

Healthcare Utilizing Deliberate Discussion Linking Events (HUDDLE): A Systematic Review

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The phenomenon, “huddle moments,” can be described as a preparatory briefing among healthcare providers for the purpose of collaborating, exchanging information, and bringing awareness to patient safety concerns. A historical background of huddle communication is described and a systematic literature review was conducted on preoperative briefing and huddle communication. The article also describes a need for increased interprofessional collaboration education in anesthesia and a need for leadership to

support initiatives that improve patient safety. The purpose of this article is to provide a systematic review of huddle communication and give future evidence-based recommendations on how the huddle can be used in healthcare as well as how to roll out use of the HUDDLE acronym: Healthcare, Utilizing, Deliberate, Discussion, Linking, Events.

Keywords: Communication, huddle, interprofessional communication, preoperative brief, team brief.

The football huddle was invented in 1894 by Paul D. Hubbard, a quarterback at Gallaudet University, in Washington, DC.¹ Gallaudet University is an institution of higher education for the deaf and hard-of-hearing. Hubbard used the huddle as a means to prevent other schools for the deaf from seeing his team’s sign-language signals. The huddle is described as a circular formation in which the players face each other to communicate strategies and plans. The tight circle prevents the players from being overheard or distracted by the opposing team. An offensive football huddle is usually led by a quarterback, who communicates the strategic plan with teammates. The huddle form of communication is used in other sports as well and it can be translated for use in healthcare.

Communication continues to be a major barrier to interprofessional collaboration in healthcare. According to the Joint Commission Center for Transforming Healthcare, miscommunication between healthcare professionals causes an estimated 80% of serious medical errors.² There are multiple causes for substandard communication interactions between nurses and other healthcare professionals including a lack of knowledge about other disciplines.³ The 2011 report from the Institute of Medicine (IOM) entitled *The Future of Nursing: Leading Change, Advancing Health* identified research focused on teamwork as a research priority.⁴ Professional collaboration and communication has been shown to be essential in providing safe, quality patient care.³

Healthcare professionals share the common goal of providing safe, high-quality care. Teamwork and interprofessional collaboration are a requirement for efficient, safe healthcare delivery. Although there are various disciplines in healthcare, these various disciplines often do not always communicate with each other. The purpose of this article is to give a systematic review of huddle communication and to give evidence-based recommendations on how the huddle can be used in healthcare.

Anesthesia

The literature suggests that anesthesia crisis management training and teaching improves anesthesia providers’ ability to handle critical incidents.⁵ However, interprofessional collaboration, training, and teaching continue to be areas in healthcare that can be improved. Interprofessional training can give anesthesia providers the tools to efficiently and effectively communicate with other healthcare professionals.⁶ The American Association of Nurse Anesthetists (AANA) Position Statement 2.15, Safe Surgery and Anesthesia, promotes the involvement of Certified Registered Nurse Anesthetists (CRNAs) in pre-procedure briefing, checklist implementation, transfer of care, and ongoing communication among surgical team members.⁷ This ensures a safe surgery begins before the induction of anesthesia or surgical skin incision. Safety interventions may include preoperative briefings, pre-procedure verification, and surgical site marking.^{8,9} Preoperative briefings have been shown to be an effective tool in promoting team-

work between anesthesia and surgical team members.^{8,10} Briefings can improve collaboration and reduce the risk of mistakes.¹¹

Team STEPPS Huddle

The huddle is a component of Team STEPPS, a system for communication and teamwork designed by the US Department of Defense and the Agency for Healthcare Research and Quality of the US Department of Health and Human Services.¹² The huddle is a team-building tool that increases effective communication among healthcare providers. It is a quick meeting of healthcare members to share information. This brief meeting or huddle takes place at the start of the workday. It is also a time where groups plan for contingencies, express concerns, address conflicts, or reassign resources.

- **Huddle Acronym.** Huddle moments are preoperative briefs that can be used to increase interprofessional collaboration in healthcare. No one can hide from communication in the huddle. Therefore, the rollout of the HUDDLE acronym can increase awareness of interprofessional communication. The HUDDLE acronym is: Healthcare, Utilizing, Deliberate, Discussion, Linking, Events. This acronym will remind healthcare providers of the importance of a deliberate discussion that links events preoperatively to their occurrence, therefore increasing awareness of patient safety and interprofessional communication.

Methods

A systematic literature search of databases (ProQuest/Medline and Cumulative Index to Nursing & Allied Health Literature [CINAHL]) was conducted searching for articles published from January 1, 2005 to January 1, 2013. Studies published earlier were considered and included if they were relevant and had historical significance in huddle communication. In addition, the literature search also involved manual searches of abstracts that met the purpose of this literature review. The inclusion criterion for selection was set to consider studies that met the following: published in peer-reviewed journals, English language, and available in full text. The search was further tapered to include *meta-analysis* and *randomized controlled trials* (RCTs). Exclusion criteria for selection was set for any article that did not meet inclusion criteria as well as duplicate articles and articles without results. Keywords used for both searches were *interprofessional communication*, *preoperative brief*, *team brief*, *huddle*, and *communication*.

Results

The first search yielded 3,843 articles. When further broken down, the literature search using the CINAHL database generated 1,283 articles and the literature search conducted in ProQuest of Medline yielded 2,560 articles.

Of the total articles, 951 were reviewed for inclusion but only 2 articles met the inclusion criteria and were included in the literature review.

The second search was conducted in both CINAHL and ProQuest/Medline, and this systematic search yielded 3,335 articles. The CINAHL database generated 93 articles, and the literature search conducted in ProQuest/Medline yielded 3,242 articles. Of the total articles, 1,183 were reviewed for inclusion only 9 articles met the criteria for inclusion and were included in the literature review. A total of 2,123 articles were reviewed and excluded from both searches, and 11 articles were included (Table).

- **Review of Literature.** The current literature highlights the preoperative brief, which can be further refined to the huddle moment. These preparatory “huddle moments” have several theoretical advantages. First, they help create common understanding among team members or a shared mental model by bringing the team together before a case to discuss its critical aspects. The brief consistently included the surgeon, the anesthesiologist or anesthesia team members, and operating room nurses.¹³ Occasionally, various other operating room personnel, such as surgical technologist and respiratory therapist, were included.⁶ The consultation between interprofessional team members regularly took place before incision. It often contained a guideline or visual aid such as a poster or checklist to assist the team members in their respective roles by providing a clear outline of their necessary contributions.

Each member of the collaboration was responsible for an aspect of the care plan to ensure that each specialty was informed and synchronous with this plan. The use of the visual aid provided a reliable opportunity for the operating room team, before each procedure, to get details and communicate information on potential problems.¹⁴

In a study by Makary et al,¹¹ each team member stated his or her name and role, which promotes the huddle atmosphere in which every colleague is accountable for his or her role. With each responsibility clearly identified by the guidelines, each associate from various disciplines is unable to hide behind another specialty; thus the huddle moment, in theory, ensures effective interprofessional communication between nursing, surgical, and anesthesia specialties to promote a patient-centered approach to surgery.

Following the implementation of the huddle moment in the operating room, the participants were asked to fill out a postprocedure questionnaire on the effectiveness of the interprofessional communication. In reviewing the literature, it was evident that with the implementation of preoperative team briefings, there was a direct correlation to positive patient outcomes (see Table). The evidence shows that the preoperative multidisciplinary team briefing was an effective tool to improve communi-

cation between team members. The traditional hierarchical structure in the operating room has been shown to be dysfunctional in the multiprofessional team situation because it leads to suppression of participation among conventional “low status” team members.¹⁴

In a study done by Ali et al,¹⁴ 89% of participants, in postintervention questionnaires, believed that the briefing made them more aware of the cases, and 97% agreed that it highlighted patient problems. It has been shown that ineffective communication, stressful working environments, and lack of interprofessional teamwork can result in potentially avoidable medical errors. A study by Bethune et al¹⁵ found that briefings created a feeling of team among the staff and also improved the working climate; for those reasons alone, briefings were worth conducting.

One goal of implementation of the preoperative briefing is to prevent near-miss events. Einav et al¹⁶ found that performing a team briefing presented a broader perspective of the surgery. This brief before surgery was associated with a measurable reduction in the incidence of nonroutine events (near-misses) and was perceived well by surgical team members.¹⁶ Implementation of the preoperative brief has differing conclusions regarding its efficacy with improved communication. One study found that the briefings were an effective tool in promoting teamwork between anesthesia and surgical staff members and in more fully using input from relevant caregivers for decision making in the operating room.¹¹ Research has demonstrated that the preoperative huddle moment has led to improved patient outcomes through both the timely administration of prophylactic antibiotics and preoperative deep venous thrombosis prophylaxis.¹⁷

Common arguments against the team briefing are that there is insufficient time to attend them and they will delay surgical start times. A study conducted by Bethune et al¹⁵ found that briefings do not delay surgical start times; rather, it was shown that the use of operating room briefings actually led to increased efficiency. Currently, the available literature is based on routine cases, elective or scheduled, and is lacking in the emergent high-risk surgical areas such as cardiothoracic, obstetrics, or trauma specialties.¹⁸ This research leaves many opportunities for further studies with nonscheduled surgeries, in which team communication is essential to obtain positive patient outcomes.

• **Leadership Implementation.** Healthcare leaders in all settings must engage in ongoing activities and support initiatives directed at improving patient safety. All too often, barriers to effective and discernible patient safety improvements can be directed at miscommunication throughout a healthcare organization, especially among caregivers.¹⁹ It is imperative that leadership establishes patient safety as a top priority and provides all the necessary resources needed for effective resolutions.

The building of teams is an effective approach to positive communications. Team interactions over time increase trust between team members and promote employee job satisfaction. Leadership is responsible for developing and maintaining a team-based culture that relies on open communications. This culture provides employees with the opportunity to openly express themselves and to participate in appropriate decision-making activities. It has been shown that healthcare employees who view their work-unit climate as participative as opposed to authoritarian provide higher levels of customer service, commit fewer clinical errors, and express less likelihood of leaving the organization.²⁰ Leadership can have a great impact on implementation of huddle moment communication.

• **Future.** The IOM report, *The Future of Nursing: Leading Change, Advancing Health*, calls for interprofessional collaborative teams.⁴ The IOM, based on its reports that reflect more than 14 years of research and recommendations, concludes that healthcare professionals must deliver competent, patient-centered care in teams.

This vision of the future of healthcare includes teamwork and collaboration as essential elements.⁴ Effective teamwork can only be achieved through committed collaborative partnerships across professions. Team cultures in the IOM vision are vital to continuing and sustaining improvements in high-quality patient care.²¹

Because of the 1999 IOM report and other IOM reports that followed, accrediting bodies for healthcare education programs now require evidence of teamwork and interprofessional education. Education accrediting bodies in the fields of medical, pharmacy, nursing, occupational and physical therapy, physician assistant, and social work all require evidence of teamwork through interprofessional education.⁴

Conclusion

The phenomenon “huddle moments” should be taught and implemented into anesthesia. Leadership plays a vital role in changing the culture for new initiatives such as huddle moments in healthcare. The literature shows that interprofessional education can provide anesthesia providers with the tools to improve communication with other healthcare providers. The huddle creates a shared mental model among team members by bringing them together before a case to discuss its critical aspects. The HUDDLE acronym can aid healthcare providers to reflect on Healthcare, Utilizing, Deliberate, Discussion, Linking, Events and increasing patient safety. Teamwork and interprofessional communication may be increased by a proposed educational intervention of a huddle moment. Further research is needed on the implementation of huddle moments in nonelective surgeries and its benefit to increase interprofessional collaboration.

Source, Year	Country	Study design	Sample size	Sampling method	Data collection	Surgical specialty	Results
Lingard et al, ⁶ 2011	Toronto, Ontario, Canada	Retrospective preintervention/postintervention	11 general surgeons, 48 surgical residents and fellows, 87 OR nurses, 3 nursing trainees, 60 staff anesthesiologists, 26 anesthesia residents and fellows, 3 respiratory therapists, and 5 technical assistants	Convenience	Observational data; retrospectively reviewed medical charts	General surgery	Antibiotic administration was on time for 77.6% of cases in preintervention phase and for 87.6% in postintervention phase.
Einav et al, ¹⁶ 2010	Jerusalem, Israel	Two-stage comparative study, using cognitive model	Surgical team consisting of 1 OR nurse, 1 surgeon, and 1 anesthesiologist, who were observed by 1 of 4 trained observers	Convenience	Observational, standardized observation form used; self-report questionnaire about briefing	Orthopedics and GYN	Mean number of events per surgery in surgeries with briefings was 25% lower than number of events in surgeries without briefings.
Whyte et al, ¹³ 2009	Canada (4 urban hospitals)	Prospective observational	17 staff surgeons, 72 residents, 88 anesthesiologists, 50 residents, 128 nurses, and 8 nursing trainees	Convenience	Self-report questionnaire, ORTAS	General surgery	Results suggest that briefings are not always effective. They can conflict with other essential tasks and can reproduce existing interprofessional hierarchies, rather than transcending them.
Nundy et al, ¹⁸ 2008	Baltimore, MD, US	Preintervention/postintervention	Surgeons, anesthesiologists, nurses, and other OR personnel	Convenience	Self-report questionnaire	General surgery	Use of OR briefings was associated with 31% reduction in OR delays. This is due to a reduction in communication breakdowns, which led to observed delays.
Award et al, ¹⁷ 2005	Baltimore, MD, US	Quasi-experimental	Surgeons, OR nurses, and anesthesia staff	Convenience	Likert scale survey before and after intervention	General surgery	There was a significant increase in anesthesia provider and surgeon communication composite score after medical team training.
Paige et al, ¹⁰ 2008	Alaska, US	Quasi-experimental	17 OR staff members, including general surgeons	Convenience	Self-report questionnaire, ORTAS	General surgery	Before intervention, self-assessed mean score of individual OR member teamwork performance, was higher than peer-assessed mean score for same individual. This difference disappeared in postintervention mean self-assessed scores compared with peer-assessed scores. Peer-assessed mean scores of individual OR member teamwork performance significantly improved.

Whyte et al, ¹³ 2009	Toronto, Canada	Retrospective	11 surgeons, 116 OR nurses, and 74 anesthesia providers from 3 different hospitals	Convenience	Observational data using ethnographic research	General surgery	Three forms of recurring “silences” were identified in OR: absence of communication, not responding to queries or requests, and speaking quietly. These silences may be defensive or strategic and may be a detriment to communication.
Gillespie et al, ²² 2012	Queensland, Australia	Observational methodology	160 surgical procedures across 10 specialties	Convenience	Observational, standardized observation form	All surgical specialties except pediatrics and OB/Gyn	Preoperative briefings were observed in 20 of 160 surgeries. Miscommunications occurred at least once in 91 observed procedures, and 175 miscommunication events were observed.
Bethune et al, ¹⁵ 2011	North Bristol, UK	Quasi-experimental	Questionnaire given to all staff members at hospital, with only 13 returned	Convenience	Self-report questionnaire, ORTAS	General surgery	Staff felt that briefings highlighted potential problems, improved team culture, and led to change. OR start times tended to be earlier, and list lengths were shorter when briefings were conducted.
Ali et al, ¹⁴ 2011	North Bristol, UK	Retrospective preintervention/ postintervention	Anesthesia staff, surgeons, OR nursing staff, and operating department practitioners for 27 operating lists	Convenience	Self-report questionnaire using a 5-point Likert scale	Elective general surgery, vascular, Gyn	There was no statistical difference in OR start time after introduction of team brief. Questionnaire responses demonstrated positive attitudes toward safety briefings. Although 97% replied that safety briefing highlighted potential patient problems, 89% believed it improved communication.
Makary et al, ¹¹ 2007	Baltimore, MD, US	Retrospective preintervention/ postintervention	11 surgeons (7 general surgeons, 2 plastic surgeons, and 2 neurosurgeons) and surgical residents; anesthesia staff, operating room nurses, and medical students	Convenience	Self-report safety attitudes questionnaire	General surgery, neurosurgery, and plastic surgery	Briefings were associated with caregiver perceptions of reduced risk for wrong-site surgery and improved collaboration. OR caregiver assessments of the briefing and wrong-site surgery issues improved for 5 of 6 items.

Table. Preoperative Huddle Moments

Abbreviations: Gyn, gynecology; OB, obstetrics; OR, operating room; ORTAS, Operating Room Teamwork Assessment Scales.

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DISCLOSURES

The authors have declared they have no financial relationships with any commercial interest related to the content of this activity. The authors did not discuss off-label use within the article.