



International EPI Cell Daily Evidence Digest – 15/05/2020

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:

- Diagnostics
- Serology and immunology
- Genomics
- Epidemiology and clinical - children and pregnancy
- Epidemiology and clinical - risk factors
- Epidemiology and clinical - other
- Infection control
- Treatment
- Social sciences
- Miscellaneous
- Modelling
- Guidance, consensus statements and hospital resources (no digest)
- 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Please note that we are including preprints (**highlighted in red**), which are preliminary reports of work that have NOT been peer-reviewed.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.

Diagnostics

Publication Date	Title/URL	Journal/ Article type	Digest
13.05.2020	Variation in False-Negative Rate of Reverse Transcriptase Polymerase Chain Reaction–Based SARS-CoV-2 Tests by Time Since Exposure	Annals of Internal Medicine / Article	<ul style="list-style-type: none">• Estimated the false-negative rate by day since infection.• Over the 4 days of infection before the typical time of symptom onset (day 5), the probability of a false-negative

			<p>result in an infected person decreases from 100% on day 1 to 67% on day 4.</p> <ul style="list-style-type: none"> • Care must be taken in interpreting RT-PCR tests for SARS-CoV-2 infection—particularly early in the course of infection—when using these results as a basis for removing precautions intended to prevent onward transmission.
13.05.2020	Comparison of Cepheid Xpert Xpress and Abbott ID Now to Roche cobas for the Rapid Detection of SARS-CoV-2	Journal of clinical virology / Article	<ul style="list-style-type: none"> • This study aimed to compare two recently-authorized rapid tests, Cepheid Xpert Xpress SARS-CoV-2 and Abbott ID Now SARS-CoV-2, to the Roche cobas SARS-CoV-2 assay for samples with low, medium, and high viral concentrations. • A total of 113 nasopharyngeal swabs from remnant patient samples were tested, including 88 positives spanning the full range of observed Ct values on the cobas assay. • Compared to cobas, the overall positive agreement was 73.9% with ID Now and 98.9% with Xpert. Negative agreement was 100% and 92.0% for ID Now and Xpert, respectively.
13.05.2020	The role of biomarkers in diagnosis of COVID-19 - A systematic review	Life Sciences / Review	<ul style="list-style-type: none"> • There are many biomarkers with suggested roles in monitoring COVID-19 infection. Increases in CRP and D-dimers have strong associations with mortality. Likewise, decreases in platelet count strongly associated with mortality. • Thirty-four relevant articles were identified which reviewed the following biomarkers: C-reactive protein, serum amyloid A, interleukin-6, lactate dehydrogenase, neutrophil-to-lymphocyte ratio, D-dimer, cardiac troponin, renal biomarkers, lymphocytes and platelet count. Of these, all but two, showed significantly higher levels in patients with severe complications of COVID-19 infection compared to their non-severe counterparts.
04.05.2020	Self-collection: An appropriate alternative during the SARS-CoV-2 pandemic	Journal of Clinical Virology / Article	<ul style="list-style-type: none"> • First study providing evidence of equivalence of self-collection for SARS-CoV-2; Self-collection was easy to perform and preferred by the majority of participants. • Self-collection has potential to increase accessibility and detection of SARS-CoV-2, to preserve PPE supplies, to reduce exposure to others.

Serology and immunology

Publication Date	Title/URL	Journal/ Article type	Digest
12.05.2020	A serological assay to detect SARS-CoV-2 seroconversion in humans	Nature Medicine / Brief communication	<ul style="list-style-type: none"> • Describes a serological enzyme-linked immunosorbent assay for the screening and identification of human SARS-CoV-2 seroconverters. • This assay does not require the handling of infectious virus, can be adjusted to detect different antibody types in serum and plasma and is amenable to scaling.
14.05.2020	Asymptomatic Seroconversion of Immunoglobulins to SARS-CoV-2 in a Pediatric Dialysis Unit	Jama / Research letter	<ul style="list-style-type: none"> • This study found a high prevalence of subclinical seroconversion in individuals interacting in a pediatric dialysis unit. • The prevalence of subclinical seroconversion in the health care workers suggests that more health care workers may be antibody-positive than would otherwise be expected.
13.05.2020	SARS-CoV-2-specific antibody detection in healthcare workers in Germany with direct contact to COVID-19 patients	Journal of Clinical Virology / Article	<ul style="list-style-type: none"> • The average SARS-CoV-2 seroprevalence in healthcare workers of a tertiary hospital, University Hospital Essen, Germany was 1.6 % in the period between March to April 2020. • The local hygiene standards seem to be effective to prevent patient-to-staff virus transmission at the designated COVID-19 units wards.
14.05.2020	Cross-sectional IgM and IgG profiles in SARS-CoV-2 infection	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • IgM and IgG were measured in 32 COVID-19 patients (18 hospitalized and actively symptomatic, 14 recovered mild cases), in 103 pre-2020 healthy adult control (HC) participants and 13 participants who had negative molecular testing for SARS-CoV-2. • Disease severity and timing both influenced levels of IgM and IgG against SARS-CoV-2, with IgG better for early detection of severe cases but IgM more suited for early detection of milder cases.
14.05.2020	Lessons from a rapid systematic review of early SARS-CoV-2 serosurveys	medRxiv (not peer reviewed) / Review	<ul style="list-style-type: none"> • Seventy records met inclusion criteria, describing 73 studies and of these, 23 reported prevalence estimates. • Seroprevalence estimates ranged from 0.4% to 59.3% and none were found to have a low risk of bias. • Fifty records reported characteristics of ongoing or proposed

			serosurveys and overall, twenty countries have completed, ongoing, or proposed serosurveys.
14.05.2020	Potent neutralization of SARS-CoV-2 in vitro and in an animal model by a human monoclonal antibody	bioRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • The authors identified panels of fully human monoclonal antibodies (mAbs) from eight large phage-displayed Fab, scFv and VH libraries by panning against the receptor binding domain (RBD) of the SARS-CoV-2 spike (S) glycoprotein. • One high affinity mAb, IgG1 ab1, specifically neutralized live SARS-CoV-2 with exceptional potency as measured by two different assays.

Genomics

Publication Date	Title/URL	Journal/ Article type	Digest
12.05.2020	Single-cell landscape of bronchoalveolar immune cells in patients with COVID-19	Nature Medical / brief communication	<ul style="list-style-type: none"> • The authors characterised bronchoalveolar lavage fluid immune cells from patients with varying severity of COVID-19 and from healthy people by using single-cell RNA sequencing. • Proinflammatory monocyte-derived macrophages were abundant in the bronchoalveolar lavage fluid from patients with severe COVID-19 and moderate cases had highly clonally expanded CD8+ T cells. • The atlas of the bronchoalveolar immune microenvironment suggests potential mechanisms underlying pathogenesis and recovery in COVID-19.
14.05.2020	Proteomics of SARS-CoV-2-infected host cells reveals therapy targets	Nature / Article	<ul style="list-style-type: none"> • The authors identified host cell pathways modulated by SARS-CoV-2 infection and show that inhibition of these pathways prevent viral replication in human cells. • The results reveal the cellular infection profile of SARS-CoV-2 and led to the identification of drugs inhibiting viral replication.
13.05.2020	TMPRSS2 and TMPRSS4 promote SARS-CoV-2 infection of human small intestinal enterocytes	Science Immunology / Research article	<ul style="list-style-type: none"> • Authors found expression of two mucosa-specific serine proteases, TMPRSS2 and TMPRSS4, facilitated SARS-CoV-2 spike fusogenic activity and promoted virus entry into host cells. • They demonstrate that viruses released into the intestinal lumen were inactivated by simulated human colonic fluid, and infectious virus was not recovered from the stool specimens of COVID-19 patients.

			<ul style="list-style-type: none"> • The results highlight the intestine as a potential site of SARS-CoV-2 replication, which may contribute to local and systemic illness and overall disease progression.
14.05.2020	Novel ACE2-Independent Carbohydrate-Binding of SARS-CoV-2 Spike Protein to Host Lectins and Lung Microbiota	bioRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • The authors revealed novel ACE2-independent carbohydrate-mediated interactions with immune modulating lectins expressed on myeloid cells, as well as host lung microbiota glyco-conjugates. • The results identified new molecular pathways using host lectins and signalling, that may contribute to viral infection and subsequent immune exacerbation. • Specific rhamnosylated epitopes were identified in lung microbiota to bind SARS-CoV-2, providing a hypothetical link between the presence of specific lung microbiota and SARS-CoV-2 infection and severity.
14.05.2020	Potential modes of COVID-19 transmission from human eye revealed by single-cell atlas	bioRxiv (non-peer reviewed) / Article	<ul style="list-style-type: none"> • The authors profiled the presence of SARS-CoV-2 receptors and receptor-associated enzymes at single-cell resolution of thirty-three human ocular cell types. • They identified unique populations of corneal cells with high ACE2 expression, among which the conjunctival cells co-expressed both ACE2 and TMPRSS2, suggesting that they could serve as the entry points for the virus.

Epidemiology and clinical – children and pregnancy

Publication Date	Title/URL	Journal/ Article type	Digest
15.05.2020	Paediatric inflammatory multisystem syndrome and SARS-CoV-2 infection in children	European Centre for Disease Control and Prevention / Rapid risk assessment	<ul style="list-style-type: none"> • In total, about 230 suspected cases of rare paediatric inflammatory multisystem syndrome (PIMS) temporally associated with SARS-CoV-2 infection have been reported in EU/EEA countries and the UK in 2020, including two fatalities, one in the UK and one in France. • At current, the risk is assessed as follows: <ul style="list-style-type: none"> - The overall risk of COVID-19 in children in the EU/EEA and UK is currently considered low, based on a low probability of COVID-19 in children and a moderate impact of such disease. - The overall risk of PIMS-TS in children in the EU/EEA and the

			UK – is considered low, based on a very low probability of PIMS-TS in children and a high impact of such disease.
14.05.2020	Outbreak of Kawasaki disease in children during COVID-19 pandemic: a prospective observational study in Paris, France	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • A total of 17 children were admitted for KD over an 11-day period in the general paediatrics department of a university hospital in Paris, France, in contrast with a mean of 1.0 case per 2-week period over 2018-2019. • Their median age was 7.5 (range, 3.7-16.6) years, and 59% of patients originated from sub-Saharan Africa or Caribbean islands. • Eleven patients presented with KD shock syndrome (KDSS) requiring intensive care support, and 12 had myocarditis.
13.05.2020	Severe COVID-19 in Children and Young Adults in the Washington, DC Metropolitan Region	Journal of Pediatrics / Article	<ul style="list-style-type: none"> • Authors report 177 infected children and young adults, including 44 hospitalized and 9 critically ill patients, with comparison of patient characteristics between infected hospitalized and non-hospitalized cohorts, as well as critically ill and non-critically ill cohorts. • Children <1 year and adolescents /young adults >15 years of age were over-represented among hospitalized patients (P = .07). • Adolescents/young adults were over-represented among the critically ill cohort. (P =.02).
13.05.2020	Vertical Transmission of Severe Acute Respiratory Syndrome Coronavirus 2: A Systematic Review	American journal of perinatology	<ul style="list-style-type: none"> • This systematic review summarises 22 studies comprising 83 neonates born to mothers diagnosed with COVID-19. • Results show that there is currently no direct evidence to support intrauterine vertical transmission of SARS-CoV-2. No direct virologic evidence of vertical transmission has been reported, and there is no evidence that caesarean delivery is safer than vaginal delivery.

Epidemiology and clinical - risk factors

Publication Date	Title/URL	Journal/ Article type	Digest
14.05.2020	Association of Cardiovascular Disease With Coronavirus Disease 2019 (COVID-19) Severity: A Meta-Analysis	Current problems in cardiology / Article	<ul style="list-style-type: none"> • Meta-analysis of recent studies that reported the association of CVD with worse prognosis and increased mortality in COVID-19 patients. 18 studies (n = 4858 patients) were included. • Pre-existing CVD was associated with a significantly increased

			<p>risk of a severe form of COVID-19 and overall risk of COVID-19 all-cause mortality. However, this study did not find a significant association between previous history of CVD and mortality in severe COVID-19 disease.</p>
11.05.2020	COVID-19, MERS and SARS with Concomitant Liver Injury-Systematic Review of the Existing Literature	Journal of Clinical Medicine / Article	<ul style="list-style-type: none"> • A total of forty-three studies were included and liver anomalies were predominantly mild to moderately elevated transaminases, hypoalbuminemia and prolongation of prothrombin time. • Histopathology varied between non-specific inflammation, mild steatosis, congestion and massive necrosis. • More studies to elucidate the mechanism and importance of liver injury on the clinical course and prognosis in patients with novel SARS-CoV-2 infection are warranted.
06.05.2020	Is diabetes mellitus associated with mortality and severity of COVID-19? A meta-analysis	Diabetes & metabolic syndrome / Meta-analysis	<ul style="list-style-type: none"> • Diabetes in patients with COVID-19 is associated with a two-fold increase in mortality as well as severity of COVID-19, as compared to non-diabetics. • 33 studies (16,003 patients) were included in the meta-analysis and showed diabetes to be significantly associated with mortality of COVID-19 with a pooled odds ratio of 1.90. Diabetes was also associated with severe COVID-19 with a pooled odds ratio of 2.75. The combined corrected pooled odds ratio of mortality or severity was 2.16. The pooled prevalence of diabetes in patients with COVID-19 was 9.8%.
14.05.2020	The association of cardiovascular disease and other pre-existing comorbidities with COVID-19 mortality: A systematic review and meta-analysis	medRxiv (not peer reviewed) / Review	<ul style="list-style-type: none"> • Ten chronic conditions from 19 studies were included in the meta-analysis (n=61,455 patients with COVID-19; mean age, 61 years; 57% male). • Any cardiovascular disease, coronary heart disease, hypertension, congestive heart failure, and cancer significantly increased the risk of mortality from COVID-19. • Patients with coronary heart disease was 2.4 times as high as those without coronary heart disease, and patients with cancer were at twice the risk of mortality from COVID-19 compared to those without cancer.
14.05.2020	Age-adjusted associations between comorbidity and outcomes of COVID-19: a review of the evidence	medRxiv (not peer reviewed) / Review	<ul style="list-style-type: none"> • The emerging evidence base mostly indicates that after adjustment for age (and in some cases other potential confounders), obesity, hypertension, diabetes mellitus, chronic obstructive airways disease (COPD), and cancer are all associated with worse COVID-19 outcomes.

			<ul style="list-style-type: none"> • The largest study, using a large nationwide sample of COVID-19 patients in China, found that those with multiple comorbidities had more than twice the risk of a severe outcome or death compared with patients with no comorbidities, after adjusting for age and smoking.
14.05.2020	Assessing risk factors for SARS-CoV-2 infection in patients presenting with symptoms in Shanghai, China: a multicentre, observational cohort study	The Lancet Digital Health / Article	<ul style="list-style-type: none"> • Established an effective screening strategy in Shanghai, China, to aid early identification of patients with COVID-19. • Multicentre, observational cohort study in fever clinics of 25 hospitals in 16 districts of Shanghai. • Exposure history, fatigue, white blood cell count less than 4×10^9 per L, lymphocyte count less than 0.8×10^9 per L, ground glass opacity, and having both lungs affected were independent risk factors for confirmed COVID-19.
14.05.2020	Hypoalbuminemia predicts the outcome of COVID-19 independent of age and co-morbidity	Journal of medical virology / Research article	<ul style="list-style-type: none"> • This retrospective cohort study of 299 adult patients examined the impact of hypoalbuminemia in COVID-19. • Hypoalbuminemia was associated with the outcome of COVID-19. The potential therapeutic value of albumin infusion in COVID-19 should be further explored.

Epidemiology and clinical – other

Publication Date	Title/URL	Journal/ Article type	Digest
14.05.2020	Mortality impacts of the coronavirus disease (COVID-19) outbreak by sex and age: rapid mortality surveillance system, Italy, 1 February to 18 April 2020	Eurosurveillance / Rapid communication	<ul style="list-style-type: none"> • Data from the rapid mortality surveillance system in 19 major Italian cities were used to carry out a timely assessment of the health impact of the COVID-19 epidemic. • By 18 April, a + 45% excess in mortality was observed, with a higher impact in the north of the country (+ 76%). The excess was greatest among men, with an increasing trend by age. Surveillance data can be used to evaluate the lockdown and re-opening phases.
14.05.2020	Excess deaths during the Covid-19 pandemic: An international comparison	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • The authors found an increase in observed, compared with expected, mortality in Scotland (+68%), England and Wales (+74%), the Netherlands (+58%), Italy (+39%) and New York state (+49%). • Of these deaths, only 73% in Scotland, 71 % in England and Wales, 53% in the Netherlands, 54% in Italy and 79% in New

			<p>York state were attributed to Covid-19 leaving a number of excess deaths not attributed to Covid-19.</p> <ul style="list-style-type: none"> • In the 5-week period of study, Scotland, 10% of the excess of deaths were attributed to dementia/Alzheimer's disease and 7% to cardiovascular causes.
12.05.2020	Retinal findings in patients with COVID-19	The Lancet / Correspondence	<ul style="list-style-type: none"> • Report retinal and OCT changes in 12 adults (six men and six women, aged 25–69 years), examined 11–33 days after COVID-19 symptom onset. • This is, to the best of the authors knowledge, the first report of retinal findings possibly associated with COVID-19 infection in humans. Ganglion cell and plexiform layer findings could be associated with CNS manifestations that have been described in animal studies⁴ and in COVID-19 neurological events.
13.05.2020	Multiorgan and Renal Tropism of SARS-CoV-2	New England Journal of Medicine / Correspondence	<ul style="list-style-type: none"> • Present data from an autopsy series of 27 patients that show that SARS-CoV-2 can be detected in multiple organs, including the lungs, pharynx, heart, liver, brain, and kidneys.
13.05.2020	Transmission of SARS-CoV-2 in Domestic Cats	New England Journal of Medicine / Correspondence	<ul style="list-style-type: none"> • Three domestic cats were inoculated with SARS-CoV-2 and cohoused with non-infected cats. • Two days later, one of the cats with no previous infection had infectious virus detected in a nasal swab specimen, and 5 days later, virus was detected in all three cats that were cohoused with the inoculated cats.
14.05.2020	Rapid implementation of real-time SARS-CoV-2 sequencing to investigate healthcare-associated COVID-19 infections	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • Describes the real-time genomic surveillance of SARS-CoV-2 in a UK hospital and demonstrated the benefit of combined genomic and epidemiological analysis for the investigation of healthcare-associated COVID-19 infections. • This approach enabled detection of cryptic transmission events and identified opportunities to target infection control interventions to reduce further healthcare-associated infections.

Infection control

Publication Date	Title/URL	Journal/ Article type	Digest
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15.05.2020	High SARS-CoV-2 Attack Rate Following Exposure at a Choir Practice - Skagit County, Washington, March 2020	MMWR Morb Mortal Wkly Rep / Report	<ul style="list-style-type: none"> • Following a 2.5-hour choir practice attended by 61 persons, including a symptomatic index patient, 32 confirmed and 20 probable secondary COVID-19 cases occurred (attack rate = 53.3% to 86.7%); three patients were hospitalized, and two died. Transmission was likely facilitated by close proximity (within 6 feet) during practice and augmented by the act of singing.
11.05.2020	Environmental contamination by SARS-CoV-2 in a designated hospital for coronavirus disease 2019	American journal of infection control / Article	<ul style="list-style-type: none"> • SARS-CoV-2 RNA was not detected in the air in a designated hospital for COVID-19. • Most of the touchable surfaces in the designated hospital for COVID-19 were heavily contaminated, suggesting that the environment is a potential medium of disease transmission.

Treatment

Publication Date	Title/URL	Journal/ Article type	Digest
14.05.2020	Convalescent plasma or hyperimmune immunoglobulin for people with COVID-19: a rapid review	Cochrane database of systematic reviews / Rapid review	<ul style="list-style-type: none"> • Assessed whether convalescent plasma or hyperimmune immunoglobulin transfusion is effective and safe in the treatment of people with COVID-19. • Eight studies (seven case-series and one prospectively planned single-arm intervention study) with a total of 32 participants (range 1 to 10) were identified. • Very uncertain whether convalescent plasma is effective for people admitted to hospital with COVID-19 as studies reported results inconsistently, making it difficult to compare results and to draw conclusions. There was very low-certainty evidence on the effectiveness and safety of convalescent plasma therapy for people with COVID-19; all studies were at high risk of bias and reporting quality was low.
14.05.2020	Early Safety Indicators of COVID-19 Convalescent Plasma in 5,000 Patients	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • Analysis of key safety metrics after transfusion of ABO-compatible human COVID-19 convalescent plasma in 5,000 hospitalized adults found incidence of all serious adverse events (SAEs) in the first four hours after transfusion was <1%, including mortality rate (0.3%). • Of the 36 reported SAEs, only 2 were judged as definitely related to the convalescent plasma transfusion by the treating

			<p>physician.</p> <ul style="list-style-type: none"> • The seven-day mortality rate was 14.9%.
13.05.2020	Treatment of COVID-19 Patients with Convalescent Plasma in Houston, Texas	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • Patients (n=25) with severe and/or life-threatening COVID-19 disease were enrolled and transfused with convalescent plasma at the Houston Methodist hospitals from March 28 – April 14, 2020. • At day 7 post-transfusion, nine patients had at least a 1-point improvement in clinical scale, and seven of those were discharged. • By day 14 post-transfusion, 19 (76%) patients had at least a 1-point improvement in clinical status and 11 were discharged. • No adverse events as a result of plasma transfusion were observed.
14.05.2020	Risk Factors of Severe Disease and Efficacy of Treatment in Patients Infected with COVID-19: A Systematic Review, Meta-Analysis and Meta-Regression Analysis	Clinical Infectious Diseases / Accepted manuscript	<ul style="list-style-type: none"> • Systematic review and meta-analysis of studies that reported COVID-19 clinical features and/or treatment outcomes. 45 studies reporting 4203 patients were included. • Pooled rates of intensive care unit (ICU) admission, mortality and acute respiratory distress syndrome (ARDS) were 10.9%, 4.3% and 18.4%, respectively. • Treatment with lopinavir-ritonavir showed no significant benefit in mortality and ARDS rates. Corticosteroids were associated with a higher rate of ARDS ($p=0.0003$).
14.05.2020	Systemic corticosteroids show no benefit in severe and critical COVID-19 patients in Wuhan, China: A retrospective cohort study	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • Corticosteroids were administered in 531 (35.1%) severe and 159 (63.9%) critical patients. • Compared to no corticosteroid use group, systemic corticosteroid use showed no benefit in reducing in-hospital mortality in both severe cases.
14.05.2020	Use of renin–angiotensin–aldosterone system inhibitors and risk of COVID-19 requiring admission to hospital: a case-population study	The Lancet / Article	<ul style="list-style-type: none"> • Concluded that RAAS inhibitors do not increase the risk of COVID-19 requiring admission to hospital, including fatal cases and those admitted to intensive care units, and should not be discontinued to prevent a severe case of COVID-19.
12.05.2020	Should azithromycin be used to treat COVID-19? A rapid review	BJGP Open	<ul style="list-style-type: none"> • Three studies were identified, two in vitro and one in vivo, which were suitable for inclusion. • There is no evidence to support the use of azithromycin for the treatment of COVID-19 outside of the context of clinical trials, unless it is used to treat bacterial super-infection. There is extremely limited evidence of a possible synergy between azithromycin and hydroxychloroquine. The adverse events

			profile of azithromycin in the context of COVID-19 has not yet been established.
09.05.2020	Tocilizumab for Treatment of Severe COVID-19 Patients: Preliminary Results from SMAtteo COvid19 REgistry (SMACORE)	Microorganisms / Article	<ul style="list-style-type: none"> • 21 patients who received Tocilizumab therapy (TCZ) were matched to 21 patients who received SOC (a combination of hydroxychloroquine, azithromycin and prophylactic dose of low weight heparin). No adverse event was detected following TCZ administration. • TCZ administration did not reduce ICU admission or mortality rate in a cohort of 21 patients. Additional data are needed to understand the effect(s) of TCZ in treating patients diagnosed with COVID-19.
14.05.2020	The race to find a SARS-CoV-2 drug can only be won by a few chosen drugs: a systematic review of registers of clinical trials of drugs aimed at preventing or treating COVID-19	medRxiv (not peer reviewed) / Review	<ul style="list-style-type: none"> • 412 clinical trials addressing the effect of pharmacological treatments on COVID-19, were included, predominantly from Asia and Europe (42.2% and 31.1% of clinical trials registers, respectively). • During 2020, a huge amount of clinical trials are expected to be completed: 41 trials (60,366 participants) using hydroxychloroquine, 20 trials (1,588 participants) using convalescent's plasma, 18 trials (6,830 participants) using chloroquine, 12 trials (9,938 participants) using lopinavir/ritonavir, 11 trials (1,250 participants) using favipiravir, 10 trials (2,175 participants) using tocilizumab and 6 trials (13,540 participants) using Remdesivir.

Social sciences

Publication Date	Title/URL	Journal/ Article type	Digest
14.05.2020	COVID-19 Psychological Impact in 3109 Healthcare workers in Spain: The PSIMCOV Group	Psychological Medicine / Research article	<ul style="list-style-type: none"> • The psychological impact in healthcare workers in Spain during COVID-19 emergency is described: the stress perceived is parallel to the number of cases per 100,000 people. • The least stressed respondents were asymptomatic workers, as well as those over 60 years old • Psychotherapy has a major role to mitigate the experimented stress level.

Miscellaneous

Publication Date	Title/URL	Journal/ Article type	Digest
14.05.2020	Rapid reviews for rapid decision-making during the coronavirus disease (COVID-19) pandemic, Norway, 2020	Eurosurveillance / Rapid communication	<ul style="list-style-type: none"> • In response to urgent needs for updated evidence for decision-making on various aspects related to COVID-19, the Norwegian Institute of Public Health established a rapid review team. Produces summary reviews on request within 1–3 days that inform advice provided by the institute. • As of 12 May, all their COVID-19 rapid reviews are available in English versions: https://www.fhi.no/en/sys/news/?blockId=90733&ownerPage=45271&language=en
14.05.2020	Early impact of the coronavirus disease (COVID-19) pandemic and physical distancing measures on routine childhood vaccinations in England, January to April 2020	Eurosurveillance / Rapid communication	<ul style="list-style-type: none"> • Using electronic health records, the authors assessed the early impact of COVID-19 on routine childhood vaccination in England by 26 April 2020. • Measles-mumps-rubella vaccination counts fell from Feb 2020, and in the 3 weeks after introduction of physical distancing measures were 19.8% lower (95% confidence interval: –20.7 to –18.9) than the same period in 2019, before improving in mid-April. A gradual decline in hexavalent vaccination counts throughout 2020 was not accentuated by physical distancing.

Modelling

Publication Date	Title/URL	Journal/ Article type	Digest
14.05.2020	How deadly is COVID-19? A rigorous analysis of excess mortality and age-dependent fatality rates in Italy	medRxiv (not peer reviewed) / Article	<ul style="list-style-type: none"> • The authors predict an Infection Fatality Rate (IFR) lower bound of 0.5% for NYC and that 27% of the total COVID-19 fatalities in NYC should arise from the population below 65 years. • This is in agreement with the official NYC data and three times higher than the percentage observed in Lombardia. • Combining the Population Fatality Rate (PFR) with the Princess Diamond cruise ship IFR for ages above 70 the authors estimate the infection rates (IR) for regions in Italy.

Overviews, comments and editorials

Publication Date	Title/URL	Journal/ Article type
14.05.2020	Developing a sustainable exit strategy for COVID-19: health, economic and public policy implications	Journal of the Royal Society of Medicine / Commentary
13.05.2020	Where are the ECDC and the EU-wide responses in the COVID-19 pandemic?	The Lancet / Correspondence
08.05.2020	Sharpening the global focus on ethnicity and race in the time of COVID-19	Lancet / Comment

Produced by the PHE COVID-19 Literature Digest Team

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