
**Abstract:** Background: Austerity measures and health-system redesign to minimise hospital expenditures risk adversely affecting patient outcomes. The RN4CAST study was designed to inform decision making about nursing, one of the largest components of hospital operating expenses. We aimed to assess whether differences in patient to nurse ratios and nurses’ educational qualifications in nine of the 12 RN4CAST countries with similar patient discharge data were associated with variation in hospital mortality after common surgical procedures. Methods: For this observational study, we obtained discharge data for 422,730 patients aged 50 years or older who underwent common surgeries in 300 hospitals in nine European countries. Administrative data were coded with a standard protocol (variants of the ninth or tenth versions of the International Classification of Diseases) to estimate 30 day in-hospital mortality by use of risk adjustment measures including age, sex, admission type, 43 dummy variables suggesting surgery type, and 17 dummy variables suggesting comorbidities present at admission. Surveys of 26,516 nurses practising in study hospitals were used to measure nurse staffing and nurse education. We used generalised estimating equations to assess the effects of nursing factors on the likelihood of surgical patients dying within 30 days of admission, before and after adjusting for other hospital and patient characteristics. Findings: An increase in a nurses’ workload by one patient increased the likelihood of an inpatient dying within 30 days of admission by 7% (odds ratio 1.068, 95% CI 1.031—1.106), and every 10% increase in bachelor’s degree nurses was associated with a decrease in this likelihood by 7% (0.929, 0.886—0.973). These associations imply that patients in hospitals in which 60% of nurses had bachelor’s degrees and nurses cared for an average of six patients would have almost 30% lower mortality than patients in hospitals in which only 30% of nurses had bachelor’s degrees and nurses cared for an average of eight patients. Interpretation: Nurse staffing cuts to save money might adversely affect patient outcomes. An increased emphasis on bachelor’s education for nurses could reduce preventable hospital deaths.


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**Database: British Nursing Index**

**Search Strategy**

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Results analysed by Phil Hubbard and the final evidence selection (n=197) is below.
Document 1


Abstract: Introduction Although registered nurses (RNs) are central in patient care, we have not found prior research that specifically addresses how RNs assess the safety of patient care at their workplace and how factors in RNs' work environment are related to their assessments. This study aims to address these issues. Methods 9236 RNs working with inpatient care in 79 acute-care hospitals in Sweden completed a national population-based survey, including Practice Environment Scale of the Nursing Work Index - Revised and items from Agency for Healthcare Research and Quality's Hospital Survey on Patient Safety Culture. Correlation coefficients (Pearson and Spearman) and proportional odds regression were used for analysis. Results Nursing work environment factors were strongly related to RNs' assessments of patient safety. RNs' perception of having adequate staffing and resources improved their assessment of patient safety by at least two and a half times (OR 2.74 CI 2.52 to 2.97). RNs with a higher level of involvement in direct patient care gave a better patient safety grade than RNs with a more supervisory role. Most, but not all, patient safety culture items were related to RNs' assessed patient safety grade. We found that work experience seemed to have no influence on RNs' patient safety assessment. Conclusions While previous research emphasises patient-to-nurse ratios in strengthening patient safety practices, this study complements this by emphasising RNs' own perception of having enough staff and resources to provide quality nursing care, as well as having good collegial nurse-physician relations and the presence of visible and competent nursing leadership - all factors highly related to RNs' assessment of the safety of patient care at their workplace.

Document 2


Abstract: Hyper-acute stroke units (HASUs) admit all stroke patients across London. As a novel London stroke model, the integration of thrombolysis in acute ischaemic stroke is an important element of hyper-acute stroke care for patients. In this model, nurses working in a hyper-acute stroke unit are involved in the delivery of thrombolysis treatment. By use of a phenomenological approach, the study investigates the 'lived experiences' of nurses' preparation for their role and explores any factors that affect nurses' participation in thrombolysis treatment. The nurses' roles-which facilitate, support, monitor, anticipate and result in prevention-are central to effective thrombolysis treatment. However, factors such as communication,
teamwork, clinical decision, training, staffing and safety affect their thrombolysis roles. Addressing factors that affect nurses’ thrombolysis roles could lead to improved communication, collaborative teamwork and better patient outcomes.

Document 3


Abstract: Background There is strong evidence to show that lower nurse staffing levels in hospitals are associated with worse patient outcomes. One hypothesised mechanism is the omission of necessary nursing care caused by time pressure - 'missed care'. Aim To examine the nature and prevalence of care left undone by nurses in English National Health Service hospitals and to assess whether the number of missed care episodes is associated with nurse staffing levels and nurse ratings of the quality of nursing care and patient safety environment. Methods Cross-sectional survey of 2917 registered nurses working in 401 general medical/surgical wards in 46 general acute National Health Service hospitals in England. Results Most nurses (86%) reported that one or more care activity had been left undone due to lack of time on their last shift. Most frequently left undone were: comforting or talking with patients (66%), educating patients (52%) and developing/updating nursing care plans (47%). The number of patients per registered nurse was significantly associated with the incidence of 'missed care' (incomplete abstract)

Document 4


Abstract: Background Little is known of the extent to which nursing-care tasks are left undone as an international phenomenon. Aim The aim of this study is to describe the prevalence and patterns of nursing care left undone across European hospitals and explore its associations with nurse-related organisational factors. Methods Data were collected from 33 659 nurses in 488 hospitals across 12 European countries for a large multicountry cross-sectional study. Results Across European hospitals, the most frequent nursing care activities left undone included 'Comfort/talk with patients' (53%), 'Developing or updating nursing care plans/care pathways' (42%) and 'Educating patients and families' (41%). In hospitals with more favourable work environments (B=-2.19; p (incomplete abstract).
Document 5

**Abstract:** Carter talks about the recommendations and reforms of NHS in the year 2013. The Francis Inquiry, Professor Don Berwick's review into patient safety and Professor Sir Bruce Keogh's blueprint for an overhaul of AE have all shown that the health system needs to adapt quickly to new methods of guidance and a growing and more diverse population. All of these reports emphasized the importance of nursing to the health service, with another common denominator being that staffing levels are clearly linked to patient safety and quality of care. The Royal College of Nursing has been vocal about the importance of maintaining safe staffing levels in recent years, with their members fearing similar issues of poor care like those at Mid-Staffs occurring in their own workplace. Some of their recent research suggests that 43% of hospital wards are regularly operating on more than eight patients per nurse, a level that the Safe Staffing Alliance has determined to be unsafe.

Document 6

**Abstract:** Establishing an acuity-based core staffing model is a delicate balance between enhancing patient safety and provider productivity while also optimizing organizational costs. But there is another factor affected by staffing levels: patient outcomes. With the current emphasis on value-based purchasing and pay-for-performance related to patient outcomes, health systems must pay more attention than ever to outcomes management. Although a growing body of research suggests a correlation between nurse staffing and nurse-sensitive patient outcomes, there are currently no guidelines for effective staffing levels related to specific outcomes.

Document 7

**Abstract:** Background Inadequate nutrition support is common among critically ill patients, and identification of risk factors for such inadequacy might help in improving nutrition support. Objective To determine how often daily calorie goals are met and the factors responsible for inadequate nutrition support. Methods A single-center prospective cohort study. Each patient's demographic and clinical characteristics, the
need for ventilatory support, the use and dosage of medications, the number of nursing staff per bed, the time elapsed from admission to the intensive care unit until the effective start of enteral feeding, and the causes for nonadministration were recorded. Achievement of daily calorie goals was determined and correlated with risk factors. Results A total of 262 daily evaluations were done in 40 patients. Daily calorie goal was achieved in only 46.2% of the evaluations (n = 121), with a mean of 74.8% of the prescribed volume of enteral nutrition infused daily. Risk factors for inadequate nutrition support were the use of midazolam (odds ratio, 1.58; 95% CI, 1.18-2.11) and fewer nursing professionals per bed (odds ratio, 2.56; 95% CI, 1.43-4.57). Conclusion Achievement of daily calorie goals was inadequate, and the main factors associated with this failure were the use and dosage of midazolam and the number of nurses available. [PUBLICATION] 49 references

Document 8


Abstract: To investigate the level of job satisfaction and the impact of personal characteristics and work environment on job satisfaction among nurses. Job satisfaction among nurses is of paramount importance to providers of health care because satisfied nurses appear to be endowed with the physical and emotional dexterity and the effort needed to perform their tasks that will enhance the quality of care provided to the patient. A cross-sectional survey. The study included nurses of both genders with at least one year of nursing experience, serving in all shifts of various clinical settings (n = 178 nurses). A modified version of measure of nurses’ job satisfaction, developed by Whitley and Putzier, was used to assess the effect of personal characteristics profile and work environment on job satisfaction. A total of 140 nurses were (response rate = 78.7%) entered into final data analysis. The study showed that 111 participants (79.3%) were significantly satisfied in their current jobs. Furthermore, 65 nurses (46.4%) were not satisfied with their salaries, and almost half the nurses were not pleased with the nurse/patient ratio, autonomy and enough time to discuss problems with staff. This study revealed that almost 50% of nurses are overworked, are unsatisfied with their salaries, and have limited autonomy and inadequate communication with superiors. Strategies must be formulated by hospital and government authorities to decrease workload and empower nurses in controlling their practice in order to retain nurses in their jobs. The management must provide positive leadership and understand the local issues that affect nurses in order to enhance retaining and avoid shortage. This can be reflected positively on nursing clinical practice and ultimately patient health status.

Document 9

**Abstract**: Seratt describes the impact of California's nurse to patient ratios on patient-level outcomes from a comprehensive literature review. Findings from this review suggest some improvements have resulted from the implementation of staffing ratios, but the positives have not been as significant and widespread as predicted. Further studies are needed to explore the relationship between patient outcomes and mandated staffing levels in this state and other settings.

Document 10


**Abstract**: Trends in nurse staffing levels in nursing homes from 1997 to 2011 varied across the category of nurse and the type of nursing home. The gaps found in this study are important to consider because nurses may become overworked and this may negatively affect the quality of services and jeopardize resident safety. Nursing home administrators should consider improving staffing strategically. Staffing should be based not only on the number of resident days, but also allocated according to particular resident needs. As the demand for nursing home care grows, bridging the gap between nurse staffing and resident nursing care needs will be especially important in light of the evidence linking nurse staffing to the quality of nursing home care. Until more efficient nursing care delivery exits, there may be no other way to safeguard quality except to increase nurse staffing in nursing homes.

Document 11


**Abstract**: Serratt discusses about the California's Nurse-to-Patient Ratios, Part 2. The aim of the study was to identify and describe the impact of California's nurse-to-patient ratios on hospital level outcomes from a comprehensive literature review. A comprehensive literature review was conducted. Findings suggest labor costs increased, and some reductions in services were made after the implementation of staffing ratios. Implementing staffing ratios had a negative financial impact on selected outcomes of California hospitals.

Document 12

**Abstract:** Maintaining cost-effective care while optimizing patient outcomes becomes more challenging because the complexity of health care increases. Numerous variables impact patient outcomes. The purpose of this article is to describe recent empirical literature regarding nurse-related variables that impact patient outcomes. Multiple variables are described, including the work environment, Magnet status, nurse-physician communication, job demands, staffing, level of education, years of nursing experience, and certification. Staffing remains the most consistent positive influence on patient outcomes.


**Abstract:** Background Hospital patient-to-nurse staffing ratios are associated with quality outcomes in adult patient populations but little is known about how these factors affect paediatric care. We examined the relationship between staffing ratios and all-cause readmission (within 14 days, 15-30 days) among children admitted for common medical and surgical conditions. Methods We conducted an observational cross-sectional study of readmissions of children in 225 hospitals by linking nurse surveys, inpatient discharge data and information from the American Hospital Association Annual Survey. Registered Nurses (N=14 194) providing direct patient care in study hospitals (N=225) and children hospitalised for common conditions (N=90 459) were included. Results Each one patient increase in a hospital's average paediatric staffing ratio increased a medical child's odds of readmission within 15-30 days by a factor of 1.11, or by 11% (95% CI 1.02 to 1.20) and a surgical child's likelihood of readmission within 15-30 days by a factor of 1.48, or by 48% (95% CI 1.27 to 1.73). Children treated in hospitals with paediatric staffing ratios of 1 : 4 or less were significantly less likely to be readmitted within 15-30 days. There were no significant effects of nurse staffing ratios on readmissions within 14 days. Discussion Children with common conditions treated in hospitals in which nurses care for fewer patients each are significantly less likely to experience readmission between 15 and 30 days after discharge. Lower patient-to-nurse ratios hold promise for preventing unnecessary hospital readmissions for children through more effective predischarge monitoring of patient conditions, improved discharge preparation and enhanced quality improvement success.

**Abstract:** Organizational resources such as caregiver time use with older adults in residential long-term care facilities (nursing homes) have not been extensively studied, while levels of nurse staffing and staffing-mix are the focus of many publications on all types of healthcare organizations. Evidence shows that front-line caregivers' sufficient working time with residents is associated with performance, excellence, comprehensive care, quality of outcomes (e.g., reductions in pressure ulcers, urinary tract infections, and falls), quality of life, cost savings, and may be affiliated with transformation of organizational culture. To explore organizational resources in a long-term care unit within a multilevel residential facility, to measure healthcare aides’ use of time with residents, and to describe working environment and unit culture. An observational pilot study was conducted in a Canadian urban 52-bed long-term care unit within a faith-based residential multilevel care facility. A convenience sample of seven healthcare aides consented to participate. To collect the data, we used an observational sheet (to monitor caregiver time use on certain activities such as personal care, assisting with eating, socializing, helping residents to be involved in therapeutic activities, paperwork, networking, personal time, and others), semi-structured interview (to assess caregiver perceptions of their working environment), and field notes (to illustrate the unit culture). Three hundred and eighty seven hours of observation were completed. The findings indicate that healthcare aides spent most of their working time (on an eight-hour day-shift) in "personal care" (52%) and in "other" activities (23%). One-to-three minute activities consumed about 35% of the time spent in personal care and 20% of time spent in assisting with eating. Overall, caregivers' time spent socializing was less than 1%, about 6% in networking, and less than 4% in paperwork. Re-organizing healthcare aides' routine practices may minimize the short one-to-three minute intervals spent on direct care activities, which can be interpreted as interruptions to continuity of care or waste of time. Fewer interruptions may allow healthcare aides to use their time with residents more effectively.

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**Abstract:** Serratt examines California’s nurse-to-patient ratios that have been in place since 2004. The author reviews outcomes at the nurse level from a comprehensive literature review. Data suggest that increased levels of nurse staffing have resulted in greater job satisfaction. Assembly Bill 394, introduced in California in 1999, required the establishment of specific nurse-to-patient ratios for general
acute care hospitals, acute psychiatric hospitals, and specialty hospitals beginning January 2004. Speculation existed among various stakeholders as to the effects that this regulation would have on nurses, hospitals, and patients. Despite having been in place for more than eight years, little has been reported about the negative and positive effects that the ratios have had on nurses, hospitals, and patients. The purpose of this review was to identify the impact that ratios have on nursing workforce and the work environment of nurses.

Document 16


Abstract: Studies about nurse staffing and patient outcomes often lack adequate risk adjustment because of limited access to patient information. The aim of this study was to examine the impact of patient-level risk adjustment on the associations of unit-level nurse staffing and 30-day inpatient mortality. This retrospective cross-sectional study included 284,097 patients discharged during 2007-2008 from 446 acute care nursing units at 128 Veterans Affairs medical centers. The association of nurse staffing with 30-day mortality was assessed using hierarchical logistic models under three levels of risk-adjustment conditions: using no patient information (low), using patient demographics and diagnoses (moderate), or using patient demographics and diagnoses plus physiological measures (high). Discriminability of the models improved as the level of risk adjustment increased. The c-statistics for models of low, moderate, and high risk adjustment were 0.64, 0.74, and 0.88 for non-ICU patients and 0.66, 0.76, and 0.88 for ICU patients. For non-ICU patients, higher RN skill mix was associated with lower 30-day mortality across all three levels of risk adjustment. For ICU patients, higher total nursing hours per patient day was strongly associated with higher mortality with moderate risk adjustment (p = .0002), but this counterintuitive association was not significant with low or high risk adjustment. Inadequate risk adjustment may lead to biased estimates about nurse staffing and patient outcomes. Combining physiological measures with commonly used administrative data is a promising risk-adjustment approach to reduce potential biases.

Document 17


Abstract: Staffing formulas and guidelines have been driven by the need to ensure all patient populations receive the highest level of safe, quality care. However, nurse-
related staffing formulas and guidelines assume that all nurses practice with the same level of vigilance and expertise. Although past studies have recognized an association between adequate nurse staffing and quality of care, patient safety, and mortality, such a one-dimensional perspective is much too simplistic and dangerously flawed given the challenges associated with patient needs and healthcare delivery systems in today's complex and multifaceted environments. It's imperative for nurse leaders, especially directors, managers, and educators, to partner with their staff to evaluate each nurse's competency level. This information can then be used as the basis for constructing adequate, safe staffing while continuing to provide educational opportunities, including mentoring. Last, but not least, patient safety and quality care aren't just about nursing practice and nurse staffing.

Document 18


**Abstract:** Nursing leaders from practice, education, research and professional organisations have formed the Safe and Sound - the Safe Staffing Alliance as part of the Nursing Standard's Care campaign. This week they have issued a consensus statement on hospital staffing levels. [Publication] 0 references

Document 19


**Abstract:** Perioperative Grand Rounds series: The possible adverse effect of inadequate staffing presented in the case study of a 68-year-old man admitted to intensive care with chronic obstructive pulmonary disease (COPD) and atrial fibrillation. Adapted from AHRQ WebM&M (Morbidity &Mortality Rounds on the Web) with permission from the Agency for Healthcare Research and Quality; original commentary written by Victoria Rich, adapted by Nancy J. Girard. [ORIGINAL] 15 references

Document 20


**Abstract:** Background: The emergency department (ED) is a dynamic environment, in which a high volume of undifferentiated patients with varying levels of urgency must be assessed and treated in a timely manner, primarily by nurses. Nurses not
only provide initial but also continuing care for all patients presenting to the ED. Predicting the number of nurses required and the ideal ratio of nursing staff to patients presenting is complex. Current methods of predicting ED nursing workforce fail to reflect the severity and variability of illness/injury or case mix. In addition, they exclude the realities of patients have different nursing requirements, that patient stability changes frequently and that issues such as patient surge (sudden high volumes of presentations) do occur. The aim of this study was to examine the potential for using the Jones Dependency Tool (JDT) for determining patient dependency in the Australian context. Methods: A prospective cohort study design based upon a convenience sample of patients was conducted over a randomly selected two-week period. Results: The JDT proved both valid, reliable and sensitive to changes in patient's status. The majority of patient presentations occurred from 6 am to 3 pm, patient dependency peaked from 3 pm to 6 pm, and then continued to rise over night when the least nursing staff are allocated to work. The majority (n=321, 50%) of the patients presenting to the ED were of moderate dependency. As patient dependency increased, patients were allocated to treatment areas with higher nurse-patient ratios. Patients allocated to the ambulance bay, which is not routinely staffed by nurses, were found to have similar levels of moderate to high dependency as those managed in the acute or resuscitation bay, therefore patients are reliant upon ambulance personnel for their care needs. Patient dependency was found to increase with age and degree of immobility. The JDT is sensitive to changes in patient's dependency over time, and may assist with discharge planning or ward handover. Conclusions: This study has demonstrated that the JDT can consistently measure patient dependency within one Australian adult ED. Further testing of the JDT needs to be undertaken in order to explore the potential for the tool to contribute to nurse?patient ratio models and patient communication handover.

Document 21


Abstract: Background: Traditional dedicated coronary care units (CCU) are being decommissioned and cardiology precincts are evolving. These precincts often have cardiac and non-cardiac patients with a diverse array of acuity levels. Critical care trained cardiac nurses are frequently caring for lower acuity patients resulting in a deskilling of this experienced workforce. Aim: The aim of this paper was to discuss the implications of restructuring CCUs on nursing workforce and patient outcomes. Method: An integrated literature review was conducted. The following databases were searched for articles published between January 2000 and December 2011: Ovid Medline, CINHAL, EMBASE and Cochrane. Additional studies obtained from the articles searched and policy documents from key professional organisations and government departments were reviewed. Results This review has highlighted the
association between workforce, qualifications and quality of care. Studies have shown the relationship between an increase in critical care qualified nursing staff and an improvement in patient outcomes. Inadequate staffing levels were also shown to be associated with an increase in adverse events. Cardiology precincts have the potential to adversely impact on critical care trained cardiac nursing workforce and patient outcomes. Conclusion: The implications that these new models have on the critical care cardiac nurse workforce are crucial to health care reform, quality of in-hospital care, sentinel events and patient outcomes.

Document 22


Abstract: Maintaining and improving nursing care quality and patient safety are major challenges facing nursing staff and nurse leaders around the world. Missed nursing care is error of omission as opposed to errors of commission. Missed nursing care is defined as any aspect of standard and required nursing care that is not completed. In a recent study, missed nursing care was found to lead an increase in patient falls. Here, Kalisch et al determine the extent of missed nursing care and causes for it in Lebanon and to compare it with those in the US.

Document 23


Abstract: When nurses work on-call hours, they have limited ability to control the hours they work. Nurses may be required to work extra hours and, if they are unable to detach from work during break time, can experience fatigue and sleep disturbances. Previous studies have not examined factors associated with on-call work. In this pilot study, the authors examined state regulatory, organizational, and personal factors related to nurse on-call hours. Data were collected from registered nurses working in hospitals in two states; the final analytic sample consisted of 219 nurses. The authors found that four variables (teaching hospital employment, patient-to-nurse ratio, race/ethnicity of the nurse, and living with children) were significantly related to working on-call hours. Additional research is needed to understand nurse on-call hours and develop agency policies to promote nurses' health and well-being.

Document 24

**Abstract:** Background: Few studies link organizational variables and outcomes to quality indicators. This approach would expose operant mechanisms by which work environment characteristics and organizational outcomes affect clinical effectiveness, safety, and quality indicators. Question: What are the predominant psychosocial variables in the explanation of organizational outcomes and quality indicators (in this case, medication errors and length of stay)? The primary objective of this study was to link the fields of evidence-based practice to the field of decision making, by providing an effective model of intervention to improve safety and quality.

Methods: The study involved healthcare workers (n = 243) from 13 different care units of a university affiliated health center in Canada. Data regarding the psychosocial work environment (10 work climate scales, effort/reward imbalance, and social support) was linked to organizational outcomes (absenteeism, turnover, overtime), to the nurse/patient ratio and quality indicators (medication errors and length of stay) using path analyses. Results: The models produced in this study revealed a contribution of some psychosocial factors to quality indicators, through an indirect effect of personnel- or human resources-related variables, more precisely: turnover, absenteeism, overtime, and nurse/patient ratio. Four perceptions of work environment appear to play an important part in the indirect effect on both medication errors and length of stay: apparent social support from supervisors, appreciation of the workload demands, pride in being part of one's work team, and effort/reward balance. Conclusions: This study reveals the importance of employee perceptions of the work environment as an indirect predictor of quality of care. Working to improve these perceptions is a good investment for loyalty and attendance. In general, better personnel conditions lead to fewer medication errors and shorter length of stay.


**Abstract:** To explore newly qualified staff nurses' perceptions of compassionate care and factors that facilitate and inhibit its delivery. It is known that the transition from student to staff nurse is challenging due to a variety of factors including increased expectations of competence, inadequate staffing levels and eclectic support. A qualitative approach was taken. Data from newly qualified staff nurses (within first year post registration) were collected by focus groups (n = 6, total participants = 42), using a flexible agenda to guide discussion. Data were analysed to locate codes and themes. Support for newly qualified staff was eclectic rather than systematic. Participants felt they were flung in at the deep end and left to sink or swim. Some staff were perceived as ingrained in the woodwork and resistant
to change of even a minor nature, creating an environment of institutionalised negativity. Clinical supervision was considered a support when available. Compassionate care was a tautology for most participants, that is, care would not be care in the absence of compassion. Compassion as a concept was described frequently with reference to situations in which it was absent. Nursing was more than just a job, but an occupation in which emotional engagement is not only desirable but a prerequisite for provision of high-quality care. Findings indicated a tension between agency (the ability of individuals to act) and structure (physical, social, managerial and cultural environments within which care takes place). Supportive environments facilitate provision of compassionate care although individuals remain accountable for their own practice. This study adds depth to existing literature about newly qualified staff nurses, with specific reference to compassionate care. Undergraduate nursing programmes should prepare students for the reality of delivering compassionate care despite competing commitments. Managers of care settings should ensure that a formalised supportive framework is in place for registered nurses throughout their first year of practice.

Document 26


Abstract: Aims To determine the rates and costs of nurse turnover, the relationships with staffing practises, and the impacts on outcomes for nurses and patients. Background In the context of nursing shortages, information on the rates and costs of nursing turnover can improve nursing staff management and quality of care. Methods Quantitative and qualitative data were collected prospectively for 12 months. A re-analysis of these data used descriptive statistics and correlational analysis techniques. Results The cost per registered nurse turnover represents half an average salary. The highest costs were related to temporary cover, followed by productivity loss. Both are associated with adverse patient events. Flexible management of nursing resources (staffing below budgeted levels and reliance on temporary cover), and a reliance on new graduates and international recruitment to replace nurses who left, contributed to turnover and costs. Conclusions Nurse turnover is embedded in staffing levels and practises, with costs attributable to both. A culture of turnover was found that is inconsistent with nursing as a knowledge workforce. Implications for nursing management Nurse managers did not challenge flexible staffing practices and high turnover rates. Information on turnover and costs is needed to develop strategies that retain nurses as knowledge-based workers.

Document 27

**Abstract:** Background: This study provides a comprehensive evaluation of nurse resources in Chinese hospitals and the link between nurse resources and nurse and patient outcomes. Methods: Survey data were used from 9688 nurses and 5786 patients in 181 Chinese hospitals to estimate associations between nurse workforce characteristics and nurse and patient outcomes in China. Nurse and patient assessments in China were compared with a similar study in Europe. Results: Thirty-eight percent of nurses in China had high burnout and 45% were dissatisfied with their jobs. Substantial percentages of nurses described their work environment and the quality of care on their unit as poor or fair (61% and 29%, respectively) and graded their hospital low on patient safety (36%). These outcomes tend to be somewhat poorer in China than in Europe, though fewer nurses in China gave their hospitals poor safety grades. Nurses in Chinese hospitals with better work environments and higher nurse-assessed safety grades had lower odds of high burnout and job dissatisfaction (ORs ranged from 0.56 to 0.75) and of reporting poor or fair quality patient care (ORs ranged from 0.54 to 0.74), and patients in such hospitals were more likely to rate their hospital highly, to be satisfied with nursing communications, and to recommend their hospitals (significant ORs ranged from 1.24 to 1.40). Higher patient-to-nurse ratios were associated with poorer nurse outcomes (each additional patient per nurse increases both burnout and dissatisfaction by a factor of 1.04) and higher likelihoods of nurses reporting poor or fair quality of care (OR=1.05), but were unrelated to patient outcomes. Higher percentages of baccalaureate nurses were strongly related to better patient outcomes, with each 10% increase in the percent of baccalaureate nurses increasing patient satisfaction, high ratings, and willingness to recommend their hospital by factors ranging from 1.11 to 1.13. Interpretation: Nursing is important in quality and safety of hospital care and in patients' perceptions of their care. Improving quality of hospital work environments and expanding the number of baccalaureate-prepared nurses hold promise for improving hospital outcomes in China.

Document 28


**Abstract (English):** Objective: To examine the practice environment, nurse reported quality of care and patient safety, and nurse workforce outcomes in medical
and surgical units in private and public hospitals in South Africa (SA), and determine
the association of modifiable features of the hospital such as the practice
environment and patient to nurse workloads on these outcomes. Design: Cross-
sectional survey of nurses. Setting and participants: Nurses were surveyed in
medical and surgical units of 55 private hospitals and 7 public national referral
hospitals in SA. A total of 1187 nurses completed the survey. Measurements:
Practice environment, patient to nurse workloads, and nurse workforce outcomes including burnout, job satisfaction and intention to leave. Results: On a national level, more than half, 54.4% (634/1166) of nurses intend to leave their hospital within the next year due to job dissatisfaction and 52.3% (600/1148) rate their practice environment as poor or fair, while almost half, 45.8% (538/1174) report high levels of burnout and 44.9% (517/1152) are not confident that management will resolve patient problems. Public hospital nurses report more negative outcomes than private hospital nurses. Some 71% (320/451) of public hospital nurses rate their practice environment as poor/fair, 62.9% (281/447) are not confident management will resolve patient problems, and 59% (272/461) intend to leave their hospital within the next year due to job dissatisfaction. On a national level, more favourable practice environments are significantly associated with more positive nurse reported quality of care, and nurse workforce outcomes. This is true for private and public hospitals. Patient to nurse workloads are also significantly associated with more positive nurse reported quality of care and patient safety, and nurse workforce outcomes, but primarily in public hospitals. Conclusions: Improving the practice environment, including patient to nurse ratios holds promise for retaining a qualified and committed nurse workforce and may benefit patients in terms of better quality care.

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**Abstract:** Background: The realization of an organizational context that succeeds to retain nurses within their job is one of the most effective strategies of dealing with nursing shortages. Objectives: First, to examine the impact of nursing practice environments, nurse staffing and nurse education on nurse reported intention to leave the hospital. Second, to provide understanding of which best practices in the organization of nursing care are being implemented to provide sound practice environments and to retain nurses. Methods: 3186 bedside nurses of 272 randomly selected nursing units in 56 Belgian acute hospitals were surveyed. A GEE logistic regression analysis was used to estimate the impact of organization of nursing care on nurse reported intention to leave controlling for differences in region (Walloon, Flanders, and Brussels), hospital characteristics (technology level, teaching status, and size) and nurse characteristics (experience, gender, and age). For the second
objective, in-depth semi-structured interviews with the chief nursing officers of the three high and three low performing hospitals on reported intention to leave were held. Results: 29.5% of Belgian nurses have an intention-to-leave the hospital. Patient-to-nurse staffing ratios and nurse work environments are significantly (incomplete abstract)

Document 30


**Abstract:** Background: One strategy proposed to alleviate nursing shortages is the promotion of organizational efforts that will improve nurse recruitment and retention. Cross-sectional studies have shown that the quality of the nurse work environment is associated with nurse outcomes related to retention, but there have been very few longitudinal studies undertaken to examine this relationship. Objectives: To demonstrate how rates of burnout, intention to leave, and job dissatisfaction changed in a panel of hospitals over time, and to explore whether these outcomes were associated with changes in nurse work environments. Methods: A retrospective, two-stage panel design was chosen for this study. Survey data collected from large random samples of registered nurses employed in Pennsylvania hospitals in 1999 and 2006 were used to derive hospital-level rates of burnout, intention to leave current position, and job dissatisfaction, and to classify the quality of nurses' work environments at both points in time. A two-period difference model was used to estimate the dependence of changes in rates of nurse burnout, intention to leave, and job dissatisfaction on changes in nurse work environments between 1999 and 2006 in 137 hospitals, accounting for concurrent changes in nurse staffing levels. Results: In general, nurse outcomes improved between 1999 and 2006, with fewer nurses reporting burnout, intention to leave, and job dissatisfaction in 2006 as compared to 1999. Our difference models showed that improvements in work environment had a strong negative association with changes in rates of burnout (\(?=6.42\%), p (incomplete abstract)

Document 31


**Abstract:** Objectives:(1) To describe the levels of implicit rationing of nursing care in Swiss acute care hospitals; (2) to explore the associations between nine selected potential rationing predictors and implicit rationing of nursing care. Design: Cross
sectional multi-center study. Settings: A quota sample of 35 acute care hospitals from the German, French and Italian speaking regions of Switzerland participating in RN4CAST (Registered Nurse Forecasting) study. Participants: 1633 registered nurses working in randomly selected medical, surgical or medical-surgical units.

Methods: Implicit rationing of nursing care, i.e., the withholding of any of 32 necessary nursing measures due to a lack of nursing resources, was measured using the revised Basel Extent of Rationing of Nursing Care (BERNCA) instrument. Nine potential rationing predictors, e.g., staffing and resource adequacy, patient-to-nurse ratio, nurse education, and confounding variables, e.g., nurse gender and age, hospital typology, were assessed with validated instruments or single items of the RN4CAST study. Descriptive statistical procedures were used as appropriate. Three level regression models were used to investigate the effect of the selected nine predictors on rationing at the nurse, unit and hospital levels. Results: Ninety-eight percent of the participating nurses reported that, in their last seven working days, they had to ration at least one of the 32 nursing tasks listed in the BERNCA. The mean rationing level of 1.69 (SD=0.571) indicates that on average the nurses reported 'rarely' being unable to perform the nursing tasks listed in the BERNCA. Multilevel regression analysis confirmed two of the nine tested predictors: better unit level staff resource adequacy and a more favorable hospital level safety climate were both consistently significantly associated with lower rationing levels. Counter to our assumptions, the other two nurse practice environment dimensions, the three workload measures, nurse experience and nurse education were not associated with rationing. Conclusions: Rationing frequency varied among the 32 BERNCA items, indicating differing prioritizations of necessary nursing tasks. The identified rationing predictors, staff resource adequacy and safety climate, can determine starting points for interventions, i.e., proactive changes to improve staff resource adequacy when rationing exceeds predefined thresholds, increasing the risk of negative effects on patient outcomes.

Document 32


**Abstract:** Background: Patient safety is a priority for health services in all countries. The importance of the nurse's role in patient safety has been established. Effective nurse staffing levels, nurse education levels, and a positive work environment for nurses are factors which are known to impact on patient safety outcomes. Objectives: This study sought to explore the relationship between the ward environment in which nurses practice and specific patient safety outcomes, using ward level variables as well as nurse level variables. The outcomes were nurse-reported patient safety levels in the wards in which they work, and numbers of formal adverse events reports submitted by nurses in the last year. Design: This cross-
sectional quantitative study was carried out within a European FP7 project: Nurse Forecasting: Human Resources Planning in Nursing (RN4CAST) project. Settings: 108 general medical and surgical wards in 30 hospitals throughout Ireland. Participants: All nurses in direct patient care in the study wards were invited to participate. Data from 1397 of these nurses were used in this analysis. Methods: A nurse survey was carried out using a questionnaire incorporating the Practice Environment Scale of the Nursing Work Index (PES-NWI). Ethical approval was obtained from the authors' institution and all ethics committees representing the 30 study hospitals. Multilevel modelling was carried out to examine the impact of ward level factors on patient safety. These included proportions of nurses on the ward educated to degree level, and aggregated ward-level mean for PES-NWI scores. Results: The study results support other research findings indicating that a positive practice environment enhances patient safety outcomes. Specifically at ward level, factors such as the ward practice environment and the proportion of nurses with degrees were found to significantly impact safety outcomes. The models developed for this study predicted 76% and 51% of the between-ward variance of these outcomes. The results can be used to enhance patient safety within hospitals by demonstrating factors at ward-level which enable nurses to effectively carry out this aspect of their role. Conclusions: The importance of ward-level nurse factors such as nurse education level and the work environment should be recognised and manipulated as important influences on patient safety.


Abstract: Background: ‘Failure to rescue’ - death after a treatable complication - is used as a nursing sensitive quality indicator in the USA. It is associated with the size of the nursing workforce relative to patient load, for example patient to nurse ratio, although assessments of nurse sensitivity have not previously considered other staff groups. This study aims to assess the potential to derive failure to rescue and a proxy measure, based on long length of stay, from English hospital administrative data. By exploring change in coding practice over time and measuring associations between failure to rescue and factors including staffing, we assess whether two measures of failure to rescue are useful nurse sensitive indicators. Design: Cross sectional observational study of routinely collected administrative data. Participants: Discharge data from 66,100,672 surgical admissions to 146 general acute hospital trusts in England (1997-2009). Results: Median percentage of surgical admissions with at least one secondary diagnosis recorded increased from 26% in 1997/1998 to
40% in 2008/2009. Regression analyses showed that mortality based failure to rescue rates were significantly associated (P (incomplete abstract)

Document 34


Abstract: The experiences of patients, carers and staff were sought in the first stage of a quality improvement programme. Stacey Dicks and colleagues report on the project's results. Aim To identify positive and negative aspects of the quality of care for older adults admitted to acute hospital wards during the Quality Mark pilot study. Method A total of 306 patients and carers and 157 ward staff from 12 wards in six hospitals participated in a pilot study by completing questionnaires about the quality of care on the ward. They stated how much they agreed with a number of statements about care and provided additional free text responses. Results Patients rated staff attitudes highly, while staff expressed confidence in their skills in providing care. Patients rated the quality of food and the availability of staff lowest. Thematic analysis identified concerns about the ward environment, staffing levels and nutrition. Conclusion Attention needs to focus on improving inpatient environments, nutrition and staff availability.

Document 35


Abstract: Purpose - Previous research indicates that nurses' safety-climate perceptions are influenced by individual nurse characteristics, leadership, staffing levels and workplace structure. No literature was identified that explored the relationship between nurses' safety climate perceptions and staffing composition in a particular hospital unit. This paper aims to fill some of the gaps in the research in this area. Design/methodology/approach - Data supplied by 430 registered nurses working in two Midwestern US hospitals were analyzed to co-worker characteristics such as education, licensure, experience and full- or part-time status. Findings - Registered nurses working in hospitals with proportionally more-experienced nurses perceived their workplaces to be significantly safer for patients. Surprisingly, co-worker licensure, education and full- or part-time status did not significantly influence nurses' safety climate perceptions. Practical implications - Findings indicate that safety-climate perceptions vary significantly between hospital units and experienced nurses may act as a resource that promotes a positive safety climate. Hospitals retaining experienced nurses may potentially reduce errors. Originality/value - The
paper illustrates that the results highlight the importance of providing nurses with an environment that encourages retention and creates a workplace where experienced nurses’ skills are best utilized.

Document 36


**Abstract:** Purpose - The authors seek to examine two key issues: to assess patients’ hospital service quality perceptions and expectation using SERVQUAL; and to outline the distinct concepts used to assess patient perceptions. Design/methodology/approach - Questionnaires were administered to 250 patients on admission and follow-up visits. The 22 paired SERVQUAL expectation and perception items were adopted. Repeated t-measures and factor analysis with Varimax rotation were used to analyse data. Findings - Results showed that patient expectations were not being met during medical treatment. Perceived service quality was rated lower than expectations for all variables. The mean difference between perceptions and expectations was statistically significant. Contrary to the SERVQUAL five-factor model, four service-quality factors were identified in the study. Practical implications - Findings have practical implications for hospital managers who should consider stepping up staffing levels backed by client-centred training programmes to help clinicians deliver care to patients’ expectations. Originality/value - Limited studies are tailored towards patients’ service-quality perception and expectation in Ghanaian hospitals. The findings therefore provide valuable information for policy and practice.

Document 37


**Abstract:** Purpose - The purpose of this paper is to evaluate the common themes leading or contributing to clinical incidents in a UK teaching hospital. Design/methodology/approach - A root-cause analysis was conducted on patient safety incidents. Commonly occurring root causes and contributing factors were collected and correlated with incident timing and severity. Findings - In total, 65 root-cause analyses were reviewed, highlighting 202 factors implicated in the clinical incidents and 69 categories were identified. The 14 most commonly occurring causes (encountered in four incidents or more) were examined as a key-root or contributory cause. Incident timing was also analysed; common factors were encountered more frequently during out-hours - occurring as contributory rather than
a key-root cause. Practical implications - In total, 14 commonly occurring factors were identified to direct interventions that could prevent many clinical incidents. From these, an "Organisational Safety Checklist" was developed to involve departmental level clinicians to monitor practice. Originality/value - This study demonstrates that comprehensively investigating incidents highlights common factors that can be addressed at a local level. Resilience against clinical incidents is low during out-of-hours periods, where factors such as lower staffing levels and poor service provision allows problems to escalate and become clinical incidents, which adds to the literature regarding out-of-hours care provision and should prove useful to those organising hospital services at departmental and management levels.

Document 38


Abstract: The minimum nurse-patient staffing legislation in California was fully implemented in 2004. The purpose of this study was to explore the effects on the minimum nurse-patient staffing legislation on the demographic, human capital, and work characteristics of the working RN population, focusing specifically on direct care nurses in the acute care setting. The most interesting finding of this study was an increase in nurse satisfaction after the minimum staffing law was implemented. Findings also suggest that work environments need to change to accommodate the changes that have occurred in the nurse population. Nurses should practice to the full extent of their education and training; nurses should be full partners in redesigning the health care system; education should promote seamless academic progression; and effective workforce planning and policymaking should be conducted. Administrators, health policymakers, and advocates must develop job descriptions and work environments that maximize the attachment of the labor force in terms of hours worked per week of RNs for all nurses but especially for those over 50 years of age and non-Whites.

Document 39


Abstract: Background: With the rapid increase in the number of long-term care hospitals in Korea, care quality has become an important issue. Urinary incontinence is an important condition affecting many residents' quality of life. Thus, it is important that urinary incontinence be amenable to improving conditions with appropriate interventions, since a change in urinary incontinence status can reflect care quality in
long-term care facilities if patient level factors are adjusted. Objectives: We aim to examine the impact of organizational factors on urinary incontinence care quality defined as the improvement of urinary incontinence status or maintenance of continent status post-admission to Korean long-term care hospitals. Design and data: This is a longitudinal correlation study. Data came from two sources: monthly patient assessment reports using the Patient Assessment Instrument and the hospital information system from the Health Insurance Review and Assessment Services. The final analysis includes 5271 elderly adults without indwelling urinary catheter or urostomy who were admitted to 534 Korean long-term care hospitals in April 2008. Methods: Multi-level logistic analysis was used to explore the organizational factors that influence urinary incontinence care quality controlling for patient level factors. Results: With respect to the organizational factors, the findings showed that location and RN/total nursing staff ratio variables were statistically significant, controlling for risk factors at the patient level. The odds of urinary incontinence improvement from admission in urban long-term care hospitals were 1.28 times higher than rural long-term care hospitals. In addition, when a long-term care hospital increased one standard deviation (0.19) in the RN ratio, the odds of urinary incontinence status improvement or maintenance of continence status from admission increased about 1.8 times. Conclusions: The most significant finding was that a higher RN to patient ratio and urban location were associated with better resident outcomes of urinary incontinence among organizational factors. For a better understanding of how these significant organizational factors influence positive care outcomes and provide more practical implications, studies should examine concrete care process measures as well as structure and outcome measures based on systematic conceptual models.


Abstract: A major challenge faced by Forensic Program management teams is to balance their budgets due to the unpredictability of the forensic patient population, particularly in the context of managing staffing costs where the hospital is not the "gatekeeper" and does not have control over who is admitted and when. In forensic mental health, the justice system, either via the courts, or review boards, determines who is ordered for admission to hospital for assessment or treatment and rehabilitation. Hospitals have little, if any, recourse but to admit these mentally disordered offenders. This typically results in increased levels of staffing with concomitant overtime costs. The literature suggests that clustered float pool nurses develop enhanced relationships with staff and patients, thereby enabling them to attain specialized clinical expertise to treat specific patient populations, promoting
safer, high quality care, and overall are more cost effective. Forensic nursing is recognized as a mental health subspecialty. The "Forensic Float Nurse" concept was piloted to provide readily available, highly adaptable, skilled forensic nurses to assist in times of unpredictably heavy workloads and/or unplanned staffing shortages. A significant reduction approaching 50% in overtime was achieved. Heuristic implications of this finding are presented.

Document 41


Abstract: Although differences in nurse staffing have been associated with individual hospital characteristics in the literature, there have been no studies on how these factors may influence nurse staffing changes made after the mandated nurse-to-patient ratios in acute care hospitals in California. The aim of this study was to determine if changes in medical-surgical nurse staffing (registered nurses and registry nurses) were associated with particular hospital characteristics. Researchers found the baseline level of nurse staffing was the variable most associated with change in mean productive hours per patient day from FY 2000 to FY 2006. Those hospitals with nurse staffing below 4.0 mean productive medical-surgical RN and registry hours per patient day in FY 2000 had a significantly larger, positive change in mean productive hours than did hospitals with average mean productive hours (approximately 5 hours) in FY 2000. Hospitals staffing above 6.0 mean productive hours per patient day in FY 2000 changed their staffing less than did hospitals with average mean productive hours.

Document 42


Abstract: Qualitative research in the USA exploring acute care consumers' perceptions of their level of safety during their hospital care. An interpretive analysis was carried out on the group interview narratives of 39 individuals (patients or family members) who had recently stayed in hospital overnight. Key themes explored included communication of health information, staffing levels, medication administration and the role of family members as patient advocates.

Document 43

**Abstract:** Purpose: The purpose of this study is to examine the relationship between nurse staffing and patient outcomes in hospitals in mainland China. 
Methods: The study was conducted in 181 hospitals across all of the eight economic zones in mainland China using a four-stage sampling design. Two instruments, the China Nurse Survey and the patient satisfaction measurement from the Hospital Consumer Assessment of Healthcare Providers and Systems, were employed in data collection. In this article, 7,802 nurse surveys and 5,430 patient surveys from 600 medical and surgical units were analyzed. Results: The adjusted joint effects of nurse staffing on patient outcomes from logistic regression analyses showed that more nursing staff per patient had statistically significant positive effects on all necessary nursing care, nurses' reports of quality of care, their confidence on patients' self-care ability on discharge from the hospital, patient adverse events, as well as patients' report of satisfaction. When the nurse-to-patient ratio (total number of nurses on all shifts on the unit divided by total number of patients who stay on the unit) increased to the 0.5-0.6 category, most patient outcomes were significantly improved, considering hospital and patient factors and nurse skill mix in the logistic regression models. Conclusions: The findings provide evidence on how inadequate nurse staffing might result in missed but needed nursing care and negative patient outcomes, while better staffing levels could be an effective strategy for improving patient outcomes. Clinical Relevance: We recommend that the nurse-to-patient ratio on medical and surgical units in Chinese hospitals be increased to at least 0.5-0.6 so as to secure patient safety and the quality of health services. [Publication]

Document 44


**Abstract:** The objective of this study was to examine whether the amount, type, and reasons of missed nursing care differ between Magnet and non-Magnet hospitals. Data were collected from 124 medical-surgical, intermediate, intensive care, and rehabilitation units in 11 hospitals located in the Midwest and Western regions of the United States. A cross-sectional, descriptive study was conducted. The MISSCARE Survey was utilized to collect data on the level of perceived missed nursing care, and nursing staffing data was collected for each study unit. Missed nursing care showed significant differences according to Magnet status. Separate analysis showed no staffing-level difference between Magnet and non-Magnet hospitals. The authors concluded that efficiencies in operations, work environment, and culture characterized by Magnet hospitals should be promoted.
Document 45


**Abstract:** Hierarchical Poisson modeling was used to explore hospital and nursing unit characteristics as predictors of the unassisted fall rate. Longitudinal data were collected from 1502 units in 248 US hospitals. The relation between the fall rate and total nurse staffing was positive at lower staffing levels and negative for levels around and above the median. The fill rate was negatively associated with registered nurse skill mix and average registered nurse tenure on the unit. [PUBLICATION] 12 references

Document 46


**Abstract:** Objective: The aim of this study was to determine the perspective of pediatric nurses regarding the causes, reporting, and prevention of medication errors. Design: A descriptive, cross-sectional study. Setting: Nurses were selected from inpatient pediatric wards of 4 hospitals in Turkey. Subjects: 119 pediatric nurses agreed to participate in the research and completed semi-structured questionnaires. These data were collected and analyzed. The average age of the nurses was 24.7 ± 3.58 years; the majority was women (96.6%). Results: Pediatric nurses stated that the most common causes of medication errors were long work hours (68.1%) and a high patient/nurse ratio (58.8%). Although the majority of nurses (88%) made use of a medication error notification system, many errors were not reported and nurses cited potential blaming of nurses in case of adverse outcome for the patient (52.95%), loss of trust (50.45%), and fear of disciplinary proceedings (42%) among the causes of lack of notification. With regard to avoidance, nurses most commonly cited the need for adequate information regarding the safe use of medications (45.4%). Conclusions: This is the first study in Turkey to address the pediatric nurse perspective regarding medication errors. The results argue that there is a need for ongoing training of pediatric nurses concerning safe medication administration and that the causes and underreporting of medication errors warrant further investigation.

Document 47

Abstract: Aim. To investigate the relationships between nursing activities, nurse staffing and adverse patient outcomes in hospital settings as perceived by registered nurses in Finland and the Netherlands and to compare the results obtained in the two countries. Background. Previous research indicates that a higher proportion of registered nurses in the staff mix results in better patient outcomes. Knowledge of the relationship between nurse staffing and adverse patient outcomes is crucial to optimise the management of professional nursing resources and patient care. Design. A cross-sectional, descriptive questionnaire survey. Methods. Registered nurses employed in hospitals in Finland (n = 535) and the Netherlands (n = 334), with overall response rates of 44·9% and 33·4%, respectively, participated. Results. The patient-to-nurse ratio was on average 8·74:1 and did not vary significantly between the countries. However, there were fewer registered nurses and significantly more licensed practical nurses among the Dutch hospital staff than the Finnish staff. In addition, Finnish nurses performed non-nursing and administrative activities more frequently than the Dutch nurses and reported more dissatisfaction with the availability of support services. Frequencies of patient falls were related to the patient-to-nurse ratio in both countries. Finnish participants reported the occurrence of adverse patient outcomes more frequently. Conclusions. Significant associations were found between nurse staffing and adverse patient outcomes in hospital settings. Compared with the Netherlands, in Finland, nurses appear to have higher workloads, there are higher patient-to-nurse ratios, and these adverse staffing conditions are associated with higher rates of adverse patient outcomes. Relevance to clinical practice. The findings provide valuable insights into the potential effects of major changes or reductions in nursing staff on the occurrence of adverse patient outcomes in hospital settings.


Abstract: Early research into care rationing in some district health boards (DHBs) has revealed it is happening in every unit, and to an alarming degree in some, a symposium on care rationing in Wellington last month was told. Safe Staffing Healthy Workplaces (SSHW) Unit director Jane Lawless told the symposium that good quality data was vital to force recognition of the problem. She said data had been collected from more than 20 units in six DHBs, providing evidence that care rationing was a reality in New Zealand hospitals. Nurses were asked to write down what they were doing every 15 minutes, and also to note what they were not doing - if care was missed, unduly delayed, done to a substandard level or inappropriately delegated.

**Abstract**: This study examined unit-level associations of nurse staffing and workload, and the effect of the practice environment on adverse patient events. A secondary analysis was conducted of a longitudinal data set of 23 Army inpatient units from the Military Nursing Outcomes Database. Generalized Linear Mixed Modeling accommodated nested, nonparametric data. Staff category was found to be a significant predictor of medication errors and patient falls, but the relationship varied by unit type. Patient census had no effect on either outcome; however, a higher patient acuity was associated with an increase in both adverse events. The nursing practice environment mediated medication errors but not falls, in all unit types. Skill mix is important; however, additional components of staffing need consideration in producing positive patient outcomes.


**Abstract**: Summary of research by UNISON into staff/patient ratios using information from registered nurses, health care assistants, assistant practitioners and other workers. Staff perceptions of the adequacy of staff numbers, time spent with patients and skill mix were investigated.


**Abstract**: Research in Belgium assessing the association between staffing levels, in-hospital mortality, and unplanned readmission to the postoperative ICU or operating theatre among patients who had undergone a coronary artery bypass graft or heart valve procedure. Factors affecting patient safety during the different stages of the patient’s stay in hospital are discussed.

**Abstract:** Research into nurses' perceptions of staffing levels on wards for the elderly, and of the complex needs of elderly patients. The RCN guidelines and recommendations on staffing levels, 'Safe Staffing for Older People's Wards' (2012), are discussed.

Document 53


**Abstract:** The purpose of this study was to acknowledge and interpret the stories and perceptions of pediatric nurses who care for children left unaccompanied during their hospitalization. This was a phenomenological qualitative study conducted via interviews using open-ended questions. The study was conducted in a large Midwestern pediatric hospital that has both urban and suburban settings. Twelve nurses voluntarily completed the interviews. Recruitment was accomplished though a group e-mail that was sent to all registered nurses at the hospital complex. Nurses made assumptions about families particularly when the family did not communicate the reason for their absence. Unaccompanied children received equal nursing care but often received more attention than children whose families were present. Care for unaccompanied hospitalized children presents more challenges to nurses and may not be optimal for children. Nurses should examine their feelings and judgments about non-attendant families. Staffing levels should take into account whether the child has a guardian at the bedside.

Document 54


**Abstract:** Research summary examining the views of nurses and patients in the USA and Europe on the best way of organising the hospital nurse workforce. The effect of good working environments and low patient to staff ratios on improvements in patient and staff satisfaction and better quality and safety of care were discussed.

Document 55

**Abstract:** Findings from independent research commissioned by Nursing Standard on the impact of nurse staffing levels on NHS trust performance. The staffing levels of the highest-performing and lowest-performing of 215 acute, mental health and learning disability trusts across England were compared. Implications of the data for the Royal College of Nursing's call for mandatory minimum staffing levels are considered.

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Document 56


**Abstract:** The need to introduce minimum staffing levels to ensure that nurse-to-patient ratios and skill mix are adequate. Findings from RCN reports and research demonstrating the benefits of higher nursing levels are discussed, and the problem of mixed messages being given to NHS trusts on how they can reduce staffing costs is highlighted.

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Document 57


**Abstract:** Brief summary of research evidence that demonstrates a link between staff shortages and patient falls on acute wards. Findings from a secondary examination of patient safety data for NHS trusts in England, obtained from the National Patient Safety Agency (NPSA) and the Care Quality Commission (CQC) are discussed.

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Document 58


**Abstract:** California's minimum nurse-to-patient staffing ratio law, the nation's first, was implemented in 2004. This study had two aims: (a) to evaluate the effect of the nurse-to-patient ratios law on nurse job satisfaction in order to advance the debate over the merits of nurse staffing law, and (b) to compare California nurses who were satisfied against those who were not, in order to facilitate the development targeted retention interventions based on empirical evidence. The sample's overall job satisfaction increased significantly as the years passed, suggesting the nurse-to-patient ratios law was associated with improvements in nurse satisfaction. Satisfied RNs were more likely to have a balanced and financially secure life that included a partner, children living at home, higher hourly wages, and higher income from
sources other than a nursing job. Nurses working in direct patient care positions remained dissatisfied in larger proportions than those working in other types of positions, even after the nurse-to-patient ratios were implemented. More nurses are satisfied today than before the ratios; nevertheless, far too many nurses (18.5%) have job satisfaction scores that are neutral or worse.

Document 59


**Abstract:** BANN Pages series. Discussion on nurses' duty of care to ensure adequate staffing levels. Related RCN policy, NMC codes, NHS Acts and constitution and Care Quality Commission requirements, the online Safer Nursing Care Tool (SNCT) and the planned 2012 BANN staffing review of neuroscience nursing are discussed.

Document 60


**Abstract:** Research in the UK into the effect of staffing levels on adverse incidents in acute psychiatric hospital wards in England. Time series analysis of checklists recording the numbers of conflict and containment incidents and the numbers of nursing staff on duty completed at the end of each shift over a 6 month period investigated whether rises in staffing levels preceded or followed rates of total conflict and total containment.

Document 61


**Abstract:** Patient falls in hospitals continue to be a major and costly problem. This study tested the mediating effect of missed nursing care on the relationship of staffing levels (hours per patient Day [HPPD]) and patient falls. The sample was 124 patient units in 11 hospitals. The HPPD was negatively associated with patient falls ($r = 0.36$, $P$ (incomplete abstract))

Document 62

**Abstract:** Qualitative research in Hong Kong exploring nurses' perspectives of how work environment influenced their intention to stop working in public hospitals. Semi-structured interviews with hospital nurses examining the impact of staffing levels, skill mix, work responsibility, management, relationships with co-workers, professional incentives and turnover intention were analysed using a modified version of Van Kaam's phenomenological method.

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**Abstract:** Evidence links the amount of registered nurse care to improved patient outcomes in large hospitals, but little is known about registered nurse staffing in small critical access hospitals, which comprise 30% of all US hospitals. Our study findings show that the unique work environment of critical access hospitals means registered nurses are often overextended, reassigned from inpatient care, and/or interrupted creating potential safety and quality risks. Further research is needed to understand what critical access hospitals consider "safe" levels of nurse staffing and what processes are implemented to mitigate these risks.

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**Abstract:** Patient outcomes are linked to nurse staffing. Although charge nurses are responsible for intrashift staffing decisions, little is known about their decision-making behaviors. This study describes the behaviors of charge nurses from the perspective of charge nurses, nurse managers, and staff nurses. This qualitative descriptive study was conducted with a sample of 24 nurses. The findings revealed that staffing the unit was the most important role for charge nurses. Charge nurses reported spending up to 90% of a shift resolving intrashift staffing issues. Five effective decision-making behaviors emerged: (a) resourcefulness, (b) tactful communication, (c) flexibility, (d) decisiveness, and (e) awareness of the big picture. These behaviors of charge nurses are similar to mindful behaviors of workers in hazardous work environments, and are therefore described as mindful staffing. Practice implications...
and considerations for the education of charge nurses in relation to safe intrashift staffing are suggested by the findings of this study.

Document 65


**Abstract:** Research in Taiwan into the relationship between self-efficacy, optimism and depression among nurses. Reasons for nurses' depressive symptoms are discussed, including the effects of stress, low income, shift work, staffing levels and marriage status, and organisational and individual strategies to address depression among nurses are considered.

Document 66


**Abstract:** California is the first state to mandate specific nurse-to-patient ratios in general acute care hospitals. These ratios went into effect January 1, 2004 and apply at all times. Little is known about the changes in staffing that occurred subsequent to the implementation of this legislation. This study identifies and describes changes in nurse and non-nursing staffing that may have occurred as a result of the enactment of these nurse-to-patient ratios. The results of this study indicate that most hospitals made upward adjustments in their RN and registry nurse staff but decreases in support staff and other non-nurse staff were not evident. These findings suggest that these mandated ratios had the desired effect of increasing the number of nurses caring for acutely ill patients. [PUBLICATION]

Document 67


**Abstract:** Overview of findings from a review of the care provided in Wales to older patients in hospital. Examples of poor practice, and barriers to the delivery of dignified and respectful care, are highlighted and recommendations relating to staffing levels, ward leadership, staff training and the importance of effective communication are discussed.

Document 68

**Abstract:** Continuing Professional Development, NS598. Principles of nursing metrics in measuring care quality. Areas of nursing activity that are measured are outlined, including adverse events, nursing hours per patient, staffing level and skill mix, patient turnover and nurse satisfaction. Case studies are used to illustrate their benefits for patient care, including reducing pressure ulcer and falls incidence.

Document 69


**Abstract:** Systematic review examining the relationship of nurse staffing levels and skill mix to quality of care for older nursing home residents. Research on total, 1st level and 2nd level nurse staffing and care quality indicators was reviewed.

Document 70


**Abstract:** Review of a survey by the RCN into how nurses are meeting the challenges of caring for patients with dementia. Nurses' recognition of the special needs of dementia patients is described, and barriers to providing adequate support are discussed, including high workload levels and low staffing levels.

Document 71


**Abstract:** Findings of the RN4CAST global workforce study concerning variations in patient-to-nurse ratios in 12 European countries and the USA. The need for workforce planning to take into account the relationship between patient outcomes and factors such as nurse wellbeing and work environment is discussed.

Document 72


**Abstract:** Guidance from the RCN on identifying the optimum nurse staffing levels and skill mix. The essential elements of staffing reviews are listed and the need for
regular review of patient outcomes and staffing profile is highlighted. Key staffing indicators to assess the strength of the workforce are outlined.

Document 73


**Abstract:** Research in the USA into the association between numbers of patients being cared for by NICU nurses and achievement of oxygen saturation goals in very low birthweight infants in order to test whether nurse-patient ratio may be a modifiable factor influencing oxygenation-related outcomes. Oximeter data were studied with respiratory mode, and correlated with nurse assignments and bedside patient flow sheets.

Document 74


**Abstract:** Purpose: To determine if nurse staffing predicts teamwork. Design: A cross-sectional, descriptive design with a sample of nursing staff (N = 2,545) on 52 patient care units in four hospitals was utilized. Methods: The Nursing Teamwork Survey was utilized to collect data on the level of perceived nursing teamwork on each of the study units. In addition, nursing staffing data were collected for each study unit. Findings: Higher levels of nurse staffing were related to better teamwork. Specifically, the greater the hours per patient day, the higher the level of overall teamwork on the unit (? = 0.417, p = .033). Also the greater the skill mix, the higher the level of overall teamwork on the unit (? = 0.436, p = .009). Conclusions: Adequate levels of staffing are needed to ensure nursing teamwork. Clinical Relevance: The ability to provide quality and safe care is associated with teamwork, which in turn requires adequate staffing.

Document 75


**Abstract:** Under a proposal from the Centers for Medicare and Medicaid Services, hospitals would no longer be reimbursed for 30-day re-admissions or emergency department (ED) visits. Increasing RN staffing to reduce post-discharge utilization is
one possible solution, but one that is not financially attractive to hospitals. This study demonstrates the impact of fluctuating staffing levels on ED visits within 30 days of discharge. RN overtime and RN vacancies also affected subsequent ED visits. It is important for nurse managers, directors, and administrators to recognize the impact of RN staffing on patient outcomes. Reimbursement models will need to be realigned to benefit both hospitals and payers.

Document 76


**Abstract:** Recommended minimum staffing levels and skill mix to ensure patient safety in endoscopy units. Staffing levels for admissions, the endoscopy room, recovery/discharge, decontamination procedures and emergency services are discussed. Levels of competence are also reviewed.

Document 77


**Abstract:** How nurse managers can ensure staffing levels are high enough to deliver safe care. The relationship between increased nurse staffing levels and better patient outcomes is discussed with reference to the RCN's 'Guidance on Safe Nurse Staffing Levels in the UK' (2010), and the importance of regularly reviewing data on staffing variables and patient outcomes is highlighted.

Document 78


**Abstract:** Comments on statistics from the Royal College of Physicians which suggest that nurse to patient ratios have a massive impact on the quality of stroke care. The need for adequate numbers of skilled stroke nurses is highlighted.

Document 79


**Abstract:** Literature review examining the impact of nurse understaffing on patient care. Safe and unsafe staffing levels are identified and the relationship to mortality
rates is discussed. Dependency scores and computerised systems to support safe staffing are reviewed.

Document 80


**Abstract:** Systematic review and synthesis of quantitative research measuring the impact on nurse staffing levels on clinical outcomes in hospitalised children and adolescents. Studies involving measures of nursing hours per day, nurse-to-patient ratio, skill mix and nurses’ education and work characteristics were included in the statistical meta-analysis.

Document 81


**Abstract:** Research in the USA investigating the relationship between nurses’ work schedules and patient mortality, after controlling for staffing. The characteristics of nurses’ work schedules, staffing levels, skill mix and mortality outcomes relevant to nursing were analysed, and work schedule components relating to patient mortality, nurse injuries and nurse retention were identified.

Document 82


**Abstract:** Greater amounts of nursing surveillance is thought to decrease failure to rescue but studies to date have used nurse staffing levels as a proxy for nursing surveillance. The purpose of this nursing effectiveness study was to examine the unique treatment effect of nursing surveillance on failure to rescue. Data were abstracted from 9 electronic clinical data repositories including the nursing documentation system that used the Nursing Interventions Classification (NIC) to record nursing care. Nursing surveillance was quantified as “high use” when the subjects received it an average of 12 times per day or more. Propensity scores were used to match subjects who had received high-dose nursing surveillance with subjects who received low-dose nursing surveillance (average of less than 12 times a day). The results indicate that when nursing surveillance is performed an average of 12 times a day or greater, there is a significant (p = .0058) decrease in the odds of experiencing failure to rescue (odds ratio [OR] = 0.52) compared to when
surveillance was delivered an average of less than 12 times a day. Additional unique variables included in this study are robust levels of nurse staffing based on hourly data, medical treatments, pharmaceutical treatments, and nursing treatments. The use of propensity scores helped determine the unique contribution of nursing surveillance on failure to rescue in this observational study.

Document 83


**Abstract:** Research in Canada assessing the relationship between work environment, nurse staffing and system outcomes in cardiac and cardiovascular units. The extent to which interrelated factors, including nurse experience and education, nurse-patient ratio, resource adequacy, omitted and delayed interventions and patient characteristics, affect length of stay and quality of care was assessed using the Patient Care Delivery Model.

Document 84


**Abstract:** Research in Canada into work environment and NICU nurses' perceptions of quality of care, outcomes and rationing of care. Participants were surveyed about work factors such as staffing levels and relationship with nurse managers and medical staff. Results were correlated with application of the Neonatal Extent of Work Instrument (NEWRI), and assessment of job satisfaction, burnout and quality of care.

Document 85


**Abstract:** Comment on nursing staff shortages in the USA and the need to maintain safe standards of patient care. The relationship between nursing care and patient outcomes is discussed and the potential impact of implementing mandatory nurse-patient ratios on patient care and nurse workloads is considered.

Document 86

**Abstract:** Research in the Netherlands into the relationship between time of birth and delivery related adverse outcomes. Data collected from the Netherlands Perinatal Registry examining delivery outcomes and organisational factors of maternity units are described. Increased risk of adverse outcomes for night time deliveries due to volume of workload, staffing levels and unavailability of senior staff is discussed.

Document 87


**Abstract:** Quantitative and qualitative research in Jordan identifying types and frequency of adverse events occurring in hospital, from the nurse’s perspectives. Nurses completed a web-based questionnaire about the most significant type, frequency and causes of errors and adverse events and hospital areas where they occurred. The contribution of workload, staffing levels, technical performance, negligence, job demands and poor management were examined.

Document 88


**Abstract:** Career Development supplement. Research into the introduction of a mandatory minimum nurse to patient ratio in California and its impact on patient outcomes. Staffing levels in California are compared with those of New Jersey and Pennsylvania, and differences in staff satisfaction and patient mortality are compared.

Document 89


**Abstract:** Research comparing the severity of agitation and the use of psychotropic drugs in nursing homes with different structural organisations in 3 countries. The effect of increased staff-patient ratios in Norwegian nursing homes is highlighted.

Document 90

**Abstract:** Research in Belgium into the cost-effectiveness of increasing nurse staffing for cardiac surgery, comparing cost with other interventions. Cost-effectiveness analysis of raising the nursing hours per patient day to the level of the 75th percentile was conducted for patients undergoing elective coronary artery bypass graft or heart valve procedures. Number of avoided deaths and life-years gained were studied.

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Document 91


**Abstract:** Quantitative research in northern Taiwan investigating A&E nurses' views on current nursing workforce levels in their departments and the impact on staff-related outcomes for unit managers. Questionnaire surveys examined perceptions of workload, staffing levels and work distribution and self-reported holiday accumulation, overtime and number of call-backs on days off, with demographic and professional variables and different unit types compared.

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Document 92


**Abstract:** New initiatives in Northern Ireland to clarify the roles of ward sisters and staff nurses, following concerns about the impact of inadequate staffing levels on patient care. A review of the responsibilities and accountabilities of the ward sister and charge nurse roles, and the introduction of a new strategic plan 'Changing the Culture 2010' are discussed.

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Document 93


**Abstract:** Quantitative research at a hospital in Singapore to develop and validate a nursing workload intensity measurement system (WIMS) for use in establishing safe nurse staffing levels. Observations and coding were used to calculate an equation
for required nursing hours for identified nursing activities, based on nursing diagnoses, time of day and number of patients on ward

Document 94

**Abstract:** Qualitative phenomenological research exploring midwives' attitudes towards safety and making recommendations for creating a positive safety culture for staff, patients and the organisation. 7 emergent themes are reported: error reporting; client expectations; feedback and learning; decision-making/staffing levels; communication; prioritisation of safety and staff safety.

Document 95

**Abstract:** Survey research in 5 hospitals in Finland investigating whether there was a direct or indirect relationship between nurse-patient ratios and a variety of nursing outcomes. A Bayesian network model was used to explore connections between staffing levels and job satisfaction, stress, perceived quality of care, autonomy, intent to leave, perceived support and attitudes towards technical equipment.

Document 96

**Abstract:** Research on the characteristics of workers in dialysis units in Australia and New Zealand including staffing levels, working hours, qualifications, age and numbers of registered and unregistered nurses and technicians. Workforce issues and trends were identified, including the changing role of registered nurses and their relationship with other staff. Some international comparisons are made.

Document 97
Abstract: Examination of research on associations between RN staffing levels and patient outcomes. Evidence relating to mortality rates, mandatory nurse patient ratios and medical staffing levels is reviewed, and further research is recommended to consider recent organisational changes and changes in workforce roles, both in the NHS and abroad.

Document 98


Abstract: Systematic literature review of research published between 1998 and 2008 to identify and examine the evidence on nurse staffing levels and models and their impact on patient, nurse and organisation outcomes.

Document 99


Abstract: Research in Korea to investigate the relationship between nurse staffing and mortality from acute strokes. Deaths from acute stroke in hospital and within 30 days of discharge were monitored and basic nursing care provided to acute stroke patients in ICU and general wards was assessed. The grades of ICU and ward staff were also identified.

Document 100


Abstract: Qualitative research into the lived experiences of stress among mental health nurses working in acute units in a mental health NHS trust in London. The study examined the occupational and environmental factors that contributed to stress, and highlighted the impact of resources and staffing levels on the ability of staff to cope with violence from patients.

Document 101

**Abstract:** Examination of the evidence that has emerged concerning adverse events in patients' experiences of health care, particularly in medication and infection. Current initiatives to reduce the risks to patients are described. Organisational systems that promote safe working and the effects of staffing levels on outcomes are highlighted.

Document 102


**Abstract:** Research in South Korea measuring the impact of staffing levels on job-related outcomes in intensive care nursing. ICU nurses completed questionnaires on their speciality and experience, perceptions of staffing adequacy and quality of care, job dissatisfaction, burnout and intention to leave. Results were compared by hospital and unit characteristics, including staffing and number of beds.

Document 103


**Abstract:** Research examining the association between RN staffing mix and quality of care in nursing homes in California, USA. 5-year panel data from a group of nursing homes that met the state's minimum standard for total nurse staffing level are compared with that of another group that failed to meet the standard.

Document 104


**Abstract:** Debate about the value of mandatory nurse/patient staffing ratios. The legislative background to their introduction in some states of the USA is explained and the arguments for and against are reviewed.

Document 105


**Abstract:** Case study outlining the care of a terminally ill nursing home resident with a stage IV pressure ulcer. An analysis of the nursing home's failure to provide
adequate care is presented covering aspects such as inadequate pain management, staffing levels, staff education and supervision.

Document 106


**Abstract:** Research by retrospective analysis on the recording of vital signs in emergency departments. The number of recordings taken within 15 minutes of arrival and repeated after 60 minutes was noted. The relationship between staffing levels, triage category and poor recording was examined together with its effect on the detection of ill patients.

Document 107


**Abstract:** Qualitative research into the reasons for variation in the prevalence of catheter use in care homes. Interview responses from nurse managers, nurses and care assistants are described, including views on arrival of patients from hospital with catheters, the need for a proactive approach and the importance of staff attitudes, staffing levels and communication.

Document 108


**Abstract:** Research in the USA into effect of characteristics of the healthcare organisation and of managers on job satisfaction of nursing staff. Nurses working in a variety of settings within a health system were surveyed to study variables such as managers’ caring attributes, nurse manager ability, participation in hospital issues, staffing levels, and nurse physician relations.

Document 109

**Abstract:** Qualitative research in Norway exploring the impact of limited resources on nursing care and medical treatment in intensive care. Findings relating to the rationale behind prioritisation of doctors and ICU nurses, including their use of national prioritisation guidelines, are discussed and moral dilemmas experienced as a result of inadequate staffing levels and resources are identified.

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Document 110


**Abstract:** Research in Japan to examine methods for estimating nurse staffing levels in acute/intensive care settings, using diagnosis related groups/Diagnosis Procedure Combination (DPC) groups. Experienced registered nurses completed self-report questionnaires to identify nursing care, workload and intensity in 4 DPC groups.

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Document 111


**Abstract:** Research in South Korea to explore the relationship between ICU nurse staffing levels and characteristics and patient mortality in intensive care units in tertiary and secondary hospitals. Hospital, unit and patient characteristics were examined, including bed numbers, nurses' level of experience, RN-to-patient ratios and presence/absence of physicians.

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Document 112


**Abstract:** Research into the workload of clinical nurses, managers and educators in A&E departments in Australia. The study examined nurse patient ratios, and the ratios of management and educators to clinical staff, as well as the percentage of junior to senior clinical staff.

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Document 113

Abstract: Literature review on the effect of nurse staffing on the frequency of medical errors, fatigue and nurse burnout. Patient-to-nurse ratios, adverse outcomes and nurse retention are discussed. The need to invest in adequate nurse staffing is highlighted. The AORN position statement on safe work/on-call practices is summarised.

Document 114

Abstract: Action research in Australia to develop a workload equalisation tool for community psychiatric nurses. Nurses and administrators identified staffing issues which affected workload, including staffing levels, lack of experience among case managers, generic versus specialist roles, variables among client characteristics, location of services and poor integration between services.

Document 115

Abstract: Research in Greece on nurses’ perceptions of the nursing shortage and the levels of informal care provided by families in a cancer hospital. Participants completed a questionnaire about their demographic characteristics, the frequency of caregiving by family members at the bedside, the tasks these carers performed and the reasons. Perceptions of the adequacy of staffing levels were also examined.

Document 116

Abstract: Quantitative research using data from all states of the USA to examine the impact of nurse-to-population ratios on the health of the local population, as defined by standardised health rankings. Findings were compared with those of doctor-to-population ratios, and the health and socioeconomic components most strongly associated with nurse or doctor shortages were identified.

Document 117

**Abstract:** Editorial debating concerns about the nature of caring in nursing. The effects of staffing levels, high pressure health systems and technology on the caring function of nurses are discussed. It is argued that nurses must first master the technological and biological aspects of nursing and then address the challenge of caring.

Document 118


**Abstract:** Literature review of research on the impact of registered nurse staffing levels on patient safety and care, nurses' working conditions, job satisfaction and hospitals' financial outcomes. The effects of nurse-patient ratios on staffing workloads and staff retention are considered.

Document 119


**Abstract:** Analysis of research by Aiken in 'Education levels of hospital nurses and patient mortality'. J American Medical Association. 2003. 290. p1617-23., re-interpreted using production theory to examine a link between staffing levels, skill mix and clinical outcomes. Cost-effectiveness aspects of the impact of qualified nursing staff on patient care is explored.

Document 120


**Abstract:** Research in Finland into perceptions of quality of care held by nursing staff working in long-term care units, such as nursing homes. Qualified staff, nurses' aides and nurse managers were surveyed about their own professional skills, staffing levels, supervisory support for professional development and quality of care.

Document 121

**Abstract:** Research in the USA on job satisfaction among nurses. Nurses' views on issues affecting their job satisfaction, including staffing levels, education, conditions of service and relationships with doctors and management, are described. The experiences of nurses working in Magnet and non-Magnet hospitals were also compared.

Document 122


**Abstract:** Research on patient dependency in the emergency department of a large teaching hospital, related to nurse staffing levels and grade mix. The Jones Dependency Tool was used to collect data on patients attending the department during a 2-week period, measuring dependency on arrival, departure and after 4 and 8 hours. Changes in dependency between arriving and leaving were also assessed.

Document 123


**Abstract:** Literature review and review of practice on staffing and skill mix in acute mental health care wards and the impact on service user outcomes. Staffing levels and staff mix are examined and the effects and possibilities of new roles and responsibilities are discussed.

Document 124


**Abstract:** Guidance on how to calculate post-anaesthesia care unit (PACU) staffing and comparison of PACU staffing with other nurse staffing problems. The data needed by operations research specialists and their role in calculating staffing levels is discussed.

Document 125

Abstract: Research in Italy into the prevalence and risk factors for pressure sores in patients in long term care units. Using the Braden Scale the study examined risk associated with specific chronic conditions, length of stay, staffing levels in the units, use of assessment instruments and pressure-relieving equipment use.

Document 126


Abstract: Research into the use of patient information systems to access data concerning nursing intensity levels and the classification of patients in an ICU for adults in Finland. Data for 2003 was examined for factors influencing relationships between staffing levels and the intensity of nursing required and the value of this information for determining nurse to patient ratios is highlighted.

Document 127


Abstract: Case study of nurse-to-patient ratios and nursing staff mix in Israel. Some reference is made to legislation on nurse-to-patient ratios elsewhere in the world.

Document 128


Abstract: Editorial reviewing studies on nurse staffing ratios, which have shown an association between the number of registered nurses and patient mortality.

Document 129

Abstract: Editorial on Government policy making as it affects nurse staffing levels in hospitals. The consequent impact on standards of patient care, staff job dissatisfaction and burnout levels are discussed.

Document 130


Abstract: Editorial on nurse staffing levels, focusing on funding issues and arguing that better staffing would improve outcomes and reduce length of hospital stay.

Document 131


Abstract: Editorial on nurse staffing levels and the impact on outcomes, arguing that staff roles should be redesigned and expanded to improve efficiency. New roles introduced as part of the Changing Workforce Programme are discussed.

Document 132


Abstract: Research on the effects of nurse staff levels and nurse-patient ratios on patient mortality and nursing job dissatisfaction, burnout and quality of care. Nurses in 30 hospitals completed a survey on workload and job satisfaction and patient data were analysed to examine outcome.

Document 133


Abstract: Research in the USA to test the validity of 3 sets of subscales from the Revised Nursing Work Index (NWI-R) used to evaluate registered nurses' practice environments. Nursing management, staffing levels and nurse-doctor relations were highlighted.
Document 134

**Author:** Waters A and Pickersgill F (2007) The numbers add up, *Nursing Standard*, 21 (17), pp. 16-17

**Abstract:** Count on Nurses campaign for safer staffing levels provides a top 10 guide to research which argues the case for a higher grade skill mix and the value of employing registered nurses.

Document 135


**Abstract:** Editorial discussing the RCN report, 'Setting Appropriate Ward Staffing Level in NHS Acute Trusts' (2006) and a tool-kit developed by the Emergency Nurses Association for use in service reviews to calculate skill mix and staffing profiles and maximise patient safety.

Document 136


**Abstract:** Literature review on new ways of working in intensive care in response to increasing demands on critical care staff capacity. The effect of workload and staffing levels on patient safety, effectiveness of care and the financial implications of different models of organisation were reviewed with reference to conceptualising new models of service delivery.

Document 137


**Abstract:** Research in Canada into the effects of nurse staffing related factors on mortality rates within 30 days of hospital admission, using the Determinants of Mortality Model. Variables considered included nursing skill mix and staffing levels, proportion of full-time staff, nurses’ experience and education, nurse-doctor relations, burnout and staff support, and use of care plans and protocols.

Document 138

**Abstract:** Critique of a new model for nurse-to-patient ratio in Victoria, Australia, which mandates a minimum of 5 nurses to every 20 patients, and review of research supporting the use of mandated nurse-to-patient ratios and automated Patient Dependency Systems to anticipate short-term resource needs. The impact of the model on recruitment, staffing levels and skill mix is discussed.

Document 139


**Abstract:** Count on Nurses campaign for safer staffing levels reports on a collection of research papers dating back to the 1970s held by Professor Jennifer Hunt, which offer evidence on the value and importance of nurses in patient care.

Document 140


**Abstract:** The impact of nurse staffing levels on patient mortality, with reference to a recent research study which indicated that too few nurses or the wrong skill mix can result in more patients dying. The negative effects of low staffing levels on patient satisfaction and staff wellbeing are also discussed, suggesting the need to maintain staffing despite NHS cuts.

Document 141


**Abstract:** Research to examine what infection control policies and procedures were in place in nursing and residential care homes. An anonymous postal questionnaire to all homes in Northern Ireland identified staffing levels and visits from infection control nurses, general infection control policies in place and those relating to MRSA, and what the policies covered.

Document 142

Abstract: Research in 6 emergency departments in England to evaluate the reliability and validity of the Jones Dependency Tool (JDT) in determining the degree of nursing care required by adult patients. The value of the JDT in forecasting the staffing levels needed to manage the workload in A&E departments is discussed.

Document 143


Abstract: Summary of research on staffing standards and staffing levels in nursing homes. The study examined whether homes in states where there were state-mandatory staff/patient ratios had more staff than those without, which adhered to federal guidelines.

Document 144


Abstract: Overview of a research report from the Canadian Health Services Research Foundation which compiled the best evidence about connections between nurse staffing and patient safety. Key findings form the 2005 report 'Evaluation of Patient Safety and Nurse Staffing' are highlighted.

Document 145


Abstract: Research into the structural and organisational constraints on change in acute psychiatric wards. Problems relating to physical environment, bed management, staffing levels and staffing structures were examined. The importance of addressing these underlying problems in order to bring about effective change was highlighted.

Document 146


Abstract: A survey by Employment Research undertaken in March 2006 on behalf of the RCN into cuts in staffing levels, increased workload and morale among nurses. The responses from Clinical Nurse Managers regarding freezing of posts, redundancies and the effects on patient care are detailed.

**Abstract:** Literature review on the incidence of physical restraint within the psychiatric setting. Its use in relation to nursing care factors such as skill mix, staffing levels and the practice environment is analysed and restraint as an adverse patient outcome, using an adapted version of the Quality Health Outcomes Model, is discussed.


**Abstract:** Literature review with meta-analysis of research evidence on the association between nursing staffing levels and patient mortality during and after critical and intensive care. The review identified methodological problems in such studies concerning measurement of staffing levels and possible lack of sensitivity concerning mortality as the outcome measure in such settings.


**Abstract:** Comments on safe staffing levels as a global issue.


**Abstract:** Research in Canada into family member's experience of end-of-life care for their dying relative in terminal care facilities. Communication, staffing levels, staff knowledge and physical care were assessed.

**Abstract:** Research exploring variations in nursing practice environments in Pennsylvania hospitals, and associations between nursing practice environments and hospital characteristics, such as number of beds, community size, the teaching environment and nurse staffing levels, including RN-to-bed ratios. Nurse survey and administrative data from studies since 1999 were analysed using the Practice Environment Scale of the Nursing Work Index (PES-NWI).

Document 152


**Abstract:** Comment on international research study carried out by the Centre for Health Outcomes and Policy Research at the University of Pennsylvania which indicates that higher nurse/patient ratios lowers mortality rates.

Document 153


**Abstract:** Literature review on cost-effectiveness in nursing and its role in health care decision making. The quantity of literature on cost-effectiveness in certain areas, such as staffing levels, is discussed, and gaps in the research are identified.

Document 154


**Abstract:** Research in Australia examining what new staff, particularly newly qualified staff, perceived as supportive in their transition to the workplace, in order to improve retention. New staff members, after 2-3 months employment identified as supportive, adequate staffing levels and skill mix, positive attitudes, supernumerary days during induction and preceptorship. After 6-9 months, staff focused on knowing the system and interacting with staff.

Document 155

**Abstract:** Characteristics, strengths and weaknesses of standardised nurse:patient or nurse:bed ratios as tools for determining nurse staffing levels, with reference to early outcomes in 2 areas where their use is mandatory: Victoria in Australia and California in the USA. Arguments for and against the use of minimum staffing ratios are summarised and the implications, particularly of wrongly calibrated ratios, are discussed.

Document 156


**Abstract:** How staffing levels affect nurses’ ability to control hospital infection, with examples from research and nurses' personal experiences. The aims of the Nursing Times' Keep It Clean campaign are presented.

Document 157


**Abstract:** Literature review of quality of care and a range or organisational factors. The review was conducted to address the question of whether quality in health care is affected by changes in nurse staffing, skill mix and autonomy, including how quality is actually evaluated.

Document 158


**Abstract:** Review of 3 research surveys carried out by the mental health charity Mind, the Sainsbury Centre for Mental Health and the Royal College of Psychiatrists into service users' perceptions of inpatient acute psychiatric services. Their views on safety, staffing and ward environment are analysed.

Document 159


**Abstract:** Research exploring the perceptions of nurses working at a rural Pacific north-west community medical centre in the USA regarding the time taken to
complete specific nursing tasks and how they felt RN staffing levels should be determined. A self-report survey was completed to identify the most time-consuming activities and the percentage of time spent completing tasks only RNs could perform.

Document 160


Abstract: Systematic review of research on the relationship between the nursing workforce and patient outcomes in acute hospital care. The effects of staffing levels and skill mix on outcomes, including mortality, failure-to-rescue and complications, are examined.

Document 161


Abstract: Systematic review of interventions to ensure effective and practical use of postanaesthesia care units. Strategies identified include adjusting staffing levels to match surgical lists and optimising the sequence of cases dealt with in the operating theatre.

Document 162


Abstract: Research in Finland on nurse-patient ratios, psychiatrist resources and levels of other staff on child and adolescent psychiatric wards. The operating times and types of the wards were also examined and the numbers of beds, units and staff levels were compared internationally.

Document 163


Abstract: Research to explore nurses' perceptions of the characteristics of patients requiring a disproportionate amount of nursing time and the factors influencing these
perceptions, including the differences between wards. Semi-structured interviews, in an interpretive design, were used to examine which patients were thought by nurses to require high dependency nursing care, how this related to staffing levels and skill mix and what the implications were for caring for these patients in a general ward.

Document 164


**Abstract:** Research in the USA on the relationships between demographic and employment characteristics, ethical climate and nurses' turnover intentions. Staffing levels and workloads, control over professional practice and ethical climates are discussed.

Document 165


**Abstract:** Research in Canada on strategies used by nurse executives to rebuild the nursing workforce following a period of restructuring, and to identify ways of monitoring nursing costs in hospitals. A cross-sectional survey design was used to examine changes in staffing and employment and ways of monitoring absenteeism, staffing levels, turnover, vacancy and overtime costs. Commentary p99-105.

Document 166


**Abstract:** Literature review on the effects on patient care if nurse numbers are reduced. Evidence on whether reducing staff nursing levels affects patient outcomes, increases malpractice and results in low morale amongst staff is outlined.

Document 167


**Abstract:** Research on occupational stress experienced by qualified nurses and nursing assistants working on adult acute mental health wards. Stressors examined included staffing levels and difficult, demanding patients. The study included the impact of social support on stress factors and burnout.
Document 168


**Abstract:** Research into the key challenges facing ward sisters, including taking on a new role, staffing levels, time constraints and pressures caused by management versus clinical duties. A training package to prepare new ward sisters for their management role, and the benefits of succession planning in their development are considered.

Document 169


**Abstract:** Discussion on the implications of recent research in the USA 'Hospital Nurse Staffing and Quality of Care' and the RCN-commissioned 'The Future Nurse: Evidence of the Impact of Registered Nurses' that higher staffing levels have better patient outcomes, and lead to lower overall costs.

Document 170


**Abstract:** Qualitative research on nurses who have left the profession, examining the triggers that led them to leave. Causes for the lack of job satisfaction were explored, including the inability to perform effectively due to staffing levels, failing professional standards, the conflict between the needs of their family and demands of work and the inability to progress within a nursing career.

Document 171


**Abstract:** Commentary on ‘failure to rescue’ research, involving the examination of outcomes of patients in health care who are at the greatest risk of poor outcomes due to complications. The research could be used to assess the effect of nurse staffing levels on patient outcomes.

Document 172

**Abstract:** Research to examine variations in hospital staff injury rates and to identify organisational, psychosocial and biomechanical factors associated with injuries. The research demonstrated a relationship between staffing levels, physical demands and muscle loading, and increased risk of injury.

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Document 173


**Abstract:** Research into the high rate of injury claims amongst nurses in Canada. The study examined how staffing levels, workload and organisational factors might affect the health of nurses, how nurses put themselves at possible risk for long-term problems by continuing to work despite the presence of pain and emotional exhaustion.

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Document 174


**Abstract:** Research in the USA into the relationship between 3 aspects of nurse staffing and patient fall rate in acute care units. The nurse staffing aspects evaluated were the number of hours nurses spent with individual patients, the skill mix on the unit, in particular the percentage of RN staff, and the consistency of staffing, focusing on the number of hours provided by agency staff. The type and severity of fall and type of unit, including medical, surgical and critical care, were evaluated to investigate how strong the link was between reduced staffing levels and fall frequency in particular units.

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Document 175


**Abstract:** 1st of 2 research articles on staffing levels and nurse job satisfaction.

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Document 176


**Abstract:** Research on nurses’ perceptions of staffing levels and skill mix in Australia and their effect on job satisfaction.
Document 177


**Abstract:** Editorial on research suggesting a higher nurse to patient ratio improves patient safety.

Document 178


**Abstract:** Research in Malta on incidence related to staffing levels and numbers of patients.

Document 179


**Abstract:** Research into staffing and organisational characteristics of nursing care in cardiac intensive care units in Greece, including the nurse per bed ratio, the registered nurse to assistant nurse ratio, nurse education and training, and the frequency of performance of clinical nursing procedures. Recommendations for staffing standards are made.

Document 180


**Abstract:** Research on effects of staffing levels.

Document 181


**Abstract:** Research in the USA on whether lower nurse staffing levels contribute to burnout, job dissatisfaction and patient mortality.
Document 182

**Abstract:** Research on staff/patient ratios and nursing staff skill mix.

Document 183

**Abstract:** Research in Maryland, USA on how nurse patient ratios in intensive care units affect post-operative complications.

Document 184

**Abstract:** Research into measurement of ITU outcomes in the East Anglian Critical Care Network, including nursing staffing levels.

Document 185

**Abstract:** Professional Misconduct Case Studies, case 62. Postoperative patient on a surgical ward.

Document 186

**Abstract:** Research in the USA into work conditions, quality and staffing levels in nursing in long-term care units.

Document 187

**Abstract:** Research into links between staffing levels, patient falls, and hospital-acquired pressure sores.
Document 188

Abstract: Research into staffing levels in critical care environments and outline of the position statement from British Association of Critical Care Nurses (BACCN).

Document 189

Abstract: In context of recent Department of Health review of critical care services.

Document 190

Abstract: Research into the experiences of nurses on a children's medical ward.

Document 191

Abstract: Research conducted by Association of British Paediatric Nurses.

Document 192


Document 193

Abstract: Research.

Document 194

**Abstract:** Review of current nurse staffing levels, work load and morale.

Document 195


**Abstract:** Study of a psychiatric hospital ward.

Document 196


**Abstract:** null

21 references

Document 197


**Abstract:** Editorial on a recent Institute of Manpower Studies survey on comparative staffing levels, roles and activities of the two staff groups.