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**Guidelines**

**National Institute for Health and Care Excellence (NICE)**

**Acute coronary syndromes (including myocardial infarction)**
NICE quality standards [QS68] Published date: September 2014

**Myocardial infarction (acute): Early rule out using high-sensitivity troponin tests (Elecsys Troponin T high-sensitive, ARCHITECT STAT High Sensitive Troponin-I and AccuTnI+3 assays)**
NICE diagnostics guidance [DG15] Published date: October 2014

**Acute heart failure**
NICE guidelines [CG187] Published date: October 2014

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**New and Updated Cochrane Systematic Reviews**

**New Reviews – August 2014**

Continuous positive airway pressure (CPAP) during the postoperative period for prevention of postoperative morbidity and mortality following major abdominal surgery

Interventions for treating acute bleeding episodes in people with acquired hemophilia A

**Updated reviews – August 2014**

Advanced training in trauma life support for ambulance crews

Advanced trauma life support training for hospital staff

Antiepileptic drugs for the primary and secondary prevention of seizures after intracranial venous thrombosis

Gamma aminobutyric acid (GABA) receptor agonists for acute stroke

Haemodilution for acute ischaemic stroke

Modest cooling therapies (35°C to 37.5°C) for traumatic brain injury
New Reviews – September 2014

Automated weaning and SBT systems versus non-automated weaning strategies for weaning time in invasively ventilated critically ill adults

Cardiopulmonary resuscitation (CPR) plus delayed defibrillation versus immediate defibrillation for out-of-hospital cardiac arrest

Computed tomography angiography or magnetic resonance angiography for detection of intracranial vascular malformations in patients with intracerebral haemorrhage

Glutamine supplementation for critically ill adults

Intravenous immunoglobulin for Guillain-Barré syndrome

Pre-hospital versus in-hospital thrombolysis for ST-elevation myocardial infarction

Types of indwelling urethral catheters for short-term catheterisation in hospitalised adults

Updated reviews – September 2014

Anticonvulsant therapy for status epilepticus

Rapid viral diagnosis for acute febrile respiratory illness in children in the Emergency Department

Statins for acute coronary syndrome

Systemic corticosteroids for acute exacerbations of chronic obstructive pulmonary disease

NICE Evidence Updates

Acute upper gastrointestinal bleeding (Aug 2014)

Infection (Sep 2014)

New from UpToDate

What's new in adult and pediatric emergency medicine

What's new in pulmonary and critical care medicine

New additions to UpToDate considered by the editors and authors to be of particular interest.

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Table of Contents
Title: A meta-analysis of critically ill patients reveals several potential risk factors for delirium

Citation: General Hospital Psychiatry, September 2014, vol./is. 36/5(488-496), 0163-8343;1873-7714 (September 2014)

Author(s): Huai J., Ye X.

Language: English

Abstract: Objective: To investigate potential risk factors for delirium in critically ill patients through a meta-analysis of clinical observational studies. Method: A literature search was conducted of MEDLINE and Embase databases. Studies that reported risk factors for delirium in a critical care setting were included. Data were independently extracted by two reviewers and pooled using a fixed-effect or random effects model according to the result of a heterogeneity test.

Results: Twenty-five studies were included. The combined odds ratio (95% confidence interval) for each potential risk factor estimated by meta-analysis was as follows (univariate/multivariate): alcohol use, 1.47 (0.79-2.72)/2.34 (1.56-3.49); smoking, 1.01 (0.81-1.25)/1.61 (0.83-3.10); hypertension, 1.64 (1.30-2.06)/1.98 (1.44-2.72); age (per year), 1.03 (1.001-1.05)/1.04 (1.02-1.05); age > 65 years, 2.52 (1.55-4.10)/2.59 (1.93-3.47); mechanical ventilation, 3.09 (1.43-6.66)/4.51 (1.41-14.39); and Acute Physiology and Chronic Health Evaluation (APACHE) II score (per point), 1.13 (1.06-
1.21) (multivariate only). There was no evidence of publication bias except for APACHE II score. Conclusion: Age, history of hypertension, clinical use of mechanical ventilation and higher APACHE II score are associated with increased risk of delirium in critically ill patients. 2014 Elsevier Inc.

**Publication type:** Journal: Article  
**Source:** EMBASE

2. **Title:** A systematic review and critical appraisal of quality measures for the emergency care of acute ischemic stroke  
**Citation:** Annals of Emergency Medicine, September 2014, vol./is. 64/3(235-244.e5), 0196-0644;1097-6760 (September 2014)  
**Author(s):** Sauser K., Burke J.F., Reeves M.J., Barsan W.G., Levine D.A.  
**Language:** English  
**Abstract:** Acute stroke is an important focus of quality improvement efforts. There are many organizations involved in quality measurement for acute stroke, and a complex landscape of quality measures exists. Our objective is to describe and evaluate existing US quality measures for the emergency care of acute ischemic stroke patients in the emergency department (ED) setting. We performed a systematic review of the literature to identify the existing quality measures for the emergency care of acute ischemic stroke. We then convened a panel of experts to appraise how well the measures satisfy the American College of Cardiology/American Heart Association (ACC/AHA) criteria for performance measure development (strength of the underlying evidence, clinical importance, magnitude of the relationship between performance and outcome, and cost-effectiveness). We identified 7 quality measures relevant to the emergency care of acute ischemic stroke. We then convened a panel of experts to appraise how well the measures satisfy the American College of Cardiology/American Heart Association (ACC/AHA) criteria for performance measure development (strength of the underlying evidence, clinical importance, magnitude of the relationship between performance and outcome, and cost-effectiveness). We identified 7 quality measures relevant to the emergency care of acute ischemic stroke that fall into 4 main categories: brain imaging, thrombolytic administration, dysphagia screening, and mortality. Three of the 7 measures met all 4 of the ACC/AHA evaluation criteria: brain imaging within 24 hours, thrombolytic therapy within 3 hours of symptom onset, and thrombolytic therapy within 60 minutes of hospital arrival. Measures not satisfying all evaluation criteria were brain imaging report within 45 minutes, consideration for thrombolytic therapy, dysphagia screening, and mortality rate. There remains room for improvement in the development and use of measures that reflect high-quality emergency care of acute ischemic stroke patients in the United States. 2014 by the American College of Emergency Physicians.  
**Publication type:** Journal: Review  
**Source:** EMBASE

3. **Title:** A systematic review of the activity and impact of emergency care practitioners in the NHS  
**Citation:** Emergency Medicine Journal, October 2014, vol./is. 31/10(853-860), 1472-0205;1472-0213 (01 Oct 2014)  
**Author(s):** Hill H., McMeekin P., Price C.  
**Language:** English  
**Abstract:** Background: The NHS has seen a great expansion in the number of emergency care practitioners (ECPs) working in prehospital, primary and acute care settings since the role was introduced in 2003. This paper updates and expands on two previous reviews of ECP roles by identifying and discussing all empirical studies to date that examined the impact of ECP services in the NHS. Objectives: To summarise the national evidence-based literature on the impact of ECPs on healthcare delivery, effectiveness of practice and related health service resource use. Methods: Searches in MEDLINE, EMBASE and CINAHL databases, and two internet search engines (Google and Google Scholar). Identified publications were screened for relevance and quality before a description and synthesis of their findings. No statistical comparison was undertaken. Results: Studies from the peer-reviewed literature (n=15) and project reports (n=6) were included. Overall, there was evidence that investment in ECP roles is beneficial for the quality of care reported by patients and cost efficiency savings. There was clear support from staff and patients for ECP services, and a number of studies of high methodological quality described care processes (diagnosis, investigations instigated and treatment initiated) provided by ECPs to be equivalent to or better to that provided by practitioners with traditional roles. Prehospital ECPs provided 'added value' by treating more patients at the scene thereby reducing unnecessary referral to emergency departments. It was often unclear whether the ECP intervention was part of a larger service change and/or new investment. Conclusions: Successful implementation of the ECP role has been described. Further evaluations should consider whether the beneficial impact of the role transfers equally across all operational settings and patient groups, and is not just a reflection of new investment in clinical services.  
**Publication type:** Journal: Review  
**Source:** EMBASE  
**Full text:** Available *Emergency medicine journal : EMJ* at Emergency Medicine Journal
A systematic review of the effect of emergency medical service practitioners' experience and exposure to out-of-hospital cardiac arrest on patient survival and procedural performance

Citation: Resuscitation, September 2014, vol./is. 85/9(1134-1141), 0300-9572;1873-1570 (September 2014)

Author(s): Dyson K., Bray J., Smith K., Bernard S., Finn J.

Abstract: Background and objective: Emergency medical service (EMS) practitioners' experience and exposure to out-of-hospital cardiac arrest (OHCA) and advanced life support (ALS) procedures could be an important factor in procedural success and patient survival. We systematically reviewed the literature to examine these associations. Methodology: We searched for publications using MEDLINE, EMBASE, CINAHL, CENTRAL and Web of Science. We included studies examining any type of EMS practitioner (e.g. paramedics, physicians) and OHCA patients of all ages and aetiologies. Two reviewers independently extracted data. Results: The search identified 1658 citations, of which 11 observational studies of variable quality were included. The majority of studies did not adjust for important confounding factors and reported across different EMS personnel structures. OHCA survival was not consistently associated with various definitions of career experience in three studies, or with previous OHCA exposure in another study. Endotracheal intubation (ETI) was the only ALS procedure examined. Successful ETI placement was associated with the previous number of ETIs performed in four of five studies, but not career experience in three of four studies. Only one study examined OHCA outcome, and reported an increase in survival to hospital discharge when practitioners had high ETI exposure. Conclusions: There is no clear evidence of an association with EMS practitioner career experience or exposure to OHCA cases and ALS procedures, with the exception of exposure to ETI and successful placement. However, most studies in this field had substantial risk of bias. Therefore, further studies are required before any definitive conclusions can be drawn. 2014 Elsevier Ireland Ltd.

Benefits of simulation based training for neonatal resuscitation education: A systematic review

Citation: Resuscitation, October 2014, vol./is. 85/10(1320-1323), 0300-9572;1873-1570 (01 Oct 2014)

Author(s): Rakshasbhuwankar A.A., Patole S.K.

Abstract: Background: Simulation-based training (SBT) is being more frequently recommended for neonatal resuscitation education (NRE). It is important to assess if SBT improves clinical outcomes as neonatal resuscitation aims to improve survival without long-term neurodevelopmental impairment. We aimed to assess the evidence supporting benefits of SBT in NRE. Method: A systematic review was conducted using the Cochrane methodology. PubMed, EMBase, PsycINFO and Cochrane databases were searched. Related abstracts were scanned and full texts of the potentially relevant articles were studied. Randomised controlled trials (RCT) and quasi-experimental studies with controls (non-RCT) assessing SBT for NRE were eligible for inclusion in the review. Results: Four small studies [three RCT (n = 126) and one non-RCT (n = 60)] evaluated SBT for NRE. Participants included medical students (one RCT and one non-RCT), residents (one RCT) and nursing staff (one RCT). Outcomes included performance in a simulation scenario, theoretical knowledge, and confidence in leading a resuscitation scenario. One RCT favoured simulation [improved resuscitation score (p = 0.016), 2.31 more number of critical actions (p = 0.017) and decreased time to achieve resuscitation steps (p <0.001)]. The remaining two RCTs and the non-RCT did not find any difference between SBT and alternate methods of instruction. None of the four studies reported clinical outcomes. Conclusions: Evidence regarding benefits of SBT for NRE is limited. There are no data on clinical outcomes following SBT for NRE. Large RCTs assessing clinically important outcomes are required before SBT can be recommended widely for NRE.

Compartment syndrome following thrombolysis: Clinical features and associated conditions

Citation: Journal of Thrombosis and Thrombolysis, August 2014, vol./is. 38/2(201-207), 0929-5305;1573-742X (August 2014)

Author(s): Freyer M., Vachalova I., Zirngibl B., Heckmann J.G.

Abstract: Major complications of thrombolysis are intracranial and extracranial bleedings. Compartment syndrome (CS)
as a serious adverse event is sparsely reported. The purpose of the study is to present a systematic review of the literature on this complication based on a case vignette. A PubMed and Google Scholar search on CS following thrombolysis was performed. Twenty-four patients (11 male, 11 female, 2 not noted; median age 66 years, range 19-85 years) with thrombolysis associated CS were identified. Fifteen patients had thrombolysis with rtPA, 4 patients with streptokinase, 3 patients with urokinase, and 2 patients with tenecteplase. In 15 cases, CS affected the upper limb, and in 9 cases the lower limb. Indication for thrombolysis was myocardial infarction in 11 patients, arterial occlusion of the leg in 6 patients, pulmonary embolism in 4 patients, stroke in 2 patients, and deep venous thrombosis in 1 patient. In addition, in 15 cases, aspirin/ticlopidin, and/or heparin in therapeutic dosages had been prescribed. In 15 cases manipulations of the affected limb had been preceding. In both stroke patients, a hidden fracture was later diagnosed. The median time to the diagnosis of CS was 12 h (2 h-3 days). Therapy was mostly surgical with fasciotomy. The outcome of CS was favorable in 14 cases. However, in 5 cases, nerve damage persisted, and amputation was indicated in 2 patients. CS following thrombolysis is a rare condition. As predisposing factors different manipulations, hidden fracture and pronounced antithrombotic therapy are encountered. 2013 Springer Science+Business Media.

**Publication type**: Journal: Review

**Source**: EMBASE

7. **Title**: Cost effectiveness of a benzodiazepine vs a nonbenzodiazepine-based sedation regimen for mechanically ventilated, critically ill adults

**Citation**: Journal of Critical Care, October 2014, vol./is. 29/5(753-757), 0883-9441;1557-8615 (October 2014)

**Author(s)**: Bioc J.J., Magee C., Cucchi J., Fraser G.L., Dasta J.F., Edwards R.A., Devlin J.W.

**Language**: English

**Abstract**: Purpose: Nonbenzodiazepine sedation (eg, dexmedetomidine or propofol) may be more cost effective than benzodiazepine (BZ) sedation despite its higher acquisition cost. Materials and methods: A cost effectiveness (CE) analysis of noncardiac surgery, critically ill adults requiring at least 1 day of mechanical ventilation (MV) and administered either BZ or non-BZ sedation, that cycled health states and costs daily using a Markov model accounting for daily MV use until intensive care unit (ICU) discharge, was conducted from a third-party perspective. Transition probabilities were obtained from a published meta-analysis, and costs were estimated from best evidence. Sensitivity analyses were run for all extubation and discharge probabilities, for different cost estimates and for the specific non-BZ administered. Results: When non-BZ rather than BZ sedation was used, the incremental cost-effectiveness ratio to avert 1 ICU day while MV or while either MV or non-MV was $3406 and $3136, respectively. The base-case analysis revealed that non-BZ sedation (vs BZ sedation) resulted in higher drug costs ($1327 vs $65) but lower total ICU costs (percent accounted for MV need): $35. 380 (71.0%) vs $45. 394 (70.6%). Sensitivity analysis revealed that BZ sedation would only be less costly if the daily rate of extubation was at least 16%, and the daily rate of ICU discharge without MV was at least 77%. The incremental CE ratio to avert 1 ICU day while MV or non-MV was similar between the dexmedetomidine and propofol non-BZ options. Conclusions: Among MV adults, non-BZ sedation has a more favorable CE ratio than BZ sedation over most cost estimates. 2014 Elsevier Inc.

**Publication type**: Journal: Article

**Source**: EMBASE

8. **Title**: Definition, prevalence, and outcome of feeding intolerance in intensive care: A systematic review and meta-analysis

**Citation**: Acta Anaesthesiologica Scandinavica, September 2014, vol./is. 58/8(914-922), 0001-5172;1399-6576 (September 2014)

**Author(s)**: Blaser A.R., Starkopf J., Kirsimagi U., Deane A.M.

**Language**: English

**Abstract**: Clinicians and researchers frequently use the phrase ‘feeding intolerance' (FI) as a descriptive term in enteral fed critically ill patients. We aimed to: (1) determine what is the most accepted definition of FI; (2) estimate the prevalence of FI; and (3) evaluate whether FI is associated with important outcomes. Systematic searches of peer-reviewed publications using PubMed, MEDLINE, and Web of Science were performed with studies reporting FI extracted. We identified 72 studies defining FI. In 33 studies, the definition was based on large gastric residual volumes (GRVs) together with other gastrointestinal symptoms, while 30 studies relied solely on large GRVs, six studies used inadequate delivery of enteral nutrition (EN) as a threshold, and three studies gastrointestinal symptoms without reference to GRV. The median volume used to define a 'large' GRV was 250 ml (ranges from 75 to 500 ml). The pooled
proportion (n = 31 studies) of FI was 38.3% (95% CI 30.7-46.2). Five studies reported outcomes, all of them observed adverse outcome in FI patients. In three studies, respectively, FI was associated with increased mortality and ICU length-of-stay. In summary, FI is inconsistently defined but appears to occur frequently. There are preliminary data indicating that FI is associated with adverse outcomes. A standard definition of FI is required to determine the accuracy of these preliminary data. 2014 The Acta Anaesthesiologica Scandinavica Foundation. Published by John Wiley & Sons Ltd.

9. Title: Early oral feeding after emergency abdominal operations: Another paradigm to be broken?
Citation: Current Opinion in Clinical Nutrition and Metabolic Care, September 2014, vol./is. 17/5(477-482), 1363-1950;1473-6519 (September 2014)
Author(s): Le Guen M., Fessler J., Fischler M.
Language: English
Abstract: PURPOSE OF REVIEW: The scope of this article is to provide an updated review examining the role of early feeding in the postoperative period. RECENT FINDINGS: Guidelines for postoperative care after abdominal surgery have historically outlined the dogma of 'nil by mouth' until bowel movement returns, but they are currently questioned. This change in mindset, especially after colorectal surgery, was initiated with fast-track or enhanced recovery after surgery programs, which particularly led to an opioid-sparing strategy. Many randomized trials and meta-analyses suggested an absence of benefit in keeping patients 'nil by mouth'. Conversely, in elective abdominal surgery, improvement in comfort without increased morbidity is now demonstrated with a liberal strategy, and a recent meta-analysis even demonstrated a decrease in mortality. Early caloric hydration and chewing gum are the most acceptable actions with a high level of proof. After emergency surgery, few data are available but a similar strategy should probably be chosen with no obvious benefit from maintenance of fasting. SUMMARY: Early oral intake is possible after elective abdominal surgery and should be moderate and progressive to be well tolerated. Any sign of nausea may mean intestinal or gastric disturbance and is a caution not to pursue this policy. The strategy in emergency abdominal surgery still requires adequately powered, randomized controlled trials. Copyright Lippincott Williams & Wilkins.

10. Title: Effect of pharmaconutrition-supplemented parenteral nutrition for severe acute pancreatitis: A meta-analysis of randomized controlled trials
Citation: Journal of the Pancreas, 2014, vol./is. 15/4(371-377), 1590-8577 (2014)
Author(s): Shen Y., Deng X., Jin W., Zhang C., Zhang X., Wang Y.
Language: English
Abstract: Objective To evaluate the effectiveness of pharmaconutrition-supplemented parenteral nutrition (PN) for severe acute pancreatitis (SAP). Methods A comprehensive search of abstracts was performed in the MEDLINE, OVID, Springer, and Cochrane Library database. Published data of randomized clinical trials (RCTs) comparing the clinically relevant outcomes of pharmaconutrition-supplemented PN versus PN for patients with SAP were analyzed. The analyzed outcome variables included infection, mortality, intensive care unit (ICU) stay, hospital stay, and leukocytes change. Statistical analyses were performed using the Cochrane Collaboration's RevMan 5.1 software. Results Four RCTs published in 1998 or later were included in this meta-analysis, in which 76 patients with pharmaconutrition-supplemented PN and 77 patients with PN. Pharmaconutrition-supplemented PN showed significantly better results in terms of infection (OR, 0.42; 95% CI, 0.20-0.91; P =0.03) and leukocytes change (before treated: mean different, 0.93; 95% CI, 0.21-1.65; P =0.01; after treated: mean different, -0.77; 95% CI, -1.47- -0.08; P =0.03). No significant difference could be found in mortality (OR, 0.30; 95% CI, 0.07-1.19; P =0.09), ICU stay (mean different, -3.65; 95% CI, -9.39-2.10; P =0.21), and hospital stay (mean different, -1.20; 95% CI, -9.89-7.48; P =0.79). Conclusions The current meta-analysis indicates that pharmaconutrition-supplemented PN only show advantages in infection and leukocytes change.

11. Title: Effects of alveolar recruitment maneuvers on clinical outcomes in patients with acute respiratory distress syndrome: A systematic review and meta-analysis
Citation: Intensive Care Medicine, 2014, vol./is. 40/9(1227-1240), 0342-4642;1432-1238 (2014)

Language: English

Abstract: Purpose: To assess the effects of alveolar recruitment maneuvers (ARMs) on clinical outcomes in patients with acute respiratory distress syndrome (ARDS). Methods: We conducted a search of the MEDLINE, EMBASE, LILACS, CINAHL, CENTRAL, Scopus, and Web of Science (from inception to July 2014) databases for all (i.e. no language restriction) randomized controlled trials (RCTs) evaluating the effects of ARMs versus no ARMs in adults with ARDS. Four teams of two reviewers independently assessed the eligibility of the studies identified during the search and appraised the risk of bias and extracted data from those which were assessed as meeting the inclusion criteria. Data were pooled using the random-effects model. Trial sequential analysis (TSA) was used to establish monitoring boundaries to limit global type I error due to repetitive testing for our primary outcome (in-hospital mortality). The GRADE system was used to rate the quality of evidence. Results: Our database search identified ten RCTs (1,594 patients, 612 events) which satisfied the inclusion criteria. The meta-analysis assessing the effect of ARMs on in-hospital mortality showed a risk ratio (RR) of 0.84 [95 % confidence interval (CI) 0.74-0.95; I <sup>2</sup> = 0 %], although the quality of evidence was considered to be low due to the risk of bias in the included trials and the indirectness of the evidence-that is, ARMs were usually conducted together with other ventilatory interventions which may affect the outcome of interest. There were no differences in the rates of barotrauma (RR 1.11; 95 % CI 0.78-1.57; I <sup>2</sup> = 0 %) or need for rescue therapies (RR 0.76, 95 % CI 0.41-1.40; I <sup>2</sup> = 56 %). Most trials found no difference between groups in terms of duration of mechanical ventilation and length of stay in the intensive care unit and hospital. The TSA showed that the available evidence for the effect of ARMs on in-hospital mortality is precise in the case of a type I error of 5 %, but it is not precise with a type I error of 1 %. Conclusions: Although ARMs may decrease the mortality of patients with ARDS without increasing the risk for major adverse events, current evidence is not definitive. Large-scale ongoing trials addressing this question may provide data better applicable to clinical practice. 2014 Springer-Verlag and ESICM.

Publication type: Journal: Review
Source: EMBASE

12.Title: Enteral nutrition vs total parenteral nutrition in patients with severe acute pancreatitis: A systematic review of randomized controlled trials
Citation: World Chinese Journal of Digestology, 2014, vol./is. /21(3153-3160), 1009-3079 (2014)
Author(s): Zhou X.-H., He J.-D., Qiu X., Chen O., Liu L., Zhu Y.-J.
Language: English
Abstract: CONCLUSION: The current evidence shows that enteral nutrition is safe and effective and is the preferred nutrition feeding method in patients with severe acute pancreatitis.
Publication type: Journal: Article
Source: EMBASE

13.Title: Lactate clearance is a useful biomarker for the prediction of all-cause mortality in critically ill patients: A systematic review and meta-analysis
Citation: Critical Care Medicine, September 2014, vol./is. 42/9(2118-2125), 0090-3493;1530-0293 (September 2014)
Author(s): Zhang Z., Xu X.
Language: English
Abstract: OBJECTIVES:: Lactate clearance has been widely investigated for its prognostic value in critically ill patients. However, the results are conflicting. The present study aimed to explore the diagnostic accuracy of lactate clearance in predicting mortality in critically or acutely ill patients. DATA SOURCES:: Databases of Medline, Embase, Scopus, and Web of Knowledge were searched from inception to June 2013. STUDY SELECTION:: Studies investigating the prognostic value of lactate clearance were defined as eligible. The searched item consisted of terms related to critically ill patients and terms related to lactate clearance. DATA EXTRACTION:: The following data were extracted: the name of the first author, publication year, subjects and setting, mean age of study population, sample size, male percentage, mortality of study cohort, definition of clearance, and the initial lactate level. Relative risk was reported to estimate the predictive value of lactate clearance on mortality rate, with relative risk less than 1 indicating that lactate clearance was a protective factor. Meta-analysis of diagnostic accuracy of lactate clearance in predicting mortality was performed by using hierarchical summary receiver operating characteristic model. DATA SYNTHESIS:: A total of 15 original articles were included in the
Because of the significant heterogeneity across studies (I = 61.4%), random-effects model was used to pool relative risks. The pooled relative risk for mortality was 0.38 (95% CI, 0.29-0.50). The overall sensitivity and specificity for lactate clearance to predict mortality were 0.75 (95% CI, 0.58-0.87) and 0.72 (95% CI, 0.61-0.80), respectively. The diagnostic performance improved slightly when meta-analysis was restricted to ICU patients, with sensitivity and specificity of 0.83 (95% CI, 0.67-0.92) and 0.67 (95% CI, 0.59-0.75), respectively. CONCLUSION: Our study demonstrates that lactate clearance is predictive of lower mortality rate in critically ill patients, and its diagnostic performance is optimal for clinical utility. 2014 by the Society of Critical Care Medicine and Lippincott Williams and Wilkins.

Publication type: Journal: Review
Source: EMBASE
Full text: Available Critical care medicine at Critical Care Medicine

14. Title: Nasal bridles for securing nasoenteric tubes: A meta-analysis
Citation: Nutrition in Clinical Practice, October 2014, vol./is. 29/5(667-671), 0884-5336;1941-2452 (01 Oct 2014)
Language: English
Abstract: Background: Nasoenteric feeding tubes may easily become dislodged due to patient mental status, transfers, or positional changes. Nasal bridles were introduced to provide a better, more reliable system to secure these tubes. This meta-analysis was performed to evaluate the effectiveness of nasal bridles compared with the traditional method of adhesive tape alone in securing enteral feeding tubes. Materials and Methods: Multiple databases were searched (October 2013). All studies that evaluated the use of nasal bridles in adult patients were included in the analysis. Meta-analysis for the outcomes from use of a nasal bridle vs the more traditional method of adhesive tape alone for securing nasoenteric tubes was analyzed by calculating pooled estimates of dislodgement, skin complications, and sinusitis. Statistical analysis was performed using RevMan 5.1. Results: Six studies (n = 594) met the inclusion criteria. Use of a nasal bridle for securing enteral tubes resulted in a statistically significant reduction in tube dislodgement compared with traditional adhesive tape alone (odds ratio [OR], 0.16; 95% confidence interval [CI], 0.10-0.27; P <.01). The use of nasal bridles was associated with a higher rate of skin complications compared with traditional adhesive tape (OR, 4.27; 95% CI, 1.79-10.23; P <.01). Incidence of sinusitis was no different between the 2 groups (OR, 0.26; 95% CI, 0.03-2.28; P =.22). Conclusion: Nasal bridles appear to be more effective at securing nasoenteric tubes and preventing dislodgement than traditional use of tape alone.
Publication type: Journal: Article
Source: EMBASE

15. Title: New frontiers in aortic therapy: Focus on deep hypothermic circulatory arrest
Citation: Journal of Cardiothoracic and Vascular Anesthesia, August 2014, vol./is. 28/4(1171-1175), 1053-0770;1532-8422 (August 2014)
Author(s): Gutsche J.T., Ghadimi K., Patel P.A., Robinson A.R., Lane B.J., Szeto W.Y., Augoustides J.G.T.
Language: English
Abstract: There is currently a paradigm shift in the conduct of adult aortic arch repair. Although deep hypothermic circulatory arrest has been the classic perfusion platform for adult aortic arch repair, recent developments have challenged this aortic arch paradigm. There has been a gradual clinical drift towards moderate, and even mild, hypothermic circulatory arrest combined with antegrade cerebral perfusion. This paradigm shift appears to be associated with equivalent clinical outcomes, and in certain settings, with improved outcomes. The advent of endovascular therapy has challenged even further the concept that circulatory arrest is required for adult aortic arch repair. These dramatic advances have resulted in the emergence of an international aortic arch surgery study group that aims to advance this dynamic field through consensus statements, meta-analysis, clinical database analysis, prospective registries, and randomized controlled trials. 2014 Elsevier Inc.
Publication type: Journal: Review
Source: EMBASE

16. Title: Ondansetron and the risk of cardiac arrhythmias: A systematic review and postmarketing analysis
Citation: Annals of Emergency Medicine, July 2014, vol./is. 64/1(19-25.e6), 0196-0644;1097-6760 (July 2014)
Author(s): Freedman S.B., Uleryk E., Rumantir M., Finkelstein Y.
Language: English
Abstract: Study objective To explore the risk of cardiac arrhythmias associated with ondansetron administration in the context of recent recommendations for identification of high-risk individuals. Methods We conducted a postmarketing analysis and systematically reviewed the published literature, grey literature, manufacturer’s database, Food and Drug Administration Adverse Events Reporting System, and the World Health Organization Individual Safety Case Reports Database (VigiBase). Eligible cases described a documented (or perceived) arrhythmia within 24 hours of ondansetron administration. The primary outcome was arrhythmia occurrence temporally associated with the administration of a single, oral ondansetron dose. Secondary objectives included identifying all cases associating ondansetron administration (any dose, frequency, or route) to an arrhythmia. Results Primary: No reports describing an arrhythmia associated with single oral ondansetron dose administration were identified. Secondary: Sixty unique reports were identified. Route of administration was predominantly intravenous (80%). A significant medical history (67%) or concomitant use of a QT-prolonging medication (67%) was identified in 83% of reports. Approximately one third occurred in patients receiving chemotherapeutic agents, many of which are known to prolong the QT interval. An additional third involved administration to prevent postoperative vomiting. Conclusion Current evidence does not support routine ECG and electrolyte screening before single oral ondansetron dose administration to individuals without known risk factors. Screening should be targeted to high-risk patients and those receiving ondansetron intravenously.

Publication type: Journal: Review
Source: EMBASE
Sodium bicarbonate in the prevention of cardiac surgery-associated acute kidney injury: A systematic review and meta-analysis

**Title:** Protective mechanical ventilation in the non-injured lung: review and meta-analysis

**Citation:** Critical Care (London, England), 2014, vol./is. 18/2(211), 1466-609X (2014)

**Author(s):** Sutherasan Y., Vargas M., Pelosi P.

**Language:** English

**Publication type:** Journal: Review

**Source:** EMBASE

**Full text:** Available National Library of Medicine at Critical Care

**Abstract:** Sodium bicarbonate (SBIC) was reported to be a promising approach to prevent cardiac surgery-associated acute kidney injury (CSA-AKI). However, the results remain controversial. We conducted a systematic review and meta-analysis to evaluate the efficacy and safety of SBIC on the prevention of CSA-AKI in adult patients undergoing cardiac surgery.

**Methods:** PubMed, EMBase, Web of science, EBSCO, and Cochrane library databases were systematically searched. Randomized controlled trials (RCTs) assessing the effect of SBIC versus placebo on the prevention of CSA-AKI in adult patients undergoing cardiac surgery were included. Two investigators independently searched articles, extracted data, and assessed the quality of included studies. The primary outcome was the incidence of CSA-AKI. Meta-analysis was performed using random-effects models.

**Results:** Five RCTs involving 1079 patients were included in the meta-analysis. Overall, compared with placebo, SBIC was not associated with a reduced risk of CSA-AKI (relative risk [RR] 0.99; 95% confidence interval [CI] 0.78 to 1.24; P = 0.911). SBIC failed to alter the clinical outcomes of hospital length of stay (weighted mean difference [WMD] 0.23 days; 95%CI -0.88 to 1.33 days; P = 0.688), renal replacement therapy (RR 0.94; 95%CI 0.49 to 1.82; P = 0.861), hospital mortality (RR 1.37; 95%CI 0.46 to 4.13; P = 0.572), postoperative atrial fibrillation (RR 1.02; 95%CI 0.65 to 1.61; P = 0.915). However, SBIC was associated with significant increased risks in longer duration of ventilation (WMD 0.64 hours; 95%CI 0.16 to 1.11 hours; P = 0.008), longer ICU length of stay (WMD 2.06 days; 95%CI 0.54 to 3.58 days; P = 0.008), and increased incidence of alkalalemia (RR 2.21; 95%CI 1.42 to 3.42; P <0.001).

**Conclusions:** SBIC could not reduce the incidence of CSA-AKI. Contrarily, SBIC prolongs the duration of ventilation and ICU length of stay, and increases the risk of alkalalemia. Thus, SBIC should not be recommended for the prevention of CSA-AKI and perioperative SBIC infusion should be administrated with caution.

**Publication type:** Journal: Article
21. Title: Spectrophotometry or visual inspection to most reliably detect xanthochromia in subarachnoid hemorrhage: Systematic review

Citation: Annals of Emergency Medicine, September 2014, vol./is. 64/3(256-264.e5), 0196-0644;1097-6760 (September 2014)

Author(s): Chu K., Hann A., Greenslade J., Williams J., Brown A.

Abstract: Study objective We assess the sensitivity and specificity of xanthochromia as adjudicated by visual inspection and spectrophotometry at predicting the presence of cerebral aneurysm in patients with suspected subarachnoid hemorrhage who have a normal computed tomography (CT) head scan result. Methods A systematic review was performed. MEDLINE and EMBASE databases were searched. Relevant studies with clinical data on the diagnostic accuracy of visual inspection or spectrophotometry were considered. Patients who had a normal CT head scan result followed by a lumbar puncture were included in this review. Sensitivities, specificities, and heterogeneity (I²) were calculated. Subgroup analyses were performed to explore reasons for the heterogeneity. Results There were major methodological limitations in the studies found. Twenty-two relevant articles were heterogeneous in regard to time to lumbar puncture, spectrophotometry methods, and follow-up of patients not undergoing cerebral angiography. Twelve of the 22 studies selected patients on the basis of a cerebral aneurysm or subarachnoid hemorrhage on imaging, or a positive lumbar puncture result. These studies were excluded from our initial analysis, which included only patients with clinically suspected subarachnoid hemorrhage. In this initial analysis, pooled estimates of sensitivity and specificity for spectrophotometry were 87% (95% confidence interval [CI] 71% to 96%; I² = 26%) and 86% (95% CI 84% to 88%; I² = 96%), respectively. For visual inspection, pooled sensitivity and specificity were 83% (95% CI 59% to 96%; I² = 52%) and 96% (95% CI 93% to 97%; I² = 76%), respectively. Sensitivity estimates are difficult to interpret without knowing time to lumbar puncture. Conclusion The heterogeneity in the underlying studies, combined with significant overlap in pooled confidence limits, makes it impossible to provide a definite conclusion about the diagnostic accuracy of spectrophotometry versus visual inspection. 2014 by the American College of Emergency Physicians.

Publication type: Journal: Review

Source: EMBASE

22. Title: Systematic review and meta-analysis of the benefits of out-of-hospital 12-lead ECG and advance notification in ST-segment elevation myocardial infarction patients

Citation: Annals of Emergency Medicine, August 2014, vol./is. 64/2(176-186.e9), 0196-0644;1097-6760 (August 2014)

Author(s): Nam J., Caners K., Bowen J.M., Welsford M., O'Reilly D.

Abstract: Study objective To present a review of out-of-hospital identification of ST-segment elevation myocardial infarction patients transported by emergency medical services with 12-lead ECG and advance notification versus standard or no cardiac monitoring. Methods EMBASE, PubMed, and the Cochrane Library were searched, using controlled vocabulary and keywords. Randomized controlled trials and observational studies were included. Outcomes included short-term mortality (<30 days), door-to-balloon/needle time and/or first medical contact-to-balloon/needle time. Pooled estimates were determined, where appropriate. Results were stratified by percutaneous coronary intervention or fibrinolysis. Results The search yielded 1,857 citations, of which 68 full-texts were reviewed and 16 studies met the final criteria: 15 included data on percutaneous coronary intervention and 3 on fibrinolysis (2 included both). Where percutaneous coronary intervention was performed, out-of-hospital 12-lead ECG and advance notification was associated with a 39% reduction in short-term mortality (8 studies; n=6,339; risk ratio 0.61; 95% confidence interval 0.42 to 0.89; P=.01; I² = 30%) compared with standard or no cardiac monitoring. Where fibrinolysis was performed, out-of-hospital 12-lead ECG and advance notification was associated with a 29% reduction in short-term mortality (1 study; n=17,026; risk ratio 0.71; 95% confidence interval 0.54 to 0.93; P=.01). First medical contact-to-balloon, door-to-balloon, and door-to-needle times were consistently reduced, though large heterogeneity generally precluded pooling. Conclusion The present study adds to previous reviews by identifying and appraising the strength and quality of a larger body of evidence. Out-of-hospital identification with 12-lead ECG and advance notification was found to be associated with reductions in short-term mortality and first medical contact-to-balloon, door-to-balloon,
and door-to-needle time. 2013 by the American College of Emergency Physicians.

**Publication type:** Journal: Review  
**Source:** EMBASE

**23.** Title: The effect of hyperoxia on survival following adult cardiac arrest: A systematic review and meta-analysis of observational studies  
**Citation:** Resuscitation, September 2014, vol./is. 85/9(1142-1148), 0300-9572;1873-1570 (September 2014)  
**Author(s):** Wang C.-H., Chang W.-T., Huang C.-H., Tsai M.-S., Yu P.-H., Wang A.-Y., Chen N.-C., Chen W.-J.  
**Language:** English  
**Abstract:** Objective: Studies have shown the detrimental effect of hyperoxia in animals with return of spontaneous circulation (ROSC) after cardiac arrest. To maximize the value of existing clinical studies, we performed the systemic review and meta-analysis of human observational studies to examine the effect of hyperoxia on outcomes of post-ROSC patients. Methods: We searched PubMed and Embase from the inception to October 2013. We selected adult observational studies that compared different levels of partial pressure of arterial oxygen (PaO₂) in post-ROSC patients with mortality or neurological status at hospital discharge as outcome. Studies comparing hypoxia with normoxia only were excluded. Results: Fourteen studies were identified from 2982 references. Odds ratio (OR) was used as effect estimate. OR was reconstructed if not provided in original articles. Hyperoxia was defined as a PaO₂ >300mmHg. Meta-analysis indicated that hyperoxia appeared to be correlated with increased in-hospital mortality (OR, 1.40; 95% CI, 1.02-1.93; 8 studies) but not worsened neurological outcome (OR, 1.62; 95% CI, 0.87-3.02; 8 studies). However, the results were inconsistent in subgroup and sensitivity analyses. Conclusions: Hyperoxia appears to be correlated with increased in-hospital mortality of post-ROSC patients. This result should be interpreted cautiously because of the significant heterogeneity and limited number of studies analyzed. However, because exposure to hyperoxia had no obvious benefits, clinicians should monitor PaO₂ closely and titrate oxygen administration cautiously. 2014 Elsevier Ireland Ltd.  
**Publication type:** Journal: Review  
**Source:** EMBASE

**24.** Title: The use of gastrointestinal cocktail for differentiating gastro-oesophageal reflux disease and acute coronary syndrome in the emergency setting: A systematic review  
**Citation:** Heart Lung and Circulation, October 2014, vol./is. 23/10(913-923), 1443-9506;1444-2892 (01 Oct 2014)  
**Author(s):** Chan S., Maurice A.P., Davies S.R., Walters D.L.  
**Language:** English  
**Abstract:** Background: Differentiating acute chest pain caused by myocardial ischaemia from other, potentially more benign causes of chest pain is a frequent diagnostic challenge faced by Emergency Department (ED) clinicians. Only 30% of patients presenting with chest pain will have a cardiac origin for the pain, and gastro-oesophageal disorders are one of the common sources of non-cardiac chest pain, yet remain clinically difficult to differentiate from cardiac pain. Aim: A systematic review of the literature was conducted to locate and evaluate clinical trials comparing the use of an oral gastrointestinal (GI) cocktail (oral viscous lidocaine/antacid + anticholinergic) to standard diagnostic protocols (serial electrocardiograms (ECGs), serial biomarkers, imaging and/or provocative testing) to differentiate emergency patients presenting with acute chest pain caused by gastro-oesophageal disease from those with other aetiologies. Methods: Studies were identified by searching electronic databases, scanning reference lists of articles, and searching clinical trial databases for relevantly currently registered trials. The search included PubMed (1966 - present), Embase (1980 - present) and Cochrane Central Register of Controlled Trials (CENTRAL). The identified studies were evaluated with a modified QUADAS tool. Results: A total of four studies were identified for inclusion in the review. Studies were of low methodological quality with heterogeneous results. There were no adequately powered and appropriately designed studies identified. Discussion: Current diagnostic protocols for Acute Coronary Syndrome (ACS) revolve around early and serial ECG monitoring and cardiac biomarker testing, imaging and careful clinical examination. In patients with chest pain and suspected ACS, the use of a GI cocktail compared with standard diagnostic protocols (serial ECG and biomarkers and provocative testing or imaging) is not proven to improve accuracy of diagnosis, and cannot reliably exclude myocardial ischaemia.  
**Publication type:** Journal: Review  
**Source:** EMBASE
25. Title: Ventilatory strategies in severe acute respiratory failure

Citation: Seminars in Respiratory and Critical Care Medicine, August 2014, vol./is. 35/4(418-430), 1069-3424;1098-9048 (August 2014)

Author(s): Hess D.R.

Language: English

Abstract: Lung-protective ventilator strategies are considered standard practice in the care of patients with the acute respiratory distress syndrome (ARDS). To minimize ventilator-induced lung injury, attention is directed at avoidance of alveolar overdistention and cyclical opening and closing. The lowest possible plateau pressure and tidal volume (V<sub>T</sub>) should be selected. A reasonable target V<sub>T</sub> in all mechanically ventilated patients is 6 mL/kg. A topic of much controversy is the optimal setting of positive end-expiratory pressure (PEEP). Results of a meta-analysis using individual patient data from three randomized controlled trials suggest that higher PEEP should be used for moderate and severe ARDS, whereas lower PEEP may be more appropriate in patients with mild ARDS. PEEP should be set to maximize alveolar recruitment while avoiding overdistention. Volume and pressure limitation during mechanical ventilation can be described in terms of stress and strain. Fraction of inspired oxygen (Fio <sub>2</sub>) and PEEP are typically titrated to maintain arterial oxygen saturation (Spo <sub>2</sub>) of 88 to 95% (Pao <sub>2</sub> 55-80amm Hg). There is currently no clear proven benefit for advanced modes.

Publication type: Journal: Article

Source: EMBASE

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