Welcome to the second bulletin highlighting new evidence published on selected topics relating to Critical Care, Anaesthesia, Pain and Resuscitation. Journals such as – Lancet, NEJM, JAMA, BMJ and American Journal of Critical Care Medicine have been scanned to identify relevant articles. Articles from other journals as retrieved via searches on MEDLINE and EMBASE are also listed. This bulletin features evidence published in the previous four weeks. Full text articles can be accessed via your HEFT Athens ID.

Anaesthesia
The following sub-topics are covered:

- Cell salvage in surgery (including obstetric surgery)
- Anaesthesia and surgical outcomes (including epidurals, regional anaesthesia)
- Anaesthesia and Immunomodulation
- Anaesthesia and post operative confusion

Title: The use of cell salvage in routine cardiac surgery is ineffective and not cost-effective and should be reserved for selected cases

Citation: Interactive Cardiovascular and Thoracic Surgery, May 2011, vol./is. 12/5(824-826), 1569-9293;1569-9285 (May 2011) Author(s): Attaran S., McIlroy D., Fabri B.M., Pullan M.D.

Abstract: The reported benefits of intraoperative cell salvage are decreased requirement for blood transfusion and cost-effectiveness. This study was designed to challenge this hypothesis. We assessed intraoperative blood loss and the use of cell saver in our institution. In ~7% of cases the volume of blood loss was sufficient enough to be washed and returned. We conclude that the routine use of cell savers in all cardiac operations affords no benefit and consumes additional revenue. We recommend that the system only be considered in selected high-risk cases or complex procedures. 2011 Published by European Association for Cardio-Thoracic Surgery. Full Text: Available in fulltext at Highwire Press

Kindly note the journal literature has not highlighted any evidence on – anaesthesia and surgical outcomes; anaesthesia and Immunomodulation and anaesthesia and post operative confusion.

Cardiac arrests/cardiopulmonary resuscitation (CPR)
The following sub-topics are covered:

- Quality of CPR
- Use of feedback devices
- Leadership and team factors

Title: Effects and limitations of an AED with audiovisual feedback for cardiopulmonary resuscitation: A randomized manikin study

Citation: Resuscitation, July 2011, vol./is. 82/7(902-907), 0300-9572;1873-1570 (July 2011) Author(s): Fischer H., Gruber J., Neuhold S., Frantal S., Hochbrugger E., Herkner H., Schochl H., Steinlechner B., Greif R.
Abstract: Purpose: Correctly performed basic life support (BLS) and early defibrillation are the most effective measures to treat sudden cardiac arrest. Audiovisual feedback improves BLS. Automated external defibrillators (AED) with feedback technology may play an important role in improving CPR quality. The aim of this simulation study was to investigate if an AED with audiovisual feedback improves CPR parameters during standard BLS performed by trained laypersons. Conclusion: Use of an AED's audiovisual feedback system improved some CPR-quality parameters, thus confirming findings of earlier studies with the notable exception of decreased compression depth, which is a key parameter that might be linked to reduced cardiac output. Full Text: Available in fulltext at Elsevier; Note: You will need to register (free of charge) with Science Direct the first time you use it.

Title: Combining video instruction followed by voice feedback in a self-learning station for acquisition of Basic Life Support skills: A randomised non-inferiority trial
Citation: Resuscitation, July 2011, vol./is. 82/7(896-901), 0300-9572;1873-1570 (July 2011)
Author(s): Mpotos N., Lemoyne S., Calle P.A., Deschepper E., Valcke M., Monsieurs K.G.
Abstract: Introduction: Current computerised self-learning (SL) stations for Basic Life Support (BLS) are an alternative to instructor-led (IL) refresher training but are not intended for initial skill acquisition. We developed a SL station for initial skill acquisition and evaluated its efficacy. Methods: In a non-inferiority trial, 120 pharmacy students were randomised to IL small group training or individual training in a SL station. In the IL group, instructors demonstrated the skills and provided feedback. In the SL group a shortened Mini Anne video, to acquire the skills, was followed by Resusci Anne Skills Station software (both Laerdal, Norway) with voice feedback for further refinement. Testing was performed individually, respecting a seven week interval after training for every student. Conclusions: Compression skills acquired in a SL station combining video-instruction with training using voice feedback were not inferior to IL training.
Full Text: Available in fulltext at Elsevier; Note: You will need to register (free of charge) with Science Direct the first time you use it.

Title: What is new in the Australasian Adult Resuscitation Guidelines for 2010?
Citation: EMA - Emergency Medicine Australasia, June 2011, vol./is. 23/3(237-239), 1742-6731;1742-6723 (June 2011)
Author(s): Leman P., Jacobs I.

Title: Updated teaching techniques improve CPR performance measures: A cluster randomized, controlled trial
Citation: Resuscitation, June 2011, vol./is. 82/6(730-735), 0300-9572;1873-1570 (June 2011)
Author(s): Ettl F., Testori C., Weiser C., Fleischhackl S., Mayer-Stickler M., Herkner H., Schreiber W., Fleischhackl R.
Abstract: Introduction: The first-aid training necessary for obtaining a drivers license in Austria has a regulated and predefined curriculum but has been targeted for the implementation of a new course structure with less theoretical input, repetitive training in cardiopulmonary resuscitation (CPR) and structured presentations using innovative media. Methods: The standard and a new course design were compared with a prospective, participant- and observer-blinded, cluster-randomized controlled study. Six months after the initial training, we evaluated the confidence of the 66 participants in their skills, CPR effectiveness parameters and correctness of their actions. Conclusions: Motivation and self-confidence as well as skill retention after six months were shown to be dependent on the teaching methods and the time for practical training. Courses may be reorganized and content rescheduled, even within predefined curricula, to improve course outcomes. Full Text: Available in fulltext at Elsevier; Note: You will need to register (free of charge) with Science Direct the first time you use it.
Title: Teamwork and leadership in cardiopulmonary resuscitation
Citation: Journal of the American College of Cardiology, June 2011, vol./is. 57/24(2381-2388), 0735-1097;1558-3597 (14 Jun 2011) Author(s): Hunziker S., Johansson A.C., Tschan F., Semmer N.K., Rock L., Howell M.D., Marsch S. Abstract: Despite substantial efforts to make cardiopulmonary resuscitation (CPR) algorithms known to healthcare workers, the outcome of CPR has remained poor during the past decades. Resuscitation teams often deviate from algorithms of CPR. Emerging evidence suggests that in addition to technical skills of individual rescuers, human factors such as teamwork and leadership affect adherence to algorithms and hence the outcome of CPR. This review describes the state of the science linking team interactions to the performance of CPR. Teamwork and leadership training have been shown to improve subsequent team performance during resuscitation and have recently been included in guidelines for advanced life support courses. Future efforts to better understand the influence of team factors (e.g., team member status, team hierarchy, handling of human errors), individual factors (e.g., sex differences, perceived stress), and external factors (e.g., equipment, algorithms, institutional characteristics) on team performance in resuscitation situations are critical to improve CPR performance and medical outcomes of patients.

Title: "Booster" training: Evaluation of instructor-led bedside cardiopulmonary resuscitation skill training and automated corrective feedback to improve cardiopulmonary resuscitation compliance of Pediatric Basic Life Support providers during simulated cardiac arrest
Citation: Pediatric Critical Care Medicine, May 2011, vol./is. 12/3(e116-e121), 1529-7535 (May 2011) Author(s): Sutton R.M., Niles D., Meaney P.A., Aplenc R., French B., Abella B.S., Lengetti E.L., Berg R.A., Helfaer M.A., Nadkarni V. Abstract: OBJECTIVE:: To investigate the effectiveness of brief bedside "booster" cardiopulmonary resuscitation (CPR) training to improve CPR guideline compliance of hospital-based pediatric providers. CONCLUSIONS:: Before booster CPR instruction, most certified Pediatric Basic Life Support providers did not perform guideline-compliant CPR. After a brief bedside training, CPR quality improved irrespective of training content (instructor vs. automated feedback). Future studies should investigate bedside training to improve CPR quality during actual pediatric cardiac arrests. Full Text: Available in fulltext at MD Consult; Note: You will need to register (free of charge) with MD Consult the first time you use it.

Critical Care
The following sub-topics are covered:
- Sepsis – the use of statins, biomarker MMP9
- Acute lung injury (ALI)/adult respiratory distress syndrome (ARDS)
- Use of non invasive ventilation (NIV) in weaning

Title: Leptin in fibroproliferative acute respiratory distress syndrome: not just a satiety factor.
Citation: American Journal of Respiratory & Critical Care Medicine, June 2011, vol./is. 183/11(1443-4), 1073-449X;1535-4970 (2011 Jun 1) Author(s): Moss M, Standiford TJ Full Text: Available in fulltext at ProQuest (Legacy Platform)

Title: Reducing ventilator-associated pneumonia in intensive care: Impact of implementing a care bundle. Citation: Crit Care Med. 2011 Jun 9. [Epub ahead of print] Author(s): Morris AC, Hay AW, Swann DG, Everingham K, McCulloch C, McNulty J, Brooks O, Laurenson IF, Cook B, Walsh TS. Abstract: OBJECTIVES:: Ventilator-associated pneumonia is the most common intensive care unit-acquired infection. Although there is widespread consensus that evidenced-based interventions reduce the risk of ventilator-associated pneumonia, controversy has surrounded the importance of implementing them as a "bundle" of care. This study
aimed to determine the effects of implementing such a bundle while controlling for potential confounding variables seen in similar studies. Setting: An 18-bed, mixed medical-surgical teaching hospital intensive care unit. Conclusions: Implementation of a ventilator-associated pneumonia prevention bundle was associated with a statistically significant reduction in ventilator-associated pneumonia, which had not been achieved with earlier ad hoc ventilator-associated pneumonia prevention guidelines in our unit. This occurred despite an inability to meet bundle compliance targets of 95% for all elements. Our data support the systematic approach to achieving high rates of process compliance and suggest systematic introduction can decrease both infection incidence and antibiotic use, especially for patients requiring longer duration of ventilation.

Title: Determinants of prescription and choice of empirical therapy for hospital-acquired and ventilator-associated pneumonia


Abstract: The objectives of this study were to assess the determinants of empirical antibiotic choice, prescription patterns and outcomes in patients with hospital-acquired pneumonia (HAP)/ventilator-associated pneumonia (VAP) in Europe. We performed a prospective, observational cohort study in 27 intensive care units (ICUs) from nine European countries.

Title: Effect of oral hygiene with 0.12% chlorhexidine gluconate on the incidence of nosocomial pneumonia in children undergoing cardiac surgery

Citation: Infection Control and Hospital Epidemiology, June 2011, vol./is. 32/6(591-596), 0899-823X (June 2011) Author(s): Jacomo A.D.N., Carmona F., Matsuno A.K., Manso P.H., Carlotti A.P.C.P. Abstract: Objective. To evaluate the effect of oral hygiene with 0.12% chlorhexidine gluconate on the incidence of nosocomial pneumonia and ventilator-associated pneumonia (VAP) in children undergoing cardiac surgery. Design. Prospective, randomized, double-blind, placebo-controlled trial. Setting. Pediatric intensive care unit (PICU) at a tertiary care hospital. patients. One hundred sixty children undergoing surgery for congenital heart disease, randomized into 2 groups: chlorhexidine (n = 87) and control (n = 73). Conclusions: Oral hygiene with 0.12% chlorhexidine gluconate did not reduce the incidence of nosocomial pneumonia and VAP in children undergoing cardiac surgery. 2011 by The Society for Healthcare Epidemiology of America. All rights reserved.

Title: Ventilator-associated pneumonia in critically ill stroke patients: Frequency, risk factors, and outcomes

Citation: Journal of Critical Care, June 2011, vol./is. 26/3(273-279), 0883-9441;1557-8615 (June 2011) Author(s): Kasuya Y., Hargett J.L., Lenhardt R., Heine M.F., Doufas A.G., Remmel K.S., Ramirez J.A., Akca O. Abstract: Purpose: Our main objective was to assess incidence, risk factors, and outcomes of ventilator-associated pneumonia (VAP) in stroke patients. Conclusions: Pneumonia appears as a frequent problem in mechanically ventilated stroke patients. Chronic lung disease history, severity of stroke level at admission, and hemorrhagic transformation of stroke set the stage for developing VAP. The duration of both mechanical ventilation and intensive care unit stay gets significantly prolonged by VAP, but it does not affect mortality.
Title: A polyurethane cuffed endotracheal tube is associated with decreased rates of ventilator-associated pneumonia

Citation: Journal of Critical Care, June 2011, vol./is. 26/3(280-286), 0883-9441;1557-8615 (June 2011) Author(s): Miller M.A., Arndt J.L., Konkle M.A., Chenoweth C.E., Iwashyna T.J., Flaherty K.R., Hyzy R.C. Abstract: Purpose: The aim of this study was to determine whether the use of a polyurethane-cuffed endotracheal tube would result in a decrease in ventilator-associated pneumonia rate. Materials and Methods: We replaced conventional endotracheal tube with a polyurethane-cuff endotracheal tube (Microcuff, Kimberly-Clark Corporation, Rosewell, Ga) in all adult mechanically ventilated patients throughout our large academic hospital from July 2007 to June 2008. We retrospectively compared the rates of ventilator-associated pneumonia before, during, and after the intervention year by interrupted time-series analysis. Conclusions: Use of a polyurethane-cuffed endotracheal tube was associated with a significant decrease in the rate of ventilator-associated pneumonia in our study.

Title: The impact of COPD on ICU mortality in patients with ventilator-associated pneumonia

Citation: Respiratory Medicine, July 2011, vol./is. 105/7(1022-1029), 0954-6111;1532-3064 (July 2011) Author(s): Makris D., Desrousseaux B., Zakynthinos E., Durocher A., Nseir S. Abstract: Objective: To determine the impact of COPD on intensive care unit (ICU) mortality in patients with VAP. Methods: This prospective observational study was performed in a mixed ICU during a 3-year period. Eligible patients received mechanical ventilation for >48 h and met criteria for microbiologically confirmed VAP. Risk factors for ICU mortality were determined using univariate and multivariable analyses. Conclusion: COPD, SAPS II, and shock at VAP diagnosis are independently associated with ICU mortality in patients who present VAP. 2011 Elsevier Ltd. All rights reserved.

Title: Lack of impact of selective digestive decontamination on Pseudomonas aeruginosa ventilator-associated pneumonia: Benchmarking the evidence base

Citation: Journal of Antimicrobial Chemotherapy, June 2011, vol./is. 66/6(1365-1373), 0305-7453;1460-2091 (June 2011) Author(s): Hurley J.C. Abstract: Background: The selective digestive decontamination (SDD) component antibiotics have activity against Pseudomonas aeruginosa, an important ventilator-associated pneumonia (VAP) isolate. Evaluating the relationship between the anti-pseudomonal activity of SDD towards its VAP prevention effect is complicated by postulated indirect effects of SDD mediated in the concurrent control groups. The objective here is to address these effects through a benchmarking analysis of the evidence base. Conclusions: There is no evidence for either direct or indirect effects of SDD on P. aeruginosa-IP that could account for the profound effects of SDD on VAP incidence.

Title: Statin use and morbidity outcomes in septic shock patients: A retrospective cohort study

Citation: Critical Care and Shock, 2011, vol./is. 14/1(15-18), 1410-7767 (2011) Author(s): Chua D., Choice K., Gellatly R., Brown G. Abstract: Objective: The purpose of this study is to determine the association between statin use and septic shock morbidity. Design: A retrospective, single center chart review. Location: Intensive care unit of an urban tertiary care hospital. Conclusion: Prior statin use was not associated with decreased duration of vasopressor support or morbidity in septic shock patients. Conversely, there were trends towards worse outcomes in patients on statins prior to admission.

Title: Statins and sepsis: A magic bullet or just shooting blanks?

Citation: Critical Care Medicine, June 2011, vol./is. 39/6(1567-1569), 0090-3493;1530-0293 (June 2011) Author(s): Somma M.M., Weinstock P.J. Full Text: Available in fulltext at MD Consult; Note: You will need to register (free of charge) with MD Consult the first time you use it.
Title: Weaning from prolonged invasive ventilation in motor neuron disease: Analysis of outcomes and survival

Citation: Journal of Neurology, Neurosurgery and Psychiatry, June 2011, vol./is. 82/6(643-645), 0022-3050;1468-330X (June 2011) Author(s): Chadwick R., Nadig V., Oscroft N.S., Shneerson J.M., Smith I.E. Abstract: Introduction: Non-invasive ventilation (NIV) improves prognosis in patients with motor neuron disease (MND) in the absence of major bulbar involvement. However, some experience a rapid and unexpected decline in respiratory function and may undergo emergency tracheal intubation. Weaning from invasive ventilation can be difficult, and reported independence from invasive ventilation is uncommon with poor prognosis. The outcomes of patients with MND referred to a specialist weaning service following emergency tracheal intubation were examined and compared with MND patients electively initiating NIV. Conclusion: The prognosis in MND following acute respiratory failure and intubation is not always complete ventilator dependence if patients are offered a comprehensive weaning programme. Full Text: Available in fulltext at Highwire Press

NB: For any queries related to the search strategy on MEDLINE and EMBASE, please contact Preeti.Puligari@heartofengland.nhs.uk

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