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**Literature search results**

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**Search details**

Nurse administration of medicine. References to the ‘five rights’.

**Resources searched**

NHS Evidence; TRIP Database; Cochrane Library; AMED; BNI; CINAHL; EMBASE; HMIC; MEDLINE; PsychINFO; Google Scholar

**Database search terms:** "five rights"; "5 rights"; five adj2 right*; 5 adj2 right*; medicine* adj2 administer*; medication adj2 administr*; drug* adj2 administer*; exp DRUG ADMINISTRATION; nurs*; exp NURSES

**Evidence search string(s):** (drug* OR medication OR medicine* OR prescription*) nurs* administr* ("five rights" OR "5 rights")

**Google search string(s):** (~drug OR ~medication OR ~medicine OR ~prescription) (~administration OR ~injecting) ("five rights" OR "5 rights")

**Summary**

There is some research on the five rights of nurse drug administration: right medication, right dose, right time, right patient, and right route. However there are other safety systems including the 7-rights and the 9-rights.

**Guidelines**

**American College of Cardiology / American Heart Association**

Medication Errors in Acute Cardiovascular and Stroke Patients 2010

Nurses are taught the most important step to ensure safety with respect to administering
medications is to check the 5 rights: Right medication, right dose, right time, right patient, and right route.

Commonwealth Fund
OSF HealthCare: promoting patient safety through education and staff engagement 2008
OSF St. Joseph Medical Center used a failure mode and effects analysis (FMEA) to identify variation in the process nurses used for administering medications. In response to the findings, the hospital assembled a team of frontline nurses who developed a process that every nurse should follow when administering medication to ensure that the “five rights” are met: right patient, right drug, right dose, right route, and right time for drug administration (Exhibit 3).

Evidence-based reviews
Agency for Health Research and Quality
Clinical practice improvement and redesign: how change in workflow can be supported by clinical decision support 2009
BCMA, for example, provides an electronic medication administration record (eMAR), which supplies decision support to the nurse about the five rights of medication administration.

Published research
1. Nursing's National Treasure: The Five (5) plus Five(5) Rights of Medication Administration Can you Dig It?
   Author(s) Bryant, Suzanne L.
   Citation: Clinical Simulation in Nursing, 01 November 2011, vol./is. 7/6(0-0), 18761399
   Publication Date: 01 November 2011
   Source: CINAHL
   Available in print at ULHT journal article requests. Complete the online form to obtain articles.

2. Tech Update. Realizing efficiencies with bar code medication administration.
   Author(s) Bagby, Jonathan, Mims, Elizabeth, Schneider, Ronald, Petrich, Ruth
   Citation: Nursing Management, 01 November 2011, vol./is. 42/11(51-54), 07446314
   Publication Date: 01 November 2011
   Abstract: The article discusses the significance of bar code medication administration (BCMA) as part of the healthcare system in the hospitals in the U.S. It reveals that the use of BCMA has been shown to improve patient safety through a reduction in medication errors by verifying the five rights of medication administration. In addition, BCMA systems that require staff members to perform steps to report errors and troubleshoot failures contribute to additional time interacting with the automation, taking them away from other activities such as patient care.
   Source: Health Business Elite
   Available in fulltext at Ovid
   Available in print at ULHT journal article requests. Complete the online form to obtain articles.
3. Nurses’ adherence to the hospital drug administration policy

**Author(s)** Shah R., Thapar M., Jani Y., James K.L.

**Citation:** International Journal of Pharmacy Practice, October 2011, vol./is. 19/(54-55), 0961-7671 (October 2011)

**Publication Date:** October 2011

**Abstract:** Introduction Drug administration errors accounted for over half of medication safety incidents reported to the National Patient Safety Agency.<sup>1</sup> Drug administration policies have been advocated as a key strategy for minimising errors.<sup>2</sup> When administering medication, nurses are required to adhere to hospital drug administration policies, based on the "five rights of safe drug administration" and the Nursing and Midwifery Council (NMC) guidelines.<sup>2</sup> This study aimed to determine nurses’ adherence to hospital drug administration policy. Methods A cross-sectional audit was undertaken at a University Hospital National Health Service (NHS) Trust over a fourweek period (1-26 November 2010). Trained non-participant observers determined adherence to the drug administration policy using a standardised observation schedule based on the criteria outlined in the "five rights" and NMC guidelines. Registered nurses and midwives on purposively selected wards, representing the clinical areas within the hospital, were observed by the researchers. Audit standard was set at 100% adherence to the policy. Ethical approval was not required for the study as it was an audit. Informed verbal consent was obtained from each nurse/midwife before observation. Data was entered into SPSS for analysis. Percentage adherence to specific observation criterion was calculated as the number of times the specific criterion was observed/total number of observations where the specific criterion was applicable multiplied by 100. Kruskall Wallis H test was used to compare the wards’ overall adherence, expressed as the mean rank for percentage adherence, to the drug administration policy. A p <= 0.05 was considered statistically significant. Results A total of 207 observations were undertaken of 147 nurses. Some nurses were observed on more than one occasion. There was a significant difference in the mean ranks for percentage adherence to drug administration policy between the different wards (?<sup>2</sup> = 51.3, df = 6, p < 0.0001) (Table 1). The audit standard of 100% was achieved for confirming drug name, form and route of drug administration, verifying (Table presented) self-administration, recording non-administration and completing controlled drug records. Drug strength was confirmed during 99.5% (n = 204) of observations. Nurse confirmation of patient name (verbally: 94%, n = 162; wristband: 74%, n = 151; drug chart: 77%, n = 158) or allergy status (verbally: 67%, n = 116; wristband: 63%, n = 128; drug chart: 67%, n = 136) was infrequently observed. The preparation of controlled drugs/cytotoxic/intravenous/paediatric medicines was double checked in 74% (n = 81) of observations. However, administration of these medicines was double checked in 18% (n = 20) of observations. Records of drug administration were made during 81% (n = 166) of observations. Discussion Nurses adhered to the drug administration policy with regards to verifying that drugs selected for administration matched prescriptions. Failing to confirm patients’ identity and allergy status has been reported to cause medication errors.<sup>3</sup> The importance of confirming patient identity and allergy status verbally, against drug chart and wristband should be reinforced. Nurses need guidance on when to obtain double/second checks at drug preparation and/or administration. The importance of recording drug administration needs to be highlighted.

**Source:** EMBASE

Available in print at ULHT journal article requests. Complete the online form to obtain articles.

4. Nurses’ knowledge of the hospital drug administration policy

**Author(s)** Thapar M., Shah R., Jani Y., James K.L.

**Citation:** International Journal of Pharmacy Practice, October 2011, vol./is. 19/(53-54), 0961-7671 (October 2011)

**Publication Date:** October 2011

**Abstract:** Introduction Drug administration errors account for over half of all medication safety incidents reported to the National Patient Safety Agency.<sup>1</sup> To minimise medication errors, National Health Service (NHS) hospitals have adopted the use of drug
administration policies, based on the "five rights of safe drug administration" and the Nursing and Midwifery Council (NMC) guidelines, which staff must adhere to at all times. This study aimed to determine nurses' knowledge of the hospital drug administration policy. Methods A cross-sectional, audit was undertaken at a University Hospital NHS Trust over a period of four weeks (1-26 November 2010). An anonymous, piloted questionnaire was constructed to determine nurses' knowledge of the criteria outlined in the hospital drug administration policy, "five rights" and NMC guidelines. Audit standard was set at 100% awareness of the criteria. Questionnaires were distributed by the researchers to registered nurses/midwives involved in drug administration across the range of specialties in the Trust. Questionnaires were returned by directly handing the completed questionnaires to the researchers or returning them to collection points on the wards. Data was entered into SPSS (version 16) and analysed using frequency tables. Results A total of 235 questionnaires were distributed and 122 were returned, giving a response rate of 52%. Majority of nurses/ midwives were a band 6 (26%, n = 32), had a permanent contract (93%, n = 113) and worked full-time (91%, n = 111). The audit standard of 100% was achieved for confirming the drug name (n = 122) and route of administration (n = 122) for the selected drug. Nurses' awareness was below the audit standard for confirming patient self-administration (71%, n = 87), recording non-administration (86%, n = 105); and confirming allergy status verbally (90%, n = 110), against the drug chart (93%, n = 114) and against the wrist band (89%, n = 109). Nurses employed 15 different definitions for double/second checking. The majority reported that double checking involved verifying the five rights individually (45%, n = 40) or in collaboration with another nurse (19%, n = 17). All nurses (n = 122) identified that controlled drugs required a double/second check. However, some nurses were unaware that intravenous (3%, n = 3) and cytotoxic medication (16%, n = 20) required a double/second check. Fifty-eight percent (n = 71) of nurses identified it was good practice to double/second check medicines for children. Some nurses were unaware that student nurses (92%, n = 112), midwives (36%, n = 24), pharmacists (30%, n = 37), doctors (20%, n = 24) and auxiliary nurses (5%, n = 6) could perform the second/ double check. All nurses followed guidance when administering medication. Guidelines used were the hospital drug administration policy (89%, n = 79), NMC guidelines (79%, n = 70) and the five-rights (63%, n = 56). Discussion All nurses followed guidelines when administering medication. Patient self-administration of medication should be encouraged to promote patient compliance but nurses must confirm that patients have self-administered correctly. Accurate record keeping of drug administration is vital to monitor patient compliance and ensure optimal drug therapy. Nurses need to be updated about the significance of accurate allergy documentation, verbal and wristband verification, as highlighted by the death of a patient from a penicillin allergy despite wearing an allergy wristband. Similar to previous research, nurses were unclear with regards to the process, drugs and personnel authorised to perform a double/second check. These ambiguities can be addressed by outlining a technique and reinforcing who can perform a double/second check. Safe drug administration practices could be promoted through road-shows, posters and screensavers highlighting the details of the drug administration policy.

Source: EMBASE
Available in print at ULHT journal article requests. Complete the online form to obtain articles.

5. Medication administration's '5 rights' are steps to enhance patient safety.

Author(s) GREISING, CYNTHIA HEDGES
Citation: AHA News, 23 August 2010, vol./is. 46/17(4-), 08916608
Publication Date: 23 August 2010
Abstract: The article features Poudre Valley Health System (PVHS) in Colorado which is cited for its culture of safety and exemplary adherence to the five rights of medication administration. It highlights the bedside medication verification (BMV) system implemented by PVHS in 2007 to ensure patient safety, which has attained 95 percent scanning rate in 2010 through the determined efforts of its officers. PVHS also won the 2008 Malcolm Baldrige National Quality Award.

Source: Health Business Elite
6. Patient safety: examining the adequacy of the 5 rights of medication administration.

**Author(s)** Macdonald M

**Citation:** Clinical Nurse Specialist: The Journal for Advanced Nursing Practice, 01 July 2010, vol./is. 24/4(196-201), 08876274

**Publication Date:** 01 July 2010

**Abstract:** PURPOSE: The purpose of this article was to examine the adequacy of the 5 rights (5 R's) for nurses and for including patients in medication administration while considering patient safety. Patient safety related to medication adverse events will be discussed; the 5 R's will be examined and critiqued and the importance of patient-centered care and patient participation in care will be presented. A path forward is offered based on the expressive-collaborative model. Suggestions for introduction of the model are outlined, and implications for practice, research, and education are discussed. BACKGROUND: Nurses have been guided by the 5 R's of medication administration in both education and practice for many decades. Many have found the 5 R's to be lacking and proceeded to propose the addition of a variety of rights from right indication to the rights of nurses to have legible orders and timely access to information. Patients are no longer passive recipients of care and are choosing to play increasingly greater roles in the process of care. INNOVATION: In a collaborative patient-centered environment, an expressive-collaborative model of approaching systems of care is needed. In this model, individuals negotiate with one another to find out what people need to know and to strategize on the means to acquiring the necessary information. Providers are no longer expected to be all knowing. CONCLUSION: Medication administration is no longer simply the 5 R's. Medication administration is a process with many interconnected players including patients. We need to collaboratively restructure medication use in this era in which all involved in the process share the responsibility for a safe medication use system.

**Source:** CINAHL

Available in print at ULHT journal article requests. Complete the online form to obtain articles.

7. Nursing implications for prevention of adverse drug events in the intensive care unit.

**Author(s)** George EL, Henneman EA, Tasota FJ

**Citation:** Critical Care Medicine, 02 June 2010, vol./is. 38/6 Suppl(0-), 00903493

**Publication Date:** 02 June 2010

**Abstract:** Adverse drug events are common in the intensive care unit setting. Despite the existence of many long-standing safety principles (such as the "five rights") and new mechanisms to promote medication safety, there is still a gap between practice and the goal of patient safety. This is the result of the many human and system factors that impact care delivery. Research supports the role of the nurse as having a positive impact on patient outcomes. Future research requires the evaluation of new strategies and technologies to support safe medication administration. For example, patient simulation is being used to teach student and novice nurses principles of medication administration in a "safe" setting that more closely resembles the clinical environment. The Institute of Nursing repeatedly has stressed the need to address the organizational, technical, and human issues that impact patient safety, with an emphasis on the need to transform the nurse work environment to keep patients safe. This transformation will require a new level of interdisciplinary research and nursing involvement to address better care for our patients and, in particular, reduce adverse drug events.

**Source:** CINAHL

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8. Bar code technology and medication administration error.

**Author(s)** Young J, Slebodnik M, Sands L

**Citation:** Journal of patient safety, June 2010, vol./is. 6/2(115-20), 1549-8417;1549-8425 (2010 Jun)

**Publication Date:** June 2010

**Abstract:** Medication administration error (MAE) remains a patient safety concern. Few studies have investigated the impact of bar-coded technology on medication error reduction during the medication administration process at the bedside in acute care settings. The purpose and focus of this systematic review is to determine whether implementation of the Bar Code Medication Administration System (BCMA) is associated with declines in MAE rate. Findings from this systematic review reveal varied findings between studies and among the 5 rights of medication administration (right drug, right time, right patient, right dose, and right route) in general. Although BCMA did not consistently decrease the overall incidence of MAE, the technology did identify categories of medication errors not previously detected with the traditional 5 rights approach. The opportunity to analyze the additional categories of MAE identified by BCMA has implications for patient safety and is perhaps the most significant contribution of this review.

**Source:** Medline

Available in fulltext at the ULHT Library and Knowledge Services' eJournal collection

9. The nine rights of medication administration: an overview.

**Author(s)** Elliott M, Liu Y

**Citation:** British Journal of Nursing (BJN), 12 March 2010, vol./is. 19/5(300-305), 09660461

**Publication Date:** 12 March 2010

**Abstract:** Nurses are responsible for ensuring safety and quality of patient care at all times. Many nursing tasks involve a degree of risk, and medication administration arguably carries the greatest risk. Unfortunately, patients are frequently harmed or injured by medication errors. Some suffer permanent disability and for others the errors are fatal. Nurses have traditionally followed the five rights of medication administration (patient, drug, route, time, dose) to help prevent errors, and more recently, the seven rights (including documentation and reason). This article identifies nine rights of medication administration.

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10. Medication errors: types, causes and impact on nursing practice.

**Author(s)** Agyemang, R, While, A

**Citation:** British Journal of Nursing, Mar 2010, vol. 19, no. 6, p. 380-385, 0966-0461 (March 25, 2010)

**Publication Date:** March 2010

**Abstract:** Literature review of the causes of medication errors in hospital nursing practice. Definition and classification of error types are outlined and causes of administration errors
including personal and organisational factors are described. The '5 rights' of administration are set out and accountability, together with the impact of errors on nursing staff, is discussed. [BNI unique abstract] 44 references

**Source:** BNI
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**11. Nurses' perceptions of technology and its impact on nursing medication errors.**

**Author(s)** Tremblay, Celeste

**Citation:** Dissertation Abstracts International Section A: Humanities and Social Sciences, 2010, vol./is. 71/6-A(1924), 0419-4209 (2010)

**Publication Date:** 2010

**Abstract:** The purpose of this study was to gauge nurses' opinions of bar-coding and electronic medication administration recording bedside technology, which is being implemented at many hospitals in an effort to reduce drug errors. The Institute of Medicine (IOM) report that between 50,000-106,000 hospitalized patients die and between one and two million are injured every year by medication errors (Kohn, Corrigan, and Donaldson, 2000). Nurses' mistakes usually involve the failure to follow one of the "5-rights" of drug administration: identifying the right patient, the right drug, the right time, the right route, and the right dose (Meadows, 2003: Ulanimo et al., 2007). Asking nurses about their contentment with medication systems instead of simply looking for error trends was the most effective method of answering the research questions, since medication errors made by nurses are not always reported. The three main research questions concerned satisfaction with electronic medication recording (eMAR) with BCMA in the specific areas of efficacy, safety, and access. A link to access the electronic survey, the medication administration system—nurses assessment of satisfaction (MAS-NAS) scale, developed by Hurley et al. (2006), was sent via an e-mail to all 290 nurses working on the units where BCMA was to be implemented. Three months after using the new technology, an email was sent to the nurses asking them to complete the post-survey. The data were analyzed using paired t tests and independent sample t tests. The results of the data analysis of surveys indicated no significant difference between the nurses who answered both the pre-survey and the post-survey (n=31) satisfaction levels with the medication system after implementation of BCMA in any of the areas of efficacy, safety, or access. There were also no significant differences between the survey responses of the nurses who answered the pre-survey only (n=59) or the post-survey only (n=72). The three research questions concerning satisfaction with the medication system with the addition of BCMA in the areas of efficacy, safety, and, access did not indicate a significant difference at a p<.05. The mode for the participants did indicate a neutral to agree response regarding overall satisfaction with the current medication system. None of the tests were significant, however, for the safety and access factors the post-score was higher than the pre-score indicating a small increase. The efficacy items did not indicate any change (M=3.64) and, in fact, went down slightly on the post-survey (M=3.62) when the 31 paired nurses means were calculated. The two sample results indicated that the post-score M=3.48 for all the nurses was higher than the pre-score (M=3.44) but none of the differences were significant. The safety scale was the closest to finding a difference. Post-rank scores were higher for safety (M=3.91 versus M=3.47) and access (M=3.57 versus M=3.58). This was reassuring since one of the main purposes for BCMA was to assure that nurses scan the medication and the patient's identification at the point of contact where most nursing errors are made (Cohen, Robinson, & Mandrack, 2003). Since the electronic system is supposed to support the nurses in attaining information about medications as well as patient data a positive trend in the area of access is hopeful. Some of the comments made by the nurses helped to explain findings in all the factors. After reading some of the annotations it was not surprising to find post-survey satisfaction in the area of efficacy unchanged. (PsycINFO
12. Nursing students administering medication: appreciating and seeking appropriate supervision

**Author(s)** Reid Searl, Kerry, Moxham, Lorna, Happell, Brenda

**Citation:** Journal of Advanced Nursing, 2010, vol./is. 66/3, 0309-2402

**Publication Date:** 2010

**Abstract:** This paper is a report of a study of undergraduate nursing students’ experience of administering medication in the clinical setting. Safe administration of medication is an important component of skilled nursing practice, and nursing students require personal and supportive supervision from Registered Nurses to enhance learning and promote safety. A review of the literature revealed a lack of research addressing students’ experiences in administering medication. A grounded theory methodology was used. In-depth semi-structured interviews were conducted with a convenience sample of 27 undergraduate nursing students in Queensland, Australia in 2005. The findings were, supervision emerged as the central category in this study. Participants acknowledged the need for and importance of supervision according to the following sub-themes: a university requirement; scope of practice; and safety, the five rights. They also described behaviors they adopted to seek supervision, including negotiating, chasing, waiting and avoiding. The conclusion was, universities and healthcare settings need to collaborate more closely to ensure that adequate supervision is provided to ensure safe practices. Cites numerous references.

**Source:** HMIC

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13. Beyond the five rights: improving patient safety in pediatric medication administration through simulation.

**Author(s)** Pauly-O'Neill S

**Citation:** Clinical Simulation in Nursing, 01 September 2009, vol./is. 5/5(0-), 18761399

**Publication Date:** 01 September 2009

**Source:** CINAHL

Available in print at ULHT journal article requests. Complete the online form to obtain articles.

14. The unintended consequences of being friendly: a case study.

**Author(s)** Cooper MR, Duquette CE, McWilliams T, Orsini M, Klein AA

**Citation:** Journal for Healthcare Quality: Promoting Excellence in Healthcare, 01 September 2009, vol./is. 31/5(43-47), 10622551

**Publication Date:** 01 September 2009

**Abstract:** Baby-friendly certification recognizes hospitals that promote early physical bonding between mother and infant, immediately after birth. Most births can accomplish physical bonding without increased risk to mother or infant. When mother or infant have complications and each have intravenous (IV) lines and are receiving medications, the physical bonding post-birth may also inadvertently put the patients at risk. A baby-friendly community hospital in New England found that early bonding put an infant at higher risk for medication error when the two IV lines were not properly identified and the infant received a
medication intended for the mother. The growing body of literature on IV medication safety does not address this particular type of error, and this was an error that technology would not have prevented. The “5 rights” of medication safety are not as effective as physical separation of the two individuals during medication administration. A brief separation does not diminish bonding, and the practice has prevented subsequent errors.

**Source:** CINAHL

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15. Reducing medication administration errors in nursing practice.

**Author(s)** Jones, S

**Citation:** Nursing Standard, Aug 2009, vol. 23, no. 50, p. 40-46, 0029-6570 (August 19, 2009)

**Publication Date:** August 2009

**Abstract:** Literature review into the causes of drug administration errors. Competency in drug calculations and poor adherence to protocol which lists the ‘5 rights’ of safe medication administration are discussed. The use of visual reminders and checklists to help reduce errors is considered. ([BNI unique abstract]) 53 references

**Source:** BNI

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16. "3 checks 5 rights" to enhance medication safety


**Citation:** Quality and Safety in Health Care, August 2009, vol./is. 18/4(e1), 1475-3898 (August 2009)

**Publication Date:** August 2009

**Abstract:** Background: In 2005 With the aim of improving medication safety. The New Territories East Cluster of Hong Kong observed the "3 Checks 5 Rights" practice amongst different nurses and noticed the inconsistency.; Assessment of Problem and Results: A survey was conducted in which about seventy nurses were invited to describe" 3 Checks 5 Rights". It was noticed that they gave ten different versions on first check, as well as eleven versions on the second and third checks. In reviewing the literature, there was also no expert consensus on the details of "3 Checks".; Strategy for Quality Improvement/Change: An initiative was undertaken with the aims of: (a) standardising the checking process and (b) improving the outcome by reducing errors. Several principles were adopted during the redesign: (a) refer to practical situations and workflow; (b) emphasise on "Doing the things right for the first time" and reduce repetition; and (c) develop a mental picture to facilitate easy memorisation of the process. The revised “3 Checks 5 Rights” was put into effect in April 2006. The nursing drug administration incidence reduced by 32% and 38% in the first and second year respectively after implementation. In the staff survey, more than 90% respondents agreed the revised procedure provided clearer information, was more practical and adequate in ensuring safe drug administration. Very high compliance was noted in the audit.; Lessons and Message: Though 3 Checks 5 Rights" is a legendary nursing practice, it should be updated where necessary in order to be effective in achieving safe drug
administration. Standardisation has also demonstrated its effectiveness in preventing error. However, the credibility cannot be entirely given to the revised process as other factors such as training or increased staff awareness may have also contributed to the improvement.

**Source:** EMBASE

Available in print at ULHT journal article requests. Complete the online form to obtain articles.

17. Pediatric vaccination errors: Application of the "5 Rights" framework to a national error reporting database

**Author(s)** Bundy D.G., Shore A.D., Morlock L.L., Miller M.R.

**Citation:** Vaccine, June 2009, vol./is. 27/29(3890-3896), 0264-410X (12 Jun 2009)

**Publication Date:** June 2009

**Abstract:** Little is known about vaccination errors. We analyzed 607 outpatient pediatric vaccination error reports from MEDMARX, a nationwide, voluntary medication error reporting system, occurring from 2003 to 2006. We used the "5 Rights" framework (right vaccine, time, dose, route, and patient) to determine whether vaccination error types were predictable. We found that "wrong vaccine" errors were more common among look-alike/sound-alike groups than among vaccines with no look-alike/sound-alike group. Scheduled vaccines were more often involved in "wrong time" errors than seasonal and intermittent vaccines. "Wrong dose" errors were more common for vaccines whose dose is weight-based and age-based than for vaccines whose dose is uniform. "Wrong route" and "wrong patient" errors were rare. In this largest-ever analysis of pediatric vaccination errors, error types were associated with predictable vaccine-related human factors challenges. Efforts to reduce pediatric vaccination errors should focus on these human factors. 2009 Elsevier Ltd. All rights reserved.

**Source:** EMBASE

Available in print at ULHT journal article requests. Complete the online form to obtain articles.


**Author(s)** Agrawal A, Glasser AR

**Citation:** Journal of Healthcare Information Management, 2009, vol./is. 23/4(24-9), 1099-811X;1099-811X (2009)

**Publication Date:** 2009

**Abstract:** Bar code medication administration (BCMA) systems ensure the five "rights" during medication administration: right patient, drug, dose, route and time. Implementing BCMA is a vital component of a medication safety strategy. Implementing BCMA is a complex project that involves many disciplines, each with unique workflow implications. For example, nursing has interface configuration and hardware reliability concerns, whereas pharmacy considers efficiency maximization and inventory management of unit-dosed bar coded medications as the main priorities. Suboptimal planning or ineffective project methodology may lead to poor adoption or to nurses implementing BCMA workarounds that can negate potential benefits or lead to new errors. This paper describes our experience in successfully implementing a BCMA system at a 630-bed acute tertiary care public hospital. We will describe the BCMA system and project methodology, discuss important considerations related to pharmacy, technology, admitting, nursing adoption and service area considerations, and share lessons learned.

**Source:** Medline

Available in print at ULHT journal article requests. Complete the online form to obtain articles.
19. The mat study: global insight into the medication administration process.

**Author(s)** Elganzouri E, Standish C, Androwich I

**Citation:** Studies in Health Technology & Informatics, 2009, vol./is. 146/(424-8), 0926-9630;0926-9630 (2009)

**Publication Date:** 2009

**Abstract:** An important aspect of global patient safety that has recently become a focal topic is preventing adverse drug events. As many as 7,000 patients die every year as a result of medication errors. (1) According to Bates, Spell, & Cullen, adverse drug events can cost up to an average of $8.4 million per year in a 700 bed hospital, not including injury to patient or malpractice costs. (2) Errors can occur throughout the process of ordering a medicine, dispensing, retrieving, and administrating process. Safety measures have been implemented for physicians prescribing medication and pharmacists dispensing medication through MARs and CPOE. However, there is no safety net for nursing. Bar coding can offer that safety net and allow the nurse to verify "the five rights" of medication administration electronically. However, prior to implementation of a bar coding medication system (BCMA), it is important for an institution to gain full understanding of its current nursing work flow during the medication administration process.

**Source:** Medline

Available in fulltext at EBSCOhost

Available in print at ULHT journal article requests. Complete the online form to obtain articles.

20. The relationship between the nursing work environment and the occurrence of reported paediatric medication administration errors.

**Author(s)** Sears KA

**Citation:** , 01 January 2009, vol./is. /(0-198),

**Publication Date:** 01 January 2009

**Abstract:** Paediatric medication administration errors (PMAEs) occur frequently, with devastating consequences for children and their families. The objective of this pan-Canadian study was to explore the relationship between the nursing work environment and the occurrence of reported PMAEs. This prospective descriptive study utilized a convenience sample of eighteen previously randomly selected paediatric units from three Canadian tertiary university-affiliated paediatric hospitals, which yielded 372 error surveys. Descriptive and multivariate statistics were conducted. Reports of both potential (127) and actual (245) PMAE occurrences were documented as 49.7% minimal, 30.1% significant, 0.05% serious, 0.14% potentially lethal, and 0.01% lethal. Workload, distraction and ineffective communication were identified as significant contributors to the occurrence of errors. Other main findings in this study demonstrated the following: (a) the perceived quality of nursing care at the time of the PMAE was reported by 89% of respondents to be within the good to excellent range; (b) medical/surgical units reported more errors than did the critical care environments (p=.000); (c) the unit size demonstrated that there was a 2.9% increase in the frequency of reported PMAEs for each additional bed (p=.001); (d) a lower level of severity was reported on units where the nurses current experience (length of time working on the study unit) was longer (p=.003); (e) more errors were reported on units where the nurses' current experience on the unit was longer (p=.001); (f) nursing experience did not link to the perceived quality of nursing care; (g) nursing education did not link to the severity of error, the frequency of reported PMAEs or perceived quality of nursing care and (h) the frequency of PMAEs was not linked with the LOS. This study provides recommendations for policy, practice, as well as further research and theory development. Further, as both of the system unit factors achieved statistical significance in relation the frequency of reported PMAEs; this study supports the belief that a systems reform is required to reduce the occurrence of medication errors. A systemic change, beginning with the addition of the right environment to the existing five rights of medication administration, is required.

**Source:** CINAHL
21. Sixth right is needed... "Building on the 5 rights," (Aug. 25).

Author(s) Chan LC

Citation: Nursing Spectrum -- DC, Maryland & Virginia Edition, 06 October 2008, vol./is. 18/20(10-11), 15594653

Publication Date: 06 October 2008

Source: CINAHL

Available in print at ULHT journal article requests. Complete the online form to obtain articles.

22. Career progression: the administration of medicines.

Author(s) Ashurst, A

Citation: Nursing & Residential Care, Sep 2008, vol. 10, no. 9, p. 463-465, 1465-9301 (September 2008)

Publication Date: September 2008

Abstract: 1st of 2 articles on the best practice principles of safe administration and storage of drugs in care homes. The process of ordering medication and the benefits of the Monitored Dosage System are discussed. The 5 'rights' of drug administration, as a method of reducing drug errors, are explained. [(BNI unique abstract)] 7 references

Source: BNI

23. Building on the 5 rights: how the foundation for safe medication delivery gets stronger.

Author(s) Perschke AL

Citation: Nursing Spectrum -- DC, Maryland & Virginia Edition, 25 August 2008, vol./is. 18/17(14-15), 15594653

Publication Date: 25 August 2008

Abstract: Nurses can make the Five Rights, a tool for safe medication delivery, even stronger.

Source: CINAHL

Available in print at ULHT journal article requests. Complete the online form to obtain articles.

24. Workarounds to Barcode Medication Administration Systems: Their Occurrences, Causes, and Threats to Patient Safety

Author(s) Koppel R., Wetterneck T., Telles J.L., Karsh B.-T.

Citation: Journal of the American Medical Informatics Association, July 2008, vol./is. 15/4(408-423), 1067-5027 (July 2008/August 2008)

Publication Date: July 2008

Abstract: The authors develop a typology of clinicians' workarounds when using barcoded medication administration (BCMA) systems. Authors then identify the causes and possible consequences of each workaround. The BCMAs usually consist of handheld devices for scanning machine-readable barcodes on patients and medications. They also interface with electronic medication administration records. Ideally, BCMAs help confirm the five "rights" of medication administration: right patient, drug, dose, route, and time. While BCMAs are reported to reduce medication administration errors-the least likely medication error to be intercepted- these claims have not been clearly demonstrated. The authors studied BCMA use at five hospitals by: (1) observing and shadowing nurses using BCMAs at two hospitals, (2) interviewing staff and hospital leaders at five hospitals, (3) participating in BCMA staff meetings, (4) participating in one hospital's failure-mode-and-effects analyses,
(5) analyzing BCMA override log data. The authors identified 15 types of workarounds, including, for example, affixing patient identification barcodes to computer carts, scanners, doorjambs, or nurses' belt rings; carrying several patients' prescanned medications on carts. The authors identified 31 types of causes of workarounds, such as unreadable medication barcodes (crinkled, smudged, torn, missing, covered by another label); malfunctioning scanners; unreadable or missing patient identification wristbands (chewed, soaked, missing); nonbarcoded medications; failing batteries; uncertain wireless connectivity; emergencies. The authors found nurses overrode BCMA alerts for 4.2% of patients charted and for 10.3% of medications charted. Possible consequences of the workarounds include wrong administration of medications, wrong doses, wrong times, and wrong formulations. Shortcomings in BCMAs' design, implementation, and workflow integration encourage workarounds. Integrating BCMAs within real-world clinical workflows requires attention to in situ use to ensure safety features' correct use. 2008 J Am Med Inform Assoc.

Source: EMBASE
Available in fulltext at National Library of Medicine
Available in print at ULHT journal article requests. Complete the online form to obtain articles.

25. Was the medication given?

Author(s) Williams, Linda
Citation: Long-Term Living: For the Continuing Care Professional, 01 June 2008, vol./is. 57/6(53-55), 19409958
Publication Date: 01 June 2008
Abstract: The article presents information about medication administration errors in healthcare facilities. Some ways medication errors can occur include staff workload and fatigue, lack of follow-through with the five rights of administration, and inappropriate documentation. Therefore, healthcare providers must be proactive and aware of what, how, and why medication errors occur. In addition, risk management steps to protect residents and facility are also presented.

Source: Health Business Elite
Available in fulltext at EBSCOhost
Available in print at ULHT journal article requests. Complete the online form to obtain articles.

26. Managing caregivers through system implementation.

Author(s) Dennis, Eileen
Citation: Nursing Management, 01 December 2007, vol./is. 38/12(12-13), 07446314
Publication Date: 01 December 2007
Abstract: This article describes the implementation of a wireless bar code point-of-care (BPOC) medication safety system to avoid medication errors in the U.S. According to the author, such a system allows caregivers to both electronically document and verify the five rights of medication administration. She cites the case of Parkview Medical Center in Pueblo, Colorado, that implemented a BPOC technology system to ensure that they were providing patients with the highest level of care. She recalls that the first decision Parkview made was a hospital-wide commitment to engage all levels of management. The author concludes that the implementation of a BPOC system can be made easier if the organization's focus stays on patient safety.

Source: Health Business Elite
Available in fulltext at Ovid
Available in print at ULHT journal article requests. Complete the online form to obtain articles.

**Author(s)** Leung SF, Chong SYC, Arthur DG

**Citation:** Asian Journal of Nursing, 01 September 2007, vol./is. 10/3(191-199), 18186270

**Publication Date:** 01 September 2007

**Abstract:** Aims: Medication error is a persistent and far-reaching clinical problem. Unsafe medication practices often occur due to unresolved medication errors, poor compliance with rules and policies, and the low clinical applicability of such rules and policies. This study, conducted in a Hong Kong hospital, aimed at addressing these concerns and developing a new model for drug administration and enhancing safe clinical practice based on research evidence. The current drug administrative procedure of 'three checks' and 'five rights' was reviewed to examine adherence and applicability in clinical settings.

**Source:** CINAHL

Available *in print* at ULHT journal article requests. Complete the online form to obtain articles.

28. Nursing discipline and the five rights of medication administration.

**Author(s)** Schoenecker C

**Citation:** Minnesota Nursing Accent, 01 May 2007, vol./is. 79/3(14-14), 00265586

**Publication Date:** 01 May 2007

**Source:** CINAHL

Available *in fulltext* at EBSCOhost

Available *in print* at ULHT journal article requests. Complete the online form to obtain articles.

29. Nurses' reported thinking during medication administration.

**Author(s)** Eisenhauer, Laurel A, Hurley, Ann C, Dolan, Nancy

**Citation:** Journal of Nursing Scholarship, March 2007, vol./is. 39/1(82-87), 1527-6546;1547-5069 (Mar 2007)

**Publication Date:** March 2007

**Abstract:** Purpose: To document nurses' reported thinking processes during medication administration before and after implementation of point-of-care technology. Design and Methods: Semistructured interviews and real-time tape recordings were used to document the thinking processes of 40 nurses practicing in inpatient care units in a large tertiary care teaching hospital in the northeastern US. Findings: Content analysis resulted in identification of 10 descriptive categories of nurses' thinking: communication, dose-time, checking, assessment, evaluation, teaching, side effects, work arounds, anticipating problem solving, and drug administration. Situations requiring judgment in dosage, timing, or selection of specific medications (e.g., pain management, titration of antihypertensives) provided the most explicit data about nurses' use of critical thinking and clinical judgment. A key element was nurses' constant professional vigilance to ensure that patients received their appropriate medications. Conclusions: Nurses' thinking processes extended beyond rules and procedures and were based on patient data and interdisciplinary professional knowledge to provide safe and effective care. Identification of thinking processes can help nurses to explain the professional expertise inherent in medication administration beyond the technical application of the "5 rights." (PsycINFO Database Record (c) 2012 APA, all rights reserved) (journal abstract)

**Source:** PsycINFO

Available *in fulltext* at EBSCOhost

Available *in print* at ULHT journal article requests. Complete the online form to obtain articles.
30. Drive nursing activities to the bedside with a closed-loop system.

**Author(s)** Troester, S

**Citation:** Nursing Management (USA), Dec 2006, vol. 37, no. 12, p. 18-20, 0744-6314 (December 2006)

**Publication Date:** December 2006

**Abstract:** The introduction of a closed-loop, bar-code based bedside medication system to ensure the '5 rights': right patient, medication, dose, time and route. The planning process and implementation of the system are described and the impact of the change is discussed. ([BNI unique abstract]) 0 references

**Source:** BNI

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Available in fulltext at EBSCOhost

Available in fulltext at EBSCOhost

Available in print at ULHT journal article requests. Complete the online form to obtain articles.

31. New IV pump, software combo drives infusion safety.

**Author(s)** Gebhart, Fred

**Citation:** Drug Topics, 12 December 2005, vol./is. 149/23(0-0), 00126616

**Publication Date:** 12 December 2005

**Abstract:** The article reports on the new wireless medication management system from Cerner Corp. and Hospira Inc. that may reduce intravenous pump errors. The new system integrates the bar-code point-of-care system (BPOC) of Cerner with the smart pump of Hospira to ensure the right dosage of drugs are administered to patients. It uses software and a hospitalwide wireless network that will connect two existing products. An integration of the smart pump with POBC will bring five rights-right drug, right dose, right patient, right time and right route. Drug order can also be checked against patient weight, health status, lab values and other parameters. An alarm is also showed whenever one or more parameters do not match.

**Source:** Health Business Elite

Available in fulltext at EBSCOhost

Available in print at ULHT journal article requests. Complete the online form to obtain articles.

32. Mary Lanning Memorial Hospital: communication is key.

**Author(s)** Lindblad B, Chilcott J, Rolls L

**Citation:** Joint Commission Journal on Quality & Safety, October 2004, vol./is. 30/10(551-8), 1549-3741;1549-3741 (2004 Oct)

**Publication Date:** October 2004

**Abstract:** BACKGROUND: Mary Lanning Memorial Hospital (MLMH) defines a culture of safety "as a pattern of behavior, both individual and organizational, and an underlying philosophy that seeks to minimize hazards and harm to patients that result from the processes of care." The hospital's strategic plan designates quality of care as its first priority, and one of its two priority goals is "To continue to identify and implement patient safety initiatives that will positively affect care delivery processes while minimizing patient safety errors, defects, and sentinel events, and striving for zero defects." PATIENT SAFETY AS A LEADERSHIP AND ORGANIZATIONAL PRIORITY: An occurrence in 2000 highlighted the need for a standardized medication administration process. It is anticipated
that the ongoing bar-code point-of-care technology project will significantly reduce medication administration errors as they relate to the five rights, better capture near-miss data for further analysis, and increase nursing personnel time efficiency. CHALLENGES AND LESSONS LEARNED: MLMH has experienced three significant challenges in implementing and sustaining a culture of safety. First, as the central component of all patient safety activities, communication requires constant vigilance. Second, on the basis of the experience, for example, with the bar-code point-of-care technology project, introducing technology presents a variety of challenges. Third, although many patient safety initiatives can be accomplished with minimal funding, large-scale initiatives usually necessitate a significant financial commitment.

Source: Medline
Available in print at ULHT journal article requests. Complete the online form to obtain articles.

33. Closing the case of the keep-vein-open rate.

Author(s) Hadaway, L
Citation: Nursing, Aug 2004, vol. 34, no. 8, p. 18, 0360-4039 (August 2004)
Publication Date: August 2004
Abstract: I.V. Rounds series. Why is it necessary to obtain complete information for instructions involving intravenous therapy to keep veins open after surgery. The 5 rights for drug administration: right drug, right route, right does, right time and right patient are highlighted. [[BNI unique abstract]] 2 references
Source: BNI
Available in fulltext at EBSCOhost
Available in print at Grantham Hospital Staff Library
Available in print at ULHT journal article requests. Complete the online form to obtain articles.
Available in print at Pilgrim Hospital Staff Library

34. Adding to the "five rights"... "Getting to the root of medication errors: survey results" (September 2003).

Author(s) Rushlow T
Citation: Nursing, 01 December 2003, vol./is. 33/12(10-10), 03604039
Publication Date: 01 December 2003
Source: CINAHL
Available in fulltext at EBSCOhost
Available in print at Grantham Hospital Staff Library
Available in print at ULHT journal article requests. Complete the online form to obtain articles.
Available in print at Pilgrim Hospital Staff Library

35. Practical guide to bar coding for patient medication safety.

Citation: American Journal of Health-System Pharmacy, 15 April 2003, vol./is. 60/8(768-779), 10792082
Publication Date: 15 April 2003
Abstract: Bar coding for the medication administration step of the drug-use process is discussed. FDA will propose a rule in 2003 that would require bar-code labels on all human
drugs and biologicals. Even with an FDA mandate, manufacturer procrastination and possible shifts in product availability are likely to slow progress. Such delays should not preclude health systems from adopting bar-code-enabled point-of-care (BPOC) systems to achieve gains in patient safety. Bar-code technology is a replacement for traditional keyboard data entry. The elements of bar coding are content, which determines the meaning; data format, which refers to the embedded data and symbology, which describes the "font" in which the machine-readable code is written. For a BPOC system to deliver an acceptable level of patient protection, the hospital must first establish reliable processes for a patient identification band, caregiver badge, and medication bar coding. Medications can have either drug-specific or patient-specific bar codes. Both varieties result in the desired code that supports patient's five rights of drug administration. When medications are not available from the manufacturer in immediate-container bar-coded packaging, other means of applying the bar code must be devised, including the use of repackaging equipment, overwrapping, manual bar coding, and outsourcing. Virtually all medications should be barcode-enabled, the bar code on the label should be easily readable, and appropriate policies, procedures, and checks should be in place. Bar coding has the potential to be not only cost-effective but to produce a return on investment. By bar coding patient identification tags, caregiver badges, and immediate-container medications, health systems can substantially increase patient safety during medication administration.

Source: CINAHL
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Available in print at ULHT journal article requests. Complete the online form to obtain articles.

36. One hospital's journey toward reducing medication errors

Author(s): Mutter, Michael

Citation: Joint Commission Journal on Quality and Safety, 2003, vol./is. 29/6, 1070-3241

Publication Date: 2003

Abstract: The Valley Hospital, a 451-bed acute care facility in Ridgewood, New Jersey, has made substantial progress in the reduction of medication administration errors. Reductions in medication administration errors were accomplished through: (1) becoming intimately familiar with the errors, including where, when, why, and how they were occurring; (2) establishing a nonpunitive environment and encouraging reporting of errors, including near-miss errors; (3) trending error report data to identify areas of concentrated errors in the medication use process; (4) simplifying and standardising process steps; and (5) selecting the right technology to address error-prone steps in the hospital's systems. The establishment of a nonpunitive environment led to a dramatic increase in the number of near-miss errors reported, and the information gained proved to be valuable and diagnostic. Establishing an interview process with the caregivers directly involved in occurrences enabled the authors to gather detailed information about errors. This forum led the way to an early understanding of human factors, system failures, and root cause analysis. Those errors were trended, addressed, and reduced through manual system changes and technological system developments designed to ensure the 'five rights' of safe medication administration. Keeping on the course requires constant and continuous review of medication use processes to ensure that they support instead of unnecessarily limit actual practices. Cites eight references. [Journal abstract]

Source: HMIC
Available in print at ULHT journal article requests. Complete the online form to obtain articles.

37. Bedside bar codes: Protecting patients and nurses

Author(s): Galusha C., Brown M.-M., Kelly J.

Citation: Online Journal of Nursing Informatics, 2003, vol./is. 7/3(10-20), 1089-9758 (Fall
Publication Date: 2003

Abstract: Human factors are frequently to blame for medical errors (Kohn, Corrigan, Donaldson, 1999). The incidence of error increases when facilities are understaffed and nurses are forced to manage higher workloads (Whitman, Kim, Davidson, Wolf, Wang, 2002). Tragically, human error in the medication administration process can result in patient injury and death, loss of licensure and livelihood for nurses, and additional financial burden for institutions. Acknowledging the existence of unavoidable human error and providing caregivers with tools to intercept potentially harmful activities at the bedside before patient harm results targets these patient safety concerns. Bar code point-of-care (BPOC) technology reduces and prevents bedside misadventures. Using a bar code scanner and a computer software application, nurses can verify the five rights of medication administration, access clinical decision information, and gain visibility to real-time medication orders at the point-of-care. With proper instruction and use of BPOC systems, hospitals supply the tools to enact positive safety initiatives for patients and nurses.

Source: EMBASE

Available in print at ULHT journal article requests. Complete the online form to obtain articles.

38. Partnering with pharmacy for positive patient outcomes.

Author(s) Russic M, Brill CK

Citation: Seminars for Nurse Managers, 01 March 2002, vol./is. 10/1(55-60), 10663851

Publication Date: 01 March 2002

Abstract: Appropriate communication between nursing and pharmacy is a critical link in the success of the overall medication administration process. The 5 rights of medication administration are a shared doctrine honored and protected by both disciplines. Collaboration between Pharmacy and Nursing can result in the best outcome for patients.

Copyright 2002, Elsevier Science (USA). All rights reserved.

Source: CINAHL

Available in print at ULHT journal article requests. Complete the online form to obtain articles.


Author(s) Smetzer J

Citation: Nursing Management, 01 December 2001, vol./is. 32/12(44-46), 07446314

Publication Date: 01 December 2001

Abstract: The five rights of medication administration alone don't ensure solid medication management. A systems approach helps to prevent errors.

Source: CINAHL
Available in fulltext at Ovid
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Available in fulltext at EBSCOhost
Available in print at ULHT journal article requests. Complete the online form to obtain articles.

40. Safer medication management.

Author(s) Smetzer J

Citation: Nursing Management, December 2001, vol./is. 32/12(44-6, 48), 0744-6314;0744-6314 (2001 Dec)
Publication Date: December 2001

Abstract: The five rights of medication administration alone don't ensure solid medication management. A systems approach helps to prevent errors.

Source: Medline
Available in fulltext at Ovid
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Available in fulltext at EBSCOhost
Available in print at ULHT journal article requests. Complete the online form to obtain articles.

41. "Five rights" prevent multiple wrongs... "Asking the right questions about medication safety" (September 2000).

Author(s) Pisano R

Citation: Nursing, 01 January 2001, vol./is. 31/1(10-10), 03604039

Publication Date: 01 January 2001

Source: CINAHL
Available in fulltext at EBSCOhost
Available in print at Grantham Hospital Staff Library
Available in print at ULHT journal article requests. Complete the online form to obtain articles.
Available in print at Pilgrim Hospital Staff Library

42. Students' corner. Quality medication administration.

Author(s) Cox J

Citation: Contemporary Nurse: A Journal for the Australian Nursing Profession, 01 September 2000, vol./is. 9/3/4(308-313), 10376178

Publication Date: 01 September 2000

Abstract: Quality medication administration is not simply a matter of adhering to the five rights'. The nurses' role in medication management is influenced by a multitude of factors not always within their control. Yet nurses maintain a duty of care to uphold safe and appropriate nursing interventions in pursuit of quality drug use. Whilst legislation and nursing standards offer principles and parameters for such interventions they can not provide directives. Hence, it remains each nurse's responsibility to understand the factors that influence medication management, to attain best practice on the patient's behalf.

Source: CINAHL
Available in print at ULHT journal article requests. Complete the online form to obtain articles.

43. Quality medication administration.

Author(s) Cox J

Citation: Contemporary Nurse, September 2000, vol./is. 9/3-4(308-13), 1037-6178;1037-6178 (2000 Sep-Dec)

Publication Date: September 2000

Abstract: Quality medication administration is not simply a matter of adhering to the 'five rights'. The nurses' role in medication management is influenced by a multitude of factors not always within their control. Yet nurses maintain a duty of care to uphold safe and appropriate nursing interventions in pursuit of quality drug use. Whilst legislation and nursing standards offer principles and parameters for such interventions they can not
provide directives. Hence, it remains each nurse's responsibility to understand the factors that influence medication management, to attain best practice on the patient's behalf.

Source: Medline
Available in print at ULHT journal article requests. Complete the online form to obtain articles.

44. Giving meds safely.
Author(s) Przybycien P
Citation: Nursing, 01 March 2000, vol./is. 30/3(0-), 03604039
Publication Date: 01 March 2000
Abstract: Use the ‘Five rights” to avoid one wrong!
Source: CINAHL
Available in fulltext at EBSCOhost
Available in print at Grantham Hospital Staff Library
Available in print at ULHT journal article requests. Complete the online form to obtain articles.

45. ...ABOUT STARTING A PROGRAM TO REDUCE MEDICATION ERRORS.
Author(s) Beyers, Marjorie
Citation: Nursing Management, 01 November 1999, vol./is. 30/11(80-80), 07446314
Publication Date: 01 November 1999
Abstract: Provides information on how hospital nurses can organize and implement a program that reduces medication errors. Importance of reviewing the five rights of medication administration; Details on the action taken by the staff of Bay Harbor Hospital to prevent medication errors.
Source: Health Business Elite
Available in fulltext at EBSCOhost
Available in fulltext at EBSCOhost
Available in print at ULHT journal article requests. Complete the online form to obtain articles.

Author(s) Baker H, Naphthine R
Citation: Australian Nursing Journal, October 1994, vol./is. 2/4(28-30), 1320-3185;1320-3185 (1994 Oct)
Publication Date: October 1994
Abstract: Most nurses can rattle off the rules for the correct administration of medication. They are the ‘five rights’ (right patient, right drug, right dose, right route, right time.)
Source: Medline
Available in fulltext at EBSCOhost
Available in print at ULHT journal article requests. Complete the online form to obtain articles.

Also
Critical Care Medicine
Using technology to prevent adverse drug events in the intensive care unit 2010

Critically ill patients are particularly susceptible to adverse drug events (ADEs) due to their rapidly changing and unstable physiology, complex therapeutic regimens, and large percentage of medications administered intravenously. There are a wide variety of technologies that can help prevent the points of failure commonly associated with ADEs (i.e., the five "Rights": right patient; right drug; right route; right dose; right frequency). These technologies are often categorized by their degree of complexity to design and engineer and the type of error they are designed to prevent. Focusing solely on the software and hardware design of technology may over- or underestimate the degree of difficulty to avoid ADEs at the bedside. Alternatively, we propose categorizing technological solutions by identifying the factors essential for success. The two major critical success factors are: 1) the degree of clinical assessment required by the clinician to appropriately evaluate and disposition the issue identified by a technology; and 2) the complexity associated with effective implementation. This classification provides a way of determining how ADE-preventing technologies in the intensive care unit can be successfully integrated into clinical practice. Although there are limited data on the effectiveness of many technologies in reducing ADEs, we will review the technologies currently available in the intensive care unit environment. We will also discuss critical success factors for implementation, common errors made during implementation, and the potential errors using these systems.

Google Scholar

From 1st 50 results…

Patient safety during medication administration: the influence of organizational and individual variables on unsafe work practices and medication errors

GJ Fogarty… - Ergonomics, 2006 - Taylor & Francis
... The New England Journal of Medicine, 324: 377–384. ... present study, five behavioural items that were based on the 'five rights' were chosen; that is, the guidelines traditionally taught to all nurses regarding medication administration: 'the right patient; the right drug; the right ...
Cited by 45 - Related articles - BL Direct - All 9 versions

A new method to guard inpatient medication safety by the implementation of RFID

PR Sun, BH Wang… - Journal of medical systems, 2008 - Springer
... A medication error that can be any type of medicine-related mistake made by a health care professional may severely impact ... In the United States, for reducing the medication errors in hospitals and other healthcare settings, the Food and Drug Administration (FDA) has ...
Cited by 39 - Related articles - BL Direct - All 7 versions

The prevalence and nature of errors and near errors reported by hospital staff nurses

MC Balas, LD Scott… - Applied Nursing Research, 2004 - Elsevier
... the need for systematic changes, an approach recommended in the Institute of Medicine report on ... Adherence to standards of care and the five rights of medication administration may have prevented ... The extension of the five rights (right drug, right patient, right dose, right time ...
Cited by 71 - Related articles - All 4 versions

When the 5 rights go wrong: medication errors from the nursing perspective

JH Jones… - Journal of nursing care quality, 2010 - journals.lww.com
... 3–5 After reviewing numerous studies, the Institute of Medicine estimated that more than 1.5 million ... administration; (2) inadequate staffing and high nurse/patient ratios; (3) illegible written medication orders; (4) incorrect dosage calculations; and (5) similar drug names and ...
Cited by 13 - Related articles - All 11 versions
Integration and automation transform **medication administration safety**

J Smaling… - Health Care Management Technology, 2005 - getvitalized.com

... Active pedigree legislation, like Florida's **Prescription Drug** Protection Act, will stimulate use of RFID over ... on the therapeutic as- pects of dispensing medications and on managing **drug** distributors." ... Be creative, use actual **medication** or- der sets and mimic as many scenarios as ...

Cited by 5 - Related articles - View as HTML - All 2 versions

**Managing medication errors: A qualitative study**

P Stetina, M Groves… - Medsurg Nursing, 2005 - jblearning.com

... The Institute of **Medicine** reports 44,000 to 98,000 people die in hospitals annually as a result of ... especially evident when it came to the "right time." Nurses did not feel administering **medication** at the ... was as critical as the other elements of the **five rights** (patient, dose, **drug**, route ... Cited by 12 - Related articles - View as HTML - All 4 versions

**Technology's impact on reducing medication errors**

P Sublett - Health Management Technology, 2002 - medical.siemens.com

... However, long before the Institute of **Medicine** (IOM) report, "To Err is Hu- man," was released, our staff ... Other system features that made a difference at DRMC include: Online **drug** inquiry function ... The nurse can easily look up infor- mation on a **medication** prior to ad- ministration ...

Cited by 7 - Related articles - View as HTML - BL Direct - All 4 versions

**Medication errors: A lesson from long-term care**

PL Pelletier - Nursing Management, 2001 - journals.lww.com

... medications. Performance deficits may relate to fatigue, interruptions such as telephones or call bells, or failure to follow the **five rights** of **medication administration**: right **drug**, right dose, right route, right time, and right patient

The sixth right of **medication administration**: Right response

D Wilson… - Nurse Educator, 2004 - journals.lww.com

... **Medication** errors result in approximately 7000 deaths per year according to a 1999 Institute of **Medicine** report. ... For **medication administration** to be effective and error free, a significant amount of critical thinking must occur on the part of the person administering the **drug**. ...

Cited by 4 - Related articles - BL Direct - All 2 versions

**Rework and workarounds in nurse medication administration process: Implications for work processes and patient safety**

JRB Halbesleben, GT Savage… - Health care …, 2010 - journals.lww.com

... For example, patients on adult inpatient **medicine** units will typically receive medications for several different chronic and ... the approved **medication administration** processes could result in failure to ensure the **five rights** of **medication** safety: right patient, right **drug**, right dose ...

Cited by 6 - Related articles - BL Direct - All 5 versions

**Using Bar-Code Point-of-Care Technology for Patient Safety**

S Anderson… - Journal for Healthcare Quality, 2004 - Wiley Online Library

... The 1999 Institute of **Medicine** report called for increasing the use of infor- mation technology to reduce **medication** errors. ... the system matches the orders with the patient identification and verifies the "**five rights**" of **medication** safety (right patient, right **drug**, right dose, right ...

Cited by 30 - Related articles - BL Direct - All 3 versions

**Information Systems & Technology Computerized Physician Order Entry: A Prescription for Patient Safety**
Information Systems & Technology

Computerized Physician Order Entry: A Prescription for Patient Safety
Ginny Meadows...

Nursing Economics, 2002 - docsnetwork.com

autoMate the “five rights” of medication administration, preventing adverse drug events (ADEs) ...
Cited by 14 - Related articles - All 3 versions

Barcoding makes its mark on daily practice
MG Heinen, GA Coyle... - of Nursing Administration, 2003 - journals.lww.com

In March 2003, after several years of research, the Food and Drug Administration (FDA) proposed two rules to improve patient safety ... the accuracy of the medication or warns of a potential error if the action doesn't meet the five rights of medication administration (right patient ...
Cited by 9 - Related articles - BL Direct - All 3 versions

Shrinking medication errors down to size: what you can do about this far-reaching problem
H Cohen - Nursing management, 2001 - journals.lww.com

... In November 1999, the Institute of Medicine's (IOM's) landmark report To Err Is Human noted that as many as 7,000 ... Drug names that look alike or sound alike, confusing or absent drug labeling, and nondistinct drug packaging have contributed to medication errors and ...
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Nurses and medication error: a discursive reading of the literature
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