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Effective communication in the operating room : a quality improvement project

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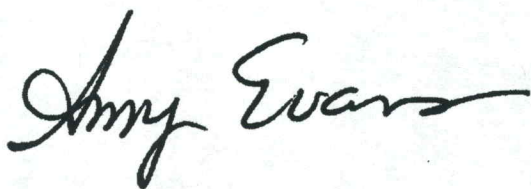A Quality Improvement Project

By

Amy S. Evans, MSN, RN

A DNP PROJECT

Submitted in partial fulfillment of the requirements for the
Degree of Doctor of Nursing Practice
to
The School of Graduate Studies
of
The University of Alabama in Huntsville

HUNTSVILLE, ALABAMA
2019

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DNP PROJECT APPROVAL FORM

Submitted by Amy Evans in partial fulfillment of the requirements for the degree of Doctor of Nursing Practice and accepted on behalf of the Faculty of the School of Graduate Studies by the DNP project committee.

We, the undersigned members of the Graduate Faculty of The University of Alabama in Huntsville, certify that we have advised and/or supervised the candidate on the work described in this DNP project. We further certify that we have reviewed the DNP project manuscript and approve it in partial fulfillment of the requirements for the degree of Doctor of Nursing Practice.

Ellise D. Adams 7.10.19 _Committee Chair_

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Abstract
Quality medical care depends on effective communication among hospital staff. Ineffective communication can lead to improper diagnosis, delayed care, and inappropriate medical treatment. Miscommunication is a leading cause of serious medical errors. Effective communication skills help shape and sustain strong relationships between both healthcare experts and patients, and their associates. Efforts to improve communication within and among staff are key to improving quality of care within healthcare organizations.

The clinical question guiding this quality improvement project is: In the operating room setting at a community general hospital, are methods of communication between multi-disciplinary personnel effective or not effective? Using an observation and survey approach to data collection, establishment of a quality assessment was performed within the perioperative department to gather information to present to management. Direct observation captured a diverse range of communication events. Each event produced different results including work-arounds, delays in process, resource waste, tension within teams and patient communication events. Recommendations to management were to provide a champion to ensure process change is carried out, change in education, and benchmarking against previously recorded HCAAPs for patient satisfaction and patient events.

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Effective Communication in the Operating Room:
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Identification of the Problem

Poor communication is the single, most recurrent cause of adverse events in healthcare, leading to interruptions in treatment, wrong-site surgery, and medication errors (Lingard et al., 2008). Although delivering quality care and reducing errors is a primary goal in healthcare, effective communication remains an issue. Numerous initiatives to improve excellence of care across medical disciplines and improve communication have been pursued (Lingard et al., 2008).

Ideal communication consists of a strong, distinct, and focused message from a transmitter that is delivered to a focused receiver, both using verbal and non-verbal cues (Osborne-Smith & Kyle, 2017). According to the Joint Commission, effective communication involves a two-way process (both sensitive and open) in which information is exchanged until the message is understood (Osborne-Smith & Kyle, 2017). Successful communication happens when information gathered from patients is successfully used for care by providers (Osborne-Smith & Kyle, 2017).

Potential for patient harm, in all forms, is introduced when the receiver acquires information that is erroneous, piecemeal, misconstrued or not required (Osborne-Smith & Kyle, 2017). Gooch (2016) noted in his study, communication breakdown has contributed to over 1,744 patient deaths in five years and cost 1.7 billion dollars in malpractice suits in the United States. Effective communication influences every segment of healthcare. Gooch (2016) further explains lack of effective communication effects healthcare leadership, teamwork and workplace cultures contributing to workplace violence, sentinel events, excessive spending, and poor patient satisfaction.

Distinct, individual behaviors can contribute to effective communication. An individual's background, including cultural, language, educational, contribute to one's perception of communication (Gooch, 2016). In a hospital environment, chaos is a typical component of a staff members' day, so effective communication may prove difficult (Gooch, 2016). Pertinent information about the patient can become erroneous or compartmentalized, devoid of effectiveness, particularly in times when care is transferred between caregivers.

To improve communication, Rose (2018) suggests observing dynamics of healthcare, including interaction between nurse to nurse communication, managers and administration, physician to nurse communication, and staff to patient. Developing a culture of collaboration amongst team members is based on concerted effort, such as trust, respect, support by management, structural edifices, social and professional classifications. These behaviors are predictors of constructive team communication and collaboration (Ornac, 2014).

The purpose for this quality improvement project is to improve effective communication within the perioperative department. The operating room is a high-paced, technologically advanced, challenging milieu, creating the risk for communication breakdown. Positive outcomes from surgery depend on a series of steps, all which are dependent on correct equipment and an organized effort of all surgical team members (Halverson, 2012). Effective communication is crucial during the surgical process at two-time frames: time-out and hand-off communication. The time-out process involves the surgical team reviewing all pertinent information about the patient and their surgery immediately prior to incision. Information included in time-out includes: right patient, date of birth, name of procedure including which part of body operating on including location, allergies, antibiotics, labs, fire risk, equipment needed for procedure, and any concerns or other pertinent information about the patient needed

including comorbidities which may affect quality outcomes. Time-out is performed by the circulating nurse with all members of the surgical team present. Discussion amongst staff with any concerns occurs during this time before incision. Anesthesia also notes patient status as stable before procedure officially starts.

Transferring responsibility of care between staff is known as hand-off. Nursing transfers care of a patient to an oncoming nurse, in the form of a SBAR (situation, background, assessment, recommendation). Pertinent information is exchanged, including vital signs, allergies, labs and other information. Hand-off commonly occurs during shift change, rounds, and transfer within departments. With lack of effective communication being one of the biggest reasons for sentinel events (serious illnesses or death unrelated to natural causes within healthcare organizations), it is of utmost importance that proper communication occurs during patient treatment in any health organization. In the operating room environment, reports from the Joint Commission have found sentinel events linked to barriers of communication (Cassinello-Plaza, 2015). Cassinello-Plaza (2014) note approximately 50% of all medical errors occur in the operating room or in resuscitation suites. Plaza (2014) noted in their study lack of information most significantly correlated with deficient information and contributed to medical errors, which included incomplete surgical checklists, and inappropriate information relayed in time outs.

Current Practice

Patient and staff satisfaction reports from hospital administration indicate need for process improvement in communication in the operating room among staff and patients. Fiscal year 2019, administration desired the development of a plan to improve patient safety and

satisfaction rates above 90%. Currently there are policies and education that staff must follow at the clinical agency, which is reviewed with yearly education. Patient safety and policy are followed according to Joint Commission and Department of Health Guidelines, as with any hospital organization. The education is contained on the e-learning dashboard, which includes modules for conducting various processes involved in the surgical process including SBAR use in hand-off, aseptic techniques, to name a few. Yearly continuing education is mandatory, and responsibility lie on staff to implement appropriate policies and skills (Johnston, Fidelie, Robinson, Killion & Behrens, 2012).

Practice Change Assessment

Comparison of current practice at the clinical agency were compared to evidence-based practice at other facilities related to effective communication in healthcare based on patient satisfaction (Johnston et al., 2012). To achieve this goal, the first step was to assess surgery staff communication Pre/Intra/Post Surgery by direct observation during a two-week period. Specific criteria are used to capture types of communication failures. A survey was also sent to management for input into communication. In performing this project, the hope is to effectively identify the barriers to effective communication, evaluate current education for staff, and present findings to management. The primary aims for this project was to improve quality of communication, enhance patient safety and improve patient satisfaction within this organization. The clinical question guiding this project is: in the operating room setting at a community general hospital, are methods of communication between multi-disciplinary personnel effective or not effective?

Review of the Evidence

Search Strategy

A review of literature was conducted. The following key words were to identify primary and secondary sources of literature for the quality improvement project: effective, communication, operating room, patient safety, and satisfaction. The following information was extracted-date of article, objectives, methods, sample, design of study and findings.

Using a meta-ethnographic approach to categorize studies, analysis was further broken down into key concepts (Campbell et al., 2011). Some 1045 citations were retrieved through an electronic database search of CINAHL, PubMed, Medline, OVID, and Pepid Online. Further delineation of primary and secondary research produced 456 articles for possible use in this project. Of these, 54 articles were identified for full review after application of full-text inclusion and exclusion criteria. After full review, 25 were chosen for the project.

The overall quality of the research was rated from average to relevant, with key theories identified as barriers to communication, effective communication, effects on patient safety, and effects on quality of care. The key concepts to effective communication involved information given in time outs, including staff not using "active listening skills," hand off from nursing from pre-operative area to OR nursing staff; and physician to patient communication in the form of information given about their procedure and what to expect during and post-operatively. Qualitative studies including observational review were included to enhance a quality assessment.

Research in healthcare shows organization and communication are key factors in patient safety. Identification of barriers in communication in the perioperative setting play a key role in the quality care delivered to patients. A study conducted by Alfredsdottir and Bjornsdottir (2007), noted key factors from structured interviews of eight nurses at a university hospital in Iceland. This was followed by two focus groups with four nurses each. Analysis showed that

the nurses understood the core of their work, and that patient safety and preventing mistakes were key elements. Organization of specialty teams is essential. Increased speed of work is imperative, as well as imbalance of staffing, contributed to main threats of patient safety (Alfredsdottir & Bjornsdottir, 2007).

Effective communication protects patients from harm and helps form a positive impact on staff as well (Ali, 2017). Halverson (2012), noted that communication helps surgeons avoid potential pitfalls within the operating room setting. The surgeon sets the tone for surgery, acting in a professional and respectful way to the surgical staff. Halverson (2012) further states that communication is critical and must happen both pre, intra and post-operatively.

Makay et al (2006), noted that pre/intra-operative briefings, such as time outs, which take one to two minutes to utilize, provide a structured approach to promote effective interdisciplinary communication and teamwork. Briefings, such as time outs, deliver all the necessary information required before surgery transpires, including correct person (with two patient identifiers), precise operating site, allergies, fire risk, and correct equipment and personnel in room prior to incision.

Use of standardization practice within surgeries produced improvements in the communication processes amongst perioperative staff (France, Leming-Lee, Jackson, Feistritzer & Higgins, 2007). Observational analysis of 30 surgical teams' integrated surgical compliance and safety occurred between December 2004 and March 2005. Integration of the Crew Resource Management (CRM) model used by the aviation industry was applied to surgical team workflow process (France et al., 2007). Education, including E-learning, process checklists, briefing scripts, whiteboards and training provided information on how implementation of this

process (France et al., 2007). Results show workflow process to operating room specifications, and adherence to utilization of the time-out process increased (France et al., 2007).

Effective communication using team situation awareness tool proved helpful in minimizing communication breakdowns during procedures as well. Accurate information, as stated by Parush et al (2011), is a necessity as operating staff work to accomplish a common goal. To achieve this, all members of the surgery team must perform their roles and tasks with full and continuous comprehension, information sharing, and coordination (Parush et al., 2011). Team situational awareness uses information sharing amongst team members in questioning, coordination, prioritizing and cross-checking using closed-loop communication (Parush et al., 2011). In their review of 16,000 hospital deaths, communication errors were twice as frequent due to clinical skill. Inclusion of the team situational awareness model increased effective communication within team process and dynamics.

Similarly, Lingard et al (2009) noted of 340 pre/post observations, variability in documentation practices. Antibiotic administration timing was used as an outcome measure, which contained accurate administration in only 77.6% of the cases related to surgery start time in pre-operative phase, and 87.6% of cases in post-operative phase of care (Lingard et al., 2009). Use of a standardized checklist was associated with improved physician compliance with antibiotic administration guidelines.

Lingard et al (2004) demonstrated the need for effective communication within perioperative staff members. Qualified observers witnessed 90 hours of observation during 48 different surgical procedures. Ninety-four team members, including anesthesia, surgery and nursing participated in the study (Lingard et al., 2004). Procedurally appropriate surgical events were analyzed using context which reflected the content, audience, purpose and event of the

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communication discussion. Definition, according to Lingard et al (2004), of a communication failure was an occurrence that was inconsistent in one or more in content, audience, purpose or event. Of the 421 communication events noted, 129 were defined as communication failures, most of which occurred as inappropriate time-outs or briefings occurring prior to surgical incision. One-third of the communication exchanges jeopardized patient safety due to this breakdown (Lingard et al., 2004).

Perceptions within members of the multi-disciplinarians regarding communication varied. Nestel and Kidd (2006) noted that nurses' insight and practice of communication in the operating room demonstrated a common theme. There was largely a consensus on skills deemed essential for effective preparation including active listening, transparency of speech and being respectful. This was mostly noted during patient hand offs, in which exchange of information is not only necessary, but important to the continuity of care the patient receives from his/her caregivers (Nestel & Kidd, 2006).

Xiao and Moss (2004) noted of the 2074 communication episodes observed in their study, standardization of the process of moving a patient through the phases of care is necessary to decrease the possibility of adverse events. The successful strategy of such applications relies on a comprehension of communication patterns amongst healthcare experts (Xiao & Moss, 2004).

The evidence gathered from this literature indicates that open and effective communication amongst interdisciplinary personnel not only reduces errors related to patient care and improves outcomes, but establishes trust, collaboration and resect amongst team members. Establishment of a culture of support communication and team collaboration is paramount to improvement in patient safety and quality outcomes within healthcare.

Conceptual Framework

Paplau's Theory of Interpersonal Relations was used to guide this quality improvement project. Paplau's theory considers the purpose of nursing is to help others identify their difficulties (Paplau, 1997). There are phases of interpersonal process involving interaction between two or more individuals with a common goal (Paplau, 1997). This theory can be applied to communication between two individuals. To reach a common goal, a series of steps must follow a pattern of events, to attain quality outcomes. Effective communication is paramount to achieving a common goal of quality care within healthcare organizations. Staff to physician, staff to staff, and staff to patient work together so both become knowledgeable during the process of care (Paplau, 1997). Interpersonal theory is dynamic, and open by collaborative efforts of all staff to ensure safety and continuity of care for purposes of meeting the patient's needs.

Staff which use effective communication work together known to be one of the largest barriers to quality outcomes in patient care. Exhaustive studies have shown that lack of communication was the primary factor causative to complications in surgery (need to ref these studies). Paplau's applicability to effective communication will help to construct a foundation for more open and collaborative efforts to increase quality care among patients in the operating room.

Methodology

Population

The population of interest for this quality assessment project was associated with the project environment. To evaluate the effectiveness of communication between perioperative professionals the following inclusion criteria was used: English speaking nurses, surgeons,

anesthesiologists and surgical technicians. No professional was excluded due to age, education, or race. In a second phase of the project, perioperative management personnel were assessed to determine their current view of communication within the perioperative setting.

Setting/Timeline

Berwick Hospital Center is a 90-bed acute care facility in Columbia County, Pennsylvania, which has serviced the Berwick community and surrounding areas for the past 100 years. Berwick is a small town in central Pennsylvania with approximately 10,000 people. The town was founded around the foundry industry and has a diverse population. Berwick Hospital Center offers a wide range of services including emergency, outpatient, in-patient, surgical and medical care. Berwick Hospital Center is part of the Commonwealth Health Network. The facility includes a 200-bed Long Term Care Facility.

Through partnership with not only other Commonwealth Health hospitals and Jefferson Health System, integrated tele-medicine helps to give patients the specialty care they need at any time during their hospital stay. Within the perioperative department, there are six surgical suites which offer a variety of services including, cardiac, vascular, general, orthopedic, gynecological, gastro-intestinal, and urological specialties, with on-call services, as needed. The project took approximately one month to completion after project approval from the Internal Review Board from Berwick Hospital Center and University of Alabama Huntsville, Internal Review Board.

Project Design

To address the clinical question, in the operating room setting at a community general hospital, are methods of communication between multi-disciplinary personnel effective or not effective, a quality improvement project was conducted to systematically review the effectiveness within the perioperative setting. The needs assessment was conducted in two

phases: 1) observation of the communication processes related to pre-operative, intraoperative and post-operative units and 2) a review of perioperative management personnel opinion related to the communication processes within these same units.

For phase 1, direct observation of the multi-disciplinary team's communication in the pre-operative unit, in the intraoperative unit during time-out and hand-off and in the post-operative unit. Observations were made for a two-week time-frame. The multidisciplinary team included 10 nurses, six physicians, 3 anesthesiologists, 4 nurse anesthetists and five surgical technicians. Observation of patient movement through the perioperative department from intake to discharge occurred. Using a classification system developed by Lingard et al (2004), observational failures were systematically categorized as errors of occasion, content, audience or purpose (See Appendix A). An expert perioperative clinician performed a thorough assessment to determine communication gaps. Specific processes were targeted such as hand-offs between staff, interviews with patients and anesthesia, physicians, and nursing staff. The time-out process was also considered. Cases were reviewed for right patient, right date of birth, allergies, type of surgery, identification of specific area of body getting surgery, fire risks, personnel included, and any other pertinent information needed prior to incision for time outs. For hand off communication, documentation was evaluated including situation, background, assessments and recommendation for care for patient in pre-operative phase, and post-operative care. A time line of 2 weeks was set aside for observation data gathering process.

For phase 2, surveys were emailed to perioperative management personnel for input on current communication. (See Appendix B). A timeline of two weeks allowed for completion of surveys and information gathering. Questions for use in the survey were formulated based on concerns from staff in which they felt communication lacked. Staff gave input to which topics

they thought would provide insight into development of more effective communication amongst team members. These topics were utilized in survey form for management to rate using the Likert Scale.

Detailed data collection occurred with all staff which deliver care within the OR. Surveys were used to identify specific reasons for the breakdown in communication, which lead to poor care or patient safety risks. Specific barriers identified, comparing to current policy and education in practice at the facility is the purpose of the assessment, which hopefully would lead to success with patient satisfaction and reduction in patient safety events.

Nursing administration surveys were sent to quantitatively rate their knowledge on effective communication questions and anonymously make recommendations for improvement. This investigator-designed survey utilized a Likert-type scale (see Appendix B). Respondents were asked if they agree or disagree with a statement. Each option was given a score, which was utilized to analyze results (Artino & Sullivan, 2013).

Data Collection

In January of 2019, two weeks of observation with approximately 35 hours of data collection were conducted during 14 procedures. The observation included 2 vascular (Arteriogram and Radio Frequency Ablation of the greater saphenous vein); 2 general (laparoscopy of hiatal hernia and laparoscopy appendectomy); 2 gynecological (laparoscopic hysterectomy and dilation and curettage); gastro-intestinal (esophageal gastro-duodenoscopy , and colonoscopy); 4 orthopedic procedures (left total knee arthroscopy, right hip replacement, left tibia/fibula fracture repair, right Bipolar hip fracture); and 2 pain procedures (lumbar-1, lumbar-2 radio frequency ablation and lumbar-4, lumbar-5 injection). Time frame in minutes

for procedures ranged from 10 minutes for a pain for a lumbar-4, lumbar-5 injection, to 3 hours for the arteriogram and stent placement (peripheral procedure).

Procedures were sampled to represent a variety of cases and variation on surgical areas of the body. Twenty-six staff were observed including eight surgeons, four nurse anesthetists, two anesthesiologists, eight nurses, three surgical technicians and one clinical assistant. No perioperative staff refused to participate in the observation. Observation during surgery occurred during the first hour of the procedure, as most of the communication occurs during this time. Consideration was given to communication during preparation for surgery, positioning of patient and time-out during procedure. Most observations before and after surgery with hand off occurred in the post anesthesia care unit (PACU) as the nurse was getting report from the surgical team including the OR nurse and Nurse Anesthesia.

Observation of perioperative events occurred by an expert clinician. Observation was carried out without interruption of setup or procedures in which staff participated. Lingard et al (2004) defined a communication event as a non-verbal or verbal exchange which occurs between two members of a team.

Surveys were emailed to perioperative management for completion. Allowance of one week to complete, with an email reminder was sent the following week for reminder of completion. Ten questions presented in the survey were relevant to the communication process by which staff found useful in understanding communication. Questions were formulated around concerns raised by staff appropriate for effective communication and quality care for patients Survey data collected via Qualtrics, an online platform to capture and store data in secure, password protected environment.

Data Analysis

Descriptive analysis was utilized for survey results gathered using Microsoft Excel 2016. Content analysis of narrative data from the observational and qualitative sections of this process enhanced survey results. This analysis determined where gaps in communication are present. Analysis of data collected by the clinician were used to identify failures of communication within the pre/intra/post-operative setting. Survey data was analyzed and interpreted. Detailed notes were taken by the clinician in a consistent manner as to not add any subjectivity into observational analysis. By evaluating two areas of the perioperative process on communication, time-out and hand-off, consistency is kept in evaluation. Using the framework for analysis as described by Lingard et al (2004), failures of communication were placed into four areas of classification, which considers the type of communication error. These were errors of content, occasion, purpose and audience (Lingard et al., 2004). For each communication error identified, date, time, staff, and details of communication were taken into consideration.

Framework for Analysis

Content

Content included the staff present in the communication, and details of the communication error. During the communication process within the two stated areas observed including time out and hand-offs (Lingard et al., 2004). This is often the information contained in the communication error.

Audience

Audience includes staff engagement and communication exchange (Lingard et al., 2004). This may be any member of the surgery staff, or any person involved in the communication error.

Purpose

The intention of the exchange is the "purpose," of the communication. Purpose can be explicit or implied (Lingard et al., 2004). This means what was the reason behind the exchange of the information.

Occasion

Occasion is the physical situation of the exchange (Lingard et al., 2004). Where did the communication exchange occur, and was there something interfering with the exchange that caused the communication event?

For a communication to be listed as a failure, strict parameters were met. For time-outs and hand-offs to occur, specific criteria must be communicated between staff. For example, if a patient was taken to PACU, and the CRNA communicated that the patient experienced nausea and vomiting when awakening from anesthesia, however neglected to alert the patient's allergy was Zofran. Zofran could have been mistakenly given to the patient, producing an allergic reaction. This is an example of "content" flaw. Furthermore, if a physician who enters the operating room, orders the time-out to be given, without all members of the team present, this an example of an "audience" flaw.

The second part of the assessment process was the survey of perioperative management and analysis of current communication perception. All survey questions were analyzed and interpreted by descriptive analysis. Analysis of sample communication were reviewed with OR staff to ensure errors of communication were present and significant to staff. Questions presented in the survey were relevant to the communication process by which staff found useful in understanding communication. Questions were formulated around concerns raised by staff appropriate for effective communication and quality care for patients

Results

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Descriptive analysis of perioperative personnel included Twenty-six staff including eight surgeons, four nurse anesthetists, two anesthesiologists, eight nurses, three surgical technicians and one clinical assistant in 75 observed communication events. Management participation included Charge Nurse of the operating room, Charge nurse of PACU, Director of the Perioperative Department, Surgery Chief, Anesthesia Chief, Chief CRNA, and Emergency Director.

Phase One

An analysis of field notes by the experienced clinician produced 75 communication events during pre/intra/post-operative time periods. 65% of communication events were classified as concise and involved minimal exchange. 30% of information exchanged during hand-offs were in form of situation, background, assessment, and recommendation (SBAR). 42% of time-out communication was brief, concise, and pertinent information was exchanged among operating room team members. Information exchanged in hand-offs also were longer in length; for example, the anesthetist explained a complication from the surgical procedure to the PACU nurse, and relayed information needed to further care, such as additional medications needed due to complications.

Of the 75 communication events, 29 events were considered "errors of communication," related to one of the classification units described by Lingard et al (2004). Errors of communication relayed some method of breakdown in information needed relayed between to staff members. Some of the 29 communication errors fell into one or more categories (See Table 1).

Table 1. Summary of communication events collected and recorded by classification type (Lingard et al., 2004).

	Number	(%)
Communication Events recorded (n)	75	
Communication Events recorded as Errors (% of total events)	29	38.60
Communication Errors by Type (% of total communication errors)*		
Content	18	62.07
Purpose	7	24.14
Audience	15	51.72
Occasion	8	27.59

*Communication mistakes - some events fell into more than one group.

Of the communication failures or errors observed, the largest percentage (62.07%) of events were classified as content. In these instances, pertinent data was either in error or absent from the communication. This occurred mutually in time-out, and in hand-off communication. For example, in one instance, allergies were not reviewed in "time-out." On evaluation of the "audience" category, communication failures happened recurrently (51.72%). For example, in one instance, all staff were not present during the "time-out," at the beginning of the procedure. The Sales Representative for the device company was not in the room. This accounts for "gaps" in information as well, as the sales representative must be present to hear the pre-operative diagnosis, location of body part, and operation being performed to make sure of correct equipment, before beginning. This is also "content" communication failure. "Occasion" failures happened with less frequency (27.59%). These failures occurred when information was given at suboptimal intervals for it to be suitable to the circumstances. During time-out, no information was given for antibiotics, and the surgeon did not ask the anesthetist about if it was

given until 20 minutes after the surgery had started.   Antibiotics must be given 30 minutes to

one hour prior to surgery incision for maximum effect.   Finally, "purpose" category was

inherent in some of the communication events observed (27.59%).   During hand-off, nurse to

nurse communication in the PACU had both wondering what kind of bandage that incision

required in follow-up care if the incision were to have drainage.   Neither nurse asked the

surgeon which kind was needed. Table 2. Provides examples of communication failures in each

category with explanation details (Lingard et al., 2004).

Table 2. Types of Communication Errors with Examples	
Error	**Example of Communication Failure**
Audience	During time-out, surgical technician had to excuse themselves from the room, and was not available for the content delivered by the circulating nurse. (All members must be present when time-out is stated, so that the surgical team has been given all the pertinent information prior to incision. This includes the surgical technician.
Content	In pre-op hand off, Operating room nurse retrieving the patient from the Floor nurse asks if the patient will be coming back to their room. Floor nurse says she isn't sure, but she will call into the operating room to let them know when she finds out. Both operating room nurse, and floor nurse forget to check on where the patient is going after post-op care. This is an example of missing or gaps in information necessary to the successful recovery of the patient post-surgery.
Occasion	During time-out, the sales rep. is not present, and does not hear vital information that is needed. Sales rep comes in after surgery incision and does not have the correct equipment in the room to complete procedure. Creates problem with situation in surgery where they may not have correct equipment due to this error.
Purpose	Surgeon adds during the time-out that he may change the way the procedure is being performed, which makes the nurse unclear in which direction the surgeon wants to proceed.

Phase Two

Data from the communication survey showed current opinion of communication within

management team members.   Of the 10 staff identified as management, there was 77%

participation. (See Table 3). In gauging clear direction specified in the operating room, 57.14%

said they were slightly satisfied, with only one participant being extremely satisfied (14.28%).
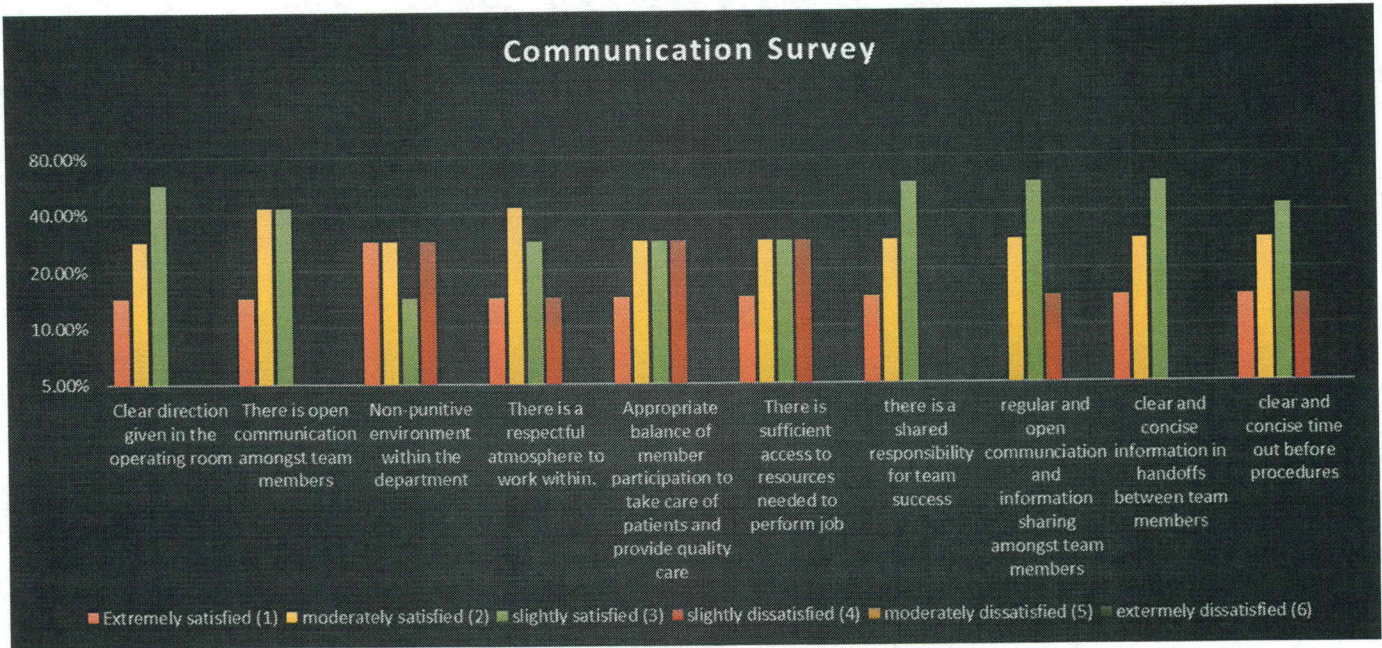
This includes direction from the surgeon, who is considered the "leader" of the case, who sets the tone of the surgery, the charge nurse, and director for staff assignments for cases.

In relation to open communication, 42.86% participants related were moderately satisfied, and 52.86% were slightly satisfied. Most felt that they could speak openly and honestly with their colleagues without feeling of repercussion, if communication was respectful and distinct. Information sharing amongst members was slightly satisfactory at 57.14%. Managers had mixed reactions for a non-punitive environment, 28.57% extremely satisfied to moderately dissatisfied, while 42.86% convey a moderately satisfied reaction to having respectful atmosphere in which to work.

Considering a working environment in which engagement is respectful amongst staff, 42.86% said they were moderately satisfied. Management stated that there was diverse reaction in appropriate balance of member participation in care of patients, 28.57% from moderately to slightly dis-satisfied. On the other hand, 57.14% thought that there is a shared responsibility of team success within perioperative environment.

During hand-offs, management was slightly satisfied at 57.14% in which information was clear and succinct between team members. However, during time out, only 42.86% were slightly satisfied at the information exchange, suggesting a lack of efficient communication within this time frame.

Table 3.

Communication Survey

Discussion

Successful assessment of the two key areas of communication, time out and hand off, produced results which can be utilized to improve the perioperative process and improve quality outcomes for patients. There were no barriers to success of implementation of the project as all staff participated in the process, with approval and support from management. There was 77% participation from management on the communication survey as well.

Direct observations captured a diverse range of communication failures in at least twenty-five percent of all subsequent communication events within pre/intra/post-operative settings. It was noted that the types of communication failures produced different results, such as workarounds, delays in process, resource waste, tension within the team, or patient inconvenience.

While at times communication was devoid of relevant information needed for the exchange, information was also inconsistent amongst time-outs and hand-offs. There were clear indications of failure in the communication event utilizing the surgical checklist provided in each operating room. Content exclusions and/or miscommunication failures occurred over 15 times from observation examples in time-out alone, either being inconsistent or inconclusive. Any member of the team, or information excluded necessitates key pieces of the surgery process possibly affecting the success of the procedure. Standardized procedural time-out checklists exist on the wall of every operating room, with pertinent content necessary for this communication exchange.

Survey results primarily showed moderate satisfaction at times with one prominent feature where management was largely dissatisfied 42% of the time. When effective communication lapses due to lack of punitive environment in the operating room, increases in patient events may occur. Staff are afraid to speak with open communication due to response by management or other higher authority for fear of retribution.

By use of the standardized checklist, this ensures proactive communication with a homogeneous process using comprehensive and accurate data distribution. Findings in this study were similar to a study by Lingard et al (2008). Lingard et al (2008) performed observation of 172 procedures, found that use of time-out briefings when using a standardized checklist reduced the number of communication errors by 34% and demonstrated a more streamlined process which errors of utility, decision-making and follow-up actions increased in procedures. It was noted on observation communication failures did occur within the surgery process, yet no failures led to a patient safety event. Findings indicate a small proportion of events resulted in immediate effects to patient outcomes. It was noted that although a communication failure

occurred, 80% of the time another member of the team would pick up on the error, making adjustments to correct.

Similar communication events were noted in a study conducted by Halverson et al (2011). Halverson et al (2011) noted twenty-six communication failures observed in 150 hours of observation. This study produced errors with informed team members on information and equipment related errors compromising 24% and 36% of all communication errors respectively (Halverson et al., 2011). Assessment of communication errors produce a learning intervention in the form of a post-operative briefing which would advance patient safety outcomes.

Similar patterns of communication failures were seen in Hand-offs as well. Failures most often occurred with content, where information was left out erroneously. There were two events in which the PACU nurse was not present when the patient was brought to the PACU, resulting in a delay in the hand-off process. Standardization of the hand-off process for perioperative staff in the form of a checklist similar to one used in the operating room for time out would lessen the chances of missing pertinent information when the patient is taken to recovery.

Limitations

Possible limitations to the study may include sampling of the OR participants. All members agreed to participate. However, even with the likelihood of low bias, participants may have been assertive in their communication capabilities or curiously attracted in the study itself. Advance knowledge of the study may have produced some bias in communication events as well. Assessment of the findings of this study need to be further researched in other healthcare institutions to ensure reliability of data. This study has produced key areas of need for training initiatives aimed specifically for the kind of surgery team member. This will allow for

transparency and accuracy of information in regard to the role that each member plays in the surgical setting.

Many members of the surgical team work in independence, and habitually work within their confines, may not be "mentally present" when time-out is given, missing critical pieces of information in the process. This barrier to success in communication, could have been a limitation of the study. Lingard et al (2008) noted that anesthesia providers seem disinclined to amend their typical workflow to meet for the surgery briefing. Furthermore, because of such influence, 42% of briefings occurred at the proper time, before induction (Lingard et al., 2008). Furthermore, because of the hierarchical nature of the perioperative unit, communicative nature of teams maybe a little askew. Limitations on communication of some members of the team may have prevented the failure from happening if they felt they could speak without fearing repercussions.

Time constraints as to the length of observation may have produced results which may be a bit skewed than if the study was conducted for a longer period of time as noted in other studies, such as one year in length for a study conducted by Lingard et al (2008).

Implications for Practice

The goal of the assessment is to present evidence of the communication errors occurring within the Perioperative Department, suggest ways to improve via standardization of the process to management. After assessment, leadership can use the data to build an action plan to improve processes currently in place and adopt standardization within time out and hand-offs. The following are suggestions based upon assessment of the perioperative department:

Champion

Management must appoint a champion to help implement the enhancements. This appointed champion, which could be the charge nurse for the operating room, can enforce changes made by management daily. This champion would work in collaboration with management and educators to provide educational sessions which would provide the information needed for change to occur.

Visual Aids for Reference

Large posters of standardized time out information will be placed in every operating room, which can be referenced during this process, to ensure all information including pertinent content is exchanged between staff before procedures.

Education

Individualized education for team members may be necessary to enhance the communication process. As was noted in the communication events, each role in the communication process must be aware of their role and be open for communication exchange to occur. Suggestion to improve education in standardized time outs and hand-offs can be made in order to supply to staff. By this, using results from 4 communication types can be used as examples to add to e-learning modules.

Follow-up Survey

After implementation, a follow-up survey would go out to clinicians, to assess the new workflow, one month, three months, and one year. The survey would rate progress on communication exchange in both time-out and hand-offs, using a Likert scale, from very satisfied to not satisfied. After results are tallied, follow-up meetings would occur with management and staff for improvements in the process as needs change over time.

Standardization of Workflow Processes

Standardization of the processes which occur within the operating room environment will streamline process and increase efficiency, while reducing or preventing error from happening within nursing practice.   Adopting evidence-based practice to ensure a safe environment, and ensuring multi-disciplinary collaboration and interaction is key into changes for the advancement of quality care in healthcare.

Management Support

It is key for management to play a supportive and interactive role in any change needed to enact a process for quality outcomes.   With all members in collaboration, cross-checking, and briefings occurring, the hope is that errors are reduced or prevented in patient outcomes in the operating room environment.   Management must be supportive for change to occur, ensuring a non-punitive environment and encouraging open communication through transparency throughout this process, without the fear of repercussion.

According to Vertino (2014), use of effective communication strategies may reduce stress, promote wellness (to both staff and patient), and improve quality of life.   Looking at effective communication as it relates to interaction between individuals, Maslow's hierarchy of human needs is utilized.   Maslow's theory describes individual variables and the collaboration of internal and external variables that influence communication (Vertino, 2014).   People's feelings of belonging, love, safety, and esteem for oneself and others directly influence how one communicates with another.

Use of effective communication not only in the perioperative setting but in healthcare, organizations will improve staff experience at work in terms of perceptions of oneself, staff members and their organization, but most importantly improvement in the quality of care that patients receive.   Specifically, hand-off communication which is concise, clear and delivered in

standard fashion, lead improved information flow, more effective interventions, and improved safety for the patient. Effective time out communication decreases patient safety events, establishes open communication and decreased length of stay. It is important for healthcare organizations to assess barriers to communication and offer programs to foster team collaboration. Once addressed, clinical outcomes will be increased.

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Use of effective communication not only in the perioperative setting but in healthcare, organizations will improve staff experience at work in terms of perceptions of oneself, staff members and their organization, but most importantly improvement in the quality of care that patients receive. Specifically, hand-off communication which is concise, clear and delivered in standard fashion, lead improved information flow, more effective interventions, and improved safety for the patient. Effective time out communication decreases patient safety events, establishes open communication and decreased length of stay. It is important for healthcare organizations to assess barriers to communication and offer programs to foster team collaboration. Once addressed, clinical outcomes will be increased.

Summary/Conclusion

Effective communication is characterized by teams in the form of trust, cooperation, transparency, and teamwork in an inter-disciplinary fashion. The plan of care must take into account each teams' skills and coalesces a joint effort on behalf of the patient (O'Daniel & Rosenstein, 2008). A large body of literature recommends that due to the intricacy of healthcare, combined with restrictions of human presentation, it is of vital importance that standardized communication tools and creation of an environment where clinicians can express concern without concern for repercussion (O'Daniel & Rosenstein, 2008). Efficiency and improvement of workflow process and standardization of care not only improve outcomes for the patient but create a positive environment for clinicians as well. Healthcare providers assess situations and must make decisions on the information that is presented to them. Structured communication processes reduce the potential for errors and improve quality of care that healthcare organizations give to their patients.

Professional Journal Selection

Journal Scope

The Association of Perioperative Registered Nurses (AORN) Journal material was chosen because the focus is supporting the research, management, clinical, educational and quality management strategies related to nursing roles in caring for the patient in pre/intra/post-operative phases of the surgical environment.   Included content and support for interventional procedures in both inpatient and ambulatory settings. The intended audience is perioperative personnel including surgical technicians, and perioperative nurses. *AORN Journal* is circulated monthly.

Journal Aim

AORN Journal aims to provide evidenced-based practice data and materials to enhance perioperative nurses' care which is delivered to diverse patient populations. The journal aims to provide a well-rounded base to enhance education and skills to enhance patients' quality of care within the perioperative environment and healthcare organizations. See Appendix D for manuscript and Appendix E for the Author Guidelines.

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Appendix A.

Criteria: Observation in the Operating Room***

1. Occasion- Events including timing being "poor"

2. Content-Information missing or inaccurate

3. Purpose-Where issues are not resolved

4. Audience-Key individuals were excluded.

Date:	
Time:	
Personnel Present:	
Type of Communication Failure	**Illustrative Example and Analytical Note**
Occasion	
Content	
Purpose	
Audience	

***(Criteria set by Lingard, Espin, Whyte, Regehr, Baker, Reznik.. et al., 2004)

Appendix B

Effective Communication Survey

Please complete this survey concerning Effective Communication in the OR

There is open communication amongst team members.

- ○ Extremely satisfied
- ○ Moderately satisfied
- ○ Slightly satisfied
- ○ Slightly dissatisfied
- ○ Moderately dissatisfied
- ○ Extremely dissatisfied
- ☐

Clear direction given in the Operating room.

- ○ Extremely satisfied
- ○ Moderately satisfied
- ○ Slightly satisfied
- ○ Slightly dissatisfied
- ○ Moderately dissatisfied
- ○ Extremely dissatisfied
- ☐

Non-punitive environment within the department.

- ○ Extremely satisfied
- ○ Moderately satisfied
- ○ Slightly satisfied
- ○ Slightly dissatisfied
- ○ Moderately dissatisfied
- ○ Extremely dissatisfied

There is a respectful atmosphere to work within.

- ○ Extremely satisfied
- ○ Moderately satisfied
- ○ Slightly satisfied
- ○ Slightly dissatisfied
- ○ Moderately dissatisfied

- ○   Extremely dissatisfied

☐

There is sufficient access to resources needed to perform your job.

- ○   Extremely satisfied
- ○   Moderately satisfied
- ○   Slightly satisfied
- ○   Slightly dissatisfied
- ○   Moderately dissatisfied
- ○   Extremely dissatisfied

☐

Appropriate balance of member participation to take care of patients and provide quality care.

- ○   Extremely satisfied
- ○   Moderately satisfied
- ○   Slightly satisfied
- ○   Slightly dissatisfied
- ○   Moderately dissatisfied
- ○   Extremely dissatisfied

☐

There is a shared responsibility for team success.

- ○   Extremely satisfied
- ○   Moderately satisfied
- ○   Slightly satisfied
- ○   Slightly dissatisfied
- ○   Moderately dissatisfied
- ○   Extremely dissatisfied

☐

Regular and routine communication and information sharing amongst team members.

- ○   Extremely satisfied
- ○   Moderately satisfied
- ○   Slightly satisfied
- ○   Slightly dissatisfied

- ○ Moderately dissatisfied
- ○ Extremely dissatisfied
  ☐

Clear and concise information in handoffs between team members.

- ○ Extremely satisfied
- ○ Moderately satisfied
- ○ Slightly satisfied
- ○ Slightly dissatisfied
- ○ Moderately dissatisfied
- ○ Extremely dissatisfied
  ☐

Concise and clear time-out before procedures.

- ○ Extremely satisfied
- ○ Moderately satisfied
- ○ Slightly satisfied
- ○ Slightly dissatisfied
- ○ Moderately dissatisfied
- ○ Extremely dissatisfied
  ☐

Appendix C. Approval IRB Letter from Berwick Hospital Center

August 6, 2018

The University of Alabama in Huntsville

Attn: Dr. Christine W. Curtis

Provost and Executive Vice President for Academic Affairs

301 Sparkman Drive

Huntsville, AL 35899

Re: Research Project Request — Amy Evans

Dear Dr. Curtis,

This letter is in response to a DNP project request from student, Amy Evans. We

understand Ms. Evans plans to gather data in the form of a survey, given to staff to

collect input on specific areas of communication that are vital to patient care

within the OR, including time out and hand off communication. Other data

gathered in the form of quality data by observation. Information compiled will be

used to develop a process of improving communication within the perioperative

department and that no patient information is needed for this research.

Berwick Hospital Center Company, LLC d/b/a Berwick Hospital Center, LLC is in support of the research project request Ms. Evans has proposed regarding Effective Communication in the Operating Room (OR). Berwick Hospital Center wishes Ms. Evans well on her research project.

Sincerely,

Thomas Neal, CEO

Commonwealth Health Berwick Hospital Center

Appendix D. Manuscript Submission

Effective Communication in the Operating Room

Abstract

Quality medical care depends on effective communication among hospital staff. Ineffective communication can lead to improper diagnosis, delayed care, and inappropriate medical treatment. Miscommunication is a leading cause of serious medical errors. Effective communication skills help shape and sustain strong relationships between both healthcare experts and patients, and their associates. Efforts to improve communication within and among staff are key to improving quality of care within healthcare organizations.

Using an observation and survey approach to data collection, establishment of a quality assessment was performed within the perioperative department to gather information to present to management. Direct observation captured a diverse range of communication events. Each event produced different results including work-arounds, delays in process, resource waste, tension within teams and patient communication events. Recommendations to management were to provide a champion to ensure process change is carried out, change in education, and benchmarking against previously recorded HCAAPs for patient satisfaction and patient events.

Introduction

Poor communication is the single, most recurrent cause of adverse events in healthcare, leading to interruptions in treatment, wrong-site surgery, and medication errors (Lingard et al., 2008). Although delivering quality care and reducing errors is a primary goal in healthcare, effective communication remains an issue. Numerous initiatives to improve excellence of care across medical disciplines and improve communication have been pursued (Lingard et al., 2008).

Ideal communication consists of a strong, distinct, and focused message from a transmitter that is delivered to a focused receiver, both using verbal and non-verbal cues (Osborne-Smith & Kyle, 2017). According to the Joint Commission, effective communication involves a two-way process (both sensitive and open) in which information is exchanged until the message is understood (Osborne-Smith & Kyle, 2017). Successful communication happens when information gathered from patients is successfully used for care by providers (Osborne-Smith & Kyle, 2017).

Potential for patient harm, in all forms, is introduced when the receiver acquires information that is erroneous, piecemeal, misconstrued or not required (Osborne-Smith & Kyle, 2017). Gooch (2016) noted in his study, communication breakdown has contributed to over 1,744 patient deaths in five years and cost 1.7 billion dollars in malpractice suits in the United States. Effective communication influences every segment of healthcare. Gooch (2016) further explains lack of effective communication effects healthcare leadership, teamwork and workplace cultures contributing to workplace violence, sentinel events, excessive spending, and poor patient satisfaction.

Distinct, individual behaviors can contribute to effective communication. An individual's background, including cultural, language, educational, contribute to one's

perception of communication (Gooch, 2016). In a hospital environment, chaos is a typical component of a staff members' day, so effective communication may prove difficult (Gooch, 2016). Pertinent information about the patient can become erroneous or compartmentalized, devoid of effectiveness, particularly in times when care is transferred between caregivers.

Identification of the Problem/Rationale

Patient and staff satisfaction reports from hospital administration indicate need for process improvement in communication in the operating room among staff and patients. Fiscal year 2019, administration desired the development of a plan to improve patient safety and satisfaction rates above 90%. Currently there are policies and education that staff must follow at the clinical agency, which is reviewed with yearly education. Patient safety and policy are followed according to Joint Commission and Department of Health Guidelines, as with any hospital organization.

The education is contained on the e-learning dashboard, which includes modules for conducting various processes involved in the surgical process including SBAR use in hand-off, aseptic techniques, to name a few. Yearly continuing education is mandatory, and responsibility lie on staff to implement appropriate policies and skills (Johnston, Fidelie, Robinson, Killion & Behrens, 2012).

Description of Setting of Project

Berwick Hospital Center is a 90-bed acute care facility in Columbia County, Pennsylvania, which has serviced the Berwick community and surrounding areas for the past 100 years. Berwick is a small town in central Pennsylvania with approximately 10,000 people. The town was founded around the foundry industry and has a diverse population. Berwick Hospital Center offers a wide range of services including emergency, outpatient, in-patient, surgical and

medical care. Berwick Hospital Center is part of the Commonwealth Health Network. The facility includes a 200-bed Long Term Care Facility.

Through partnership with not only other Commonwealth Health hospitals and Jefferson Health System, integrated tele-medicine helps to give patients the specialty care they need at any time during their hospital stay. Within the perioperative department, there are six surgical suites which offer a variety of services including, cardiac, vascular, general, orthopedic, gynecological, gastro-intestinal, and urological specialties, with on-call services, as needed.

Goals/Intended Outcomes

The primary aim for this project was to improve quality of communication, enhance patient safety and improve patient satisfaction within this organization.

Review of Evidence

Accurate information, as stated by Parush et al (2011), is a necessity as operating staff work to accomplish a common goal. To achieve this, all members of the surgery team must perform their roles and tasks with full and continuous comprehension, information sharing, and coordination (Parush et al., 2011). Team situational awareness uses information sharing amongst team members in questioning, coordination, prioritizing and cross-checking using closed-loop communication (Parush et al., 2011).

In their review of 16,000 hospital deaths, communication errors were twice as frequent due to clinical skill. Inclusion of the team situational awareness model increased effective communication within team process and dynamics.

Xiao and Moss (2004) noted of the 2074 communication episodes observed in their study, standardization of the process of moving a patient through the phases of care is necessary to decrease the possibility of adverse events. The successful strategy of such applications relies

on a comprehension of communication patterns amongst healthcare experts (Xiao & Moss, 2004).

Project Methods

Design

To address the clinical question, in the operating room setting at a community general hospital, are methods of communication between multi-disciplinary personnel effective or not effective, a quality improvement project was conducted to systematically review the effectiveness within the perioperative setting. The needs assessment was conducted in two phases: 1) observation of the communication processes related to pre-operative, intraoperative and post-operative units and 2) a review of perioperative management personnel opinion related to the communication processes within these same units.

For phase 1, direct observation of the multi-disciplinary team's communication in the pre-operative unit, in the intraoperative unit during time-out and hand-off and in the post-operative unit. Observations were made for a two-week time-frame. The multidisciplinary team included 10 nurses, six physicians, 3 anesthesiologists, 4 nurse anesthetists and five surgical technicians. Observation of patient movement through the perioperative department from intake to discharge occurred. Using a classification system developed by Lingard et al (2004), observational failures were systematically categorized as errors of occasion, content, audience or purpose (See Figure 1). An expert perioperative clinician performed a thorough assessment to determine communication gaps. Specific processes were targeted such as hand-offs between staff, interviews with patients and anesthesia, physicians, and nursing staff. The time-out process was also considered. Cases were reviewed for right patient, right date of birth, allergies, type of surgery, identification of specific area of body getting surgery, fire risks, personnel

included, and any other pertinent information needed prior to incision for time outs. For hand off communication, documentation was evaluated including situation, background, assessments and recommendation for care for patient in pre-operative phase, and post-operative care. A time line of 2 weeks was set aside for observation data gathering process.

For phase 2, surveys were emailed to perioperative management personnel for input on current communication. (See Figure 2). A timeline of two weeks allowed for completion of surveys and information gathering. Questions for use in the survey were formulated based on concerns from staff in which they felt communication lacked. Staff gave input to which topics they thought would provide insight into development of more effective communication amongst team members. These topics were utilized in survey form for management to rate using the Likert Scale.

Detailed data collection occurred with all staff which deliver care within the OR. Surveys were used to identify specific reasons for the breakdown in communication, which lead to poor care or patient safety risks. Specific barriers identified, comparing to current policy and education in practice at the facility is the purpose of the assessment, which hopefully would lead to success with patient satisfaction and reduction in patient safety events.

Nursing administration surveys were sent to quantitatively rate their knowledge on effective communication questions and anonymously make recommendations for improvement. This investigator-designed survey utilized a Likert-type scale (see Figure 2). Respondents were asked if they agree or disagree with a statement. Each option was given a score, which was utilized to analyze results (Artino & Sullivan, 2013).

Sample/Sampling Technique

The population of interest for this quality assessment project was associated with the project environment. To evaluate the effectiveness of communication between perioperative professionals the following inclusion criteria was used: English speaking nurses, surgeons, anesthesiologists and surgical technicians. No professional was excluded due to age, education, or race. In a second phase of the project, perioperative management personnel were assessed to determine their current view of communication within the perioperative setting.

Procedure for Protection of Patient's Rights

Approval of Berwick Hospital Center was obtained, as well as IRB approval from the University of Alabama Huntsville.

Measurement Techniques Used

Using the framework for analysis as described by Lingard et al (2004), failures of communication were placed into four areas of classification, which considers the type of communication error. These were errors of content, occasion, purpose and audience (Lingard et al., 2004). For each communication error identified, date, time, staff, and details of communication was taken into consideration.

Framework for Analysis

Content

Included the staff present in the communication, and details of the communication error. During the communication process within the two stated areas observed including time out and hand-offs (Lingard et al., 2004). This is often the information contained in the communication error.

Audience

Includes staff engagement and communication exchange (Lingard et al., 2004). This may be any member of the surgery staff, or any person involved in the communication error.

Purpose

The intention of the exchange is the "purpose," of the communication. Purpose can be explicit or implied (Lingard et al., 2004). This means what was the reason behind the exchange of the information.

Occasion

Occasion is the physical situation of the exchange (Lingard et al., 2004). Where did the communication exchange occur, and was there something interfering with the exchange that caused the communication event?

Data Collection Methods

Survey

The second part of the assessment process was the survey of perioperative management and analysis of current communication perception. Using a Likert Scale from 1-6 from Very Satisfied to Very Unsatisfied, 10 questions were formulated around concerns raised by staff appropriate for effective communication and quality care for patients.

Direct Observation

By expert perioperative clinician, of hand-off and time-outs in pre/intra/post-operative phases of care. Using the framework for analysis as described by Lingard et al (2004), failures of communication were placed into four areas of classification, which considers the type of communication error. These were errors of content, occasion, purpose and audience (Lingard et al., 2004). For each communication error identified, date, time, staff, and details of communication were taken into consideration.

Data Analysis Method

Phase 1: Analysis of field notes by expert clinician on 4 areas of classification-content, occasion, purpose and audience were determined using Microsoft Excel 365. Phase 2: Survey of management was analyzed by descriptive analysis using Microsoft Excel 365.

Barriers to Success

Possible limitations to the study may include sampling of the OR participants. All members agreed to participate. However, even with the likelihood of low bias, participants may have been assertive in their communication capabilities or curiously attracted in the study itself. Advance knowledge of the study may have produced some bias in communication events as well. Assessment of the findings of this study need to be further researched in other healthcare institutions to ensure reliability of data. This study has produced key areas of need for training initiatives aimed specifically for the kind of surgery team member. This will allow for transparency and accuracy of information regarding the role each member plays in the surgical setting.

Many members of the surgical team work in independence, and habitually work within their confines, may not be "mentally present" when time-out is given, missing critical pieces of information in the process. This barrier to success in communication, could have been a limitation of the study. Lingard et al (2008) noted that anesthesia providers seem disinclined to amend their typical workflow to meet for the surgery briefing. Furthermore, because of such influence, 42% of briefings occurred at the proper time, before induction (Lingard et al., 2008). Furthermore, because of the hierarchical nature of the perioperative unit, communicative nature of teams maybe a little askew. Limitations on communication of some members of the team

may have prevented the failure from happening if they felt they could speak without fearing repercussions.

Time constraints as to the length of observation may have produced results which may be a bit skewed than if the study was conducted for a longer period of time as noted in other studies, such as one year in length for a study conducted by Lingard et al (2008).

Results

Phase One

An analysis of field notes by the experienced clinician produced 75 communication events during pre/intra/post-operative time periods. 65% of communication events were classified as concise and involved minimal exchange. 30% of information exchanged during hand-offs were in form of situation, background, assessment, and recommendation (SBAR). 42% of time-out communication was brief, concise, and pertinent information was exchanged among operating room team members. Information exchanged in hand-offs also were longer in length; for example, the anesthetist explained a complication from the surgical procedure to the PACU nurse, and relayed information needed to further care, such as additional medications needed due to complications.

Of the 75 communication events, 29 events were considered "errors of communication," related to one of the classification units described by Lingard et al (2004). Errors of communication relayed some method of breakdown in information needed relayed between to staff members. Some of the 29 communication errors fell into one or more categories (See Table 1).

Table 1. Summary of communication events collected and recorded by classification type (Lingard et al., 2004).

	Number	(%)
Communication Events recorded (n)	75	
Communication Events recorded as Errors (% of total events)	29	38.60
Communication Errors by Type (% of total communication errors)*		
Content	18	62.07
Purpose	7	24.14
Audience	15	51.72
Occasion	8	27.59

*Communication mistakes - some events fell into more than one group.

Of the communication failures or errors observed, the largest percentage (62.07%) of events were classified as content. In these instances, pertinent data was either in error or absent from the communication. This occurred mutually in time-out, and in hand-off communication. For example, in one instance, allergies were not reviewed in "time-out." On evaluation of the "audience" category, communication failures happened recurrently (51.72%). For example, in one instance, all staff were not present during the "time-out," at the beginning of the procedure. The Sales Representative for the device company was not in the room.

This accounts for "gaps" in information as well, as the sales representative must be present to hear the pre-operative diagnosis, location of body part, and operation being performed to make sure of correct equipment, before beginning. This is also "content" communication failure. "Occasion" failures happened with less frequency (27.59%). These failures occurred when information was given at suboptimal intervals for it to be suitable to the circumstances. During time-out, no information was given for antibiotics, and the surgeon did not ask the

anesthetist about if it was given until 20 minutes after the surgery had started.   Antibiotics must

be given 30 minutes to one hour prior to surgery incision for maximum effect.

Finally, "purpose" category was inherent in some of the communication events observed

(27.59%).   During hand-off, nurse to nurse communication in the PACU had both wondering

what kind of bandage that incision required in follow-up care if the incision were to have

drainage.   Neither nurse asked the surgeon which kind was needed. Table 2. Provides examples

of communication failures in each category with explanation details (Lingard et al., 2004).

Table 2. Types of Communication Errors with Examples	
Error	**Example of Communication Failure**
Audience	During time-out, surgical technician had to excuse themselves from the room, and was not available for the content delivered by the circulating nurse. (All members must be present when time-out is stated, so that the surgical team has been given all the pertinent information prior to incision. This includes the surgical technician.
Content	In pre-op hand off, Operating room nurse retrieving the patient from the Floor nurse asks if the patient will be coming back to their room. Floor nurse says she isn't sure, but she will call into the operating room to let them know when she finds out. Both operating room nurse, and floor nurse forget to check on where the patient is going after post-op care. This is an example of missing or gaps in information necessary to the successful recovery of the patient post-surgery.
Occasion	During time-out, the sales rep. is not present, and does not hear vital information that is needed. Sales rep comes in after surgery incision and does not have the correct equipment in the room to complete procedure. Creates problem with situation in surgery where they may not have correct equipment due to this error.
Purpose	Surgeon adds during the time-out that he may change the way the procedure is being performed, which makes the nurse unclear in which direction the surgeon wants to proceed.

Phase Two

Data from the communication survey showed current opinion of communication within

management team members.   Of the 10 staff identified as management, there was 77%

participation. (See Table 3). In gauging clear direction specified in the operating room, 57.14%

said they were slightly satisfied, with only one participant being extremely satisfied (14.28%).

This includes direction from the surgeon, who is considered the "leader" of the case, who sets the

tone of the surgery, the charge nurse, and director for staff assignments for cases.

In relation to open communication, 42.86% participants related were moderately

satisfied, and 52.86% were slightly satisfied. Most felt that they could speak openly and

honestly with their colleagues without feeling of repercussion, if communication was respectful

and distinct. Information sharing amongst members was slightly satisfactory at 57.14%.

Managers had mixed reactions for a non-punitive environment, 28.57% extremely satisfied to

moderately dissatisfied, while 42.86% convey a moderately satisfied reaction to having

respectful atmosphere in which to work.

Considering a working environment in which engagement is respectful amongst staff,

42.86% said they were moderately satisfied. Management stated that there was diverse reaction

in appropriate balance of member participation in care of patients, 28.57% from moderately to

slightly dissatisfied. On the other hand, 57.14% thought that there is a shared responsibility of

team success within perioperative environment.

During hand-offs, management was slightly satisfied at 57.14% in which information was

clear and succinct between team members. However, during time out, only 42.86% were slightly

satisfied at the information exchange, suggesting a lack of efficient communication within this

time frame.

Table 3.

Communication Survey

Extremely satisfied (1)	moderately satisfied (2)	slightly satisfied (3)
slightly dissatisfied (4)	moderately dissatisfied (5)	extermely dissatisfied (6)

Discussion

Successful assessment of the two key areas of communication, time out and hand off, produced results which can be utilized to improve the perioperative process and improve quality outcomes for patients. There were no barriers to success of implementation of the project as all staff participated in the process, with approval and support from management. There was 77% participation from management on the communication survey as well.

Direct observations captured a diverse range of communication failures in at least twenty-five percent of all subsequent communication events within pre/intra/post-operative settings. It was noted that the types of communication failures produced different results, such as workarounds, delays in process, resource waste, tension within the team, or patient inconvenience.

While at times communication was devoid of relevant information needed for the exchange, s also inconsistent amongst time-outs and hand-offs. There were clear indications of failure in the communication event utilizing the surgical checklist provided in each operating

room.   Content exclusions and/or miscommunication failures occurred over 15 times from observation examples in time-out alone, either being inconsistent or inconclusive.   Any member of the team, or information excluded necessitates key pieces of the surgery process possibly affecting the success of the procedure.   Standardized procedural time-out checklists exist on the wall of every operating room, with pertinent content necessary for this communication exchange.

Survey results primarily showed moderate satisfaction at times with one prominent feature where management was largely dissatisfied 42% of the time.   When effective communication lapses due to lack of punitive environment in the operating room, increases in patient events may occur.   Staff are afraid to speak with open communication due to response by management or other higher authority for fear of retribution.

Use of the standardized checklist ensures proactive communication with a homogeneous process using comprehensive and accurate data distribution. Findings in this study were similar to a study by Lingard et al (2008).   Lingard et al (2008) performed observation of 172 procedures, found that use of time-out briefings when using a standardized checklist reduced the number of communication errors by 34% and demonstrated a more streamlined process which errors of utility, decision-making and follow-up actions increased in procedures.   It was noted on observation communication failures did occur within the surgery process, yet no failures led to a patient safety event. Findings indicate a small proportion of events resulted in immediate effects to patient outcomes. It was noted that although a communication failure occurred, 80% of the time another member of the team would pick up on the error, making adjustments to correct.

Similar communication events were noted in a study conducted by Halverson et al (2011).   Halverson et al (2011) noted twenty-six communication failures observed in 150 hours

of observation. This study produced errors with informed team members on information and equipment related errors compromising 24% and 36% of all communication errors respectively (Halverson et al., 2011). Assessment of communication errors produce a learning intervention in the form of a post-operative briefing which would advance patient safety outcomes.

Similar patterns of communication failures were seen in Hand-offs as well. Failures most often occurred with content, where information was left out erroneously. There were two events in which the PACU nurse was not present when the patient was brought to the PACU, resulting in a delay in the hand-off process. Standardization of the hand-off process for perioperative staff in the form of a checklist similar to one used in the operating room for time out would lessen the chances of missing pertinent information when the patient is taken to recovery.

Recommendations

The goal of the assessment is to present evidence of the communication errors occurring within the Perioperative Department, suggest ways to improve via standardization of the process to management. After assessment, leadership can use the data to build an action plan to improve processes currently in place and adopt standardization within time out and hand-offs. The following are suggestions based upon assessment of the perioperative department:

Champion

Management must appoint a champion to help implement the enhancements. This appointed champion, which could be the charge nurse for the operating room, can enforce changes made by management daily. This champion would work in collaboration with management and educators to provide educational sessions which would provide the information needed for change to occur.

Visual Aids for Reference

Large posters of standardized time out information will be placed in every operating room, which can be referenced during this process, to ensure all information including pertinent content is exchanged between staff before procedures.

Education

Individualized education for team members may be necessary to enhance the communication process. As was noted in the communication events, each role in the communication process must be aware of their role and be open for communication exchange to occur. Suggestion to improve education in standardized time outs and hand-offs can be made in order to supply to staff. By this, using results from 4 communication types can be used as examples to add to e-learning modules.

Follow-up Survey

After implementation, a follow-up survey would go out to clinicians, to assess the new workflow, one month, three months, and one year. The survey would rate progress on communication exchange in both time-out and hand-offs, using a Likert scale, from very satisfied to not satisfied. After results are tallied, follow-up meetings would occur with management and staff for improvements in the process as needs change over time.

Standardization of Workflow Processes

Standardization of the processes which occur within the operating room environment will streamline process and increase efficiency, while reducing or preventing error from happening within nursing practice. Adopting evidence-based practice to ensure a safe environment, and ensuring multi-disciplinary collaboration and interaction is key into changes for the advancement of quality care in healthcare.

Management Support

It is key for management to play a supportive and interactive role in any change needed to enact a process for quality outcomes. With all members in collaboration, cross-checking, and briefings occurring, the hope is that errors are reduced or prevented in patient outcomes in the operating room environment. Management must be supportive for change to occur, ensuring a non-punitive environment and encouraging open communication through transparency throughout this process, without the fear of repercussion.

Conclusion

Effective communication is characterized by teams in the form of trust, cooperation, transparency, and teamwork in an inter-disciplinary fashion. The plan of care must take into account each teams' skills and coalesces a joint effort on behalf of the patient (O'Daniel & Rosenstein, 2008). A large body of literature recommends that due to the intricacy of healthcare, combined with restrictions of human presentation, it is of vital importance that standardized communication tools and creation of an environment where clinicians can express concern without concern for repercussion (O'Daniel & Rosenstein, 2008).

Efficiency and improvement of workflow process and standardization of care not only improve outcomes for the patient but create a positive environment for clinicians as well. Healthcare providers assess situations and must make decisions on the information that is presented to them. Structured communication processes reduce the potential for errors and improve quality of care that healthcare organizations give to their patients.

Figure 1.

Criteria: Observation in the Operating Room***

- Occasion- Events including timing being "poor"

- Content-Information missing or inaccurate

- Purpose-Where issues are not resolved

- Audience-Key individuals were excluded.

Date:			
Time:			
Personnel Present:			
Type of Communication Failure		**Illustrative Example and Analytical Note**	
	Occasion		
	Content		
	Purpose		
	Audience		

***(Criteria set by Lingard, Espin, Whyte, Regehr, Baker, Reznik.. et al., 2004)

Figure 2

Effective Communication Survey

ease complete this survey concerning Effective Communication in the OR

ere is open communication amongst team members.

    Extremely satisfied

    Moderately satisfied

    Slightly satisfied

    Slightly dissatisfied

    Moderately dissatisfied

    Extremely dissatisfied

ear direction given in the Operating room.

    Extremely satisfied

    Moderately satisfied

    Slightly satisfied

    Slightly dissatisfied

    Moderately dissatisfied

    Extremely dissatisfied

on-punitive environment within the department.

    Extremely satisfied

    Moderately satisfied

    Slightly satisfied

    Slightly dissatisfied

    Moderately dissatisfied

    Extremely dissatisfied

ere is a respectful atmosphere to work within.

    Extremely satisfied

    Moderately satisfied

    Slightly satisfied

    Slightly dissatisfied

    Moderately dissatisfied

- ○ Extremely dissatisfied
☐

There is sufficient access to resources needed to perform your job.

- ○ Extremely satisfied
- ○ Moderately satisfied
- ○ Slightly satisfied
- ○ Slightly dissatisfied
- ○ Moderately dissatisfied
- ○ Extremely dissatisfied
☐

Appropriate balance of member participation to take care of patients and provide quality care.
- ○ Extremely satisfied
- ○ Moderately satisfied
- ○ Slightly satisfied
- ○ Slightly dissatisfied
- ○ Moderately dissatisfied
- ○ Extremely dissatisfied
☐

There is a shared responsibility for team success.
- ○ Extremely satisfied
- ○ Moderately satisfied
- ○ Slightly satisfied
- ○ Slightly dissatisfied
- ○ Moderately dissatisfied
- ○ Extremely dissatisfied
☐

Regular and routine communication and information sharing amongst team members.
- ○ Extremely satisfied
- ○ Moderately satisfied
- ○ Slightly satisfied
- ○ Slightly dissatisfied

- ○ Moderately dissatisfied
- ○ Extremely dissatisfied

☐

Clear and concise information in handoffs between team members.
- ○ Extremely satisfied
- ○ Moderately satisfied
- ○ Slightly satisfied
- ○ Slightly dissatisfied
- ○ Moderately dissatisfied
- ○ Extremely dissatisfied

☐

Concise and clear time-out before procedures.
- ○ Extremely satisfied
- ○ Moderately satisfied
- ○ Slightly satisfied
- ○ Slightly dissatisfied
- ○ Moderately dissatisfied
- ○ Extremely dissatisfied

☐

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Suggested Structure for a Quality Improvement (QI) Manuscript

Original articles reporting quality improvement (QI), quality assurance, or process improvement projects should focus on methods of planning and implementing a specific change process and the resulting outcomes. The results of these projects cannot be generalized beyond the author's institution but may be of interest to *AORN Journal* readers who have similar needs for change at comparable institutions. Reports of projects involving human participants must include a statement explaining that institutional review board approval of the protocol was obtained, including the level of approval (exempt, expedited, or full board review). Quality improvement manuscripts should be written in first person, and should be between 3,000 and 4,000 words in length. Following is the content outline for a QI manuscript:

- Abstract (150 words or less)
- Introduction
- Description of the problem
  - Description of the original process or procedure

  - Rationale for the desired improvement or driving force for change

- Description of the setting of the project
- Statement of goals or intended outcomes

- Brief, focused review of relevant evidence supporting the need for a process change, including guidelines and regulations
- Project methods
  - Description of overall design of the project or approach to improvement

  - Description of sample and sampling technique

  - Procedures for protection of participants' rights, including IRB approval level (if necessary)

  - Description of measurement techniques used, including evidence of measurement reliability

    and validity

  - Data collection methods

  - Data analysis methods

- Implementation, including how barriers to change were overcome and facilitators for change were optimized
- Results or outcomes
- Discussion, including lessons learned
- Conclusions, including ultimate decision about whether or not to implement a permanent change in the process or procedure

Comprehensive manuscripts will be considered for CE articles.