COVID-19 Evidence Bulletin No. 101 (17/01/2022)

The majority of the evidence below has been taken from the PHE International Epidemiology Evidence Digest, which can be found at https://phelibrary.koha-ptfs.co.uk/coronavirusinformation/#Keeping with kind permission, and has been adapted by UHNLM Librarians for Trust use.

Contents

- Infection control
- Diagnosis / Prognosis
- Treatment
- Further resources
- Request a literature search

Please note that preprints (highlighted in red), are preliminary reports of work that have NOT been peer-reviewed.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 regarded as established information.

Produced by UHNLM Health Libraries
<table>
<thead>
<tr>
<th>Publication Date</th>
<th>Title/URL</th>
<th>Journal/Article Type</th>
<th>Digest</th>
</tr>
</thead>
</table>
| 14.01.2022       | Comparison of Natural and BNT162b2 Vaccine-induced Immunity, with and without an Enhancer or Booster Dose, on the Risk of COVID-19-Related Hospitalization in Israel | SSRN (non-peer reviewed) / Article | • Compares COVID-19-related hospitalisation incidence rate ratios in 2,412,755 individuals in Israel across four exposures: two BNT162b2 doses, 5+ months prior (“non-recent vaccine immunity”); three BNT162b2 doses (“boosted vaccine immunity”); previous COVID-19, with or without a subsequent BNT162b2 dose (“natural immunity” and “enhanced natural immunity” respectively).  
• Adjusted COVID-19-related hospitalisation incidence rate ratios (compared with non-recent vaccine immunity): 11% for boosted vaccine immunity; 34% for natural immunity; 25% for enhanced natural immunity.  
• Suggests natural immunity (enhanced or not) provides better protection against hospitalisation than non-recent vaccine immunity, but less protection than booster. |
| 10.01.2022       | Infectious viral load in unvaccinated and vaccinated patients infected with SARS-CoV-2 WT, Delta and Omicron | medRxiv (non-peer reviewed) / Article | • Swiss authors assessed nasopharyngeal swabs of 384 COVID-19 patients for quantitative infectious viral titres (IVT) during first 5 symptomatic days.  
• Unvaccinated individuals infected with wild SARS-CoV-2 (n= 118) or Delta (n= 127); vaccine breakthrough infections with Delta (n= 121) or Omicron (n=18).  
• Correlation between RNA copy number and IVT was low for all groups.  
• Higher RNA genome copies in wild SARS-CoV-2 versus Delta, but significantly higher IVTs in Delta infected individuals.  
• Omicron breakthrough infections did not show elevated IVTs compared to Delta, suggesting other mechanisms than increase viral load contribute to high infectiousness of Omicron. |
<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
<th>Source</th>
<th>Key Points</th>
</tr>
</thead>
</table>
| 07.01.2022 | Effectiveness of 3 doses of COVID-19 vaccines against symptomatic COVID-19 and hospitalisation in adults aged 65 years and older | UKHSA (non-peer reviewed) / Report | • Test negative case control design to estimate vaccine effectiveness (VE) against symptomatic COVID-19 with Omicron variant compared to Delta variant in adults aged ≥65 years.  
• Minimal or no effect against mild disease with the Omicron variant from 20 weeks after second dose of either a ChAdOx1-S (AstraZeneca) or BNT162b2 (Pfizer) primary course.  
• Overall VE against hospitalisation among symptomatic Omicron cases was 94% at 2-9 weeks post booster dose and 89% at 10 weeks post booster dose in those aged ≥65 years.  
• Limitations include low numbers and differences in vaccine coverage and Omicron exposure in different population groups. |
| 03.01.2022 | Pfizer-BioNTech and Oxford AstraZeneca COVID-19 vaccine effectiveness and immune response among individuals in clinical risk groups | J Infect / Article              | • COVID-19 vaccine antibody response and effectiveness was evaluated among clinical risk groups in a cohort of 712 general practices in England  
• No reduction in S-antibody positivity found in most clinical risk groups, although reduced S-antibody positivity and response was significant in immunosuppressed group.  
• Reduced vaccine effectiveness against clinical disease also noted in immunosuppressed group; after a second dose, effectiveness was moderate (Pfizer: 59.6%; AstraZeneca 60.0%). |
| 04.01.2021 | Persistent hesitancy for SARS-CoV-2 vaccines among healthcare workers in the United Kingdom: analysis of longitudinal data from the UK-REACH cohort study | Lancet Reg Health Eur / Correspondence | • Reports persistence of hesitancy for first/second vaccine doses among UK healthcare workers [UK-REACH study, followed up between 21.04.2021 and 28.06.2021], and the factors involved.  
• Trust in institutions (employer, healthcare organisations and the Government) remain important in determining whether hesitancy is likely to persist.  
• Having had family members advocate against vaccination increases risk of persistent SARS-CoV-2 vaccine hesitancy. |
## Diagnosis / Prognosis

<table>
<thead>
<tr>
<th>Publication Date</th>
<th>Title/URL</th>
<th>Journal/Article Type</th>
<th>Digest</th>
</tr>
</thead>
</table>
| 06.01.2022       | VarLOCK - sequencing independent, rapid detection of SARS-CoV-2 variants of concern for point-of-care testing, qPCR pipelines and national wastewater surveillance | medRxiv (non-peer reviewed) / Article | • UK authors expand SARS-CoV-2 CRISPR-Cas detection technology (SHERLOCK) to allow rapid and sensitive discrimination of variants of concern (VOCs)  
• Technology useable at point of care and/or implemented in pipelines of testing facilities. Able to determine proportion of VOCs in pooled population-level wastewater samples.  
• Demonstrate VarLOCK assays (Variant-specific SHERLOCK) for multiple specific mutations in S gene of SARS-CoV-2; applicability of VarLOCK to national wastewater surveillance of SARS-CoV-2 variants. |
| 11.01.2022       | Screening for SARS-CoV-2 persistence in Long COVID patients using sniffer dogs and scents from axillary sweats samples | medRxiv (non-peer reviewed) / Article | • French study of sniffer dogs ability to identify volatile organic compounds (VOCs), triggered by SARS-CoV-2 infection, in sweat from Long COVID patients versus COVID-19 negative, asymptomatic individuals  
• 45 Long COVID patients (mean age 45, 73.3% female) with prolonged symptoms evolving for a mean of 15.2 months (5-22) were tested.  
• Dogs discriminated in a positive way 23/45 (51.1%) Long COVID patients versus 0/188 (0%) control individuals.  
• Results suggests the persistence of a viral infection in some Long COVID patients |
| 04.01.2022       | Increased mortality in COVID-19 patients with fungal co- and secondary infections admitted to intensive care or high dependency units in NHS hospitals in England | J Infect / Letter | • Authors estimate the impact of fungal infections on outcomes in COVID ICU patients in England using linked datasets.  
• Pulmonary aspergillosis and candidemia independently increase COVID-19-associated mortality  
• Additionally, both fungal infections extended length-of-stay in COVID-19 patients. |
<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
<th>Journal</th>
<th>Details</th>
</tr>
</thead>
</table>
| 10.01.2022 | SARS-CoV-2 in pediatric cancer: a systematic review                   | Eur J Pediatr / Systematic Review | • Systematic review: paediatric (<18 years) cancer patients with SARS-CoV-2 infection; search until 07.10.2021, 45 reports included (1003 patients).  
• Mild SARS-CoV-2 infection in most (23.9% asymptomatic / 41.7% mild or moderate); but attributable mortality ≥10 times higher compared to reports on hospitalized children without comorbidities.  
• 19% of patients with different underlying malignancies received chemotherapy during SARS-CoV-2 infection; no associated severe COVID-19 complications.  
• 25 patients died, potentially related to COVID-19. |
| 13.01.2022 | The effect of maternal SARS-CoV-2 infection timing on birth outcomes: a retrospective multicentre cohort study | Lancet Digit Health / Article     | • Retrospective cohort study (05.03.2020 - 04.07.2021): impact of maternal SARS-CoV-2 infection on birth outcomes .  
• 882 in SARS-CoV-2 positive (positive test during pregnancy and unvaccinated) cohort [85 first trimester, 226 second trimester, 571 third trimester] matched with 19,769 SARS-CoV-2 negative cohort (≥1 negative test, no positive test during pregnancy).  
• Gestational age at SARS-CoV-2 infection was correlated with gestational age at delivery.  
• SARS-CoV-2 infection indicated increased risk of preterm delivery and stillbirth, primarily by first and second trimester SARS-CoV-2 infections. |
| 13.01.2022 | Immunological dysfunction persists for 8 months following initial mild-to-moderate SARS-CoV-2 infection       | Nat Immunol / Letter              | • Australian cohort study: 31 individuals with long COVID (LC) age-/gender-matched to 31 recovered individuals without LC.  
• 46 unexposed healthy controls / 25 individuals with other coronaviruses also studied.  
• Patients with LC had highly activated innate immune cells, lacked naive T and B cells, showed elevated expression of type I IFN / type III IFN that remained persistently high at 8 months after infection.  
• Data indicate ongoing, sustained inflammatory response following even mild-to-moderate acute COVID-19. |
<table>
<thead>
<tr>
<th>Date</th>
<th>Study Title</th>
<th>Journal/Journal Section</th>
<th>Study Details</th>
</tr>
</thead>
</table>
| 12.01.2022 | Assessment of Functional Mobility After COVID-19 in Adults Aged 50 Years or Older in the Canadian Longitudinal Study on Aging | JAMA Netw Open / Article | • Population-based cohort study using data from the Canadian Longitudinal Study on Aging (CLSA) COVID-19 study (launched 15.04.2020), comprising 51,338 adults aged ≥50 years with exit questionnaires completed September to December 2020.  
• Participants with confirmed or probable COVID-19 (n=2748) had higher odds of worsening mobility such as ability to engage in household activity (odds ratio [OR], 1.89), physical activity (OR, 1.91), and standing up after sitting in a chair (OR, 2.33) compared with adults without COVID-19 during the same period. |
| 11.01.2021 | COVID-19 and chronic kidney disease: an updated overview of reviews          | J Nephrol / Systematic Review | • Updated overview of systematic reviews (n=69 up to 05.01.2021) also includes 66 primary studies (01.09.2020 to 10.01.2021).  
• Prevalence of Chronic Kidney Disease (CKD) among patients with COVID-19 ranged from 0.4 to 49.0% (28 reviews).  
• One systematic review showed increased risk of hospitalisation in CKD patients with COVID-19 (RR = 1.63) (Moderate certainty) and primary studies also showed significant increase in hospitalisation.  
• 37 systematic reviews assessed mortality risk in CKD patients with COVID-19.  
• Pooled estimates for mortality in CKD patients with COVID-19 from primary studies: HR 1.48 (Moderate certainty); OR 1.77 (Moderate certainty); and RR 1.6 (Low certainty). |
• 561 279 (12.7%) had clinician-diagnosed-and-recorded-asthma.  
• Adults with asthma requiring ≥ two courses of oral corticosteroids in previous 2 years (as a marker for history of an asthma attack) or hospital admission for asthma before 01.03.2020, are at increased risk of both COVID-19 hospitalisation and ICU admission or death.  
• Patients with a recent asthma attack are priority group for booster COVID-19 vaccines. |
<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
<th>Source</th>
<th>Details</th>
</tr>
</thead>
</table>
| 11.01.2022 | Shift of lung macrophage composition is associated with COVID-19 disease severity and recovery | bioRxiv (non-peer reviewed) / Article       | • Mount Sinai COVID-19 Biobank data (~600 hospitalized patients followed longitudinally) used to identify drivers of disease severity and death.  
• In severe COVID-19 patients, lung tissue resident alveolar macrophages (AM) were severely depleted, with an altered Ag presentation signature, and replaced by inflammatory monocytes and monocyte-derived macrophages (MoMϕ).  
• Size of AM pool correlated with recovery or death; AM loss and functionality restored in recovered patients.  
• Suggests that local and systemic myeloid cell dysregulation is a driver of COVID-19 severity. |
<table>
<thead>
<tr>
<th>Publication Date</th>
<th>Title/URL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>J Clin Med / Systematic review</td>
</tr>
</tbody>
</table>
|                 | • Systematic review: comparing safety and efficacy of intermediate- or therapeutic-dose anticoagulation to standard thromboprophylaxis in hospitalised COVID-19 patients.  
• Eight randomised controlled trials (5580 patients) included.  
• Meta-analysis, including 773 hospitalised COVID-19 participants from two RCTs, showed no benefit of intermediate-dose anticoagulation compared to standard thromboprophylaxis.  
• Therapeutic-dose anticoagulation may decrease any thrombotic event or death in patients with moderate COVID-19, but the risk for bleeding is increased. It may have little or no effect in patients with severe disease.  
• Overall certainty of evidence for intensified thromboprophylaxis in hospitalised patients with COVID-19 remains low. |
| 10.01.2021      | Preclinical and randomized phase I studies of plitidepsin in adults hospitalized with COVID-19 |
|                 | Life Sci Alliance / Article |
|                 | • Phase 1 trial of Plitidepsin conducted in 10 Spanish hospitals [May - November 2020].  
• Hospitalised adult Covid-19 patients received 1.5 mg (n = 15), 2.0 mg (n = 16), or 2.5 mg (n = 15) Plitidepsin once daily for 3 days.  
• Overall, findings suggest a favourable safety profile.  
• Mean viral load reductions from baseline were 1.35, 2.35, 3.25, and 3.85 log(10) at days 4, 7, 15, and 31, respectively. |
Further resources:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Title/URL</th>
<th>Source</th>
<th>Digest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covid-19 related e-learning</td>
<td>e-learning for healthcare: COVID-19 course catalogue</td>
<td>Health Education England</td>
<td>A collection of free to access resources aimed at staff in various clinical settings, including those needing to upskill or refresh their knowledge to deal with current challenges.</td>
</tr>
<tr>
<td>Covid-19 podcasts</td>
<td>The BMJ Podcast</td>
<td>BMJ</td>
<td>The BMJ series of podcasts BMJ Talk Medicine is currently focusing on the corona virus pandemic promising to discuss the issues and facts clinicians need to know away from the headlines.</td>
</tr>
<tr>
<td>Leadership</td>
<td>Leading through Covid-19: supporting health and care leaders in unprecedented times</td>
<td>The King’s Fund</td>
<td>A selection of short articles, video clips and longer blog posts on leadership topics relating to the current situation. (NB Scroll to bottom of webpage to find them).</td>
</tr>
<tr>
<td></td>
<td>A number of publishers have made parts of their collections relating to coronavirus / COVID-19 freely available</td>
<td>Collated by UHNMT Health Libraries Staff</td>
<td>Links to authoritative evidence sources and publishers who have made parts of their collections freely available during the crisis, listed on the health libraries’ webpages.</td>
</tr>
<tr>
<td>Patient resources</td>
<td>Information and resources about the Coronavirus</td>
<td>NHS Library &amp; Knowledge Services/HEE</td>
<td>Information and resources for patients and the public from trusted sources, including information in Easy Read and accessible formats</td>
</tr>
</tbody>
</table>
Request a Literature Search:

Literature searches on clinical topics may be requested at any time via our online form available here.

Feedback:

We would very much like to hear about how useful you find this current awareness bulletin. If you have would like to send any feedback or suggestions on how we could improve this service please email the Clinical Effectiveness Librarian at mathew.stone@uhnm.nhs.uk.

For other queries please contact the Health Libraries:

Health.library@keele.ac.uk (Royal Stoke) or library@uhnm.nhs.uk (County)