Effects of Huddling on Complex Care Patient Safety Outcomes

According to The Joint Commission (TJC) (2007), “inadequate communication between care providers, or between care providers and patients/families, is consistently the main root of sentinel events” (p. 47). In the rapidly evolving complex care environment, fragmented interactions between providers of varying educational preparation and viewpoints act as discipline-specific barriers to communication - leading to medical errors (Dingley, Daugherty, Derieg & Persing, 2008; Manser, 2009; O’Daniel & Rosenstein, 2008). Additionally, the historic nature of provider hierarchy and climate of intimidation (Dingley et al, 2008; Institute for Shared Medication Practices, 2004), as well as reward for individual performance (World Health Organization, 2007), further serve as cultural barriers between providers. These communication barriers contribute to the continued trend of unacceptable human and resource costs secondary to adverse patient safety events (The American Association for Justice, 2012).

Nursing practice has responded to calls for improved communication systems and patient safety outcomes (The Joint Commission, 2012) through implementation of innovative strategies, among them: *Huddling* (Dunbar, 2012; Finkel, 2010; Morrison & Sanders, 2011). Huddling has been endorsed by the Institute for Healthcare Improvement (Rutherford et al., 2008) and the Agency for Healthcare Research and Quality (AHRC) (AHRC, n.d.; King, Battles, Baker, Alonso, Salas, Webster, Toomey & Salisbury, n.d.) with the expected outcome “shared mental model … team orientation…and *patient safety!!*” (p. 11).

Given the significance of patient safety outcomes to delivery of quality and affordable health care, and the asserted link between communication and adverse events, it is a worthwhile effort to explore the evidence for interdisciplinary huddling (communication) to improve safety outcomes. A review of the evidence also meets the Quality and Safety Education for Nurses’ (QSEN) (2003) competencies of teamwork and collaboration, safety, and evidenced-based practice.

**Problem**

Healthcare provider communication, sense of teamwork, and attitudes toward safety-relevant team behavior has been associated with quality, safe patient care (Manser, 2009). However, the literature reveals that complex healthcare environments, discipline specific frameworks (Manser, 2009, p. 147), and pervasive intimidation (Johnson, 2009) remain significant barriers to establishing communication between care providers, adversely affecting patient safety outcomes (Leape et al., 2009). Additionally, the nursing intervention of huddling, aimed at improving communication, is found to encompass multiple meanings and modalities, affecting reproduction, research, and transferability.

**Purpose**

The purpose of this evidenced-based search is to critically examine the level of up-to-date evidence for interdisciplinary huddling as a nursing intervention to improve complex care patient safety outcomes, with the goal of identifying a consensus working definition and methodology.

**Background**

The release of the IOM’s seminal health care report, *To Err is Human: Building a Safer Health System* (1999), and the follow-up, *Preventing Medication Errors: Quality Chasm* *Series* (2006), precipitated a national mandate for radical transformation of health care delivery systems and safety initiatives within diverse care settings (AHRQ, 2009; IOM, 2010; TJC, 2012; National Quality Forum (NQF), 2010). Unsettling numbers of patient injuries cited in the original and follow-up reports (1999, 2006) along with one-month (October, 2008) retrospective data revealing 13.5% of in-patient Medicare beneficiaries experienced adverse care events, with 44% “clearly or likely preventable,”(Department of Health and Human Services (DHHS) Office of Inspector General, 2010) indicates little trending change.

As a partner in addressing and promoting teamwork and patient safety, and with funding from the Robert Woods Johnson Foundation, QSEN (2012) established nursing educational competencies and evidenced-based strategies to guide practice and direct patient outcomes. Additionally, AHRQ (n.d.; 2009) has developed roadmaps and *Toolkits* for institutional implementation of a “culture of safety.” Included among the competencies, strategies, and roadmaps is removing barriers to health provider communication - known contributors to medical errors.

Interdisciplinary huddling is one such strategy currently in use in multiple care settings to promote teamwork, collegiality, and real-time communication for improved patient safety outcomes (Chapman, 2009; Dingley et al., 2008; Dunbar, 2012; Morrison & Sanders, 2011). Though seen in theory and practice, the literature reveals a lack of discrete definition or methodology for huddling, and is replete with case study reports. Given that one of the six QSEN educational competencies (2003) for improved safety is evidenced based practice, the question to ask is what is the consensus conceptual understand of huddling and what is the level of evidence supporting implementation to improve safety?

**Theory**

The first theory that relates to our topic of interdisciplinary huddles is Modern Nursing founded by Florence **Nightingale. “Nightingale believed that the nurse remained in charge of the environment, even when she was not physically present, because she should oversee others who worked in her absence” (Alligood & Tomey, 2010, p. 76). Her definitions of environment, even though she did not use that actual term emphasizes that nurses need to manage internal and external environments. She was also already developing a promotion of somewhat of an interdisciplinary team. She “called for concise and clear decision making by the nurse and physician regarding the patient, noting that indecision (irresolution) or changing the mind is more harmful to the patient than the patient’s having to make a decision” (Alligood & Tomey, 2010, p. 79). Her theory or philosophy is one of the oldest, yet most unique and cherished because she has “defined professional skills, behaviors, and knowledge required for nursing” (Alligood & Tomey, 2010, p. 83).**

**The second, and also admired, theory that relates to this topic is the work by Jean Watson and the philosophy and theory of transpersonal caring. Her theory incorporates important Carative Factors that relate to theory of nursing. “Each has a dynamic phenomenological component that is relative to the individuals involved in the relationship as encompassed by nursing” (Alligood & Tomey, 2010, p. 94). The carative factors and processes that directly influence the topic of interdisciplinary rounding and influencing patient care outcomes are numbers three, four, and eight. Indirectly her entire theory directly influences the practice of nursing itself, shaping how nurses “understand health, illness and the human experience; promoting and restoring health; and preventing illness” (Alligood & Tomey, 2010, p. 98). Most importantly Jean Watson’s theory “can be used to guide and improve practice” (Current Nursing, 2012, para. 24).**

**Jean Watson’s third carative factor “Cultivation of Sensitivity to Self and to Others” is defined as “the recognition of feelings lead to self-actualization through self-acceptance for both the nurse and the patient. As nurses acknowledge their sensitivity and feelings, they become more genuine, authentic, and sensitive to others” (Watson, 1979 as sited in Alligood & Tomey, 2010, p. 95). The carative process is “Cultivation of one’s own spiritual practices and transpersonal self-going beyond the ego itself” (Alligood & Tomey, 2010, p. 97). As nurses who are working with complex needs population,** **developing of one’s own feelings can be important in order to interact with the entire healthcare team and provide competent care for a patient with a sensitivity and genuine attitude. This attitude can assist nurses to work together with others and to understand how their own sensitivity and spiritual practices can affect these interactions.**

**Jean Watson’s fourth carative factor “Establishing a Helping-Trust Relationship” includes an important concept including “communicating that includes verbal, nonverbal and listening in a manner which connotes empathetic understanding” (Current Nursing, 2012, para. 8). Communication is central to the topic of developing interdisciplinary huddles. By establishing a “helping-trust relationship” with the entire healthcare team and by communicating, while also listening to patients, an environment that promotes safety will be provided. Nurses are responsible for listening, both verbally and nonverbally, in order to understand patients and the other staff that are working with them on a** d**aily basis.**

**The eighth carative factor from Jean Watson that also relates to this topic is “Provision for Supportive, Protective, and Corrective Mental, Physical, Sociocultural, and Spiritual Environment” which includes important concepts including: “nurses must provide comfort, privacy and safety as part of this carative factor” and the nurse manipulates external variables “in order to provide support and protection for the person’s mental and physical well-being” (Current Nursing, 2012, para. 10). Similar to Nightingale’s philosophy on the “environment”, Watson is concerned that in order for the patient to be safe from harm, nurses recognize that what they do outside and inside the patient’s room is important. “She asks others to open the possibility and to put away assumptions of self and others, and to “see” using all of one’s senses” (Alligood & Tomey, 2010, p. 98). This is particularly influential when working with a complex care population and controlling an environment in order to provide nursing care and create modalities, in this case huddling, to design an environment that is safe for patients and supportive for staff.**

**Significance**

The personal, professional, institutional, and societal costs associated with adverse patient safety events are sobering. Though much of the current literature cites findings housed in initial IOM reports(1999, 2006), and the IOM stipulates that findings are “estimates,” newer evidence does suggest the trend is unchanged. In a retrospective study of 10 North Carolina hospital admissions between January of 2002 through December 2007 (n=2341), reviewers identified 588 “harms,” equating to 25.1 harms per 100 admissions – 63.1 percent which were rated preventable (Landrigan, Parry, Bones, Hackbarth, Goldmann, & Sharek, 2010). Scott (2009) estimates that the direct cost from preventable hospital acquired infection (HAI) ranges from $28.4 to $33.8 billion annually; with possible savings of $5.7 to $6.8 billion from effective prevention measures (based on 2002 HAI surveillance data). The DHHS Office of Inspector General report (2010) states “Hospital care associated with adverse and temporary harm events cost Medicare an estimated $324 million in October 2008,” “equating to an estimated 3.5 percent of expenditures” during that time – an estimated 44 percent that were preventable. Additionally, of the 780 reported adverse events, equating to one of every seven Medicare admissions, 12 patients died from anticoagulant medication errors and 2 from insulin and hypoglycemia management errors.

Along with direct costs incurred as a result of adverse events, non-payment for medical errors is a significant area of concern for care consumers, providers and institutions. In 2008, The Centers for Medicare and Medicaid Services (CMS) established regulations for non-reimbursement of HAIs (Stone, Giled, McNair, Matthes, Cohen, Landers, & Larson, 2010), using financial penalty to improve care quality. In contrast, the Patient Protection and Affordable Care Act (2010) “directs the secretary of Health and Human Services to develop … fee-for-service payments based on quality and efficiency measures,” providing financial incentives for achieving benchmarks (National Conference of State Legislators (NCSL), 2010).

Public policy regulations such as these directly impact nursing education, practice, and leadership. With cost containment and outcomes-based reimbursement a primary focus within an evolving health system, nursing is challenged to define and refine its unique role in the delivery of quality, efficient, team-based, and patient-centered care (Robert Wood Johnson Foundation (RWJF), 2010). Generating evidence is this arena speaks directly to the American Nurses Association Research Agenda (2011) for understanding and facilitating the “…nursing contributions to safety, reliability, quality, and efficiency,” factors increasing the impact of these, and identifying nursing workplace issues.

**Setting**

Interdisciplinary huddles can occur in a variety of healthcare settings, such as hospitals, home health care agencies, clinics, and long term care facilities. Hospitals are likely the most common place in which the complex needs population would be seen and where there is the greatest need for interdisciplinary huddles. Within an acute care hospital complex patients can be found on any given unit and can present with several varieties of complicated health issues. Interdisciplinary huddling is important for communication flow, patient safety, and positive outcomes for the complex needs patient population. For example, if a patient is admitted with pneumonia, develops sepsis, and is transferred to the Intensive Care Unit, interdisciplinary huddling can be a critical aspect of their care. Huddling can be used to ensure that collaborative communication occurs between nursing staff, family, and physicians to provide safe health care practices, and ultimately create positive outcomes for the complex patient.

**Stakeholders**

Huddling to improve patient safety outcomes in the complex care patient population is a patient-team centered approach to providing safe, quality care. Huddling directly impacts patients and families, interdisciplinary care providers, systems management and leadership, as well as reimbursement parties (including tax payers). Other stakeholders include institutional investors, beneficiary recipients, healthcare consumers, educational systems, students, researchers, and regulators. “As other industries have learned, safety does not depend just on measurement, practices, and rules…it depends on achieving a culture of trust…[and]transparency…that requires major cultural change (Leape et al., 2009).

**Potential and Actual Cost Benefit-Effectiveness**

Interdisciplinary huddling presents many potential benefits for both the patient and healthcare team. Improvements in teamwork, collaboration, safety, and momentum are a few of the benefits that have been recognized with the use of huddling (Morrison & Sanders, 2011). Huddling can also help with prevention of nursing and medical error because collaborative communication can reduce the risk of mistakes occurring before they happen. Reducing medical error can save an institution from malpractice suits and other lawsuits that may occur as a result of nursing or medical error. Significant reductions in fall rates have also been a result of the use of interdisciplinary huddling (Morrison & Sanders, 2011). Reductions in Medicare reimbursement or no reimbursement can be deemed appropriate for medical treatment that was a result of medical error (Dunham-Taylor & Pinczuk, 2010). Medicare, Medicaid, & private insurance reimbursement can have a major effect on an entire healthcare organization.

**Desired Outcomes**

The desired outcomes for the critical examination of interdisciplinary huddling is to review relevant evidence within literature, analyze pertinent support for the utilization of huddling, and placing a vital focus on collaborative communication and safety initiatives for positive patient outcomes. Findings from this evidence-based project will be used to promote and recommend the use of huddles in complex needs patient populations.

**PICOT**

Given our fragmented healthcare delivery system; the high-stakes of patient safety outcomes to individuals, institutions, and society; and considering the role of communication in preventing sentinel events, the evidence-based question to ask is: *In the complex care needs population, how does interdisciplinary huddling affect patient safety outcomes?*

**Search Plan Method**

**Search Plan**

To evaluate the effectiveness of interdisciplinary huddling, a thorough review of literature and evidence is required. Polit and Beck (2008) discuss the importance of a thorough literature review and how it helps researchers familiarize themselves with a particular knowledge base. Literature with evidence of huddling and patient safety in the complex care population was reviewed in MEDLINE, Cumulative Index of Nursing & Allied Health (CINAHL Plus), and Cochrane Database of Systematic Reviews (CDSR) databases. In addition to the databases Google, Google Scholar and hand searches were performed to expand our research content. A computer search was performed through the John Moritz Library database portal in CINAHL plus, CDSR, and MEDLINE to answer the PICOT question using the search terms defined. The same search terms were used in the Google, Google Scholar, and manual searches with a computer search on the World Wide Web. When beginning a search, the best method is to carefully search using concepts that are guided by a well-built question (Melnyk & Fineout, 2011). Using the various forms of the search terms, the Google and Google Scholar searches yielded several variations of results. The results were then manually narrowed to pertain specifically to interdisciplinary huddling, communication and patient safety outcomes.

**Table 1: PICO(T) terms**

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| **PICO(T)** | **TERMS** |
| **P (population)** | Complex care population, acute care population, inpatient |
| **I (intervention)** | Interdisciplinary huddling, safety huddle, communications huddle, interdisciplinary communication (MeSH), quality improvement, communication |
| **C (comparison)** | No Terms Used |
| **O (outcome)** | Patient safety outcomes, patient adverse events, patient injuries, patient safety |
| **T (time)** | No Terms Used |

**Database Search Strategy**

The PICO(T) question, in the complex care needs population, how does interdisciplinary huddling affect patient safety outcomes?, was the guide used for the literature search. Utilization of the Boolean operators “and” and “or” using terms from the population, intervention, and outcomes of the PICO(T) question were used in MEDLINE, CINAHL, and CDSR. Specifically, “complex care population” or “acute care population” or “inpatient” were used for the population. The Boolean operator “and” was then used to add in the intervention with defining “interdisciplinary huddling” or “safety huddle” or “communications huddle” or “interdisciplinary communication” or “communication” as specific terms. Lastly, the outcomes section was added with the Boolean operator “and” with the specific terms being “patient safety outcomes” or “patient adverse events” or “patient injuries” or “patient safety” or “treatment outcome” or “quality improvement.”   
 The MEDLINE database search with the search terms defined, there were two articles found but unfortunately did not meet inclusion criteria. In a CINAHL search the PICO(T) search terms were used, which yielded 73 results, with two articles that can be used. The limiters used in these two databases were full text, full text PDF, 2005-2012, and English. A CDSR search was also completed using Boolean operator with the search terms. This search resulted in 1 article, but was later excluded because the article related to interdisciplinary rounds, rather than interdisciplinary huddles.  
 Due to the new terminology used in the PICO(T) question, the Google, Google Scholar and hand searches yielded the greatest amount of results that will be used. In Google Scholar there were three main searches completed, these included n(1) “safety huddle for patient safety in patients” with 16 results, n(2) “interdisciplinary communication for patient safety in patients” with 724 results, and n(3) “Huddling in the hospital” with 8270 results. From these search results a total of three articles were kept because they met criteria for inclusion. Using the search engine Google, n(1) “interdisciplinary communication for patient safety in inpatients” yielded 30,800 results. Additionally, n(2) “safety huddle for patient safety in inpatients” was searched and 1260 results were found, with one article that met criteria. Additionally, n(3) “Huddling improves patient safety in complex care population” and n(4) “Communication huddle for inpatients to improve safety” were searched and yielded 3110 and 400,000 respectively, with two articles that met inclusion criteria.   
 Lastly, a hand search was done in several domains and yielded several articles for inclusion. The first search completed was by ancestry, utilizing another sources reference page, in which two articles for inclusion were found. The website nursingcenter.com was searched and eight results were found with one meeting all criteria for inclusion. Also, the Agency for Healthcare Research and Quality (AHRQ) was searched by using “interdisciplinary huddling” and “patient safety outcomes,” as well as “interdisciplinary communication” and “patient safety outcomes” which yielded a total of 115 results, 2 which met inclusion – exclusion criteria. Finally, the Virginia Henderson International Nursing Library was searched through the Sigma Theta Tau portal, yielding 26 results of which 11 met criteria for final inclusion.

**Inclusion and Exclusion Criteria** The most relevant evidence is found by stating inclusion and exclusion criteria in order to judge a study and provide focus for the search (Melnyk & Fineout, 2011). The inclusion criteria used to determine the appropriateness of each article found were research, English, and published between 2005 and 2012. Other inclusion criteria included information specifically relating to interdisciplinary huddling with specific safety outcomes. The exclusion criteria included the wrong population, the wrong intervention, the wrong outcome, and duplicates.

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**Critical Appraisal of Evidence Summary**

**Cochrane Systematic Review of Randomized Controlled Trials**

**Citation**: Zwarenstein, M., Goldman, J., & Reeves, S. Interprofessional collaboration: effects of practice-based interventions on professional practice and healthcare outcomes. *Cochrane Database of Systematic Reviews* 2009, Issue 3. Art. No: CD000072. DOI: 10.1002/14651858.CD000072.pub2.

**Purpose**: “to assess the impact of practice-based interventions to change interprofessional collaboration (IPC), compared to no intervention or to an alternate intervention, on one or more of the following primary outcomes: patient satisfaction and/or effectiveness and efficiency of the health care provided,” (p. 1) to inform global policy decision-making initiatives to improve health care delivery.

**Level of evidence**: Level I: Systematic review of randomized controlled trials (Polit & Beck, 2008, p. 31), narrative format (Zwarenstein, Goldman & Reeves, 2009, p. 5).

**PICO relevance:** Related intervention concept: interprofessional collaboration

Related outcome concept: effectiveness and efficiency of care provided

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| **Critique topic** | **Severity of flaw** | **Comments on strengths and weaknesses** |
| Problem | Conceptual specificity is identified as an area of further research. May affect validity, reliability and applicability to “huddling” to a meaningful degree. | The Review problem: the relationship between ineffective IPC and adverse patient outcomes, as well as discipline variation in conceptual terminology and definition of IPC, is clearly stated.  The specific review concept: interprofessional practice (IPP) based intervention, is defined as a routine, tool, meeting, or checklist (p. 3) utilized by a variety of healthcare professionals- without further specificity to support replication and generalization. IPP is differentiated from interprofessional education (IPE) and interprofessional organization (IPO) interventions.  The review problem is highly relevant to nursing education and practice, though the impact on patient outcomes, policy and regulation, as well as reimbursement, is underscored. |
| Search strategy | Because “huddling” is a relatively recent concept in nursing practice literature, lack of a grey literature search may have excluded relevant data. | Data bases and inclusion-exclusion parameters are clearly identified, and search strategies are provided. However, search terms are not clearly identified and grey literature was not utilized – no search of Google Scholar or Google, governmental agency reports, unpublished works, dissertations and/or theses. |
| Sample | Small sample size may significantly influence Review validity, reliability, and applicability  to “huddling.” | Rationale for study inclusion-exclusion based on abstract is detailed and exhaustive – “at least two of three authors independently reviewed each of the 1128 abstracts” (p. 5) for inclusion criteria. Full text was obtained for criteria analysis of articles selected by one reviewer only. Lack of consensus was resolved by consulting third author, and third author reviewed all selected articles for quality of inclusion criteria. Of the 77 initial studies accepted, 5 studies met the rigor of RCT, objective outcome measurement, and explicit focus on collaboration. No mention is made of contacting study authors for clarification. |
| Quality Appraisal | High bias rating, lack of specificity regarding missing criteria for moderate ratings, and potential singular assignor prejudice many have influenced findings. | “Risk of bias” quality ratings of high, moderate, and low are provided, based on the number of study criteria present (p. 5), as outlined in the Effective Practice and Organization of Care Group (EPOC) checklist (2002). Of the five studies for inclusion, one was rated high quality and four rated moderate. Only one author assessed bias risk and no mention is made of how bias ratings affected final inclusion-exclusion. No mention is made of how ratings were applied to findings. Authors clearly state no personal or professional interests in study findings (p. 8). |
| Data extraction | Unknown time frame for intervention to outcome measurement may affect data reliability and generalizability of effect.  Unclear of any adverse effects related to lack of administrative process details. | Seven comprehensive parameters of extracted information are listed (p. 5), allowing for application to future research. However, study participant numbers are not listed as extracted data (though are present in the detailed summaries) and there is no information pertaining to the time frame for the implementation of the intervention to tracking outcome data.  No information is provided regarding the process for determining parameters and how lack of consensus was resolved. No chart detailing the parameters across the five studies is provided for ease of comparison.  No weighing of parameters consistent with narrative versus meta-analysis review. |
| Data analysis: overall |  | Detailed description of the five included studies is provided, including weaknesses and limitations, and presence-absence of the seven parameters of extracted information. Studies are categorized into three main intervention groups: interprofessional rounds, interprofessional meetings, and externally facilitated interprofessional audit – terms not clearly defined. Outcomes, including statistical analysis, are given. Authors state that the small number of included studies and variation in methodology and outcomes measures prohibit a meta-analysis of data, therefore a narrative presentation is provided. No summary charts or tables are provided for ease of review and synthesis. |
| Data analysis: quantitative | Comparison of two studies with varying conceptualizations of “rounding,” in different settings, with varying outcomes, may affect applicability of results to “huddling.”  Additionally, p<0.05 does not necessarily reflect clinical importance, and non-significant findings of a small sample size do not necessarily mean no effect. | Effects of the three study interventions are clearly detailed, however, the potential for individual study “moderate” quality bias ratings on P<0.05 are not discussed.  Measured outcomes across interventions are varied, as well as contradictory within interventions.  Mean length of stay outcomes for the interprofessional rounds group (intervention most related to “huddling) are shown to have no change (telemetry ward) or change by .60 days (acute care hospital) , P=0.006, with mean cost of care $1409 less than control group, P=0.002.  For respiratory therapy, 91.7% of the orders are shown to be “appropriate” in the rounding intervention group, compared to 73.6% for the control, P=0.075).  Results are summarized and the quality-completeness-applicability of the evidence is detailed. However, no summary charts or tables are available for ease of review and synthesis. |
| Data analysis: qualitative |  | Not applicable to this review. |
| Conclusions |  | Consistent with the evidence and defined limitations (very small number of studies in the review and the variations within as noted) the authors conclude that interventions to promote IPC and improve outcomes are, at best, “promising” at this time.  Because current research supports the existence of IPC gaps in care delivery, the authors offer a future research focus on consensus conceptualization and measurement of IPC; rigorous, multicenter [sic] RCTs following “longer acclimatiz/sation [sic] periods before evaluation” (p.9); and longer follow-up – utilizing quantitative and qualitative study design. |

Overall Comments: Gaps in interprofessional collaboration have been shown to adversely impact efficiency and efficacy of health care delivery. Though the sample size was small in this review, the authors demonstrated the potential relationship between interventions to change IPC and improved health care delivery outcomes. Additionally, the review revealed varied conceptualizations of collaboration within and across disciplines, as well as lack of valid measurement tools, laying the course for future evidence-based research focus. Though the review does not mention “huddling” specifically, huddling can be conceptualized as an intervention to improve IPC and, by extension as demonstrated in the review, to potentially influence patient safety outcomes.

**Critical Appraisal of Evidence Summary**

**Systematic Integrative Evidence-Based Literature Review**

**Citation**: Seago, J. A. (2008). Chapter 32. Professional communication. In R.G. Hughes (Ed.), *Patient safety and quality: An evidence-based handbook for nurses* (pp. 247-269). Rockville, MD: Agency for Healthcare Research and Quality. (AHRQ Publication No. 08-0043).

**Purpose**: “to discuss evidence of professional communication practices or strategies [in hospitals] that have been tested empirically and have a relationship with patient outcomes or patient safety, and to provide communication tools that might help practicing nurses maintain and improve patient outcomes and patient safety” (p. 247).

**Level of evidence**: Level V: Systematic review of descriptive/qualitative/physiologic studies (Polit & Beck, 2008, p. 31), narrative format.

**PICO relevance**: Related intervention concept: professional communication

Direct outcome concept: patient safety outcomes

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| **Critique topic** | **Severity of flaw** | **Comments on strengths and weaknesses** |
| Problem | Lack of conceptual specificity may broaden search results but may weaken applicability to “huddling.” | The Review problem: communication between doctors and nurses remains “contentious and obscure” (p. 247) and may have a relationship to patient safety and other care delivery outcomes, must be extrapolated from the Historical Context and Significance sections. An additional stated problem is found in the Background section: the lack of evidence of specific communication processes that impact patient outcomes.  The Review concepts: professional communication and patient safety outcomes are not defined.  The problem is highly relevant to nursing education, practice and reimbursement, as well as patient safety and satisfaction. |
| Search strategy | Because “huddling” is a relatively recent concept in nursing practice literature, lack of a grey literature search may have excluded relevant data. | Search strategy is clearly identified. Electronic databases utilized include PubMed®, CINAHL ® the Cochrane Collection, and AHRQ reports, reference lists were investigated as well. No grey literature or hand searches were conducted. Keywords are identified and exhaustive. |
| Sample | Loosely defined inclusion-exclusion criteria broaden the search for a richer understanding of the literature. However, potential selection bias from lack of clearly defined criteria may severely adversely affect review validity, reliability, and applicability. | Inclusion criteria are loosely defined as “communication between physicians and nurses” (p. 249) relevant to patient safety or other outcomes. Exclusion criteria are loosely defined as patient-provider perceptions of “care, quality, or comfort” (p. 249).  No mention is made of contacting study authors. |
| Quality Appraisal | Lack of accounting for potential individual study bias and selection bias may severely negatively impact the validity of study findings. | No quality of individual study ratings are applied, though the evidence tables delineate between randomized controlled trials (n=8), non-randomized controlled trials and quality improvement projects (n=10), systematic literature reviews (n=4), descriptive (n=14), and measurement instruments (n=8) included in the systematic integrated review.  The *Handbook* stipulates that studies included in the evidence tables are peer reviewed, though it is not clear how study bias was evaluated, how studies were selected or excluded, the number of reviewers, or how lack of consensus was resolved.  Study findings were not weighted, consistent with narrative versus meta-analysis review.  No statement of author lack of personal investment in study findings. |
| Data extraction | Findings may be unreliable and extinguish overtime. | Evidence tables provide a rich source of data extraction, including communication targets, design type, outcome measures, setting & population, intervention, and key findings – in an accessible, readable, and comparable format.  No evidence is provided for an accepted and consistent approach to compare study findings.  No information is provided for length of time between intervention and outcome measures.  No information provided for number of extractors, reliability among extractors, or how lack of consensus was resolved. |
| Data analysis: overall | Absent data analysis of interventions that did not show improved communication can call into question accuracy of results and potential author bias, as well as publication bias. | No explanation provided for method used to combine qualitative and quantitative data. Detailed analysis provided only for interventions that improve positive communication. Analysis is narrative and difficult to follow. No tables provided to summarize and compare data. |
| Data analysis: quantitative | Key concepts for future study may have been missed due to the length and lack of organization of the narrative. | Narrative analysis was conducted – no rationale provided though consistent with multiple interventions, outcomes, and methods.  No explanation of analysis or statistics given to support conclusions. |
| Data analysis: qualitative | Key themes for future study may have been missed. | Narrative synthesis of qualitative data is not provided. |
| Conclusions | Study limitations as detailed may have significant meaning to validity, reliability, and applicability. | Consistent with reported findings, the authors found “insufficient empirical evidence to recommend any specific communication strategy or technology device to improve doctor-nurse communication” (p. 251).  Study limitations are not discussed.  Implications for practice and future research are detailed at length, including defining communication competencies for doctors and nurses and the role of health information technology in improved communication (p. 252). |

Overall Comments: The relationship between (inter) professional communication and patient safety outcomes continues to be an area of prime interest and concern to health care providers. This integrated systematic review reveals the evidence gap for consensus conceptual understanding of communication and the interventions to best promote communication between doctors and nurses. Taking into consideration study flaws, the author did find “mixed or weak evidence to support some of the techniques described and cited in the literature” (p. 251). The author further states that persistent organizational focus on any communication intervention will probably affect change in patterns. Applying the author’s rationale, given that “huddling” is a focused approach to improve communication, persistent application to the communication process may influence patient safety outcomes.

**Critical Appraisal of Mixed Method Research**

**Citation:** Dingley, C., Daugherty, K., Derieg, M., & Persing, R. (2008). Improving patient safety through provider communication strategy enhancements. Retrieved from Agency for Healthcare Research and Quality website: <http://www.ahrq.gov/downloads/pub/advances2/vol3/Advances-Dingley_14.pdf>

**Purpose:** “The purpose of this study was to develop, implement, and evaluate a comprehensive team communication strategy, resulting in a toolkit that can be generalized to other settings of care” (Dingley, Daugherty, Derieg & Persing, 2008, p. 3).

**Level of Evidence:** Mixed Method, Level VI (Polit & Beck, 2008, p. 31).

**Validity, Reliability, and Applicability:**

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| **Aspect of Study** | **Comments of Strengths and Weaknesses** |
| Problem and Research Questions | The purpose of the study is clearly stated in the introduction.  The problem is stated concisely that “ineffective communication among health care professionals is one of the leading causes of medical errors and patient harm” (Dingley et al., 2008). |
| Theoretical Base: Literature Review completed, conceptual underpinning | A review of literature and reports were reviewed of current research primarily from the Joint Commission.  A theoretical framework based on crew resource management (CRM) was utilized within this study. |
| Ethical Issues | No ethical dilemmas or concerns were reported. There was no mention of an IRB. |
| Design and Tradition | A mixed method design was utilized which was appropriate for the studies’ purpose and plan.  Qualitative research design was used in observations of communication events that occurred on a unit.  Quantitative research design was used in feedback surveys compiled, as well as results of communications process analysis. |
| Sample and Setting | Setting was the 477-bed medical center of the Denver Health and Hospital Authority, an integrated, urban safety-net system.  Sample was analysis of 495 communication events. |
| Data Collection and procedures | A Pre-test/Post-test design was utilized incorporating baseline data collection and implementation of the team communication interventions.  Data was collected over a 24-month period.  Communication strategies of using the situational briefing guide (SBAR), team huddles, and multidisciplinary rounds using Daily Goals Sheets. A toolkit was devised “as a guide for the education and integration of communication and teamwork factors in clinical practice” (Dingley et al., 2008).  Process analysis of communication events based on observations of communication between health care providers, evaluation of patient occurrence reports, hospital survey on patient safety culture, evaluation of staff understanding of patient daily goals: a brief self-report survey on individual providers’ understanding of patient plan of care, and focus group interviews with hospital staff (Dingley et al., 2008).  Trained data collectors were used to recored their observations on communication process within the health care team. Data collectors took notes on their observations using a standard form, asking questions to clarify what they were observing, and asked the nurses their perceptions of the communication event (Dingley et al., 2008). |
| Rigor | All procedures and implementations factors were discussed by the researchers.  Trained data collectors were utilized consisting of nursing staff from various backgrounds, who worked closely with an industrial engineer.  The setting contains rigor because it spans over several different units of a hospital in a large acute care setting. |
| Data Analysis | There was use of one table examining the results of communications process analysis from the study. Table 4 discusses all of the evidence obtained in the communications observations over the 24-month period.  The results of the study are explained in detail in the data analysis section of the paper. |
| Findings and Theoretical Integration | The toolkit devised was explained extensively, as well as the reactions of the staff members.  The integration and implementation of the communication strategies were grounded into the common practices of the hospital. The use of these communication strategies are recommended based on the positive output of most of the designations of the study. |
| Interpretations, Implications, and Recommendations | This study produced the opportunity to develop, implement, and evaluate and educational program and interventions using multiple measures across diverse patient care units.  Implications of the study included the vast challenges of having the ability to educate new staff and continue integrating communication practices with current staff.  Recommendations for future research include implementation of the strategies in different health care settings, such as outpatient clinics, rural hospitals, and nonacademic settings.  Other recommendations included utilizing patient-centered outcome measures and staff-related measures, including satisfaction, recruitment, and retention. |
| Global Issues | “Strategies to enhance teamwork and communication can be successfully implemented in the acute care setting, and that they result in more efficient and effective communication” (Dingley et al., 2008). Due to the fact that “ineffective communication among health care team members contributes to patient harm and adverse events, interventions and implementation methods become instrumental in preventing negative patient outcomes” (Dingley et al., 2008). |

**Comments:** This research article discusses the overall concepts of collaborative communication in the nursing arena. The primary purpose of the article is to develop a comprehensive team communication strategy and team huddles was one primary strategy utilized in this article. The research was completed by trained individuals and provided a standard form for asking questions which decreased any bias that could have occurred. The transferability of this study is clear as to the recommendations that the research provided for nursing communication strategies.

**Critical Appraisal of Quantitative Research**

**Citation:** Catangui, E. & Slark, J. (2012). Nurse-led ward rounds: a valuable contribution to acute stroke care. *British Journal of Nursing*, 21(13), 801-805.

**Purpose:** To improve the way nurses manage stroke patients in an acute setting (Cantagui & Slark, 2012).

**Level of Evidence:** Single descriptive study, Level VI (Polit & Beck, 2008, p. 31)  
  
**Validity, Reliability, and Applicability:**

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| **Aspect of Study** | **Comments of strengths and weaknesses** |
| Problem and purpose statements | Problem is clear that stroke patients can have significant setbacks when complications arise.  The purpose is described but not clearly stated in the introduction. |
| Theoretical base:  Literature review completed, conceptual underpinning | A literature review was not conducted prior to the research performed.  The conceptual framework is based on the poor outcomes that stroke patients face when they experience complications.  Information for Ingeman et al (2011) was stated that 25.3% of stroke patients experienced more than one complication during their hospitalization (Cantangui & Slark, 2012). |
| Ethical Issues | No ethical issues were stated. |
| Design and Tradition | Nonexperimental descriptive design was used for the research. Observations, decriptions, and documentation of aspects of each patient were compiled.  The stroke nursing team was made up of a clinical nurse specialist (CNS), ward manager, and a charge nurse (Cantangui & Slark, 2012). |
| Sample and Setting | Sample included 108 stroke patients.  Setting was a 14-bed acute care stroke unit |
| Data collection and procedures | Researchers used a nurse-led ward round performa. Consisting of a review of skin integrity, continence, oral care, medications, stroke outcomes measures, and an evaluation of lines and tubes. The stroke nursing team made rounds every Monday to each stroke patient in the ward to assess, examine, and evaluate essential nursing care by utilizing the performa to guide the process (Cantangui & Slark, 2012). The rounds started in March and ended in October of 2011. At least 10 minutes were devoted to each of the 14 patients. 5 minutes were then allocated for each patient to discuss goals and plans with the nurses caring for the patients (Cantangui & Slark, 2012).  The findings from each weekly ward rounds were then presented at a weekly multidisciplinary meeting for patient care evaluation and rehabilitation from multiprofessional team members (Cantangui & Slark, 2012). |
| Rigor | The steps in which the data was retrieved were clearly stated. The study is directly related to nursing and appears valid when considering the methods and procedures used. |
| Data Analysis | Four tables were used in the text to describe the roles of the nursing team, the actual performa utilized for the ward rounds, common medications prescribed, and signs of depression scale. All of these tables contributed to the overall results of the study. All data from the performas and the tables described above were compiled to reach the final results of the study. |
| Findings and theoretical integration | Each section of the performa were described in length in the discussion section.  The introduction of nurse-led ward rounds is stated as an example of an “innovation to improve patient care in one acute setting” (Cantangui & Slark, 2012, p. 805). |
| Interpretations, implications, and recommendations | The nurse-led ward rounds resulted in positive data regarding the reduction in complications in stroke patients.  “A qualitative study is recommended to investigate the patients’ experiences and nurses’ perceptions of the development and evaluation of the nurse-led ward round in an acute stroke setting” (Cantangui & Slark, 2012, p. 805). |

**Comments:** The results showed to be statistically significant in terms of decreasing complications in stroke patients. The results showed that the nurse-led ward rounds had a positive impact for the stroke patients.

**Applicability:** Due to the small sample size, and single unit setting there are definite limitations to make generalizations from the study. A larger sample size across several different hospital units would be a good idea to replicate this study in order to create more valid generalizations.

**Critical Appraisal of Mixed Method Research Form**

**Citation**: Dufault, M. et al. (2010 June 1). Translating an evidenc-based protocol for nurse-to-nurse shift handoffs. Worldviews on Evidence-Based Nursing, 7(2), pp. 59-75. DOI:10.1111/j.1741-6787.2010.00189.x

**Purpose**: “To describe the use of an innovative, translating-research-into-practice model to generate and test a cost-effective, easy to use, best-practice protocol for nurse-to-nurse shift handoffs” (Dufault, et al, 2010, p. 59).

**Level of evidence**: Mixed method, Level VI (Polit & Beck, 2008, p. 31)

**Study trustworthiness**:

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| Aspect of study | Comments of strengths and weaknesses |
| Problem and research questions | Purpose of paper is clearly stated.  Problem is clearly stated as a “gap between what we know (research) and what we do (practice) is at the heart of the research translation problem in implementing a standardized approach to handoff communications” (Dufault et al., (2010). |
| Theoretical base: Literature review completed, conceptual underpinning | Literature review conducted with barriers identified and summarization of current research.  A theoretical framework was used which included theory information from Roger’s “adoption of innovations” theory and Orlando’s middle-range theory to adapt the Collaborative Research Utilization (CRU) model which was used to conduct this research. |
| Ethical issues | No ethical concerns or dilemmas reported. No mention of IRB. |
| Design and tradition | Mixed method study design appropriate for the purpose/problem. An integrated design was utilized using quantitative data occurring over a short timeframe of 6 months. This approach was appropriate for the purpose. |
| Sample and setting | Setting was a 129 bed magnet-designated urban community hospital.  Sample included nurse researchers who were paired in teams with clinicians, clinical specialists, and undergraduate and graduate nursing students (Dufault et al. 2010). |
| Data collection and procedures | Researchers utilized the CRU model which used a 6 step approach. In these first three steps the following data collections occurred: A nurse satisfaction survey was utilized before and 6 months after the initiation of semi-silent reporting; Two NDNQI survey measures were analyzed; Scores from five Press-Ganey questions on patient satisfaction were analyzed; Assessment of empirical evidence was done by literature searches from Medline, CINAHL, ERIC and Cochrane databases from 1992 to 2009. Critiques of nine studies were conducted by Roundtable discussions led by staff nurses on two units (surgical unit and rehabilitative care unit); A sub-group of the hospitals research committee, staff nurses from each unit in the hospital, worked with the research consultant and a doctoral student to discuss the eight roundtable recommendations for congruence; Interviews of staff from each unit were also conducted. |
| Rigor | All sources and the procedures done to complete 3 steps of the CRU model were described by researchers. Training of staff for the interviewers was not mentioned. Generalization cannot occur based on the research done in a single setting (one unit). |
| Data analysis | Appropriate use of three tables utilized. This displayed some of the data that was analyzed.  The narrative discusses the first three approaches to the CRU model and includes important points. Explains the table information in length.  Critiques were analyzed in table 2. |
| Findings and theoretical integration | The CRU model was described in length, including background data to support the use of the theoretical model.  The initiation of the three steps of the CRU model was highly recommended based mostly on the information gathered from the empirical evidence/literature review.  Recommendations were not clearly given from information gathered from quantitative data and qualitative data. |
| Interpretations, implications and recommendations | Initiating the CRU model in this setting created positive results.  Based on the implementation of the CRU model, there is a standard for developing a protocol to improve nurses’ change-of-shift handoffs.  Recommendations were made to utilize the CRU model in order to use it for “other clinical problem-solving in the future” (Dufault et al. 2010). |
| Global issues | Ineffective communication is incredibly important, especially during nursing change-of-shift and during nursing handoffs. Utilizing a model or effective tool in order for these hand-offs to be the most effective and efficient should be a goal for any nursing unit or patient care area. Missing or incorrect communication, including omission to information, can create adverse events and decrease patient outcomes. Creating an evidence-based protocol will enhance nurses’ knowledge about practices that are built on research and strong evidence. |

Overall Comments from analysis: This article addresses the multiple issues that are related to communication failure and standardizing communication practices, such as nurse hand-offs. Theoretical basis for change was used and the researchers demonstrated credibility. The research was done by utilizing a model that has been done before and had been widely duplicated. The underpinnings of this model, Orlando’s Nursing Theory, have also been duplicated. The researchers specifically mention that this model can be utilized for future effective approaches to hand-offs and other clinical problem-solving. The transferability is also clear for clinicians who are in the clinical or academic community. The recommendations of the researchers were free of bias and were based on the data found through valid research methods. There were no hidden agendas or motivations noted.

**Critical Appraisal of Mixed Method Research**

**Citation**: Kane, B., Luz, S., O’Briain, D., & McDermott, R. (2007 June 13). Multidisciplinary team meetings and their impact on workflow in radiology and pathology departments. *BMC Medicine*, 5(15). Online publication. doi:10.1186/1741-7015-5-15.

**Purpose**: It aims to examine work processes and quantify the time demands on radiologists and pathologists associated with MDTM practices

**Level of evidence**: Mixed method study, Level VI (Polit & Beck, 2008, p. 31)

**Study trustworthiness**:

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| Aspect of study | Comments of strengths and weaknesses |
| Problem and research questions | No definite problem statement. An aim is defined and a clear description of what the paper wants to analyze. |
| Theoretical base: Literature review completed, conceptual underpinning | A literature review was conducted with mention of a concurrent quantitative investigation of the impact of MDTMs on quality.  Defined and described the concept of multidisciplinary team meetings (MDTMs) and the term as it applied in general and to the pathology and radiology department. |
| Ethical issues | No ethical concerns or dilemmas were reported. No mention of IRB. The Joint Research Ethics Committee was mentioned as giving approval. |
| Design and tradition | Mixed method study design is appropriate for the purpose/problem. An integrated design was utilized with qualitative data occurring over a longer period of time (22 months) and quantitative data was collected over a strict time period of 22 working days. This approach was appropriate for the aim of the study. |
| Sample and setting | Setting is reported at one hospital, a 963 bed facility.  Sample is the radiology and pathology departments within the hospital including consultant and non-consultant medical staff, nurses, technical and support staff. |
| Data collection and procedures | Participant observation of work practices included 240 hours of observed meetings.  Semi-structured interviews were “conducted with consultant and non-consultant medical staff, nurses, technical and support staff” (Kane, Luz, O’Briain, & McDermott, 2007, para. 10).  Self-reported data was collected from medical staff regarding meeting preparation.  Historical research was conducted comparing 2003 internal pathology department records to the data collected during the month of November 2005 (22 working days Monday-Friday) |
| Rigor | All sources and procedures were clearly described by the researchers. Training of data gatherers was not mentioned. Generalization cannot occur based on research done in a single setting. |
| Data analysis | Appropriate use of 4 tables and 1 figure display data that was analyzed.  Themes were listed and reflective of the data.  Narrative discussed relationships from the data and formulated 4 important issues with rationale. |
| Findings and theoretical integration | No theoretical framework was discussed.  Clear benefits and challenges are listed related specifically to MDTMs. |
| Interpretations, implications and recommendations | Conclusions and statements in discussion are consistent and congruent with the findings.  Improved communication, updating professional knowledge and continuing professional development were all listed as benefits related to MDTMs.  The researchers concluded and recommended that for MDTMs to “be fully integrated” scheduling issues need to be resolved, a “protected time” should be considered an integral part of the clinician’s workload, and additional support for coordination of materials and follow-up is needed (Kane, Luz, O’Briain, & McDermott, 2007). |
| Global issues | Coordinating and participating in MDTMs in departments such as pathology and radiology can increase quality and augment patient management for complex patient populations.  Resource utilization, workload, and financial costs of MDTMs should be considered when implementing them in any setting. |

Overall Comments from analysis: Researchers did not mention the perceptions of the participants or the viewpoints in the results or discussion section. However, the researchers demonstrated that information was credible based on observations. Focus of the study remained the same and did not decrease the dependability of the process of conducting MDTMs. Especially in hospitals of similar size, information from this study will be useful when deciding whether or not to start using MDTMs in their pathology and radiology departments. The recommendations of the researchers were free of bias and were based on the data found through valid research methods. Overall, the findings were confirmable.