Critical Care Evidence Update
July 2021

Produced by the Clinical Librarian Service

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The Clinical Librarian team are here to help with evidence searches, current awareness and training with information seeking skills, critical appraisal and referencing. We can assist you remotely, at your place of work or in the library at the QuAD Centre.

If you have any further enquiries please do not hesitate to get in touch.

You can contact us by email at Clinical.Librarian@porthosp.nhs.uk or call extension 6042.

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The Clinical Librarian team endeavours to find as much of the latest evidence in your clinical area as possible, however make no claim as to the exhaustive nature of the update.

Would you like your own, tailored evidence updates? Email the Clinical Librarian team to receive bulletins every two weeks on the topics of your choice.
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**Most recent guidance published:**

- *Clostridioides difficile infection: antimicrobial prescribing: guidance (NG199)*
- *COVID-19 rapid guideline: vaccine-induced immune thrombocytopenia and thrombosis (VITT): guidance (NG200)*
- *Acumen IQ sensor for predicting hypotension risk - medtech innovation briefing (MIB266)*

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**Other Guidance/Reports**

- *Clinical guidance for managing COVID-19: Information for RCN members. Updated 06 July 2021*
  - Royal College of Nursing

- *Catheter Care (PDF)*
  - Royal College of Nursing

- *Better Together: Collaborative working between emergency medicine and critical care: A framework for improved collaborative working between Emergency Medicine (EM) and Intensive Care Medicine (ICM) (PDF)*
  - Royal College of Emergency Medicine

- *Best Practice Standards for the delivery of NHS infection services in the uk*
  - Royal College of Pathologists

- *Physician-assisted dying survey*
  - British Medical Association

- *Continuous Positive Airway Pressure (CPAP) and Bi-level PAP: Clinical risk stratification tool*
  - British Thoracic Society

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Ivermectin for preventing and treating COVID-19

Systematic reviews from other sources

**Accuracy and precision of continuous non-invasive arterial pressure monitoring in critical care: A systematic review and meta-analysis.**
Intensive & Critical Care Nursing

**Factors contributing to poor sleep in critically ill patients: A systematic review and meta-synthesis of qualitative studies.**
Intensive & Critical Care Nursing

**The relationship between sensory stimuli and the physical environment in complex healthcare settings: A systematic literature review.**
Intensive & Critical Care Nursing

**Outcomes sensitive to critical care nurse staffing levels: A systematic review.**
Intensive & Critical Care Nursing

**Experiences and needs of families with a relative admitted to an adult intensive care unit: a systematic review of qualitative studies**
Joanna Briggs Institute

**The negative impact of obesity on the occurrence and prognosis of the 2019 novel coronavirus (COVID-19) disease: a systematic review and meta-analysis.**
Eating and Weight Disorders

**Venoarterial extracorporeal membrane oxygenation as mechanical circulatory support in adult septic shock: a systematic review and meta-analysis with individual participant data meta-regression analysis.**
Critical Care

**Mental disorders and risk of COVID-19-related mortality, hospitalisation, and intensive care unit admission: a systematic review and meta-analysis.**
The Lancet Psychiatry

**This month’s clinical questions are…**

What are the effects of alternative reactive support surfaces (non-foam and non-air-filled) for preventing pressure ulcers?
Primary Research

A selection of articles from relevant journals – if you have trouble gaining access to the full text please contact Clinical.Librarian@porthosp.nhs.uk

Transpulmonary thermodilution in patients treated with veno-venous extracorporeal membrane oxygenation
Annals of Intensive Care

Mental health outcomes of ICU and non-ICU healthcare workers during the COVID-19 outbreak: a cross-sectional study
Annals of Intensive Care

Prevalence and prognostic value of various types of right ventricular dysfunction in mechanically ventilated septic patients
Annals of Intensive Care

Noninvasive ventilation vs. high-flow nasal cannula oxygen for preoxygenation before intubation in patients with obesity: a post hoc analysis of a randomized controlled trial
Annals of Intensive Care

Outcomes of ICU patients with and without perceptions of excessive care: a comparison between cancer and non-cancer patients
Annals of Intensive Care

Relationship between the Clinical Frailty Scale and short-term mortality in patients ≥ 80 years old acutely admitted to the ICU: a prospective cohort study
Critical Care

Tracheostomy management in patients with severe acute respiratory distress syndrome receiving extracorporeal membrane oxygenation: an International Multicenter Retrospective Study
Critical Care

Plasma glutamine status at intensive care unit admission: an independent risk factor for mortality in critical illness
Critical Care

Longitudinal changes in compliance, oxygenation and ventilatory ratio in COVID-19 versus non-COVID-19 pulmonary acute respiratory distress syndrome
Critical Care

Static compliance and driving pressure are associated with ICU mortality in intubated COVID-19 ARDS
Critical Care

Ischemic and Hemorrhagic Stroke Among Critically Ill Patients With Coronavirus Disease 2019: An International Multicenter Coronavirus Disease 2019 Critical Care Consortium Study
Critical Care Medicine

Palliative and End-of-Life Care: Prioritizing Compassion Within the ICU and Beyond
Critical Care Medicine

Prediction of Postictal Delirium Following Status Epilepticus in the ICU: First Insights of an Observational Cohort Study
Critical Care Medicine
A Locally Optimized Data-Driven Tool to Predict Sepsis-Associated Vasopressor Use in the ICU
Critical Care Medicine

Role and knowledge of critical care nurses in the assessment and management of hypophosphataemia and refeeding syndrome. A descriptive exploratory study
Intensive and Critical Care Nursing

Early detection of intensive care needs and mortality risk by use of five early warning scores in patients with traumatic injuries: An observational study
Intensive and Critical Care Nursing

Conditions and strategies to meet the challenges imposed by the COVID-19-related visiting restrictions in the ICU: a Scandinavian cross-sectional study
Intensive and Critical Care Nursing

Healthcare personnel's working conditions in relation to risk behaviours for organism transmission: A mixed-methods study
Journal of Clinical Nursing

Practical view of the topical treatment of peripheral venous catheter-related phlebitis: A scoping review
Journal of Clinical Nursing

Beyond the physical risk: Psychosocial impact and coping in healthcare professionals during the COVID-19 pandemic
Journal of Clinical Nursing

Professional quality of life and caring behaviours among clinical nurses during the COVID-19 pandemic
Journal of Clinical Nursing

Evaluating the impact on hospital acquired pressure injury/ulcer incidence in a United Kingdom NHS Acute Trust from use of sub-epidermal scanning technology
Journal of Clinical Nursing

Adiponectin decrease was correlated with rising SOFA score and increased 28 days mortality: Beware of potential confounding factors!
Journal of Critical Care

Comparison of three cisatracurium dosing strategies in acute respiratory distress syndrome: A focus on drug utilization and improvement in oxygenation
Journal of Critical Care

Endothelium-associated biomarkers mid-regional proadrenomedullin and C-terminal proendothelin-1 have good ability to predict 28-day mortality in critically ill patients with SARS-CoV-2 pneumonia: A prospective cohort study
Journal of Critical Care

Intensive Care Unit Volume of Sepsis Patients Does Not Affect Mortality: Results of a Nationwide Retrospective Analysis
Journal of Intensive Care Medicine

Practices and Patterns of Hourly Neurochecks: Analysis of 8,936 Patients With Neurological Injury
Journal of Intensive Care Medicine
What's new in hospital medicine
July – no new updates, the following are from June which were not included in last months update

Temperature management following cardiac arrest (June 2021)
The optimal temperature for patients with indications for targeted temperature management following sudden cardiac arrest (SCA) ranges between 33°C (hypothermia) and ≤37.7°C (normothermia). A recent randomized trial that compared targeted hypothermia with normothermia in 1900 patients after resuscitation from SCA reported no difference in survival (50 versus 48 percent) or functional outcomes at six months [32]. Given that the baseline brain injury of many patients in this trial was likely mild, we continue to favor targeted normothermia for those with mild brain injury and targeted hypothermia in most instances for those with severe brain injury. (See "Initial assessment and management of the adult post-cardiac arrest patient", section on 'Principles and approach' and "Intensive care unit management of the intubated post-cardiac arrest adult patient".)

Risk of suicide after critical illness (June 2021)
Survivors of critical illness may have an increased risk of suicide and self-harm. One retrospective study reported higher risk of suicide and self-harm in over 420,000 intensive care unit (ICU) survivors compared with non-ICU hospital survivors [33]. Factors associated with suicide or self-harm included previous depression, anxiety, or post-traumatic stress disorder; invasive mechanical ventilation; and renal replacement therapy. Among patients who survive critical illness, we advocate for early evaluation for the risk of suicide or self-harm shortly after discharge. (See "Post-intensive care syndrome (PICS)", section on 'Psychiatric impairment'.)

Bedside ultrasound for acute dyspnea (June 2021)
The value of point of care ultrasound (POCUS) for evaluating patients with acute dyspnea is poorly studied. One meta-analysis of 49 studies (44 cohort studies and 5 randomized trials) reported that the inclusion of POCUS (namely thoracic, cardiac, and vascular US) led to more correct diagnoses in patients with acute dyspnea than standard diagnostic pathways [34]. Specifically, POCUS improved the sensitivities of standard diagnostic testing for the detection of heart failure, pneumonia, pneumothorax, pleural effusion, and pulmonary embolism. Based on the included trials, in-hospital mortality and length of stay were not significantly different for patients who did or did not receive POCUS. We support the use of POCUS as a complimentary tool for the evaluation and diagnosis of conditions associated with acute dyspnea. (See "Indications for bedside ultrasonography in the critically-ill adult patient", section on 'Choosing consultative or critical care ultrasonography'.)
Invasive fungal infections following COVID-19 (June 2021)
Patients with COVID-19, particularly those treated with immunosuppressants, are at risk for developing secondary fungal and parasitic infections. Case reports of invasive rhino-orbital mucormycosis have been reported in patients recovering from COVID-19, most commonly among those treated with corticosteroids and individuals with poorly controlled diabetes mellitus [16-18]. Secondary invasive fungal infection should be suspected in patients with these risk factors who develop sinus congestion, blackish or discolored nasal discharge, facial or ocular pain, or visual symptoms following acute COVID-19 illness [19]. (See "Mucormycosis (zygomycosis)", section on 'Coronavirus disease 2019-associated' and "COVID-19: Evaluation and management of adults following acute viral illness", section on 'Other (renal, hepatic, endocrine, gastrointestinal, dermatologic, infectious, sleep, psychological, quality of life').

Adjunctive baricitinib or tocilizumab for COVID-19 (February 2021, Modified June 2021)
Results from recent randomized trials suggest adjunctive use of the Janus kinase inhibitor baricitinib or the interleukin-6 pathway inhibitor tocilizumab has a survival benefit in hospitalized adults with severe COVID-19.

● In one unpublished randomized trial of patients who were not receiving invasive mechanical ventilation, adding baricitinib to standard of care reduced 28-day mortality; among those on high-flow oxygen or noninvasive ventilation at baseline, mortality was 17.5 versus 29.4 percent with placebo [20].

● In two open-label trials that included patients on oxygen support with a C-reactive protein level ≥75 mg/L or patients who had recently started high-flow oxygen or more intensive respiratory support, adding tocilizumab reduced 28-day mortality (28 to 29 percent versus 33 to 36 percent with usual care alone) [21,22].

In the majority of patients, usual care included dexamethasone. Baricitinib and tocilizumab have not been compared directly or studied together. We suggest either baricitinib or tocilizumab as an adjunct to dexamethasone for select patients with severe or critical COVID-19. (See "COVID-19: Management in hospitalized adults", section on 'IL-6 pathway inhibitors (eg, tocilizumab').

Choice of non-heparin anticoagulant in HIT (June 2021)
Individuals with heparin-induced thrombocytopenia are at high risk for thrombosis and require full-dose anticoagulation with a non-heparin agent. The relative efficacy and safety of different anticoagulants have not been well established. A new meta-analysis has evaluated data from 92 studies involving nearly 5000 patients with HIT and found similar efficacy in reducing thrombosis among parenteral agents (argatroban, danaparoid, bivalirudin, fondaparinux) and direct oral anticoagulants (DOACs) [5]. Bleeding risk was also similar, with a trend towards lower bleeding risk with DOACs. These findings support the use of fondaparinux or a DOAC in individuals who do not require an intravenous anticoagulant. (See "Management of heparin-induced thrombocytopenia", section on 'Choice and dose of non-heparin anticoagulant'.

IVIG for vaccine-induced immune thrombotic thrombocytopenia (June 2021)
Vaccine-induced immune thrombotic thrombocytopenia (VITT) is a rare adverse effect of certain adenoviral vector-based COVID-19 vaccines. By analogy to autoimmune heparin-induced thrombocytopenia, treatment with a non-heparin anticoagulant and administration of intravenous immune globulin (IVIG) has been proposed. A new series of three individuals with VITT has documented that administration of high-dose IVIG was associated with rapid increases in platelet counts, no new thromboses, and in vitro evidence of reduced platelet activation [6]. These findings support our suggestion to administer IVIG to all individuals with confirmed or strongly suspected VITT, along with a non-heparin anticoagulant. (See "COVID-19: Vaccine-induced immune thrombotic thrombocytopenia (VITT)", section on 'IVIG'.

Anticoagulation intensity in people hospitalized for COVID-19 (March 2021, Modified June 2021)
Thromboembolic complications of severe COVID-19 are common in hospitalized patients, especially in the intensive care unit (ICU), but the optimal approach to venous thromboembolism (VTE) prophylaxis has been unclear. Limited data from the early months of the pandemic suggested that increased dosing intensity might be reasonable. However, recent randomized trials have found that prophylactic dose anticoagulation is equally effective as higher doses of anticoagulation in reducing VTE risk, including in patients in the ICU, with trends towards lower rates of bleeding [7-9]. Based on currently available evidence, standard prophylactic dosing is appropriate for patients hospitalized for COVID-19 who do not have a VTE. (See "COVID-19: Hypercoagulability", section on 'Evidence for dose level'.)
BMJ Best Practice Updates

- 29 Jul 2021 Topic: Assessment of metabolic alkalosis
- 28 Jul 2021 Topic: Ischaemic bowel disease
- 27 Jul 2021 Topic: Rabies
- 27 Jul 2021 Topic: Legionella infection
- 20 Jul 2021 Topic: Acute asthma exacerbation in adults
- 16 Jul 2021 Topic: Hepatorenal syndrome
- 16 Jul 2021 Topic: Assessment of shock
- 15 Jul 2021 Topic: Benzodiazepine overdose
- 15 Jul 2021 Topic: Acute kidney injury
- 15 Jul 2021 Topic: Assessment of acute headache in children
- 15 Jul 2021 Topic: Assessment of acute abdomen
- 15 Jul 2021 Topic: Assessment of acute headache in adults
- 15 Jul 2021 Topic: Central airway obstruction
- 14 Jul 2021 Topic: Assessment of respiratory acidosis
- 13 Jul 2021 Topic: Drowning
- 13 Jul 2021 Topic: Premature newborn care
- 09 Jul 2021 Topic: Ebola virus infection

Online Resources

BestBETs - BETs bring the evidence one step closer to the bedside, by providing answers to very specific clinical problems, using the best available evidence.

The Royal Marsden Manual of Clinical Procedures – available via your Athens login

Journals & table of contents alerts

The Clinical Librarian team can help set up table of content alerts to the journal of your choice.

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