

## References: Critical Care

### REF ID: 290

#### QM: Quality Measures [Quality indicators (Medline)/Clinical indicators (CINAHL)]

##### Topic 5: Evaluation/Follow-up

**New data combat lack of critical care benchmarks.(2001). *Healthcare Benchmarks*, 8(5), 56-57.**

##### **Journal Article**

A new study, the ICU Benchmarks for Success report, published in February by Baltimore-based Solucient (formerly HCIA-Sachs) identifies several significant opportunities for hospitals to improve their performance, if they adopt the practices of top performers.

### REF ID: 262

#### Level IV: Non-experimental study

##### Topic 4.1: Management-General

**Azoulay, E., Pochard, F., Chevret, S., Arich, C., Brivet, F., & Brun, F. et al. (2003). Family participation in care to the critically ill: Opinions of families and staff. *Intensive Care Medicine*, 29(9), 1498-1504.**

##### **Journal Article. Multicenter Study**

**BACKGROUND:** Allowing family members to participate in the care of patients in intensive care units (ICUs) may improve the quality of their experience. No previous study has investigated opinions about family participation in ICUs. **METHODS:** Prospective multicenter survey in 78 ICUs (1,184 beds) in France involving 2,754 ICU caregivers and 544 family members of 357 consecutive patients. We determined opinions and experience about family participation in care; comprehension (of diagnosis, prognosis, and treatment) and satisfaction (Critical Care Family Needs Inventory) scores to assess the effectiveness of information to families and the Hospital Anxiety and Depression score for family members. **RESULTS:** Among caregivers 88.2% felt that participation in care should be offered to families. Only 33.4% of family members wanted to participate in care. Independent predictors of this desire fell into three groups: patient-related (SAPS II at ICU admission, OR 0.984); ICU stay length, OR 1.021), family-related (family member age, OR 0.97/year); family not of European descent, OR 0.294); previous ICU experience in the family, OR 1.59), and those related to emotional burden and effectiveness of information provided to family members (symptoms of depression in family members, OR 1.58); more time wanted for information, OR 1.06). **CONCLUSIONS:** Most ICU caregivers are willing to invite family members to participate in patient care, but most family members would decline.

### REF ID: 256

#### Level I: Systematic Reviews

##### Topic 4.1: Management-General

**Baggs, J. G. (2002). End-of-life care for older adults in ICUs. *Annual Review of Nursing Research*, 20, 181-229.**

This review was undertaken to present and critique the most recent (1990-2000) empirical evidence about **end-of-life care for older** adult patients in **ICUs**, their families, and **care** providers. The studies (including descriptive, correlational, longitudinal, and intervention) were found using a combination of these terms: (a) intensive **care** (units) or critical **care** (units), and (b) critical illness, critically ill patients, terminally ill, terminal **care**, life support **care**, or palliative **care**. The computerized databases searched were CINAHL and MEDLINE. Only published studies of persons 44 years of age or **older**, written in English, and conducted in the U.S. or Canada were included. Research was not limited to studies conducted by or written by nurses. Excluded were articles focused on physiology, **for** example, studies of treatment **for** specific conditions, and articles focused on predictors of ICU outcomes. [References: 112]

### REF ID: 302

#### Level V: Case report

##### Topic 1: Risks

##### Topic 2: Prevention

**Baumgarten, M., Margolis, D., Berlin, J. A., Strom, B. L., Garino, J., & Kagan, S. H. et al. (2003).**

**Risk factors for pressure ulcers among elderly hip fracture patients. *Wound Repair and Regeneration, 11(2), 96-103.***

**Journal Article, Research, Tables/Charts**

The purpose of this study was to estimate the incidence of hospital-acquired pressure ulcers among elderly patients hospitalized for hip fracture surgery and to identify extrinsic factors that are associated with increased risk. We conducted a secondary analysis of data abstracted from medical records at 20 hospitals in Pennsylvania, Texas, New Jersey, and Virginia. Participants were patients aged 60 years and older admitted with hip fracture to the study hospitals between 1983 and 1993. The incidence of hospital-acquired pressure ulcers was 8.8% (95% confidence interval 8.2%-9.4%). After adjusting for confounding variables, longer wait before surgery, intensive care unit stay, longer surgical procedure, and general anesthesia were significantly associated with higher pressure ulcer risk. Extrinsic factors may be important markers for high pressure ulcer risk in hospitalized hip fracture patients. Although it is not possible to eliminate factors such as requiring an intensive care unit stay or having a long surgical procedure, it may be possible to develop interventions that minimize pressure ulcer risk in patients who experience these factors.

**REF ID: 281**

**QM: Quality Measures [Quality indicators (Medline)/Clinical indicators (CINAHL)]**

**Topic 5: Evaluation/Follow-up**

**Birkett, K. M., Southerland, K. A., & Leslie, G. D. (2005). Reporting unplanned extubation. *Intensive & Critical Care Nursing, 21(2), 65-75.***

**Journal Article**

Between 1995 and 2002 seven clinical audits were undertaken in consecutive periods over twelve months to determine the frequency and risk factors associated with reported unplanned extubation (UE) within a 22-bed general and surgical Intensive Care Unit (ICU). Nursing and medical staff provided information on the patient's age, diagnosis, mental status, precipitating causes and investigations/treatment ordered. Following the first audit, modifications were made to include anonymous reporting. Additional information was also obtained on the patient's position, sedation regimen, method of endotracheal tube (ETT) placement and the use of physical restraints. A clinical indicator was established to monitor the UE incidence based as a rate of UE per 100 patients. Audit results were between 1.06% and 4.86% with an aggregate rate from 1995 to 2002 of 2.6%. This rate compares favourably with the range of 2.8-22.5% reported in the literature. Over the survey periods, 28-60% of patients were assessed as being confused or agitated, 47-67% restrained and 53-70% sedated. The UE reported rate initially increased when anonymous reporting was introduced from 1.06% to 4.86%. Unplanned extubation incidence subsequently decreased in Surgical ICU following the introduction of clinical pathways, early weaning and nurse led extubation. Monitoring UE in ICU provides important information on the quality of care. We would recommend a system of anonymous reporting to more freely reflect incidence.

**REF ID: 255**

**Level I: Systematic Reviews**

**Topic 2: Prevention**

**Boyd, O. (2003). Optimisation of oxygenation and tissue perfusion in surgical patients. *Intensive & Critical Care Nursing, 19(3), 171-181.***

Surgical patients with limited cardiovascular reserve have much worse prognosis than patients with normal hearts. This review identifies 17 randomised controlled clinical trials that have investigated peri-operative therapy designed to increase tissue perfusion in surgical patients, many of whom have limited cardiovascular reserve. Although there are differences which make equating the trials complex, a total of 1974 patients have been enrolled in the studies and the odds ratio for reduction in mortality is 0.45 (95% confidence intervals 0.33-0.60). Further research needs to be undertaken in the identification of patients with limited cardiovascular reserve and for investigating proposed treatment strategies. Despite this, it appears that such patients have improved outcome if they are admitted to intensive care unit pre-operatively and have suitable therapy given to improve tissue oxygen delivery.

**REF ID: 293**

**Level I: Systematic Reviews**

**Topic 2: Prevention**

#### **Topic 4.4: Management-Products**

**Cullum, N., McInnes, E., BellSyer, S. E. M., & Legood, R. (2006). Support surfaces for pressure ulcer prevention. *Cochrane Database of Systematic Reviews, 1* Systematic Review**

**Background:** Pressure ulcers (also known as bedsores, pressure sores, decubitus ulcers) are areas of localised damage to the skin and underlying tissue due to pressure, shear or friction. They are common in the elderly and immobile and costly in financial and human terms. Pressure-relieving beds, mattresses and seat cushions are widely used as aids to prevention in both institutional and non-institutional settings.

**Objectives:** This systematic review seeks to answer the following questions: to what extent do pressure-relieving cushions, beds, mattress overlays and mattress replacements reduce the incidence of pressure ulcers compared with standard support surfaces? how effective are different pressure-relieving surfaces in preventing pressure ulcers, compared to one another? **Search strategy:** The Specialised Trials Register of the Cochrane Wounds Group (compiled from regular searches of many electronic databases including MEDLINE, CINAHL and EMBASE plus handsearching of specialist journals and conference proceedings) was searched up to January 2004, Issue 4, 2003 of the Cochrane Central Register of Controlled Trials was also searched. The reference sections of included studies were searched for further trials. **Selection criteria:** Randomised controlled trials (RCTs), published or unpublished, which assessed the effectiveness of beds, mattresses, mattress overlays, and seating cushions for the prevention of pressure ulcers, in any patient group, in any setting. RCTs were eligible for inclusion if they reported an objective, clinical outcome measure such as incidence and severity of new of pressure ulcers developed. Studies which only reported proxy outcome measures such as interface pressure were excluded. **Data collection and analysis:** Trial data were extracted by one researcher and checked by a second. The results from each study are presented as relative risk for dichotomous variables. Where deemed appropriate, similar studies were pooled in a meta analysis. **Main results:** 41 RCTs were included in the review. Foam alternatives to the standard hospital foam mattress can reduce the incidence of pressure ulcers in people at risk. The relative merits of alternating and constant low pressure devices, and of the different alternating pressure devices for pressure ulcer prevention are unclear. Pressure-relieving overlays on the operating table have been shown to reduce postoperative pressure ulcer incidence, although one study indicated that an overlay resulted in adverse skin changes. One trial indicated that Australian standard medical sheepskins prevented pressure ulcers. There is insufficient evidence to draw conclusions on the value of seat cushions, limb protectors and various constant low pressure devices as pressure ulcer prevention strategies. A study of Accident & Emergency trolley overlays did not identify a reduction in pressure ulcer incidence. There are tentative indications that foot waffle heel elevators, a particular low air loss hydrotherapy mattress and an operating theatre overlay are harmful. **Conclusions:** In people at high risk of pressure ulcer development, consideration should be given to the use of higher specification foam mattresses rather than standard hospital foam mattresses. The relative merits of higher-tech constant low pressure and alternating pressure for prevention are unclear. Organisations might consider the use of pressure relief for high risk patients in the operating theatre, as this is associated with a reduction in post-operative incidence of pressure ulcers. Seat cushions and overlays designed for use in Accident & Emergency settings have not been adequately evaluated.

**REF ID: 257**

#### **Level I: Systematic Reviews**

#### **Topic 4.3: Management-Medication**

#### **Topic 2: Prevention**

**D'Amico, R., Pifferi, S., Leonetti, C., Torri, V., Tinazzi, A., & Liberati, A. (1998). Effectiveness of antibiotic prophylaxis in critically ill adult patients: Systematic review of randomised controlled trials. *BMJ, 316(7140), 1275-1285.***

**OBJECTIVE:** To determine whether antibiotic prophylaxis reduces respiratory tract infections and overall mortality in unselected critically ill adult patients. **DESIGN:** Meta-analysis of randomised controlled trials from 1984 and 1996 that compared different forms of antibiotic prophylaxis used to reduce respiratory tract infections and mortality with aggregate data and, in a subset of trials, data from individual patients.

**SUBJECTS:** Unselected critically ill adult patients; 5727 patients for aggregate data meta-analysis, 4343

for confirmatory meta-analysis with data from individual patients. **MAIN OUTCOME MEASURES:** Respiratory tract infections and total mortality. **RESULTS:** Two categories of eligible trials were defined: topical plus systemic antibiotics versus no treatment and topical preparation with or without a systemic antibiotic versus a systemic agent or placebo. Estimates from aggregate data meta-analysis of 16 trials (3361 patients) that tested combined treatment indicated a strong significant reduction in infection (odds ratio 0.35; 95% confidence interval 0.29 to 0.41) and total mortality (0.80; 0.69 to 0.93). With this treatment five and 23 patients would need to be treated to prevent one infection and one death, respectively. Similar analysis of 17 trials (2366 patients) that tested only topical antibiotics indicated a clear reduction in infection (0.56; 0.46 to 0.68) without a significant effect on total mortality (1.01; 0.84 to 1.22). Analysis of data from individual patients yielded similar results. No significant differences in treatment effect by major subgroups of patients emerged from the analyses. **CONCLUSIONS:** This meta-analysis of 15 years of clinical research suggests that antibiotic prophylaxis with a combination of topical and systemic drugs can reduce respiratory tract infections and overall mortality in critically ill patients. This effect is significant and worth while, and it should be considered when practice guidelines are defined.

**REF ID: 315**

**Level VI: Opinion**

**Topic 4.1: Management-General**

**Deeny, P. (2005 Dec). Care of older people in critical care: The hidden side of the moon. [review] [18 refs]. *Intensive & Critical Care Nursing, 21(6), 325-327.***

**Editorial. Review**

no abstract available

**REF ID: 324**

**Level VI: Opinion**

**Topic 1: Risks**

**Desbiens, N. A. (2006). Unraveling the effect of age on outcomes in the intensive care unit. *Critical Care Medicine, 34(3), 912-913.***

**Journal Article, Commentary, Editorial**

COMMENT ON ref ID 325: Original Study: Soares M, Carvalho MS, Salluh JIF, Ferreira CG, Luiz RR, Rocco JR et al. Effect of age on survival of critically ill patients with cancer.

**REF ID: 314**

**Level II: Individual experimental study**

**Topic 3: Assessment**

**Desbiens, N. A., & Wu, A. W. (2000 May). Pain and suffering in seriously ill hospitalized patients. *Journal of the American Geriatrics Society, 48(5 Suppl), S183-6.***

**Clinical Trial. Journal Article. Multicenter Study. Randomized Controlled Trial**

**BACKGROUND:** Previous studies had suggested a high prevalence of pain in hospitalized patients but had not specifically evaluated pain and other symptoms in seriously ill and older hospitalized patients.

**OBJECTIVE:** The SUPPORT and HELP studies were designed to (1) assess the frequency and severity of pain and other symptoms during hospitalization 2 and 6 months later, and before death; (2) identify factors associated with pain and other symptoms; and (3) test an intervention to improve pain. **DESIGN:** An observational cohort and randomized controlled trial. **SETTING:** Five major teaching hospitals in the US.

**PATIENTS:** Hospitalized patients aged 80 years and older or with one of nine serious illnesses.

**INTERVENTION:** Education of patients and family members about pain control, monitoring of patients' pain, and feedback about pain with treatment suggestions to nurses and physicians. **MEASUREMENTS:**

Data from the medical record and interview-based information about pain and other symptoms and preferences for care and symptom control from patients and family members. **RESULTS:** Pain and other symptoms were frequent and often severe in seriously ill and older patients during hospitalization, at follow-up, and before death, even in those with diseases not traditionally associated with pain. There was wide variation in symptom experience across hospitals. Patients' preference for pain control was not associated with symptom experience. The intervention did not improve pain control. **CONCLUSIONS:**

Control of pain and other symptoms remains an important medical and ethical issue. Routine monitoring of

pain and other symptoms should be linked to treatment strategies aimed at combinations of symptoms and tested to assuage concerns about side effects.

**REF ID: 287**

**QM: Quality Measures [Quality indicators (Medline)/Clinical indicators (CINAHL)]**

**Topic 5: Evaluation/Follow-up**

**Dunton, N., Gajewski, B., Taunton, R. L., & Moore, J. (2004). Nurse staffing and patient falls on acute care hospital units. *Nursing Outlook*, 52(1), 53-59.**

**Journal Article**

Changes in health care financing, beginning in the 1980's, resulted in reduced **nurse staffing** and skill levels in acute care hospitals. Research has shown that reduced **nurse staffing** has endangered some aspects of **patient** safety. This study estimated the relationship between three aspects of **nurse staffing** and the **patient** fall rate for four types of acute care units. The association was estimated using a generalized linear mixed model with data for 2002 from 1751 hospital units in the National Database of Nursing Quality Indicators. Higher fall rates were associated with fewer nursing hours per **patient** day and a lower percentage of registered **nurses**, although the relationship varied by unit type. Smaller hospitals also had higher fall rates. Information on unit type and different aspects of **nurse staffing**, with advanced statistical modeling, resulted in a more precise understanding of the relationship between **nurse staffing** and **falls**.

**REF ID: 279**

**QM: Quality Measures [Quality indicators (Medline)/Clinical indicators (CINAHL)]**

**Topic 5: Evaluation/Follow-up**

**Durairaj, L., Torner, J. C., Chrischilles, E. A., Vaughan Sarrazin, M. S., Yankey, J., & Rosenthal, G. E. (2005). Hospital volume-outcome relationships among medical admissions to ICUs. *Chest*, 128(3), 1682-1689.**

**Journal Article. Multicenter Study**

**BACKGROUND:** Positive relationships between hospital volume and outcomes have been demonstrated for several surgeries and medical conditions. However, little is known about the volume-outcome relationship in patients admitted to medical ICUs. **OBJECTIVE:** To determine the relationship between hospital volume and risk-adjusted in-hospital mortality for patients admitted to ICUs with respiratory, neurologic, and GI disorders. **DESIGN:** Retrospective cohort study. **SETTING:** Twenty-nine hospitals in a single metropolitan area. **PATIENTS:** Adult ICU admissions from 1991 through 1997. **METHODS:** Using Cox proportional hazards models, we compared in-hospital mortality between tertiles of hospital volume (high, medium, and low) for respiratory (n = 16,949), neurologic (n = 13,805), and GI (n = 12,881) diseases after adjusting for age, gender, admission severity of illness, admitting diagnosis, and source. Severity of illness was measured using the APACHE (acute physiology and chronic health evaluation) III methodology. **RESULTS:** Among respiratory and neurologic ICU admissions, hazard ratios were similar (p > or = 0.05) in patients in low-, medium-, and high-volume hospitals. However, among GI diagnoses, risk of mortality was lower in high-volume hospitals, relative to low-volume hospitals (hazard ratio, 0.68; 95% confidence interval [CI], 0.54 to 0.85; p .57) in the respiratory cohort (hazard ratio, 0.77; 95% CI, 0.59 to 0.99) and the GI cohort (hazard ratio, 0.67; 95% CI, 0.53 to 0.85). **CONCLUSIONS:** Associations between ICU volume and risk-adjusted mortality were significant for patients with GI diagnoses and for sicker patients with respiratory diagnoses. However, associations were not significant for patients with neurologic diagnoses. The lack of a consistent volume-outcome relationship may reflect unmeasured patient complexity in higher-volume hospitals, relative standardization of care across ICUs, or lack of efficacy of some accepted ICU processes of care.

**REF ID: 317**

**Level V: Case report**

**Topic 1: Risks**

**Topic 3: Assessment**

**Ely, E. W., Stephens, R. K., Jackson, J. C., Thomason, J. W., Truman, B., & Gordon, S. et al. (2004 Jan). Current opinions regarding the importance, diagnosis, and management of delirium in the intensive care unit: A survey of 912 healthcare professionals.[see comment]. *Critical Care Medicine*, 32(1), 106-112.**

## **Journal Article**

**OBJECTIVE:** Recently published clinical practice guidelines of the Society of Critical Care Medicine recommend monitoring for the presence of delirium in all mechanically ventilated patients because of the potential for adverse outcomes associated with this comorbidity, yet little is known about healthcare professionals' opinions regarding intensive care unit delirium or how they manage this organ dysfunction. The aim of this survey was to assess the medical community's beliefs and practices regarding delirium in the intensive care unit. **DESIGN:** Survey administration was conducted both without a delirium definition (phase 1) and then with a definition of delirium (phase 2). **SETTING:** Critical care meetings and continuing medical education/board review courses from October 2001 to July 2002. **PARTICIPANTS:** A convenience sample of physicians (n = 753), nurses (n = 113), pharmacists (n = 13), physician assistants (n = 12), respiratory care practitioners (n = 8), and others (n = 13). **INTERVENTIONS:** Survey. **MEASUREMENTS AND MAIN RESULTS:** Participants completed 912 of the surveys. The majority (68%) of respondents thought that >25% of adult mechanically ventilated patients experience delirium. Delirium was considered a significant or very serious problem in the intensive care unit by 92% of healthcare professionals, yet underdiagnosis was acknowledged by 78%. Only 40% reported routinely screening for delirium, and only 16% indicated using a specific tool for delirium assessment. Delirium was considered important in the outcome of elderly and young patients by 89% and 60% of the respondents, respectively (p 50 mg/day of either medication). **CONCLUSIONS:** Most healthcare professionals consider delirium in the intensive care unit a common and serious problem, although few actually monitor for this condition and most admit that it is underdiagnosed. Data from this survey point to a disconnect between the perceived significance of delirium in the intensive care unit and current practices of monitoring and treatment.

### **REF ID: 259**

#### **Level IV: Non-experimental study**

#### **Topic 4.1: Management-General**

#### **Topic 1: Risks**

**Esteban, A., Anzueto, A., Frutos-Vivar, F., Alia, I., Ely, E. W., & Brochard, L. et al. (2004). Outcome of older patients receiving mechanical ventilation. *Intensive Care Medicine*, 30(4), 639-646.**

#### **Journal Article. Multicenter Study**

**OBJECTIVE:** To determine the threshold of age that best discriminates the survival of mechanically ventilated patients and to estimate the outcome of mechanically ventilated older patients. **DESIGN:** International prospective cohort study. **SETTING:** Three hundred sixty-one intensive care units from 20 countries. **PATIENTS AND PARTICIPANTS.** Five thousand one hundred eighty-three patients mechanically ventilated for more than 12 h. **INTERVENTIONS:** None. **MEASUREMENTS AND RESULTS:** Recursive partitioning and logistic regression were used and an outcome model was derived and validated using independent subgroups of the cohort. Two age thresholds (43 and 70 years) were found, by partitioning recursive analysis, to be associated with outcome. This study focuses on the analysis of patients older than 43 years of age, divided in two subgroups: between 43 and 70 years (middle age group) and older than 70 years (elderly group). Survival in hospital was 45% (95% C.I.: 43-48) for the elderly group and 55% (53-57) for the middle age group ( p0.05). Variables associated with mortality in the elderly were: acute renal failure, shock, Simplified Acute Physiology Score II and a ratio of PaO(2) to FIO(2) more than 150. **CONCLUSIONS:** Older mechanically ventilated patients (age >70 years) had a lower ICU and hospital survival, but the duration of mechanical ventilation, ICU and hospital stay were similar to younger patients. Factors associated with the highest risk of mortality in patients older than 70 were the development of complications during the course of mechanical ventilation, such as acute renal failure and shock.

### **REF ID: 264**

#### **Level I: Systematic Reviews**

#### **Topic 2: Prevention**

#### **Topic 1: Risks**

**Evans, D., Wood, J., & Lambert, L. (2002). A review of physical restraint minimization in the acute and residential care settings. *Journal of Advanced Nursing*, 40(6), 616-625.**

### **Journal Article. Meta-Analysis. Review**

**OBJECTIVES:** The objective of this review was to investigate physical restraint minimization in acute and residential care settings. The first aim was to determine the effectiveness of attempts to minimize the use of physical restraint, and the second was to generate a description of the characteristics of restraint minimization programmes. **METHOD:** A comprehensive search was undertaken involving all major databases and the reference lists of all relevant papers. To be included in the review studies had to be an evaluation of restraint minimization in an acute or residential care setting. As only a single randomized controlled trial (RCT) was identified, it was not possible statistically to pool the findings of different studies on the effectiveness of restraint minimization. To generate a description of the characteristics of restraint minimization programmes, the reported components of these programmes were identified and categorized. **RESULTS:** A total of 16 studies evaluating restraint minimization were identified: three in acute care and 13 in residential care. Of these, only one was an RCT, with the most common approach being the before and after study design. Based on the findings of the single RCT, education supported by expert consultation effectively reduced the use of restraint in residential care. There has been little evaluation of restraint minimization in acute care settings. The common approach to restraint minimization has involved a programme of multiple activities, with restraint education being the characteristic common to most programmes. **DISCUSSION:** Evidence suggests that physical restraint can be safely reduced in residential care settings through a combination of education and expert clinical consultation. There is little information on restraint minimization in acute care settings. The major finding of this review is the need for further investigation into all aspects of restraint minimization. [References: 48]

#### **REF ID: 328**

##### **Level VI: Opinion**

##### **Topic 3: Assessment**

**Graf, C., & Puntillo, K. (2003 Oct). Pain in the older adult in the intensive care unit. *Critical Care Clinics*, 19(4), 749-770.**

##### **Journal Article**

Effective pain management of the older adult begins with pain assessment using the proper tools. Understanding the complexities of the older adult in the ICU is the first step; this can be done by integrating the evidence-based practice guidelines provided by the American Geriatrics Society, the Joint Commission on Accreditation of Health Care Organizations (JCAHO pain standards: [www.jcaho.org/standard/pm\\_hap.html](http://www.jcaho.org/standard/pm_hap.html)), and the Society of Critical Care Medicine into physicians' and nurses' practice. Joint Commission on Accreditation of Health Care Organizations now recommends considering pain as the "fifth vital sign" (JCAHO pain standards: [www.jcaho.org/standard/pm\\_hap.html](http://www.jcaho.org/standard/pm_hap.html)). In summary, Park et al highlight key concepts that must be considered for all effective treatment plans: "anticipation, recognition, quantification, treatment and reassessment of the needs of the patient." Only then can we anticipate the impacts of chronic and critical illnesses and realize reliable and superior comfort for the elderly.

#### **REF ID: 258**

##### **Level IV: Non-experimental study**

##### **Topic 2: Prevention**

**Griffith, L., Cook, D., Hanna, S., Rocker, G., Sjokvist, P., & Dodek, P. et al. (2004). Clinician discomfort with life support plans for mechanically ventilated patients. *Intensive Care Medicine*, 30(9), 1783-1790.**

##### **Journal Article. Multicenter Study**

**OBJECTIVE:** To examine the incidence and predictors of clinician discomfort with life support plans for ICU patients. **DESIGN AND SETTING:** Prospective cohort in 13 medical-surgical ICUs in four countries. **PATIENTS:** 657 mechanically ventilated adults expected to stay in ICU at least 72 h. **MEASUREMENTS AND RESULTS:** Daily we documented the life support plan for mechanical ventilation, inotropes and dialysis, and clinician comfort with these plans. If uncomfortable, clinicians stated whether the plan was too technologically intense (the provision of too many life support modalities or the provision of any modality for too long) or not intense enough, and why. At least one clinician was uncomfortable at least once for 283 (43.1%) patients, primarily because plans were too technologically intense rather than not

intense enough (93.9% vs. 6.1%). Predictors of discomfort because plans were too intense were: patient age, medical admission, APACHE II score, poor prior functional status, organ dysfunction, dialysis in ICU, plan to withhold dialysis, plan to withhold mechanical ventilation, first week in the ICU, clinician, and city. CONCLUSIONS: Clinician discomfort with life support perceived as too technologically intense is common, experienced mostly by nurses, variable across centers, and is more likely for older, severely ill medical patients, those with acute renal failure, and patients lacking plans to forgo reintubation and ventilation. Acknowledging the sources of discomfort could improve communication and decision making.

**REF ID: 307**

**Level IV: Non-experimental study**

**Topic 3: Assessment**

**Hall Lord, M. L., Larsson, G., & Steen, B. (1998). Pain and distress among elderly intensive care unit patients: Comparison of patients' experiences and nurses' assessments. *Heart & Lung, 27(2), 123-132.* Journal Article, Research, Tables/Charts**

OBJECTIVE: To investigate elderly intensive care unit (ICU) patients' experiences of pain and distress, as well as interventions aimed at reducing these conditions, and to compare these experiences with the way nurses and assistant nurses, respectively, assess their patients' responses related to these issues. DESIGN: Descriptive, correlational, comparative. SETTING: Two medical-surgical ICUs at county hospitals in two medium-sized cities in Sweden. SUBJECTS: Fifty-one elderly patients, 44 nurses, and 37 assistant nurses in two Swedish ICUs. METHODS: Data were collected through personal interviews with patients and questionnaires completed by each nurse and assistant nurse responsible for the patients. RESULTS: Patients' experiences of pain and distress do not fully agree with nurses' and assistant nurses' assessments; nor is there consistency between the views of nurses and those of assistant nurses. Nurses overestimated patients' breathing and intellectual problems. Assistant nurses assessed that patients received more assistance to relieve physical pain, physical discomfort, fatigue, and fear than patients reported. Compared with nurses' assessments, assistant nurses also perceived patients to suffer less from physical discomfort, breathing problems, and fatigue. CONCLUSIONS: Nurses need more systematic procedures to assess patients' distress and pain experiences. To reduce the discrepancies observed between nurses and assistant nurses, organization of care should optimize the possibilities for the caregivers to carry out the desired assessments and interventions with a high degree of continuity and communication among staff.

**REF ID: 295**

**Level I: Systematic Reviews**

**Topic 4.3: Management-Medication**

**Topic 2: Prevention**

**Handoll, H. H. G., Farrar, M. J., McBirnie, J., Tytherleigh Strong, G., Milne, A. A., & Gillespie, W. J. (2006). Heparin, low molecular weight heparin and physical methods for preventing deep vein thrombosis and pulmonary embolism following surgery for hip fractures. *Cochrane Database of Systematic Reviews, 1***

**Systematic Review**

Background: Hip fracture patients have a high risk of thrombo-embolic complications following surgical management. Objectives: To examine the effects of heparin (unfractionated (U), and low molecular weight (LMW) heparins), and physical methods (compression stockings, calf or foot pumps) for prevention of deep venous thrombosis (DVT) and pulmonary embolism after surgery for hip fracture in the elderly. Search strategy: We searched the Cochrane Musculoskeletal Injuries Group specialised register (up to March 2002), MEDLINE (1966 to March 2002), EMBASE (1980 to March 2002), CINAHL (1982 to February week 4 2002), Current Contents (1993 week 26 to 2002 week 12), reference lists of published articles and contacted trialists and other workers in the field. Date of most recent search: March 2002. Selection criteria: Randomised and quasi-randomised trials evaluating the use of heparins and physical agents for prevention of DVT and pulmonary embolism in patients undergoing surgery for hip fracture. Data collection and analysis: Two reviewers independently assessed methodological quality and extracted data. Trials were grouped into five categories (heparin versus control, mechanical versus control, LMW heparin versus U heparin, heparin versus mechanical, and miscellaneous) and results pooled where possible. Main results: The 31 included trials involved at least 2958 predominantly female and elderly

patients. Overall, trial quality was disappointing. Ten trials involving 826 patients which compared U heparin with control, and five trials of 373 patients which compared LMW heparin with control, showed a reduction in the incidence of lower limb DVT (124/474 (26%) versus 219/519 (42%); relative risk (RR) 0.60; 95% confidence interval (CI) 0.50 to 0.71). There were insufficient data to confirm the efficacy of either agent in the prevention of pulmonary embolism. There was no statistically significant difference in overall mortality (42/356 (12%) versus 38/374 (10%); RR 1.16; 95%CI 0.77 to 1.74). Data were inadequate for all other outcomes including wound complications. There is insufficient evidence from five trials, involving 644 patients, to establish if LMW heparin was superior to U heparin. Most trials evaluating heparins had methodological defects. Five trials, involving 487 patients, testing mechanical pumping devices were also methodologically flawed, and so pooled results need to be viewed cautiously. Mechanical pumping devices may protect against DVT (16/221 (7%) versus 52/229 (22%); RR 0.31; 95%CI 0.19 to 0.51) and pulmonary embolism. Data were insufficient to establish any effect on the incidence of fatal pulmonary embolism and overall mortality. Problems with skin abrasion and compliance were reported. Conclusions: U and LMW heparins protect against lower limb DVT. There is insufficient evidence to confirm either protection against pulmonary embolism or an overall benefit, or to distinguish between various applications of heparin. Foot and calf pumping devices appear to prevent DVT, may protect against pulmonary embolism, and reduce mortality, but compliance remains a problem. Good quality trials of mechanical methods as well as direct comparisons with heparin and low dose aspirin should be considered.

#### **REF ID: 319**

##### **Level IV: Non-experimental study**

##### **Topic 3: Assessment**

**Jacelon, C. S. (2002 Nov). Attitudes and behaviors of hospital staff toward elders in an acute care setting. *Applied Nursing Research*, 15(4), 227-234.**

##### **Journal Article**

This study was a grounded-theory approach to the social processes engaged in by elderly people while in the hospital. Staff behaviors were identified along two continua, attitude, which affected the elders' dignity and autonomy, and managing care, which affected the elders' health. Elders described the physicians' role as the director of their health care. The elders characterized the nurses' role to provide their medications and direct needs, whereas the nurses identified their role as providing education and emotional support. Implications and recommendations for practice are offered. Copyright 2002, Elsevier Science (USA). All rights reserved.

#### **REF ID: 316**

##### **Level V: Case report**

##### **Topic 4.1: Management-General**

**Jacelon, C. S., & Henneman, E. A. (2004 Aug). Profiles in dignity: Perspectives on nursing and critically ill older adults. [review] [10 refs]. *Critical Care Nurse*, 24(4), 30-35.**

##### **Case Reports. Journal Article. Review**

Valuing **dignity** is integral to patients' care, but little information is available about how this value translates into practice. In this article, 3 definitions of the word **dignity** are presented in case scenarios and discussed with respect to data gathered from older persons

#### **REF ID: 326**

##### **Level IV: Non-experimental study**

##### **Topic 1: Risks**

**Kleinpell, R. M. (2003). Exploring outcomes after critical illness in the elderly. *Outcomes Management*, 7(4), 159-169.**

##### **Journal Article, Research, Tables/Charts**

Outcomes for elderly patients after critical illness have been examined predominantly in terms of survival and selected aspects of functional status. The objectives of this study were to explore and compare the impact of intensive care unit treatment on health and functional status outcomes among 196 elderly and middle-age patients. Functional and health status outcomes did not differ in longitudinal assessments at 1, 3, 6, and 12 months after discharge from the intensive care unit. Severity of illness, not age, was the best

predictor of physical functioning. Despite having more documented discharge planning, elderly patients reported concern about managing their care at home and knowing less about their medications, which have direct implications for care.

**REF ID: 285**

**QM: Quality Measures [Quality indicators (Medline)/Clinical indicators (CINAHL)]**

**Topic 5: Evaluation/Follow-up**

**Lilford, R., Mohammed, M. A., Spiegelhalter, D., & Thomson, R. (2004). Use and misuse of process and outcome data in managing performance of acute medical care: Avoiding institutional stigma.[see comment]. *Lancet*, 363(9415), 1147-1154.**

**Journal Article**

The history of monitoring the outcomes of health care by external agencies can be traced to ancient times. However, the danger, now as then, is that in the search for improvement, comparative measures of mortality and morbidity are often overinterpreted, resulting in judgments about the underlying quality of care. Such judgments can translate into performance management strategies in the form of capricious sanctions (such as star ratings) and unjustified rewards (such as special freedoms or financial allocations). The resulting risk of stigmatising an entire institution injects huge tensions into health-care organisations and can divert attention from genuine improvement towards superficial improvement or even gaming behaviour (ie, manipulating the system). These dangers apply particularly to measures of outcome and throughput. We argue that comparative outcome data (league tables) should not be used by external agents to make judgments about quality of hospital care. Although they might provide a reasonable measure of quality in some high-risk surgical situations, they have little validity in acute medical settings. Their use to support a system of reward and punishment is unfair and, unsurprisingly, often resisted by clinicians and managers. We argue further that although outcome data are useful for research and monitoring trends within an organisation, those who wish to improve care for patients and not penalise doctors and managers, should concentrate on direct measurement of adherence to clinical and managerial standards.

**REF ID: 300**

**Level IV: Non-experimental study**

**Topic 3: Assessment**

**Lloyd, C. B., Nietert, P. J., & Silvestri, G. A. (2004). Intensive care decision making in the seriously ill and elderly. *Critical Care Medicine*, 32(3), 649-654.**

**Journal Article, Research, Tables/Charts**

Objective: To determine the influence of self-reported preadmission quality of life, hypothetical quality of life and mortality prognosis, and length and intensity of intensive care on decision making in the seriously ill and elderly. Design: Prospective cohort study. Setting: Medical university. Subjects: Adult inpatients with chronic illness and an estimated 50% 6-month mortality along with patients  $\geq 80$  yrs old with an acute illness. Interventions: Patients were presented with two scenarios: a) mechanical ventilation for 14 days; and 2) mechanical ventilation for 1 month with tracheostomy and feeding tube placement. A modified time trade-off was used to vary survival and quality of life over plausible ranges. Patients could consent to intensive care or choose care directed at comfort measures. Measurements and Main Results: Fifty patients were interviewed. As projected intensive care unit mortality rate or postintensive care unit quality of life decreased, patients were less likely to consent to intensive care. Postintensive care quality of life was as important to patients as intensive care survival estimates. However, prehospitalization quality of life did not significantly influence decision making regarding life-extending treatment. When progressing from the acute intensive care scenario to chronic mechanical ventilation with associated interventions, patients demanded a significant increase in survival and quality of life. Neither race nor previous intensive care unit admission was associated with consent to intensive care. Conclusions: There is wide variation in preference for aggressive care that does not appear to be influenced by prehospitalization quality of life. However, predicted quality of life appears to be as important as estimates of intensive care unit survival in decision making. When confronted with extended mechanical ventilation and associated care, a significant proportion of patients would accept this care only for an improved prognosis. Length and intensity of intensive care should be incorporated into discussions regarding intensive care.

**REF ID: 322**

**Level IV: Non-experimental study**

**Topic 1: Risks**

**Martin, G. S., Mannino, D. M., & Moss, M. (2006). The effect of age on the development and outcome of adult sepsis. *Critical Care Medicine*, 34(1), 15-21.**

**Journal Article, Research, Tables/Charts**

OBJECTIVE: Sepsis is an increasingly common and lethal medical condition that occurs in people of all ages. The influence of age on sepsis risk and outcome is incompletely understood. We sought to determine the independent effect of age on the incidence, severity, and outcome of adult sepsis. DESIGN: Longitudinal observational study using national hospital discharge data. SETTING: Approximately 500 geographically separated nonfederal acute care hospitals in the United States. PATIENTS: Patients were 10,422,301 adult sepsis patients hospitalized over 24 yrs, from 1979 to 2002. INTERVENTIONS: None. MEASUREMENTS AND MAIN RESULTS: Incident sepsis cases were age adjusted and characterized by demographics, sources and types of infection, comorbid medical conditions, and hospital discharge status. Elderly patients (> or = 65 yrs of age) accounted for 12% of the U.S. population and 64.9% of sepsis cases, yielding a relative risk of 13.1 compared with younger patients (95% confidence interval, 12.6-13.6). Elderly patients were more likely to have Gram-negative infections, particularly in association with pneumonia (relative risk, 1.66; 95% confidence interval, 1.63-1.69) and to have comorbid medical conditions (relative risk, 1.99; 95% confidence interval, 1.92-2.06). Case-fatality rates increased linearly by age; age was an independent predictor of mortality in an adjusted multivariable regression (odds ratio, 2.26; 95% confidence interval, 2.17-2.36). Elderly sepsis patients died earlier during hospitalization, and elderly survivors were more likely to be discharged to a nonacute health care facility. CONCLUSIONS: The incidence of sepsis is disproportionately increased in elderly adults, and age is an independent predictor of mortality. Compared with younger sepsis patients, elderly nonsurvivors of sepsis die earlier during hospitalization and elderly survivors more frequently require skilled nursing or rehabilitative care after hospitalization. These findings have implications for patient care and health care resource prioritization and provide insights for expanded scientific investigations and potential patient interventions.

**REF ID: 266**

**Level VI: Opinion**

**Topic 3: Assessment**

**Topic 4.1: Management-General**

**Melnyk, B. M. (2004). Evidence digest. A focus on adult acute and critical care. *Worldviews on Evidence-Based Nursing*, 1(3), 194-197.**

**Journal Article, Abstract, Commentary**

NO ABSTRACT AVAILABLE; THIS IS A COMMENTARY ON THE FOLLOWING STUDIES:

Gonzalez CE et al. Visiting preferences of patients in the intensive care unit and in a complex care medical unit. AMERICAN JOURNAL OF CRITICAL CARE 2004; 13(3): 194-7Zalon ML. Correlates of recovery among older adults after major abdominal surgery. NURSING RESEARCH 2004; 53(2): 99-106Gelinas C et al. Pain assessment and management in critically ill intubated patients: a retrospective study. AMERICAN JOURNAL OF CRITICAL CARE 2004; 13(2): 126-35York J et al. Patients' perceptions of pain management after cardiac surgery in an Australian critical care unit. HEART & LUNG 2004; 33(1): 33-41Meltzer LS, Huckabay LM. Critical care nurses' perceptions of futile care and its effect on burnout. AMERICAN JOURNAL OF CRITICAL CARE 2004; 13(3): 202-8

**REF ID: 308**

**Level VI: Opinion**

**Topic 3: Assessment**

**Mick, D. J., & Ackerman, M. H. (2004). Critical care nursing for older adults: Pathophysiological and functional considerations. *Nursing Clinics of North America*, 39(3), 473-493.**

**Journal Article, Review**

The aging of the population brings into health care practice, including ICUs, an increasing prevalence of people with chronic conditions with corresponding expectations of eventual decline in function. These age-

related health problems, however, do not have a precise moment of onset, nor a single and unambiguous cause. By their nature, chronic conditions do not have an end that can be modified easily, and ordinarily, they are related to parameters other than physiology alone. Aged individuals often are distinguished as a medicalized cohort on the basis of sheer numbers of comorbidities and predisposition toward frequent hospitalizations, without regard for the potential for adaptation to life despite complex health factors. Some care providers, health economists, and bioethicists propose using the existence of chronic conditions and assumed physical decompensation as a valid basis for restricting individuals and groups, by means of rationing, from consideration for intensive care and treatment. In view of studies demonstrating that covert rationing of ICU resources to critically ill older patients already is taking place, there is a need to continue to examine institutional policies that permit care providers to act as gatekeepers, ostensibly with benign intent, but presumably without patients' knowledge or acceptance. On the other hand, there is evidence that older ICU patients do equally well as younger and middle-aged patients in terms of discharge from the hospital with subsequent recovery of function. Thus, age alone is not a useful marker for limiting access to ICUs. Rather, a comprehensive evaluation is the foundation for diagnostic accuracy and health care decision-making for older individuals. Assessment and maintenance of the older person's functional status are fundamental concerns of geriatric and critical care specialists. Evaluation of an individual's baseline abilities in physical, mental, social, and psychological spheres is necessary before limitation of care realistically can be considered. Intensive care unit hospitalizations for catastrophic or critical illness are not necessarily terminal events. Ongoing functional assessment will help to illuminate the impact of chronicity on an older person's capacity for self care, and may help to guide health care decision-making regarding use of critical care resources. Accordingly, assuring equitable access to essential intensive care services, devoid of concerns about age constraints, will help to ensure the autonomy that is central to older adults' achievement of a fulfilling and productive old age. Copyright (C) 2004 by Elsevier Science (USA).

#### **REF ID: 294**

#### **Level I: Systematic Reviews**

##### **Topic 1: Risks**

##### **Topic 2: Prevention**

**Milne, A. C., Potter, J., & Avenell, A. (2006). Protein and energy supplementation in elderly people at risk from malnutrition. *Cochrane Database of Systematic Reviews, 1* Systematic Review**

Background: Evidence for the effectiveness of nutritional supplements containing protein and energy, which are often prescribed for older people, is limited. Furthermore malnutrition is more common in this age group and deterioration of nutritional status can occur during illness. It is important to establish whether supplementing the diet is an effective way of improving outcomes for older people at risk from malnutrition. Objectives: This review examined the evidence from trials for improvement in nutritional status and clinical outcomes when extra protein and energy were provided, usually in the form of commercial 'sip-feeds'. Search strategy: We searched the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, EMBASE, Healthstar, CINAHL, BIOSIS, CAB abstracts. We also hand searched nutrition journals and reference lists and contacted 'sip-feed' manufacturers. Date of most recent search: March 2004. Selection criteria: Randomised controlled trials and quasi-randomised controlled trials of oral protein and energy supplementation in older people with the exception of groups recovering from cancer treatment or in critical care. Data collection and analysis: Two reviewers independently assessed trials prior to inclusion and independently extracted data and assessed trial quality. Authors of trials were contacted for further information as necessary. Main results: Forty-nine trials with 4790 randomised participants have been included in the review. Most included trials had poor study quality. The pooled weighted mean difference [WMD] for percentage weight change showed a benefit of supplementation of 2.3% (95% confidence interval (CI) 1.9 to 2.7) from 34 trials. There was a reduced mortality in the supplemented compared with control groups (relative risk (RR) 0.74, CI 0.59 to 0.92) from 32 trials. The risk of complications from 14 trials showed no significant difference (RR 0.95, 95% CI 0.81 to 1.11). Few trials were able to suggest any functional benefit from supplementation. The pooled weighted mean difference (WMD) for length of stay from 10 trials also showed no statistically significant effect (WMD -1.98 days, 95% CI -5.20 to 1.24). Conclusions: Supplementation produces a small but consistent weight

gain in older people. There may also be a beneficial effect on mortality. However, there was no evidence of improvement in clinical outcome, functional benefit or reduction in length of hospital stay with supplements. Additional data from large-scale multi-centre trials are still required.

**REF ID: 280**

**QM: Quality Measures [Quality indicators (Medline)/Clinical indicators (CINAHL)]**

**Topic 5: Evaluation/Follow-up**

**Mondino, K. (2005). The road to excellence: Magnet designation, the beacon award, and primary nursing. *Critical Care Nursing Clinics of North America*, 17(2), 163-167.**

**Case Reports. Journal Article**

The potential to have a unit based on excellence is within every manager's reach. The ability to submit for the Beacon Award and Magnet hospital designation are two avenues to fulfill that potential. Successes from University of California Davis Medical Center are shared in this article in the hope of inspiring other managers and their staff.

**REF ID: 260**

**Level IV: Non-experimental study**

**Topic 1: Risks**

**Mostafa, S. M., Bhandari, S., Ritchie, G., Gratton, N., & Wenstone, R. (2003). Constipation and its implications in the critically ill patient. *British Journal of Anaesthesia*, 91(6), 815-819.**

**Journal Article. Multicenter Study**

**BACKGROUND:** Motility of the lower gut has been little studied in intensive care patients. **METHOD:** We prospectively studied constipation in an intensive care unit of a university hospital, and conducted a national survey to assess the generalizability of our findings. **RESULTS:** Constipation occurred in 83% of the patients. More constipated patients (42.5%) failed to wean from mechanical ventilation than non-constipated patients (0%),  $P < 0.05$ . The median length of stay in intensive care and the proportion of patients who failed to feed enterally were greater in constipated than non-constipated patients (10 vs 6.5 days and 27.5 vs 12.5%, respectively (NS)). The survey found similar observations in other units. Delays in weaning from mechanical ventilation and enteral feeding were reported by 28 and 48% of the units surveyed, respectively. **CONCLUSIONS:** Constipation has implications for the critically ill.

**REF ID: 321**

**Level VI: Opinion**

**Topic 1: Risks**

**Paz, H. L., & Martin, A. A. (2006). Sepsis in an aging population. *Critical Care Medicine*, 34(1), 234-235.**

**Journal Article, Commentary, Editorial**

comment on: Original Study, (REF ID 322): Martin GS, Mannino DM, Moss M. The effect of age on the development and outcome of adult sepsis. CRIT CARE MED 2006 Jan; 34(1): 15-21

**REF ID: 305**

**Level IV: Non-experimental study**

**Topic 1: Risks**

**Topic 3: Assessment**

**Peterson, J. F., Pun, B. T., Dittus, R. S., Thomason, J. W. W., Jackson, J. C., & Shintani, A. K. et al. (2006). Delirium and its motoric subtypes: A study of 614 critically ill patients. *Journal of the American Geriatrics Society*, 54(3), 479-484.**

**Journal Article, Research, Tables/Charts**

**OBJECTIVES:** To describe the motoric subtypes of delirium in critically ill patients and compare patients aged 65 and older with a younger cohort. **DESIGN:** Prospective cohort study. **SETTING:** The medical intensive care unit (MICU) of a tertiary care academic medical center. **PARTICIPANTS:** Six hundred fourteen MICU patients admitted during a process improvement initiative to monitor levels of sedation and delirium. **MEASUREMENTS:** MICU nursing staff assessed delirium and level of consciousness in all MICU patients at least once per 12-hour shift using the Confusion Assessment Method for the Intensive Care Unit and the Richmond Agitation-Sedation Scale. Delirium episodes were categorized as hypoactive, hyperactive, and mixed type. **RESULTS:** Delirium was detected in 112 of 156 (71.8%) subjects aged 65

and older and 263 of 458 (57.4%) subjects younger than 65. Mixed type was most common (54.9%), followed by hypoactive delirium (43.5%) and purely hyperactive delirium (1.6%). Patients aged 65 and older experienced hypoactive delirium at a greater rate than younger patients (41.0% vs 21.6%,  $P < .001$ ) and never experienced hyperactive delirium. Older age was strongly and independently associated with hypoactive delirium (adjusted odds ratio=3.0, 95% confidence interval=1.7-5.3), compared with no delirium in a model that adjusted for other important determinants of delirium including severity of illness, sedative medication use, and ventilation status. **CONCLUSION:** Older age is a strong predictor of hypoactive delirium in MICU patients, and this motoric subtype of delirium may be missed in the absence of active monitoring. Copyright (C) 2006 by Elsevier Science (USA).

**REF ID: 284**

**QM: Quality Measures [Quality indicators (Medline)/Clinical indicators (CINAHL)]**

**Topic 5: Evaluation/Follow-up**

**Price, A. M. (2004). Intensive care nurses' experiences of assessing and dealing with patients' psychological needs. *Nursing in Critical Care*, 9(3), 134-142.**

**Journal Article**

Several authors have highlighted the short- and long-term psychological effects of an intensive care unit (ICU) stay. Few authors have discussed the nurses' perceptions of psychological care. In this research, 12 nurses, who currently work in ICU, were interviewed using a semi-structured technique. Six categories were developed about issues in psychological care. Implications for practice included the important role of the family, need for improved communication and improved staff awareness of issues.

**REF ID: 288**

**QM: Quality Measures [Quality indicators (Medline)/Clinical indicators (CINAHL)]**

**Topic 5: Evaluation/Follow-up**

**Pronovost, P. J., Berenholtz, S. M., Ngo, K., McDowell, M., Holzmueller, C., & Haraden, C. et al. (2003). Developing and pilot testing quality indicators in the intensive care unit. *Journal of Critical Care*, 18(3), 145-155.**

**Journal Article. Validation Studies**

**PURPOSE:** To develop and implement a set of valid and reliable yet practical measures of intensive care units (ICU) quality of care in a cohort of ICUs and to estimate, based on current performance, the potential opportunity to improve quality. **METHODS:** We included 13 adult medical and surgical ICUs in urban community teaching and community hospitals. To monitor performance on previously identified quality measures, we developed 3 data collection tools: the Team Leader, Daily Rounding, and Infection Control forms. These tools were pilot tested, validated, and modified before implementation. We used published estimates of efficacy to estimate the clinical and economic effect of our current performance for each of the process measures: appropriate sedation, prevention of ventilator-associated pneumonia, appropriate peptic ulcer disease (PUD) prophylaxis, appropriate deep venous thrombosis (DVT) prophylaxis, and appropriate use of blood transfusions. **RESULTS:** Performance varied widely among the 13 ICUs and within ICUs. The median percentage of days in which ventilated patients received therapies that ought to was 64% for appropriate sedation, 67% for elevating head of bed, 89% for PUD prophylaxis, and 87% for DVT prophylaxis. The median rate of appropriate transfusion was 33%. The failure to use these therapies may lead to excess morbidity, mortality, and ICU length of stay. **CONCLUSION:** To improve quality of care, we must measure our performance. This pilot study suggests that it is feasible to implement a broad set of ICU quality measures in a cohort of hospitals. By improving performance on these measures, we may realize reduced mortality, morbidity, and ICU length of stay.

**REF ID: 286**

**QM: Quality Measures [Quality indicators (Medline)/Clinical indicators (CINAHL)]**

**Topic 5: Evaluation/Follow-up**

**Pronovost, P. J., Nolan, T., Zeger, S., Miller, M., & Rubin, H. (2004). How can clinicians measure safety and quality in acute care? *Lancet*, 363(9414), 1061-1067.**

**Journal Article. Review**

The demand for high quality care is increasing and warranted. Evidence suggests that the quality of care in hospitals can be improved. The greatest opportunity to improve outcomes for patients over the next quarter

century will probably come not from discovering new treatments but from learning how to deliver existing effective therapies. To improve, caregivers need to know what to do, how they are doing, and be able to improve the processes of care. The ability to monitor performance, though challenging in healthcare, is essential to improving quality of care. We present a practical method to assess and learn from routine practice. Methods to evaluate performance from industrial engineering can be broadly applied to efforts to improve the quality of healthcare. One method that may help to provide caregivers frequent feedback is time series data--ie, results are graphically correlated with time. Broad use of these tools might lead to the necessary improvements in quality of care. [References: 60]

**REF ID: 318**

**Level V: Case report**

**Topic 1: Risks**

**Rathore, S. S., Mehta, R. H., Wang, Y., Radford, M. J., & Krumholz, H. M. (2003 Mar). Effects of age on the quality of care provided to older patients with acute myocardial infarction.[see comment]. *American Journal of Medicine*, 114(4), 307-315.**

**Evaluation Studies. Journal Article**

**PURPOSE:** Older patients are less likely to receive guideline-recommended medical therapies during acute myocardial infarction. However, it is unclear whether the lower rates of treatment reflect elderly patients' increased number of comorbid conditions, physician or hospital effects, or true age-associated variation. Furthermore, it is unclear whether age-associated variations in care are similar or vary among treatments. **METHODS:** We evaluated 146,718 Medicare patients from the Cooperative Cardiovascular Project aged > or =65 years who were hospitalized between 1994 and 1996 with a confirmed myocardial infarction, to ascertain whether rates of acute reperfusion therapy and use of aspirin (admission, discharge), beta-blockers (admission, discharge), and angiotensin-converting enzyme (ACE) inhibitors varied among patients aged 65 to 69 years, 70 to 74 years, 75 to 79 years, 80 to 84 years, and > or =85 years. We identified patients who were considered eligible for each therapy and who had no treatment contraindications. Associations between age and use of therapy were assessed, adjusting for patient, physician, hospital, and geographic factors. **RESULTS:** Adjusted treatment rates were higher for patients aged 65 to 69 years than for patients aged > or =85 years for acute reperfusion therapy (54.4% vs. 31.2%,  $P < 0.0001$  for trend), beta-blockers (admission: 52.2% vs. 43.8%,  $P < 0.0001$  for trend; discharge: 61.8% vs. 55.3%,  $P < 0.0001$  for trend), aspirin at admission (73.8% vs. 71.0%,  $P < 0.0001$  for trend), and ACE inhibitors (61.6% vs. 57.1%,  $P = 0.02$  for trend); there were no differences in the prescription of aspirin at discharge (76.0% vs. 73.6%,  $P = 0.05$ ). **CONCLUSION:** Elderly patients are less likely to receive guideline-indicated therapies when hospitalized with myocardial infarction. The effects of age were largest for acute reperfusion and smallest for aspirin.

**REF ID: 320**

**Level IV: Non-experimental study**

**Topic 3: Assessment**

**Richter, J., Eisemann, M. R., Bauer, B., Kreibeck, H., & Astrom, S. (2002). Decision-making in the treatment of elderly people: A cross-cultural comparison between swedish and german physicians and nurses. *Scandinavian Journal of Caring Sciences*, 16(2), 149-156.**

**Journal Article, Research, Tables/Charts**

The aim of the study was to evaluate the comparability of decisions in the treatment of severely ill incompetent elderly patients among physicians and nurses from a cross-cultural perspective. Convenience samples of 192 doctors and 182 nurses from Germany and 104 doctors and 122 nurses from Sweden have been investigated by a questionnaire in a cross-sectional study. Between 39 and 58% of the subjects in the various groups have chosen treatment options, which are not consistent with the patient's will. However, nurses showed a significantly higher compliance than doctors. The probability of choosing cardio-pulmonary resuscitation decreased with increasing information about the patient's wish. Ethical concerns and the patient's wishes appeared as the most important determinants of treatment decisions, whereas the hospital costs as well as the physicians' religion were of minor importance. The inconsistencies concerning decision-making within and between the groups reflect differences in underlying values and lack of societal consensus, which represent a prerequisite for the improvement of patient autonomy. To focus more

frequently and to a larger extent onto the problems related to the treatment of severely ill elderly patients as well as onto the training of communication skills with an orientation towards informed consent in the medical training seems to be warranted.

**REF ID: 263**

**Level II: Individual experimental study**

**Topic 1: Risks**

**Topic 4.5: Management-Surgery**

**Sandham, J. D., Hull, R. D., Brant, R. F., Knox, L., Pineo, G. F., & Doig, C. J. et al. (2003). A randomized, controlled trial of the use of pulmonary-artery catheters in high-risk surgical patients.[see comment]. *New England Journal of Medicine*, 348(1), 5-14.**

**Clinical Trial. Journal Article. Multicenter Study. Randomized Controlled Trial**

**BACKGROUND:** Some observational studies suggest that the use of pulmonary-artery catheters to guide therapy is associated with increased mortality. **METHODS:** We performed a randomized trial comparing goal-directed therapy guided by a pulmonary-artery catheter with standard care without the use of a pulmonary-artery catheter. The subjects were high-risk patients 60 years of age or older, with American Society of Anesthesiologists (ASA) class III or IV risk, who were scheduled for urgent or elective major surgery, followed by a stay in an intensive care unit. Outcomes were adjudicated by observers who were unaware of the treatment-group assignments. The primary outcome was in-hospital mortality from any cause. **RESULTS:** Of 3803 eligible patients, 1994 (52.4 percent) underwent randomization. The base-line characteristics of the two treatment groups were similar. A total of 77 of 997 patients who underwent surgery without the use of a pulmonary-artery catheter (7.7 percent) died in the hospital, as compared with 78 of 997 patients in whom a pulmonary-artery catheter was used (7.8 percent)--a difference of 0.1 percentage point (95 percent confidence interval, -2.3 to 2.5). There was a higher rate of pulmonary embolism in the catheter group than in the standard-care group (8 events vs. 0 events, P=0.004). The survival rates at 6 months among patients in the standard-care and catheter groups were 88.1 and 87.4 percent, respectively (difference, -0.7 percentage point [95 percent confidence interval, -3.6 to 2.2]; negative survival differences favor standard care); at 12 months, the rates were 83.9 and 83.0 percent, respectively (difference, -0.9 percentage point [95 percent confidence interval, -4.3 to 2.4]). The median hospital stay was 10 days in each group. **CONCLUSIONS:** We found no benefit to therapy directed by pulmonary-artery catheter over standard care in elderly, high-risk surgical patients requiring intensive care. Copyright 2003 Massachusetts Medical Society

**REF ID: 325**

**Level IV: Non-experimental study**

**Topic 1: Risks**

**Soares, M., Carvalho, Salluh, J. I. F., Ferreira, C. G., Luiz, R. R., & Rocco, J. R. et al. (2006). Effect of age on survival of critically ill patients with cancer. *Critical Care Medicine*, 34(3), 715-721.**

**Journal Article, Research, Tables/Charts**

**OBJECTIVES:** To estimate the effects of age on 6-month survival of critically ill patients with cancer. **DESIGN:** Prospective cohort study analyzed using Cox proportional hazard models. **SETTING:** Ten-bed oncologic medical-surgical intensive care unit. **PATIENTS:** Eight hundred sixty-two patients with cancer, excluding bone marrow transplant patients. **INTERVENTIONS:** None. **MEASUREMENTS AND MAIN RESULTS:** The mean age was 57.8+/-16.2 yrs. The hospital and 6-month mortality rates were 48% and 58%, respectively. Age was independently associated with increased mortality (hazard ratio, 1.015; 95% confidence interval, 1.009-1.021). Martingale residual analysis, however, suggested an inflection point in the effect of age, with an upward trend for patients aged>60 yrs. Therefore, patients were stratified in two groups: young (60 yrs, n=431, 50%). In young patients, uncontrolled cancer, mechanical ventilation, and number of organ failures were associated with poor outcome, whereas surgery before intensive care unit admission was protective. The variables associated with increased mortality for elderly patients were performance status 3-4, uncontrolled cancer, number of organ failures, and the presence of a severe comorbidity. In this group, age was associated with a lower survival rate. In general, the effect of covariates on the outcome was higher in the elderly group. **CONCLUSIONS:** Aging was associated with increased mortality, especially for patients>60 yrs. The severity of organ failures and the presence of

uncontrolled cancer were the main predictive factors, but there were important differences among the outcome predictors for young and elderly patients. Our results suggest that selected older patients with cancer can benefit from intensive care.

**REF ID: 327**

**Level V: Case report**

**Topic 1: Risks**

**Stotts, N. A., & Hopf, H. W. (2005). Facilitating positive outcomes in older adults with wounds. *Nursing Clinics of North America*, 40(2), 267-279.**

**Journal Article, Case Study**

Older people with wounds are not the same as younger people with wounds. Older people experience biologic differences in wound healing that result in delayed healing, increased wound infection, and a greater incidence of dehiscence. Clinicians need to assess the risk of dehiscence in the older population, looking for serous drainage from the incision line and the absence of a palpable healing ridge. It is critical to recognize that older persons' presentation of wound infection is atypical. More subtle signs such as alteration in cognitive status and changes in function may indicate the presence of infection. The clinician who cares for older persons must be an exquisite detective when such changes occur to identify the source of the problem. As part of the normal trajectory of aging, older persons experience sensory loss and so may require accommodation when explanations are given to them about their wound and their wound care choices. Health care providers must consider hearing and vision changes that occur in older adults and tailor their explanations and teaching so that the message reaches the older adult and is successfully processed. Older persons have a higher incidence of cognitive changes and functional decline than do their younger counterparts, and these changes need to be assessed before a plan of care is developed to care for the older person with a wound. Limited data are available to help the clinician know the cognitive and functional level that is critical for older persons to understand their wound care choices, perform their own wound care, and to make choices about who will provide the care if they are unable to perform self-care. These seemingly basic issues raise questions for clinicians as we strive to provide evidence-based care to this ever-increasing population of older Americans. Copyright (C) 2005 by Elsevier Science (USA).

**REF ID: 283**

**QM: Quality Measures [Quality indicators (Medline)/Clinical indicators (CINAHL)]**

**Topic 5: Evaluation/Follow-up**

**White, D. B., & Luce, J. M. (2004). Palliative care in the intensive care unit: Barriers, advances, and unmet needs. [review] [96 refs]. *Critical Care Clinics*, 20(3), 329-343.**

**Journal Article. Review**

The concept that critical illness and terminal illness are necessarily distinct entities has given way to the understanding that they often exist on the same spectrum. Consequently, there is growing consensus that palliative treatment must coexist with attempts at restorative treatment in the intensive care unit (ICU). Palliative care in the ICU has evolved from a relatively one-dimensional construct of terminal sedation in dying patients to a multidisciplinary field addressing symptom control, physician-patient-family communication, spiritual needs, and the needs of health care providers. As ongoing research efforts yield new insights, our ability to practice evidence-based palliative care in the ICU will grow, and new avenues for improvement will become evident. [References: 96]

**REF ID: 282**

**QM: Quality Measures [Quality indicators (Medline)/Clinical indicators (CINAHL)]**

**Topic 5: Evaluation/Follow-up**

**Yeh, S. H., Hsiao, C. Y., Ho, T. H., Chiang, M. C., Lin, L. W., & Hsu, C. Y. et al. (2004). The effects of continuing education in restraint reduction on novice nurses in intensive care units. *Journal of Nursing Research: JNR*, 12(3), 246-256.**

**Evaluation Studies. Journal Article**

A decrease in the use of physical restraints in Intensive Care Units (ICUs) is an important indicator of quality of nursing care. This quasi-experimental study examined the effect on nurses of a session of continuing education aimed at reducing the use of restraints. At a medical center in southern Taiwan, 37 novice nurses were surveyed about their knowledge, perception, attitude and clinical practice of restraint

use in 11 ICUs. Two instructors then taught a four-hour continuing education class on patient restraint standards, principles for reducing physical restraint use, and alternatives to restraining. Data were analyzed by paired t-test and the results of identical structured questionnaires which participants received before and after the lecture, showed that, afterwards, knowledge ( $t = -6.04, p < .01$ ), perception ( $t = 4.76, p < .01$ ), and attitude ( $t = 3.93, p < .01$ ) toward restraint use had significantly improved. The continuing education improved the nurses' knowledge and attitude toward restraint use and may therefore enhance the quality of care provided to ICU patients.

**REF ID: 296**

**Level IV: Non-experimental study**

**Topic 4.3: Management-Medication**

**Yorke, J., Wallis, M., & McLean, B. (2004). Patients' perceptions of pain management after cardiac surgery in an Australian critical care unit. *Heart & Lung, 33*(1), 33-41.**

**Journal Article, Research, Tables/Charts**

**OBJECTIVE:** The purpose of this study was to investigate patients' perceptions of the effectiveness of a pain management regimen, which consisted of intermittent prn bolus doses of morphine, in a critical care unit after cardiac surgery. **DESIGN:** This was a descriptive and correlational study. **SETTING:** This study took place at the cardiothoracic intensive care unit of a major teaching hospital in Sydney, Australia. **PATIENTS:** The subjects were 102 patients who underwent cardiac surgical procedures. The mean age of the group was 61 years, and 24.5% were females and 75.5% were males. **RESULTS:** Analysis revealed that patients received limited total amounts of morphine during their critical care stay (mean = 26.7 mg; SD = 13.3; range: 0-68). All activities were associated with increased pain sensation. Patients requiring an internal mammary artery graft experienced increased pain despite receiving greater amounts of morphine. Elderly patients received less morphine and were refused pain killers more often than younger patients. Females found their overall pain experience to be less acceptable than did males. Less than half the participants always communicated their experience of pain to nurses. **CONCLUSION:** Overall, the majority of participants were reasonably satisfied with their pain experience. However, the following areas need improvement: the assessment and management of pain in relation to gender and age differences and the type of graft/s used; the administration of morphine before activity; and the communication of pain experience by patients.

**REF ID: 312**

**Level IV: Non-experimental study**

**Topic 3: Assessment**

**Young, J., Siffleet, J., Nikoletti, S., & Shaw, T. (2006 Feb). Use of a behavioural pain scale to assess pain in ventilated, unconscious and/or sedated patients. *Intensive & Critical Care Nursing, 22*(1), 32-39.**

**Journal Article. Validation Studies**

Current empirical evidence supports claims that pain in sedated, unconscious Intensive Care Unit (ICU) patients is underrated and under-treated. Given the severity of ICU patients' illness pain management, whilst important, may not be considered a priority and therefore can be easily overlooked. The aim of this study was to validate the Behavioural Pain Scale (BPS) for the assessment of pain in critically ill patients by evaluating facial expressions, upper limb movements and compliance with mechanical ventilation. **METHODS:** A prospective, descriptive repeated measures study design was used to assess the validity and reliability of the BPS for assessing pain in critically ill patients undergoing routine painful (repositioning) and non-painful (eye care) procedures. **RESULTS:** An average of 73% of BPS scores increased (indicating pain) after patients were repositioned, as opposed to 14% after eye care. This increase was statistically significant for repositioning ( $p < 0.03$ ). The odds of an increase in BPS between pre- and post-procedure assessments was more than 25 times higher for repositioning compared with eye care ( $p < 0.0001$ ), after controlling for analgesics and sedatives. **CONCLUSION:** The BPS was found to be a valid and reliable tool in the assessment of pain in the unconscious sedated patient. Results also highlighted that traditional pain indicators, such as fluctuations in haemodynamic parameters, are not always an accurate measure for the assessment of pain in unconscious patients and as such more objective pain assessment measures are

essential. Finally, further validation of the BPS and identification of other painful routine procedures is needed to enhance pain management delivery for unconscious patients.

**REF ID: 289**

**QM: Quality Measures [Quality indicators (Medline)/Clinical indicators (CINAHL)]**

**Topic 5: Evaluation/Follow-up**

**Zimmerman, J. E. (2002). Quality indicators: The continuing struggle to improve the quality of critical care.[comment]. *Journal of Critical Care*, 17(1), 12-15.**

**Comment. Journal Article**