will be important to avoid using dexamethasone in patients with early and mild disease and restrict it to those in the more severe categories.
29.06.2020	COVID 19 rapid evidence summary: Vitamin D for COVID 19 Evidence summary [ES28]	NICE / Evidence summary [ES28]	• This evidence summary suggests there is no evidence to support taking vitamin D supplements to specifically prevent or treat COVID-19. • However, NICE encourage the UK Government advice on daily vitamin D supplementation to maintain bone and muscle health is followed during the COVID-19 pandemic.
26.06.2020	Short Communication: Vitamin D and COVID-19 infection and mortality in UK Biobank	medRxiv (non-peer reviewed) / short communication	• Findings from this UK Biobank study do not support a potential link between vitamin D concentrations and risk of severe COVID-19 infection and mortality. • Recommendations for vitamin D supplementation to lessen COVID-19 risks may provide false reassurance.

Modelling

Publication Date	Title/URL	Journal/ Article type	Digest
24.06.2020	Shut and re-open: the role of schools in the spread of COVID-19 in Europe	medRxiv (non-peer reviewed) / Article	• Modelling study comparing the growth rates in daily hospitalisations or confirmed cases under different interventions, considering Denmark, Norway, Sweden, and German states as case studies. • Results suggest a large-scale reopening of schools while controlling or suppressing the epidemic appears feasible in countries such as Denmark or Norway, where community transmission is generally low. • School reopening can contribute to significant increases in the growth rate in countries like Germany, where community transmission is relatively high.

Overviews, comments and editorials

Publication Date	Title/URL	Journal/ Article type
25.06.2020	Lessons in contact tracing from Germany	British Medical Journal / Editorial
24.06.2020	Outbreak of COVID-19 in a Nursing Home in Madrid	J Infect / Letter
25.06.2020	Reduced hospital admissions for ACS - more collateral damage from COVID-19	Nat Rev Cardiol / Research highlight
26.06.2020	New insights into the neurological effects of COVID-19	Nat Rev Neurol / Research highlight
26.06.2020	Identification of pathophysiological patterns for triage and respiratory support in COVID-19	The Lancet Respiratory Medicine / Comment
25.06.2020	Addressing challenges for clinical research responses to emerging epidemics and pandemics: a scoping review	BMC Med / Research article

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