Welcome to the first 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. Monthly updates from July 2011 will feature evidence published in the previous four weeks. Full text articles can be accessed via your HEFT Athens ID.

Ventilator associated pneumonia

**Title:** Intermittent subglottic secretion drainage and ventilator-associated pneumonia [2]
**Citation:** American Journal of Respiratory and Critical Care Medicine, May 2011, vol./is. 183/10(1435-1436), 1073-449X;1535-4970 (15 May 2011) **Author(s):** Taylor N.J., Auzinger G. **Full Text:** Available in fulltext at ProQuest (Legacy Platform)

**Title:** Intermittent subglottic secretion drainage and ventilator-associated pneumonia [1]
**Citation:** American Journal of Respiratory and Critical Care Medicine, May 2011, vol./is. 183/10(1435), 1073-449X;1535-4970 (15 May 2011) **Author(s):** Silvestri L., Piacente N., Van Saene H.K.F., Gregori D., Zandstra D.F. **Full Text:** Available in fulltext at ProQuest (Legacy Platform)

**Title:** Review: Diagnostics and epidemiology in ventilator-associated pneumonia
**Citation:** Therapeutic Advances in Respiratory Disease, April 2011, vol./is. 5/2(121-130), 1753-4658;1753-4666 (April 2011) **Author(s):** Shorr A.F., Chan C.M., Zilberberg M.D.

**Abstract:** Ventilator-associated pneumonia (VAP) represents a common nosocomial complication arising in the intensive care unit. Owing to concerns regarding the excess morbidity related to VAP, multiple interventions for preventing this syndrome exist. Despite controversy regarding the optimal diagnostic approach to VAP, clinicians now face many external pressures to try to reduce, if not eliminate, VAP. In fact, some organizations consider VAP an entirely preventable event. However, any dialog regarding the outcomes and burden of VAP must rest on an understanding and appreciation of both the diagnostic complexities surrounding VAP and the epidemiology of this condition. In addition, the issues of diagnostics and epidemiology are closely linked. The means employed for diagnosing VAP certainly affect the observed prevalence of VAP. Despite these concerns, several general themes emerge in the literature describing VAP epidemiology. First, VAP rates vary based on the diagnostic approach employed. Second, select cohorts of patients are at high risk for VAP, and patient case-mix clearly influences the epidemiology of VAP. Third, rates of VAP appear higher outside the US, irrespective of the diagnostic paradigm utilized. The Author(s), 2011.
Title: Review: Strategies in the prevention of ventilator-associated pneumonia
Citation: Therapeutic Advances in Respiratory Disease, April 2011, vol./is. 5/2(131-141), 1753-4658;1753-4666 (April 2011) Author(s): Maselli D.J., Restrepo M.I. Abstract: Ventilator-associated pneumonia (VAP) remains a significant problem in the hospital setting, with very high morbidity, mortality, and cost. We performed an evidence-based review of the literature focusing on clinically relevant pharmacological and nonpharmacological interventions to prevent VAP. Owing to the importance of this condition the implementation of preventive measures is paramount in the care of mechanically ventilated patients. There is evidence that these measures decrease the incidence of VAP and improve outcomes in the intensive care unit. A multidisciplinary approach, continued education, and ventilator protocols ensure the implementation of these measures. Future research will continue to investigate cost/benefit relationships, antibiotic resistance, as well as newer technologies to prevent contamination and aspiration in mechanically ventilated patients. The Author(s), 2010.

Title: Relationship between inhaled beta2-agonists and ventilator-associated pneumonia: A cohort study
Citation: Critical Care Medicine, April 2011, vol./is. 39/4(725-730), 0090-3493;1530-0293 (April 2011) Author(s): Jaillette E., Nseir S. Abstract: Objective: To determine the impact of aerosolized bronchodilators on ventilator-associated pneumonia. Design: Prospective cohort study. Setting: A 30-bed medical and surgical intensive care unit. Methods: All intubated patients requiring mechanical ventilation for >48 hrs were eligible during a 13-month period. Nebulized beta2-agonists were administered at the intensive care unit physicians discretion. Ventilator-associated pneumonia definition included clinical and quantitative microbiological criteria. Only first ventilator-associated pneumonia episodes were analyzed. Risk factors for ventilator-associated pneumonia were determined using univariate and multivariate analyses. The influence of inhaled beta2-agonists on ventilator-associated pneumonia occurrence was also adjusted for confounding factors using Coxs proportional-hazards model. RESULTS:: Ventilator-associated pneumonia was diagnosed in 137 (31%) of the 439 enrolled patients. Ventilator-associated pneumonia was early-onset in 14 (10%) patients. The incidence rate of ventilator-associated pneumonia was 20 per 1,000 ventilator days. Ventilator-associated pneumonia was polymicrobial in 16 (11%) patients, and related to multidrug-resistant bacteria in 42 (28%) patients. Most cases of ventilator-associated pneumonia were caused by Gram-negative bacteria. Inhaled beta2-agonists were significantly more frequently used in patients with ventilator-associated pneumonia compared with those without ventilator- associated pneumonia (49% vs. 34%, odds ratio [95% confidence interval] = 1.9 [1.2-2.8], p = .003). Multivariate analysis identified aerosolized beta2-agonists (odds ratio [95% confidence interval] = 1.7 [1.1-2.6], p = .012), Simplified Acute Physiology Score II at intensive care unit admission (odds ratio [95% confidence interval] = 1.01 [1.001-1.02] per point, p = .031), and red blood cell transfusion (odds ratio [95% confidence interval] = 2 [1.3-3.1], p = .001) as independent risk factors for ventilator-associated pneumonia. Coxs proportional-hazards model also identified inhaled beta2-agonists as a risk factor for ventilator-associated pneumonia (odds ratio [95% confidence interval] = 1.52 [1.06-2.19], p = .021). Conclusion: Use of aerosolized bronchodilators in intensive care unit mechanically ventilated patients is an independent risk factor for ventilator-associated pneumonia. 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: Inhaled therapy and ventilator-associated pneumonia: A breath of suspicion in the air?
Citation: Critical Care Medicine, April 2011, vol./is. 39/4(893-894), 0090-3493;1530-0293 (April 2011) Author(s): Clavel M. 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: Prognostic value of dynamic soluble triggering receptor expressed on myeloid cells in bronchoalveolar lavage fluid of patients with ventilator-associated pneumonia
Citation: Respirology, April 2011, vol./is. 16/3(487-494), 1323-7799;1440-1843 (April 2011) Author(s): Wu C.-L., Lu Y.-T., Kung Y.-C., Lee C.-H., Peng M.-J. Abstract: Background and objective: The aim of this study was to investigate the time course, and correlation with prognosis, of BAL fluid concentrations of soluble triggering receptor expressed on myeloid cells (sTREM-1) in patients with ventilator-associated pneumonia (VAP). Methods: The study included 35 patients with clinically diagnosed VAP, eight of whom were BAL fluid culture-negative and 27 BAL fluid culture-positive (16 survivors, 11 non-survivors). sTREM-1 levels were measured in BAL fluid of these mechanically ventilated patients, at the time of diagnosis, on days 4-5 and on days 7-9. The time course of this biomarker and its prognostic value for outcome in patients with culture-positive VAP were assessed. Results: sTREM-1 concentrations were significantly greater in culture-positive VAP patients than in culture-negative VAP patients. sTREM-1 levels decreased significantly with time in surviving patients with culture-positive VAP, but increased significantly with time in non-survivors. In contrast, PaO<sub>2</sub>/fraction of inspired oxygen (FiO<sub>2</sub>) increased significantly with time in survivors and decreased significantly with time in non-survivors. At a cut-off value of -10 pg/mL 7-9 days after initial diagnosis, sTREM levels had a sensitivity of 90% and a specificity of 87.5% for predicting mortality. Conclusions: sTREM-1 concentrations in BAL fluid are of potential prognostic value in patients with VAP. 2011 The Authors Respirology 2011 Asian Pacific Society of Respirology.

Title: Bronchoalveolar lavage in the diagnosis of ventilator-associated pneumonia: to quantitate or not, that is the question.
Citation: American Surgeon, March 2011, vol./is. 77/3(297-303), 0003-1348;0003-1348 (2011 Mar) Author(s): Riaz OJ, Malhotra AK, Aboutanos MB, Duane TM, Goldberg AE, Borchers CT, Martin NR, Ivatury RR Abstract: Quantitative bronchoalveolar lavage (BAL) is used to diagnose ventilator-associated pneumonia (VAP). We prospectively compared semiquantitative (SQ) and quantitative (Qu) culture of BAL for VAP diagnosis. Ventilated patients suspected of VAP underwent bronchoscopic BAL. BAL fluid was examined by both Qu (colony-forming units [CFUs]/mL) and SQ culture (none, sparse, moderate, or heavy) and results were compared. VAP was defined as 105 CFU/mL or greater on Qu culture. Over 36 months, 319 BALs were performed. Sixty-three of 319 (20%) showed diagnostic growth by Qu culture identifying a total of 81 organisms causing VAP. All 63 specimens showed growth of some organism(s) on SQ culture (none, sparse, moderate, or heavy) and results were compared. VAP was defined as 105 CFU/mL or greater on Qu culture. Of the 240 specimens showing some growth on SQ culture, a total of 384 organisms were identified. VAP rates in relation to strength of growth on SQ culture were: sparse, 10 of 140 (7%); moderate, 24 of 147 (16%); and heavy, 45 of 97 (46%). Sensitivity (Sn), specificity (Sp), positive (PPV), and negative (NPV) predictive values
of SQ culture of BAL fluid for the diagnosis of VAP were 97, 21, 21, and 97 per cent, respectively. Nonquantitative culture of BAL fluid is fairly accurate in ruling out VAP (high Sn and NPV). It however has poor Sp and PPV and using this method will lead to unnecessary antimicrobial use with its attendant complications of toxicity, cost, and resistance. **Full Text**:

Available in fulltext at EBSCO Host Available in fulltext at ProQuest (Legacy Platform)

**Title**: A European care bundle for management of ventilator-associated pneumonia.

**Citation**: Journal of Critical Care, February 2011, vol./is. 26/1(3-10), 0883-9441;1557-8615 (2011 Feb) **Author(s)**: Rello J, Chastre J, Cornaglia G, Masterton R

**Abstract**: **BACKGROUND**: Although there is a wealth of guidance concerning the management of patients with ventilator-associated pneumonia (VAP), compliance with recommendations concerning optimal treatment practices is highly variable. **METHODS**: This document presents a comprehensive care bundle package addressing all aspects of VAP diagnosis and treatment in an attempt to promote guideline-compliant practices. Uniquely, the development of these care bundles used a formalized method to assess the supporting data, based on multicriteria decision analysis. **RESULTS**: This system allowed the numerous VAP management parameters identified from recent European guidelines to be ranked according to defined criteria. The resulting VAP care bundles are (a) diagnosis: early chest x-rays within 1 hour, immediate reporting of respiratory secretions Gram staining, and (b) therapy: immediate treatment, empiric therapy based on local pathogens and risk factors, de-escalation, assessment of response within 72 hours, and short therapy duration if feasible. **CONCLUSION**: Adoption of these care bundles should rationalize VAP management practices and facilitate the development of consistent and guideline-compliant care processes. Copyright Copyright 2011 Elsevier Inc. All rights reserved.

---

**Title**: Modifying endotracheal tubes to prevent ventilator-associated pneumonia.

**Citation**: Current Opinion in Infectious Diseases, April 2011, vol./is. 24/2(157-62), 0951-7375;1535-3877 (2011 Apr) **Author(s)**: Coppadoro A, Berra L, Bigatello LM

**Abstract**: **PURPOSE OF REVIEW**: The endotracheal tube (ETT) is the main avenue leading to airway contamination and subsequent ventilator-associated pneumonia (VAP) during mechanical ventilation. A number of modifications to the ETT are available, aimed at reducing the incidence of VAP. We review here available systems and devices, and clinical data regarding their efficacy. **RECENT FINDINGS**: Three main modifications of ETTs have been developed: coating with antimicrobials, adding a suction channel for the removal of oropharyngeal secretions, and modifying the design of the cuff. Each of these interventions has been shown to limit bacterial colonization of the distal airways and to decrease the incidence of VAP. Data on their ultimate effect on related clinical outcomes are still lacking. **SUMMARY**: Modifications of ETTs aimed at decreasing the onset of VAP show promising results. However, the lack of a significant effect on outcomes prompts us to use caution before recommending their widespread use.
**Acute lung injury (ALI)/Adult respiratory distress syndrome (ARDS)**

**Title:** Update in acute lung injury and critical care 2010  
**Citation:** American Journal of Respiratory and Critical Care Medicine, May 2011, vol./is. 183/9(1147-1152), 1073-449X;1535-4970 (01 May 2011)  
**Author(s):** Vadasz I., Sznajder J.I.  
**Full Text:** Available in fulltext at ProQuest (Legacy Platform)

**Title:** ANGPT2 genetic variant is associated with trauma-associated acute lung injury and altered plasma angiopoietin-2 isoform ratio  
**Citation:** American Journal of Respiratory and Critical Care Medicine, May 2011, vol./is. 183/10(1344-1353), 1073-449X;1535-4970 (15 May 2011)  
**Abstract:** Rationale: Acute lung injury (ALI) acts as a complex genetic trait, yet its genetic risk factors remain incompletely understood. Large-scale genotyping has not previously been reported for ALI. Objectives: To identify ALI risk variants after major trauma using a large-scale candidate gene approach. Methods: We performed a two-stage genetic association study. We derived findings in an African American cohort (n = 222) using a cardiopulmonary disease-centric 50K single nucleotide polymorphism (SNP) array. Genotype and haplotype distributions were compared between subjects with ALI and without ALI, with adjustment for clinical factors. Top performing SNPs (P < 10^{-4}) were tested in a multicenter European American trauma-associated ALI case-control population (n = 600 ALI; n = 2,266 population-based control subjects) for replication. The ALI-associated genomic region was sequenced, analyzed for in silico prediction of function, and plasma was assayed by ELISA and immunoblot. Measurements and Main Results: Five SNPs demonstrated a significant association with ALI after adjustment for covariates in Stage I. Two SNPs in ANGPT2 (rs1868554 and rs2442598) replicated their significant association with ALI in Stage II. rs1868554 was robust to multiple comparison correction: odds ratio 1.22 (1.06-1.40), P = 0.0047. Resequencing identified predicted novel splice sites in linkage disequilibrium with rs1868554, and immunoblots showed higher proportion of variant angiopoietin-2 (ANG2) isoform associated with rs1868554T (0.81 vs. 0.48; P = 0.038). Conclusions: An ANGPT2 region is associated with both ALI and variation in plasma angiopoietin-2 isoforms. Characterization of the variant isoform and its genetic regulation may yield important insights about ALI pathogenesis and susceptibility. **Full Text:** Available in fulltext at ProQuest (Legacy Platform)

**Title:** Focusing on the flood: Targeting functional polymorphisms in ALI permeability pathways  
**Citation:** American Journal of Respiratory and Critical Care Medicine, May 2011, vol./is. 183/10(1287-1289), 1073-449X;1535-4970 (15 May 2011)  
**Author(s):** Garcia J.G.N.  
**Full Text:** Available in fulltext at ProQuest (Legacy Platform)
Title: Lung regional metabolic activity and gas volume changes induced by tidal ventilation in patients with acute lung injury

Citation: American Journal of Respiratory and Critical Care Medicine, May 2011, vol./is. 183/9(1193-1199), 1073-449X;1535-4970 (01 May 2011) Author(s): Bellani G., Guerra L., Musch G., Zanella A., Patroniti N., Mauri T., Messa C., Pesenti A.

Abstract: Rationale: During acute lung injury (ALI), mechanical ventilation can aggravate inflammation by promoting alveolar distension and cyclic recruitment-derecruitment. As an estimate of the intensity of inflammation, metabolic activity can be measured by positron-emission tomography imaging of [18F]fluoro-2-deoxy-D-glucose. Objectives: To assess the relationship between gas volume changes induced by tidal ventilation and pulmonary metabolic activity in patients with ALI. Methods: In 13 mechanically ventilated patients with ALI and relatively high positive end-expiratory pressure, we performed a positron emission tomography scan of the chest and three computed tomography scans: at mean airway pressure, end-expiration, and end-inspiration. Metabolic activity was measured from the [18F]fluoro-2-deoxy-D-glucose uptake rate. The computed tomography scans were used to classify lung regions as derecruited throughout the respiratory cycle, undergoing recruitment-derecruitment, and normally aerated.

Measurements and Main Results: Metabolic activity of normally aerated lung was positively correlated both with plateau pressure, showing a pronounced increase above 26 to 27 cm H2O, and with regional VT normalized by end-expiratory lung gas volume. This relationship did not appear to be caused by a higher underlying parenchymal metabolic activity in patients with higher plateau pressure. Regions undergoing cyclic recruitment-derecruitment did not have higher metabolic activity than those collapsed throughout the respiratory cycle.

Conclusions: In patients with ALI managed with relatively high end-expiratory pressure, metabolic activity of aerated regions was associated with both plateau pressure and regional VT normalized by end-expiratory lung gas volume, whereas no association was found between cyclic recruitment-derecruitment and increased metabolic activity. Copyright 2011 American Thoracic Society. Full Text: Available in fulltext at ProQuest (Legacy Platform)

Title: Early corticosteroids in severe influenza A/H1N1 pneumonia and acute respiratory distress syndrome

Citation: American Journal of Respiratory and Critical Care Medicine, May 2011, vol./is. 183/9(1200-1206), 1073-449X;1535-4970 (01 May 2011) Author(s): Brun-Buisson C., Richard J.-C.M., Mercat A., Thiebaut A.C.M., Brochard L. Abstract: Rationale: Despite their controversial role, corticosteroids are often administered to patients with adult respiratory distress syndrome (ARDS) secondary to viral pneumonia. Objectives: To analyze the impact of corticosteroid therapy on outcomes of patients having ARDS associated with influenza A/H1N1 pneumonia. Methods: Patients from the French registry of critically ill patients with influenza A/H1N1v 2009 infection were selected if fulfilling criteria for ARDS, excluding patients having other indication for corticosteroids, or decompensated underlying disease as the primary cause for intensive care unit admission. Survival to hospital discharge was analyzed using Cox regression, accounting for the time to administration of steroids, and after adjustment on the propensity for receiving steroid therapy. Measurements and Main Results: Of 208 patients with ARDS, 83 (39.9%) received corticosteroids (median initial dose of 270 mg equivalent hydrocortisone per day for a median of 11 d). Steroid therapy was associated with death, both in crude analysis (33.7 vs. 16.8%; hazard ratio, 2.4; 95% CI, 1.3-4.3; P 5 0.004) and after propensity score-adjusted analysis (adjusted hazard ratio,
2.82; 95% CI, 1.5-5.4; P 5 0.002), controlling for an admission severity Simplified Acute Physiology Score, version 3, greater than 50, initial administration of vasopressors, and immunodepression. Early therapy (<= 3 d of mechanical ventilation) appeared more strongly associated with mortality than late administration. Patients receiving steroids had more acquired pneumonia and a trend to a longer duration of ventilation. Conclusions: Our study provides no evidence of a beneficial effect of corticosteroids in patients with ARDS secondary to influenza pneumonia, but suggests that very early corticosteroid therapy may be harmful. Copyright 2011 American Thoracic Society. **Full Text:** Available in fulltext at ProQuest (Legacy Platform)
dispensable for hyperoxia-induced lung injury. Mice globally deficient in the BH3-only proteins BIM, BID, PUMA, or NOXA, which are proximal upstream regulators of BAX and BAK, were not protected against hyperoxia-induced lung injury suggesting redundancy of these proteins in the activation of BAX or BAK. CONCLUSIONS: Mitochondrial oxidant generation initiates BAX- or BAK-dependent alveolar epithelial cell death, which contributes to hyperoxia-induced lung injury. **Full Text:** Available in *fulltext* at ProQuest (Legacy Platform)

---

**Title:** Recombinant surfactant protein C-based surfactant for patients with severe direct lung injury. **Citation:** American Journal of Respiratory & Critical Care Medicine, April 2011, vol./is. 183/8(1055-61), 1073-449X;1535-4970 (2011 Apr 15) **Author(s):** Spragg RG, Taut FJ, Lewis JF, Schenk P, Ruppert C, Dean N, Krell K, Karabinis A, Gunther A **Abstract:** RATIONALE: Patients with acute lung injury have impaired function of the lung surfactant system. Prior clinical trials have shown that treatment with exogenous recombinant surfactant protein C (rSP-C) -based surfactant results in improvement in blood oxygenation and have suggested that treatment of patients with severe direct lung injury may decrease mortality. OBJECTIVES: Determine the clinical benefit of administering an rSP-C-based synthetic surfactant to patients with severe direct lung injury due to pneumonia or aspiration. METHODS: A prospective randomized blinded study was performed at 161 centers in 22 countries. Patients were randomly allocated to receive usual care plus up to eight doses of rSP-C surfactant administered over 96 hours (n = 419) or only usual care (n = 424). MEASUREMENTS AND MAIN RESULTS: Mortality to 28 days after treatment, the requirement for mechanical ventilation, and the number of nonpulmonary organ failure-free days were not different between study groups. In contrast to prior studies, there was no improvement in oxygenation in patients receiving surfactant compared with the usual care group. Investigation of the possible reasons underlying the lack of efficacy suggested a partial inactivation of rSP-C surfactant caused by a step of the resuspension process that was introduced with this study. CONCLUSIONS: In this study, rSP-C-based surfactant was of no clinical benefit to patients with severe direct lung injury. The unexpected lack of improvement in oxygenation, coupled with the results of in vitro tests, suggest that the administered suspension may have had insufficient surface activity to achieve clinical benefit. **Full Text:** Available in *fulltext* at ProQuest (Legacy Platform)

---

**Title:** Opening the lungs: Do it slowly, please **Citation:** Critical Care Medicine, May 2011, vol./is. 39/5(1221-1222), 0090-3493;1530-0293 (May 2011) **Author(s):** Plotz F.B., Groeneveld A.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:** Mortality prediction in adult respiratory distress syndrome: Get real **Citation:** Critical Care Medicine, May 2011, vol./is. 39/5(1210-1211), 0090-3493;1530-0293 (May 2011) **Author(s):** Kipnis E. **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.
Sepsis – the use of statins, biomarker MMP9

**Title:** Statins in prevention and treatment of severe sepsis and septic shock  
**Citation:** European Journal of Internal Medicine, April 2011, vol./is. 22/2(125-133), 0953-6205 (April 2011) **Author(s):** Kouroumichakis I., Papanas N., Proikaki S., Zarogoulidis P., Maltezos E.  
**Abstract:** Severe sepsis is an infection-induced inflammatory syndrome that can lead to multi-organ dysfunction and continues to be a major cause of morbidity and mortality worldwide. Because numerous cascades are triggered during sepsis, selective blocking of inflammatory mediators may be insufficient to arrest this process, and recent therapeutic approaches have proven controversial. Statins are the most commonly prescribed agents for hypercholesterolaemia and dominate the area of cardiovascular risk reduction. Moreover, these drugs have a variety of actions that are independent of their lipid lowering effect. Such anti-inflammatory, antioxidant, immunomodulatory, and antiapoptotic features have been collectively referred to as pleiotropic effects. By virtue of their pleiotropic effects, statins have also emerged as potentially useful in various critical care areas such as bacteraemia, the early phases of sepsis and septic shock, as well as the management of serious infections. This review outlines current evidence on the use of statins for preventing and treating sepsis.  
2010 European Federation of Internal Medicine.

Use of non-invasive ventilation in Weaning

**Title:** Strategies for the withdrawal of nasal continuous positive airway pressure (NCPAP) in preterm infants.  
**Citation:** Cochrane Database of Systematic Reviews, 2011, vol./is. 2/(CD006979), 1361-6137;1469-493X (2011) **Author(s):** Jardine LA, Inglis GD, Davies MW  
**Abstract:** BACKGROUND: While indications for the use of nasal continuous positive airway pressure (NCPAP) and its associated risks and benefits are extensively investigated, the best strategy for the withdrawal of NCPAP remains unknown. In a survey of Australian and New Zealand Neonatologists, 56% stated that their approach to NCPAP weaning was "ad hoc" (Jardine 2008). At what point an infant is considered stable enough to attempt to start withdrawing their NCPAP is not clearly established. The criteria for a failed attempt at NCPAP withdrawal is also not clear.OBJECTIVES: To determine the risks and benefits of different strategies used for the withdrawal of NCPAP in preterm infants.SEARCH STRATEGY: Searches were made of the Cochrane Neonatal Review Group Specialised Register, MEDLINE from 1966 to June 2010, CINAHL from 1982 to June 2010, and the Cochrane Central Register of Controlled Trials (CENTRAL, The Cochrane Library 2010, Issue 2). Previous reviews (including cross references) were also searched.SELECTION CRITERIA: We included all randomised and quasi-randomised controlled trials in which either individual newborn infants or clusters of infants (such as separate neonatal units) were randomised to different NCPAP withdrawal strategies (from the first time they come off NCPAP and any subsequent weaning and/or withdrawal attempt).DATA COLLECTION AND ANALYSIS: We used standard methods of The Cochrane Collaboration and its Neonatal Review Group.MAIN RESULTS: We identified four potentially eligible studies. Three studies are included in this review. One study showed a significant decrease in the duration of oxygen therapy and a significantly decreased length of stay for babies randomised to a weaning strategy where NCPAP is
simply stopped when infants met predefined stability criteria.AUTHORS' CONCLUSIONS: Infants who have their NCPAP pressure weaned to a predefined level and then stop NCPAP completely have less total time on NCPAP and shorter durations of oxygen therapy and hospital stay compared with those that have NCPAP removed for a predetermined number of hours each day. Future trials of withdrawing NCPAP should compare proposed strategies with weaning NCPAP pressure to a predefined level and then stopping NCPAP completely. Clear criteria need to be established for the definition of stability prior to attempting to withdraw NCPAP.**Full Text:** Available in fulltext at [Wiley](https://www.wiley.com)
epidural group (4.0 (2.5-5.3) [0-8.5])) and at 72 h (2.0 (0.8-4.0 [0-5]) and 2.5 (1.0-5.0 [0-6]), respectively). Tramadol consumption was significantly greater in the TAP group (p = 0.002). Subcostal TAP catheter boluses may be an effective alternative to epidural infusions for providing postoperative analgesia after upper abdominal surgery. 2011 The Association of Anaesthetists of Great Britain and Ireland.

Title: A double-blind, randomized, multicenter study of MP4OX for treatment of perioperative hypotension in patients undergoing primary hip arthroplasty under spinal anesthesia


Abstract: Background: MP4OX (oxygenated polyethylene glycol-modified hemoglobin) is a novel oxygen therapeutic agent specifically developed to perfuse and oxygenate tissue at risk for ischemia and hypoxia. In this study, we investigated the ability of MP4OX to treat hypotensive episodes. In addition, the tolerability profile of MP4OX in a large surgical population was established. Methods: Patients from 21 study sites in 5 countries, scheduled to undergo primary hip arthroplasty under spinal anesthesia, were randomized in a double-blind manner to receive MP4OX or hydroxyethyl starch (HES) solution (Voluven; HES 130/0.4). Patients received the first 250-mL dose of investigational product when systolic blood pressure decreased to the predefined dosing trigger. A second 250-mL dose was given only if the systolic blood pressure decreased to the same trigger level after administration of the first dose. The primary efficacy outcome was total duration of all hypotensive episodes during surgery and the first 6 hours after skin closure. Results: Of the 474 patients randomized, 405 reached the dosing trigger and received at least 1 dose. The mean total duration of all hypotensive episodes was significantly shorter (P < 0.0001) in the MP4OX group (52.4 +/- 71.50 minutes; range, 3-442 minutes) compared with the HES group (137.6 +/- 120.21 minutes; range, 5-435 minutes). The overall incidence of adverse events (AEs) in the intent-to-treat population was similar between the MP4OX and HES groups (75.2% vs 73.4%; P = 0.733). Transient increases in laboratory values were reported in more patients in the MP4OX group versus HES controls for aspartate aminotransferase (13.4% vs 7.4%; P = 0.052), alanine aminotransferase (6.9% vs 4.9%; P = 0.409), lipase (9.7% vs 3.6%; P = 0.015), and troponin (8.1% vs 2.0%; P = 0.006). There was no significant difference in the incidence of serious AEs reported (6.4% in MP4OX group vs 3.0% in HES controls; P = 0.106). Certain AEs did occur more frequently in the MP4OX group, including nausea (23.8% vs 14.3%; P = 0.016), bradycardia (14.9% vs 5.9%; P = 0.003), hypertension (8.4% vs 2.5%; P = 0.009), and oliguria (5.9% vs 1.5%; P = 0.019). The composite morbidity and ischemia end points did not reveal any differences between the 2 treatment groups. Conclusions: Administration of MP4OX achieved the end point of treating perioperative hypotension in patients undergoing primary hip arthroplasty under spinal anesthesia. The study was not powered to demonstrate clinical benefit based on the composite morbidity or ischemia outcomes. Although efficacy end points with sufficient power were met, MP4OX is not being proposed for use in routine surgery where the risk-benefit profile would not be favorable based on the safety profile demonstrated in this study. Copyright 2011 International Anesthesia Research Society. Full Text: Available in fulltext at Ovid
Cardiac arrests/cardiopulmonary resuscitation – quality of CPR; use of feedback devices; leadership and team factors

Title: Delivering high-quality cardiopulmonary resuscitation in-hospital

Citation: Current Opinion in Critical Care, June 2011, vol./is. 17/3(225-230), 1070-5295;1531-7072 (June 2011) Author(s): Soar J., Edelson D.P., Perkins G.D. Abstract: Purpose of review: This review discusses recent data relating to delivering high-quality cardiopulmonary resuscitation (CPR) to patients with in-hospital cardiac arrest. Recent findings: Delivering high-quality CPR requires interventions at a national, local, team and individual rescuer level. These include measuring patient outcomes, patient safety incident reporting, education, an increased emphasis on human factors, briefing and debriefing of resuscitation teams, and the use of sensing devices that provide real-time prompts or feedback to rescuers during CPR. Data from national registries, patient safety incident reports and mock codes can be used to identify areas for improving practice. Education of staff is essential in both technical and nontechnical resuscitation skills (human factors). Resuscitation team performance can be improved by ensuring teams brief and plan beforehand and also debrief using feedback data collected during resuscitation events. The use of feedback and prompt devices helps improve adherence to guidelines for chest compression quality but data are lacking in terms of showing improved patient outcomes. Summary: Delivering high-quality CPR in-hospital requires a multifaceted approach. Collecting data during arrests and feeding back in real time and postevent during debriefings can be used to improve delivery of high-quality CPR. There are few studies that show improvement in actual patient outcomes (e.g., survival to hospital discharge) with improvements in delivery of high-quality CPR. Recognizing the importance of both technical and nontechnical skills (human factors) to deliver high-quality CPR is essential.

Title: Measure and improve

Citation: Resuscitation, June 2011, vol./is. 82/6(645-646), 0300-9572;1873-1570 (June 2011) Author(s): Kwok H., Rea T. 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.

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

To access the full text links in this bulletin, login with your HEFT Athens ID on http://www.evidence.nhs.uk/nhs-evidence-content/journals-and-databases before clicking on them in order to make them seamless.

For more information on how to register for Athens, access the Athens Registration leaflet via HEFT Library website www.heftlibrary.nhs.uk

NHS Evidence portal has now changed to www.evidence.nhs.uk Visit this portal to access your journals and healthcare databases.