



SEPSIS BULLETIN

29 January 2018

Paediatric and Neonatal Sepsis

[Vital signs analysis algorithm detects inflammatory response in premature infants with late onset sepsis and necrotizing enterocolitis](#)

Mithal, Leena B. et al.

Early Human Development. Volume 117, February 2018, Pages 83–89

Diagnostic uncertainty leads to antibiotic overuse for sepsis in preterm infants. Analysis of five vital signs provides a signal of abnormal inflammatory response. An automated vitals algorithm detects sepsis and NEC prior to clinical suspicion. High negative predictive value for sepsis/NEC can foster antibiotic stewardship. Antibiotic management in the NICU may be enhanced by advanced vitals monitoring.

[Febrile infants and lumbar punctures: unraveling the evidence](#)

Lwin, Tommy et al.

The Journal of Pediatrics. January 2018. In press
Scarfone et al published a retrospective study that identified the incidence of bacterial meningitis in 1188 febrile infants aged 29-56 days of age undergoing sepsis screening.¹ A secondary outcome was to determine whether those infants with bacterial meningitis met “low-risk” criteria. Forty (3.4%) infants had “contaminant” cerebrospinal fluid (CSF) cultures. One infant (0.08%) was diagnosed with bacterial meningitis with positive CSF culture. Analysis of 401 infants showed that 45.6% met low-risk criteria.

[The evaluation of safety and efficacy of colistin use in pediatric intensive care unit: Results from two reference hospitals and review of literature](#)

Sahbudak Bal, Zumrut et al.

Journal of Infection and Chemotherapy. January 2018. In Press

Adult Sepsis (continued)

[Adjunctive Glucocorticoid Therapy in Patients with Septic Shock](#)

Venkatesh, B. et al

NEJM. January 19, 2018

Among patients with septic shock undergoing mechanical ventilation, a continuous infusion of hydrocortisone did not result in lower 90-day mortality than placebo.

[Multicentre validation of a sepsis prediction algorithm using only vital sign data in the emergency department, general ward and ICU](#)

Mao, Q. et al.

BMJ Open. 2018 Jan 26;8(1):e017833

Validates a machine learning-based sepsis-prediction algorithm (InSight) for the detection and prediction of three sepsis-related gold standards, using only six vital signs. We evaluate robustness to missing data, customisation to site-specific data using transfer learning and generalisability to new settings.

[Enhancing recovery from sepsis](#)

Prescott, Hallie C. and Angus, Derek C.

JAMA. 2018;319(1):62-75

Characteristics associated with complications after hospital discharge for sepsis treatment are not fully understood but include both poorer pre-sepsis health status, characteristics of the acute septic episode (eg, severity of infection, host response to infection), and quality of hospital treatment (eg, timeliness of initial sepsis care, avoidance of treatment-related harms). Recommends referral to physical therapy to improve exercise capacity, strength, and independent completion of activities of daily living.

[Sepsis-Associated Coagulopathy Severity Predicts Hospital Mortality](#)

Colistin may have a role in the treatment of infections caused by multidrug-resistant Gram-negative bacteria in critically ill children. However, the patients have to be followed for side effects throughout colistin treatment, not for only early stage. And the clinicians should be aware of increase in the rate of nephrotoxicity in patients those have been receiving a concomitant nephrotoxic agent.

[Association between duration of intravenous antibiotic administration and early-life microbiota development in late-preterm infants](#)

Zwittink, R.D. et al

Eur J Clin Microbiol Infect Dis (2018).

Antibiotic treatment is common practice in the neonatal ward for the prevention and treatment of sepsis, which is one of the leading causes of mortality and morbidity in preterm infants. Although the effect of antibiotic treatment on microbiota development is well recognised, little attention has been paid to treatment duration. Studies the effect of short and long intravenous antibiotic administration on intestinal microbiota development in preterm infants.

[Antifungal Susceptibility and Clinical Outcome in Neonatal Candidiasis](#)

Autmizguine, J. et al

The Pediatric Infectious Disease Journal: January 24, 2018 - Volume Publish Ahead of Print

Invasive candidiasis is an important cause of sepsis in extremely low birth weight infants (ELBW, <1000g), is often fatal, and frequently results in neurodevelopmental impairment (NDI) among survivors. Assesses the antifungal minimum inhibitory concentration (MIC) distribution for *Candida* in ELBW infants and evaluate the association between antifungal resistance and death or NDI.

Adult Sepsis

[Prognostic value of presepsin in adult patients with sepsis: Systematic review and meta-analysis](#)

Yang, H.S. et al

PLoS ONE 13(1): e0191486.

Presepsin is a novel biomarker to diagnose sepsis but its prognostic value has not been comprehensively reviewed. This meta-analysis demonstrates some mortality prediction value in presepsin in patients with sepsis. Further studies are needed to define the optimal cut-off point to predict mortality in sepsis.

[Development and External Validation of an Automated Computer-Aided Risk Score for Predicting Sepsis in Emergency Medical Admissions Using the](#)

Lyons, P.G. et al.

Critical Care Medicine. Publish Ahead of Print; JAN 2018. DOI: 10.1097/CCM.0000000000002997

The presence of sepsis-associated coagulopathy identifies a group of patients with sepsis at higher risk for mortality. Furthermore, there is an incremental risk of mortality as the severity of sepsis-associated coagulopathy increases.

[Metabolomics in Sepsis and Its Impact on Public Health](#)

Evangelatos N. et al.

Public Health Genomics. 2018 Jan 19. [Epub ahead of print]

Sepsis, with its often devastating consequences for patients and their families, remains a major public health concern that poses an increasing financial burden. Early resuscitation together with the elucidation of the biological pathways and pathophysiological mechanisms with the use of "-omics" technologies have started changing the clinical and research landscape in sepsis. Presents recent developments in metabolomics research in sepsis, with a focus on pneumonia, and we discuss the impact of metabolomics on public health, with a focus on free/libre open source software.

[Management of Acute Respiratory Failure in the Patient with Sepsis or Septic Shock](#)

Moore Sarah, et al

Surgical Infections. January 2018, ahead of print.

Sepsis and septic shock are each commonly accompanied by acute respiratory failure and the need for invasive as well as non-invasive ventilation throughout a patient's intensive care unit course. We explore the underpinnings of acute respiratory failure of pulmonary as well as non-pulmonary origin in the context of invasive and non-invasive management approaches. Both pharmacologic and non-pharmacologic adjuncts to ventilatory and oxygenation support are highlighted as well. Finally, rescue modalities are positioned within the intensivist's armamentarium for global care of support of the critically ill or injured patient with sepsis or septic shock.

[Multiple Organ Dysfunction: The Defining Syndrome of Sepsis](#)

Ziesmann Markus T. and Marshall John C..

Surgical Infections. January 2018, ahead of print.

Describes the common clinical manifestations of the six prototypic organ system dysfunction syndromes of severe sepsis and reviews the associated epidemiology and suspected pathophysiology.

[Basic and advanced echocardiographic evaluation of myocardial dysfunction in sepsis and septic shock](#)

Vallabhajosyula, S. et al.

[Patient's First Electronically Recorded Vital Signs and Blood Test Results](#)

Faisal, Muhammad et al

Critical Care Medicine: January 24, 2018 - Volume Publish Ahead of Print

Describes a novel, externally validated computer-aided risk of sepsis, with reasonably good performance for estimating the risk of sepsis for emergency medical admissions using the patient's first, electronically recorded, vital signs and blood tests results. Since computer-aided risk of sepsis places no additional data collection burden on clinicians and is automated, it may now be carefully introduced and evaluated in hospitals with sufficient informatics infrastructure.

The effect of community socioeconomic status on sepsis-attributable mortality

Galiatsatos, P. et al

Journal of Critical Care. January 2018 Ahead of Print

Community factors may play a role in determining individual risk for sepsis, as well as sepsis-related morbidity and mortality. Defines the relationship between community socioeconomic status and mortality due to sepsis in an urban locale. Findings suggest that socioeconomic variables play significant role in sepsis-attributable mortality. Such confirmation of regional disparities in mortality due to sepsis warrants further consideration, as well as integration, for future national sepsis policies.

Anaesthesia and Intensive Care. Volume 46, Issue 1 January 2018

This review summarises the current scope of literature focused on sepsis-related myocardial dysfunction and highlights the use of basic and advanced echocardiographic techniques for the diagnosis of sepsis-related myocardial dysfunction and the management of sepsis and septic shock.

[NICE guidance on sepsis is of limited value in postoperative colorectal patients: the scores that cry 'wolf!'](#)

NICE

RCS Annals. January 2018. Ahead of print

Late recognition of sepsis and consequent death remains a problem. To address this, the National Institute for Health and Care Excellence has published updated guidance recommending the use of the Quick Sequential Organ Failure Assessment (Q-SOFA) score when assessing patients at risk of sepsis following the publication of the Third International Consensus Definitions for Sepsis and Septic Shock.

Need further help? The outreach team at the Bodleian Health Care Libraries is here to support the information needs of all OUH Trust staff.

We're happy to help you with literature searches, search skills training and advice, keeping you up to date, and general references enquiries.

Contact us:

01865 221936

hcl-enquiries@bodleian.ox.ac.uk

www.bodleian.ox.ac.uk/nhs

Register for OpenAthens to access e-resources:

<https://openathens.nice.org.uk/>

Bulletin content based partly on CASH (Current Awareness Service for Health) [here](#)

To subscribe/unsubscribe from this bulletin please click [here](#) or reply to the email.

By signing up to receive this bulletin, you agree that the information provided (your email address and name) will be held on Bodleian Libraries files or databases. You will only be contacted by us in reference to the Sepsis Bulletin. By submitting this information you agree that your details may be used for this purpose. Your details will not be passed on to any third parties.