



SEPSIS BULLETIN 19 March 2018

Adult Sepsis

["It's in your hands - prevent sepsis in health care"; 5 May 2018 World Health Organization \(WHO\) SAVE LIVES: Clean Your Hands campaign.](#)

Saitom, H. et al

Clinical Microbiology and Infection. March 2018 [Epub ahead of print]

World Health Organization (WHO) promotes hand hygiene in health care through a global campaign on 5 May every year. This year, WHO focuses on prevention of sepsis in health care.

[The Impact of Early Identification and a Critical Care-Based Sepsis Response Team on Sepsis Outcomes.](#)

Maclay, T. et al

Crit Care Nurse. 2017 Dec;37(6):88-91

Sepsis management is of top priority in many health care systems. We decided to develop a team to focus on sepsis care. Early recognition and treatment of potential sepsis patients can decrease mortality, length of stay, and readmission rates. Assessment of high-risk patients and use of a standardized protocol improves outcomes for these patients.

[Hydrocortisone plus Fludrocortisone for Adults with Septic Shock](#)

Annane, D. et al

N Engl J Med 2018 vol. 378 pp809-818

Septic shock is characterized by dysregulation of the host response to infection, with circulatory, cellular, and metabolic abnormalities. We hypothesized that therapy with hydrocortisone plus fludrocortisone or with drotrecogin alfa (activated), which can modulate the host response, would improve the clinical outcomes of patients with septic shock. We found that in this trial involving patients with septic shock, 90-day all-cause mortality was lower among those who received

Paediatric and Neonatal Sepsis

[Biomarkers for diagnosis of neonatal sepsis: a literature review](#)

Sharma, D. et al

Journal of Maternal-Fetal & Neonatal Medicine; Jun 2018; vol. 31 (no. 12); p. 1646-1659

Sepsis is an important cause of mortality and morbidity in neonatal populations. There has been constant search of an ideal sepsis biomarker that have high sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV), so that both the diagnosis and exclusion of neonatal sepsis can be made at the earliest possible and appropriate antibiotics can be started to neonate. We conducted literature search for various neonatal sepsis biomarkers and this review article will cover briefly all the markers with current available evidence.

[Necrotising enterocolitis and neonatal sepsis: A literature review.](#)

Macdonald, Allyson; Green, Janet

Journal of Neonatal Nursing; Apr 2018; vol. 24 (no. 2); p. 80-85

Necrotising Enterocolitis (NEC) is a common infection and medical emergency affecting susceptible premature and low birth weight infants, cared for within Neonatal Intensive Care Units (NICU). This review of literature looks at the link between NEC and neonatal sepsis and the roles played by nursing staff in the early detection of the disease among at risk infants.

[Impact of new "triple I" classification on clinical chorioamnionitis incidence and neonatal sepsis](#)

Roman A. et al.

American Journal of Obstetrics and Gynecology; Jan 2018; vol. 218 (no. 1)

hydrocortisone plus fludrocortisone than among those who received placebo.

[Optimization of the blood culture pathway: a template for improved sepsis management and diagnostic antimicrobial stewardship](#)

Weinbren, M.J. et al

Journal of Hospital Infection. Volume 98, Issue 3, March 2018, Pages 232-235

Laboratory processing of blood cultures has remained static over the past 30 years, despite increasing antibiotic resistance and advances in analyser design. At the study hospital, siting the blood culture analyser in the blood sciences laboratory and optimizing the pre-analytical and analytic phases of blood culture management resulted in a reduction in the time taken to detect most blood culture isolates to <12 h. Fifty percent of positive blood cultures containing *Escherichia coli* were definitively reported with antibiotic susceptibilities in <24 h. More than 85% of blood cultures positive for *E. coli* had antibiotic susceptibilities reported within 36 h of collection, compared with 66 h at a comparator hospital.

[Caspase-1-dependent pyroptosis of peripheral blood mononuclear cells predicts the development of sepsis in severe trauma patients: A prospective observational study.](#)

Wang, Y.C. et al

Medicine (Baltimore). 2018 Feb;97(8):e9859.

This study indicates that the percentage of pyroptotic PBMCs increases during the early phase of trauma and that this increase is significantly correlated with the severity and state of inflammation in trauma patients. PBMCs pyroptosis is a potential marker for predicting the development of sepsis after trauma.

[The effect of sepsis and septic shock on the viscoelastic properties of clot quality and mass using rotational thromboelastometry: A prospective observational study](#)

Davies, G.R. et al

Journal of Critical Care Volume 44, April 2018, Pages 7-11

The study purpose was to define changes in coagulation across the sepsis spectrum using rotational thromboelastometry (ROTEM). ROTEM indicated significantly enhanced clot structural development in sepsis and severe sepsis, which could be indicative of a hypercoagulable phase. In septic shock, despite there being a prolongation of clotting pathways and impaired fibrinolysis, clot mass was comparably normal, suggestive of the development of a clot with healthy characteristics.

Poster abstract. Objective was to evaluate the impact of the new classification "Triple I" on the incidence of chorioamnionitis during labor and diagnosis of neonatal sepsis. By using the new classification of Triple I, only 41% of women previously diagnosed as clinical chorioamnionitis will meet criteria of suspected Triple I and will need antibiotics in labor. As per new recommendation, only 76 neonates (16.5%) will require NICU admission and empiric antibiotics, without missing the case of culture positive sepsis.

[Morbidity and mortality of coagulase-negative staphylococcal sepsis in very-low-birth-weight infants.](#)

Cantey, J.B. et al

World Journal of Pediatrics Mar 2018

Coagulase-negative staphylococci (CoNS) are the most common cause of late-onset sepsis in the neonatal intensive care unit (NICU) and usually require vancomycin treatment. Our objective was to determine whether CoNS are associated with neonatal morbidity and mortality. Conclusion was that CoNS sepsis was not associated with mortality or morbidities other than length of stay.

[Antibiotics at the time of removal of central venous catheter to reduce morbidity and mortality in newborn infants](#)

McMullan, R.L. and Gordon, A.

The Cochrane database of systematic reviews; Mar 2018; vol. 3 ; p. CD012181

Does giving antibiotics at the time of removal of a central line reduce death and other serious complications in newborn infants?

[Implementation of the Neonatal Sepsis Calculator in an Australian Tertiary Perinatal Centre.](#)

Strunk, T. et al.

Neonatology; Mar 2018; vol. 113 (no. 4); p. 379-382

Early-onset sepsis (EOS) is a potentially fatal condition that affects about 0.3-0.8/1,000 infants born at ≥35 weeks' gestation in developed countries. Current EOS management algorithms result in 8-15% of infants receiving antibiotics for suspected sepsis. The Neonatal Sepsis Calculator provides evidence-based estimates of individual sepsis risk, but data on its clinical application is limited. We evaluate the feasibility, safety, and effect on the newborn infants that were investigated and that received antibiotic treatment for suspected EOS following the introduction of the Neonatal Sepsis Calculator.

[The global burden of paediatric and neonatal sepsis: a systematic review.](#)

Fleischmann-Struzek, C. et al.

[Inflammatory lung edema correlates with echocardiographic estimation of capillary wedge pressure in newly diagnosed septic patients](#)

Santos, T.M. et al

Journal of Critical Care Volume 44, April 2018, Pages 392-397

Lung ultrasound is an accurate and accessible tool to quantify lung edema. Furthermore, left ventricle filling pressures (LVFP) can be assessed with transthoracic echocardiography (TTE) by the E/e' ratio (E/e'). The present study aimed to assess the correlation between E/e' and lung edema quantified by a simplified lung ultrasound score (LUS) in newly admitted septic patients.

[A Comparative Analysis of Sepsis Identification Methods in an Electronic Database.](#)

Johnson, A.E. et al.

Critical Care Medicine; Apr 2018; vol. 46 (no. 4); p. 494-499

To evaluate the relative validity of criteria for the identification of sepsis in an ICU database. The new organ dysfunction-based Sepsis-3 criteria have been proposed as a clinical method for identifying sepsis. These criteria identified a larger, less severely ill cohort than that identified by previously used administrative definitions. The Sepsis-3 criteria have several advantages over prior methods, including less susceptibility to coding practices changes, provision of temporal context, and possession of high construct validity. However, the Sepsis-3 criteria also present new challenges, especially when calculated retrospectively. Future studies on sepsis should recognize the differences in outcome incidence among identification methods and contextualize their findings according to the different cohorts identified.

[Delay Within the 3-Hour Surviving Sepsis Campaign Guideline on Mortality for Patients With Severe Sepsis and Septic Shock.](#)

Pruinelli, L. et al.

Critical Care Medicine; Apr 2018; vol. 46 (no. 4); p. 500-505

To specify when delays of specific 3-hour bundle Surviving Sepsis Campaign guideline recommendations applied to severe sepsis or septic shock become harmful and impact mortality. The guideline recommendations showed that shorter delays indicates better outcomes. There was no evidence that 3 hours is safe; even very short delays adversely impact outcomes. Findings demonstrated a new approach to incorporate time t when analyzing the impact on outcomes and provide new evidence for clinical practice and research.

The Lancet. Respiratory medicine; Mar 2018; vol. 6 (no. 3); p. 223-230

The incidence of sepsis is highest in neonates and children, yet the global burden of sepsis in these age groups has not been assessed. We reviewed available evidence from observational epidemiological studies to estimate the global burden and mortality of sepsis in neonates and children. We did a systematic review and meta-analysis of studies reporting population-based sepsis incidence in neonates and children, published between 1979 and 2016.

[Thromboelastometry for diagnosis of neonatal sepsis-associated coagulopathy: an observational study.](#)

Sokou, R. et al.

European journal of pediatrics; Mar 2018; vol. 177 (no. 3); p. 355-362

Our aim was to evaluate the potential role of standard extrinsically activated thromboelastometry (EXTEM) assay in the early detection of neonatal sepsis. ROTEM measurements indicate an early appearance of hypocoagulability in neonatal sepsis, while the degree of hypocoagulation might be associated with severity of sepsis. ROTEM could be a useful tool in the early detection of sepsis in neonates.

[C reactive protein in healthy term newborns during the first 48 hours of life.](#)

Perrone, S. et al.

Archives of disease in childhood. Fetal and neonatal edition; Mar 2018; vol. 103 (no. 2); p. F163

Early-onset neonatal sepsis (EOS) is a serious and potentially life-threatening disease in newborns. C reactive protein (CRP) is the most used laboratory biomarker for the detection of EOS. Little is known about normal reference values of CRP during the perinatal period as several factors are able to influence it. Postnatal age and mode of delivery significantly influence CRP values. Reliable reference values are crucial in order to obtain an adequate diagnostic accuracy.

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