

SEPSIS BULLETIN

05 May 2018

Paediatric and Neonatal Sepsis

[Barriers to implementing the NICE guidelines for early-onset neonatal infection: cross-sectional survey of neonatal blood culture reporting by laboratories in the UK](#)

Paul, S.P. et al

Journal of hospital Infection April 2018 Volume 98, Issue 4, Pages 425–428

The National Institute for Health and Care Excellence published guidelines for managing early-onset neonatal infections in 2012. It recommended provision for reporting blood cultures (BCs) with growth detected or not detected at 36 h. To determine if this was followed, a telephone survey was conducted amongst lead biomedical scientists based at microbiology laboratories (N = 209) in the UK. Overall, 202/209 responded and 139/202 had on-site facilities for BCs. BC results with growth detected or not detected at 36 h were available out-of-hours in 36/139 (26.6%) and 66/139 (47.5%) neonatal units, respectively. Early discontinuation of antibiotics should lead to improved antibiotic stewardship.

[Vaginal dysbiosis increases risk of preterm fetal membrane rupture, neonatal sepsis and is exacerbated by erythromycin.](#)

Brown, R. G. et al

BMC Med. 2018; 16: 9.

Preterm prelabour rupture of the fetal membranes (PPROM) precedes 30% of preterm births and is a risk factor for early onset neonatal sepsis. As PPROM is strongly associated with ascending vaginal infection, prophylactic antibiotics are

Adult Sepsis (cont)

[Sepsis programme successes are responsible for the increase in bacteraemia detection](#)

Simmons, M. et al

Journal of hospital infection May 2018 Volume 99, Issue 1

Escherichia coli bacteraemia reduction targets are challenging but in West Wales, this was the key infection surrogate measure set by the local health board in 2013, prior to the introduction of a Welsh Government target. Our initial plateau of cases was not maintained and prompted our review. Success in one area (sepsis management) conflicts with “failure” in reducing *E. coli* bacteraemia. We argue that targets need to be carefully considered in the light of all available information, which currently have set the NHS up to fail.

[NEWS 2: an opportunity to standardise the management of deterioration and sepsis](#)

Inada-Kim, M. et al

BMJ 2018; 360

Currently, hospitals across England don't use a standardised early warning system (EWS) to identify patients at risk of deterioration or sepsis, or in need of intervention. Whatever the system, it must be usable and utilised in all settings. A score in one setting must mean the same in any other.

[Platelets' Role in Adaptive Immunity May Contribute to Sepsis and Shock.](#)

Hampton, T. et al

JAMA. 2018 Apr 3;319(13):1311-1312.

Previous research has shown platelets are involved in the innate immune response to pathogens via toll-like

widely used. The evolution of vaginal microbiota compositions associated with PPROM and the impact of antibiotics on bacterial compositions are unknown. Our data show that vaginal microbiota composition is a risk factor for subsequent PPROM and is associated with adverse short-term maternal and neonatal outcomes. This highlights vaginal microbiota as a potentially modifiable antenatal risk factor for PPROM and suggests that routine use of erythromycin for PPROM be re-examined.

Adult Sepsis

[Global impact of World Sepsis Day on digital awareness of sepsis: an evaluation using Google Trends](#)

Savelkoel, J. et al

Critical Care. 2018. 22:61

World Sepsis Day (WSD) was established by the Global Sepsis Alliance in 2012 and is held every 13th of September. One of the objectives is to raise global awareness of sepsis. Despite its high mortality rate [1], an international survey reported that 80–90% of the public in western countries are unfamiliar with sepsis [2]. Anno 2018, public knowledge is no longer solely obtained via television and newspapers, but is largely acquired via the Internet and social media. These resources therefore contribute to digital awareness, and can be used to share knowledge. We aimed to investigate whether WSD is indeed associated with a global increase in digital information-seeking behaviour.

[Sepsis caused by bloodstream infection in patients in the intensive care unit: the impact of inactive empiric antimicrobial therapy on outcome](#)

Brooks, D. et al

Journal of Hospital Infection April 2018 Volume 98, Issue 4, Pages 369–374

Sepsis is one of the leading causes of death in the UK. Aims to identify the rate of inactive antimicrobial therapy (AMT) in the intensive care unit (ICU) and whether inactive AMT has an effect on in-hospital mortality, ICU mortality, 90-day mortality and length of hospital stay. A further aim was to identify risk factors for receiving inactive AMT. Conclusion was that mortality from sepsis is influenced by multiple factors. This study was unable to demonstrate that inactive AMT had an effect on mortality in sepsis.

receptor expression, and evidence is emerging that they may also be important for adaptive immunity. A new study published in the Proceedings of the National Academy of Sciences has uncovered an unappreciated role of platelets in antibody-mediated adaptive immune responses.

[Identification of genes related to consecutive trauma-induced sepsis via gene expression profiling analysis.](#)

Dong, L. et al

Medicine. 97(15):e0362, APR 2018

We aimed to identify crucial genes relevant to the development of consecutive trauma-induced sepsis. A microarray dataset was used to identify genes differentially expressed between peripheral blood samples from consecutive traumatized patients complicated with sepsis and not complicated with sepsis. The results suggest that those DEGs may be crucial in the etiology of consecutive trauma-induced sepsis, and they are expected to be therapeutic targets.

[Elucidating the impact of the pneumococcal conjugate vaccine programme on pneumonia, sepsis and otitis media hospital admissions in England using a composite control](#)

Thorrington, D. et al

BMC Med. 2018; 16: 13.

The seven-valent pneumococcal conjugate vaccine (PCV) was introduced in England in September 2006, changing to the 13-valent vaccine in April 2010. PCV impact on invasive pneumococcal disease (IPD) has been extensively reported, but less described is its impact on the burden of pneumonia, sepsis and otitis media in the hospital. Use of a composite control and stratification by risk group status can help elucidate the impact of PCV on non-IPD disease endpoints and in vulnerable population groups. We estimate a substantial reduction in the hospitalised burden of pneumococcal pneumonia in all age groups and pneumonia of unspecified cause, empyema and lung abscess in children under 15 years of age since PCV introduction. The increase in unspecified pneumonia in high-risk 65+ year olds may in part reflect their greater susceptibility to develop pneumonia from less pathogenic serotypes that are replacing vaccine types in the nasopharynx.

[Morbidity, mortality, and management of methicillin-resistant S. aureus bacteremia in the USA: update on antibacterial choices and understanding](#)

[The Timing of Early Antibiotics and Hospital Mortality in Sepsis.](#)

Liu, V.X. et al

Am J Respir Crit Care Med. 2017 Oct 1;196(7):856-863

In a large, contemporary, and multicenter sample of patients with sepsis in the emergency department, hourly delays in antibiotic administration were associated with increased odds of hospital mortality even among patients who received antibiotics within 6 hours. The odds increased within each sepsis severity strata, and the increased odds of mortality were greatest in septic shock.

[Review article: Sepsis in the emergency department – Part 3: Treatment](#)

Williams, J.M. et al

Emergency Medicine Australia Volume30, Issue2 April 2018 p144-151

Although comprehensive guidelines for treatment of sepsis exist, current research continues to refine and revise several aspects of management. Imperatives for rapid administration of broad-spectrum antibiotics for all patients with sepsis may not be supported by contemporary data. Many patients may be better served by a more judicious approach allowing consideration of investigation results and evidence-based guidelines. Conventional fluid therapy has been challenged with early evidence supporting balanced, restricted fluid and early vasopressor use. Albumin, vasopressin and hydrocortisone have each been shown to support blood pressure and reduce catecholamine requirements but without effect on mortality, and as such should be considered for ED patients with septic shock on a case-by-case basis. Measurement of quality care in sepsis should incorporate quality of blood cultures and guideline-appropriateness of antibiotics, as well as timeliness of therapy. Local audit is an essential and effective means to improve practice. Multicentre consolidation of data through agreed minimum sepsis data sets would provide baseline quality data, required for the design and evaluation of interventions

Ortwine, J.K. et al

Hospital Practice Volume 46, 2018 - Issue 2

Methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia is associated with significant healthcare costs, morbidity, and mortality in the United States. Complications of MRSA bacteremia include infective endocarditis, osteomyelitis, and sepsis, all of which are difficult to treat. Time to effective therapy and antibacterial choice greatly affect patient outcomes. Vancomycin and daptomycin remain first-line therapies; however, reports of vancomycin-associated treatment failure and reduced daptomycin susceptibility highlight the need to define alternative strategies for MRSA bacteremia treatment. In addition, several patient- and pathogen-specific factors influence the outcomes of MRSA bacteremia. It is, therefore, critical to explore the interaction between host- and pathogen-specific factors and its effect on MRSA bacteremia pathogenesis and mortality. This review discusses the factors that drive the development of MRSA bacteremia and examines alternative treatment strategies.

[Clinical factors influencing mortality risk in hospital-acquired sepsis](#)

López-Mestanza, C. et al

J Hosp Infect. 2018 Feb;98(2):194-201

This study identifies several major factors associated with mortality in patients suffering from HAS. Implementation of surveillance programmes for the early identification and treatment of sepsis translate into a clear benefit.

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