

Transfer of Care in Perioperative Settings: A Descriptive Qualitative Study

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Transfer of care is defined as the exchange of information and professional accountability for patient care between individuals. This article describes a qualitative content analysis (N = 19) using a closed-claims database generated by the American Association of Nurse Anesthetists (AANA) Foundation. The purpose of this study was to explore perioperative transfer-of-care events that contributed to professional malpractice claims to identify general themes, antecedents, and consequences to improve clinical practices and guide future research. A brief summary of the 6 themes that emerged in this study is as follows. (1) Patients should be transferred to an appropriate level of care based on their needs. (2) Production pressure leads to normal-

ization of deviance. (3) Clinicians need to conduct their own patient assessments and health record reviews without relying solely on another clinician's report. (4) Interdisciplinary team communication failure is a leading cause of adverse outcomes. (5) Inadequate patient monitoring and physical assessment after the transfer of care is completed is a leading cause of adverse outcomes. (6) Transfer of care should not occur during high-risk patient care events or during periods of patient hemodynamic or respiratory instability.

Keywords: Anesthesia closed claims, malpractice, perioperative, transfer of care.

According to The Joint Commission, approximately 80% of all medical errors are due to loss of information during transfer of patient care between different healthcare providers.¹ This makes the transfer of care (TOC) one of the most critical events in the hospital setting.² *Transfer of care* is defined as the exchange of information and professional accountability between individuals or teams.³ Past research on TOC in the perioperative setting have focused primarily on the content of the report given during TOC events,^{2,4-9} with an emphasis on the accuracy and completeness of the information.¹⁰ Very little research addresses the contextual factors (antecedents or consequences) of ineffective TOC in perioperative settings.¹¹ This is the first study the authors are aware of involving the qualitative analysis of malpractice claims to evaluate TOC in perioperative settings.

Transfer of care is a dynamic process that involves the following: (1) exchange of relevant information that is tailored to the type of provider who is receiving the patient,⁵ (2) exchange of professional accountability between providers, (3) transfer of information via non-verbal communication (ie, body language, facial expressions, and eye contact),² and (4) high risk because loss of pertinent information during the TOC can lead to adverse or near-miss events.^{2,5} The purpose of this descriptive qualitative study was to explore perioperative TOC events that contributed to malpractice claims to

identify general themes, antecedents, and consequences, to improve TOC practices and guide future research.

This study is a secondary data analysis using a closed-claims database that was created by the American Association of Nurse Anesthetists (AANA) Foundation in Park Ridge, Illinois, in conjunction with Continental National American (CNA) Insurance Companies Inc in Chicago, Illinois.¹² This closed-claims database was generated by expert reviewers (nurse anesthetists) that summarized each anesthesia-related closed claim. This database was created to serve as a repository of rich narrative text that provided data for a robust analysis using qualitative methods to improve perioperative patient outcomes. Although the database was generated by nurse anesthetists, this study's findings are applicable to all perioperative clinicians.

Methods

• **Purposive Sampling.** The closed-claims database created by the AANA Foundation and CNA Insurance consisted of 245 cases.¹² After institutional review board approval, a manual query using purposive sampling¹³ of each of these cases was conducted by the lead researcher (BAW) to identify closed-claims that met inclusion criteria. The lead researcher was involved in developing the closed-claims database and is very familiar with the contents. Each case (N = 245) was read 3 times to verify eligibility for this study.

Purposive sampling is a qualitative approach that attempts to obtain a representative sample where the “average person, situation, or instance of the phenomenon is present.”¹³ When purposive sampling is used, the goal is to find representative cases and not all possible cases.¹³ The inclusion criteria were that the case mentioned TOC events and that the TOC was associated with the adverse event that lead to initiation of the lawsuit. The closed claims identified during the initial evaluation (N = 19) were reevaluated and approved by the entire research team. Qualitative studies ideally have small sample sizes because the goal is to “elucidate the particular” and not to make broad generalizations.¹⁴

A conventional qualitative content analysis approach that was described by Hsieh and Shannon¹⁵ was used to analyze the data. An in-depth description of the database and the methods used for this study is available in the literature.¹² Qualitative content analysis is an iterative process that involves decomposing narrative text into individual pieces of information called codes, comparing and contrasting the codes to form categories, and generating meaningful clusters of information referred to as themes from the categories.

Each team member individually reviewed all 19 closed claims for adverse events that occurred that might have been related to TOC. The team also scrutinized each closed claim for antecedents and consequences of the adverse events. Once the individual analyses were complete, the team members met to discuss their findings and to conduct a qualitative content analysis. The team achieved data saturation toward the end of the analysis, which occurs in qualitative research when no new codes or categories emerge during the analysis.¹⁴ Six themes emerged from the analysis and are discussed in the Results section.

• **Establishing Rigor in Qualitative Research.** Rigor (also known as trustworthiness) in qualitative research is established by identifying and preventing threats to validity and reliability.¹⁶ Several methods identified by Morse¹⁶ and by Creswell and Plano Clark¹⁷ to improve rigor in qualitative research were used in this study. They include peer review/debriefing, development of a coding system, use of “thick descriptions” during the coding process, use of notes to make an audit trail for all research activities, and external audits. The research team met regularly to discuss individual findings to reach group consensus on the final study findings. During the initial group meetings, an official coding system was developed and refined using thick descriptions so that all team members used the same codes. The final study results were sent to the executive leadership of the AANA Foundation for an external audit to confirm our findings.

Results

The following 6 themes emerged from the data:

1. Patients should be transferred to the appropriate level of care/location that is determined after a thorough patient physical and needs assessment.

2. Production pressure leads to normalization of deviance.

3. Healthcare providers need to conduct their own patient assessments and medical chart review during TOC events.

4. Interdisciplinary team communication failure after the TOC is completed is a leading cause of poor patient outcomes.

5. Inadequate patient monitoring and physical assessment after the TOC is completed is a leading cause of poor patient outcomes.

6. Transfer of care should not occur during high-risk patient care events or during periods of patient hemodynamic or respiratory instability.

Table 1 contains excerpts from the closed-claims database that support each theme. Table 2 lists the antecedents associated with these themes. The major consequences were patient death (63% of cases), peripheral nerve damage (16% of cases), hypoxic encephalopathy (11% of cases), and renal failure (5% of cases). All the closed-claims adverse events were related to the loss of information during the TOC.

There were some important lessons learned that did not emerge as themes because they did not consistently appear throughout the closed-claims analysis (Table 3). Important lessons learned included the negative impact that an excessively long work shift has on patient safety because it contributes to the occurrence of adverse events, and the importance of clinicians maintaining their physical assessment skills and therefore not relying solely on physiologic monitors to determine if the patient is hemodynamically stable.

Discussion

There were many descriptions of TOC events found in this study. In addition to lateral and vertical TOC, there were instances of TOC to patient self-care. Patient self-care occurs when the TOC involves the patient assuming his or her own care and often involves discharge from the facility where the patient received healthcare services. The previous literature mentioned did not discuss TOC to patient self-care. An area for suggested future research includes evaluation of TOC tools for TOC to patient self-care because the information needs of the patient can be very different from the needs of a clinician. Additionally, the reliability and validity of TOC tools have not been evaluated for TOC to patient self-care.

In several closed claims, the treatment of acute hemodynamic stability was delayed because the clinicians caring for the patient assumed it was a malfunctioning physiologic monitor. A prompt physical assessment of the patient would have identified signs of hypoperfusion

Theme 1: Patients should be transferred to the appropriate level of care that is determined after a thorough patient physical and needs assessment.

“CRNA requested the surgery be done in the main operating room, but the request was denied and performed on L&D. Patient underwent a hysterectomy, and there was a delay in getting blood products and surgical supplies.”

“However, the patient’s Aldrete score decreased from a 2 to a 1 thereafter, and the patient was discharged with an arousability score of 1. The patient was discharged by the CRNA 63 minutes after the administration of the IM morphine and 47 minutes after the administration of Romazicon [flumazenil]. The policy of the surgery center clearly stated that the patient should be monitored for 2 hours following the administration of the Romazicon.”

Theme 2: Production pressure leads to normalization of deviance and can impair patient safety and outcomes.

“The patient appears to have not had any immediate complications ... fairly rapid discharge home and no documented issues. In hindsight, the discharge may have been a bit too rapid based on the patient’s condition.”

“In an office-based setting, discharge home can be very rapid despite the complexity or depth of the surgery. Perhaps a longer postoperative stay [at least a couple of hours] would have resulted in a detection of complications in this patient.... Patient was discharged too soon, to allow another patient to be recovered.”

“The patient was given Versed [midazolam], 2 mg, and fentanyl, 100 µg, to sedate for a retrobulbar block. No monitors were placed on the patient, and no supplemental oxygen was administered. The only charting was the medication dosages of the sedation and local anesthetics given.... The patient was found by a CRNA at 10:29, when [the anesthetist] came to pick the patient up for surgery. The patient was unresponsive and not breathing.... This CRNA believes nothing was done wrong.” [Patient was left unmonitored so other patients could be evaluated.]

Theme 3: Healthcare providers need to conduct their own patient assessments and health information record review during the transfer of care without relying solely on another provider’s reported findings.

“If either anesthesia provider had read the chart, then the pulmonary hypertension would have been discovered.”

“In my opinion, the CRNA did conduct a thorough preanesthetic assessment. He apparently relied on the

assessment provided by the [anesthesiologist, which is not inappropriate]; however, he did not further investigate the patient’s comorbidities or evaluate if there were comorbidities that were not mentioned by the patient.” [The expert reviewers believed the CRNA met the standard of care for a preanesthetic assessment but could have been more thorough to prevent an adverse event.]

Theme 4: Interdisciplinary team communication failure after the TOC is completed is a leading cause of poor patient outcomes.

“Within a couple of minutes of being transferred to the PACU from the OR, the patient is noted by the recovery room nurse to have a zero [Aldrete] score for “level of consciousness” and to stay that way for the next half hour or more. It was also documented that the patient was brought to the PACU with an oral airway in place.” [Nurse in PACU did not identify respiratory distress or relay patient’s loss of consciousness to other team members.]

Theme 5: Inadequate patient monitoring and physical assessment after the TOC is completed is a leading cause of poor patient outcomes.

“CRNA and [anesthesiologist] ‘signed off’ that patient was ready for general anesthesia. The CRNA scheduled to the case went to lunch as the patient was being taken into the OR. A relief CRNA performed the induction at approximately 12:15. Before induction, it was reported the patient vomited.”

“From what I have regarding the timing of this event, I think that the extravasation of the IJ was after the CRNA was relieved. I think the IJ was correctly placed and was functioning up to the time the CRNA was relieved.”

Theme 6: Transfer of care should not occur during high-risk patient care events or during periods of patient hemodynamic or respiratory instability.

“The relief CRNA may not have received an accurate report from the initial CRNA. The relief CRNA could have proceeded with induction thinking this case was not more than a simple ventral hernia repair.” [Case involved transfer of care immediately before induction of anesthesia.]

“The CRNA called the anesthesiologist into the room. The ETT was suctioned, and bilelike fluid was removed from the ETT. The initial CRNA returned from lunch at 12:35, while a bronchoscopy was being performed.”

Table 1. Statement Excerpts That Support Each Theme

Abbreviations: CRNA, Certified Registered Nurse Anesthetist; ETT, endotracheal tube; IM, intramuscular; L&D, labor and delivery unit; OR, operating room; PACU, postanesthesia care unit. (Source: AANA Foundation closed-claims database.)

and hemodynamic instability (ie, assess the patient and not the physiologic monitors). Clinicians must maintain their hands-on patient assessment skills to facilitate rapid intervention in patients with hemodynamic deterioration.

Although only one individual might be continuously present to physically provide and coordinate patient care, patient care is never limited to a single person. Healthcare organizations are complex adaptive systems

that incorporate diverse independent agents that have nonlinear interactions.¹⁸ Adverse events related to TOC failures must be evaluated from a team failure perspective, not an individual’s failure.

• **Theme 1: Appropriate Level of Care.** The first theme that emerged from this study is that patients should be transferred to the appropriate level of care that is determined after a thorough patient physical and needs assess-

1. Failure of the receiving healthcare provider to read the patient's medical record.
2. Failure of the receiving healthcare provider to perform a complete and timely physical assessment of the patient.
3. Failure to communicate patient deterioration or pertinent health history to other team members.
4. Transfer of patient care to an inappropriate location (eg, transferring a hemodynamically unstable patient to the postoperative care unit instead of an intensive care unit).
5. Transfer of patient care to a healthcare provider who is not appropriately trained to care for the patient.

Table 2. Antecedents of Poor Patient-Related Outcomes During Transfer of Care Events^a

^aThese are the precipitating factors identified by the researchers that lead to the adverse patient outcomes.

ment. Types of inappropriate levels of care include unsuitable surgical locations that are not equipped to handle potential complications, and transferring the patient to a location where he or she does not receive the appropriate degree of physiologic monitoring and clinical assessment that is warranted by the patient's physical status and potential for postoperative complications. Determining the appropriate level of care involves evaluating the suitability of the physical environment and available human and capital resources to properly provide healthcare based on an individual patient's needs.

The patient's surgery or procedure should be performed in a location that is best prepared to manage any untoward complications. For example, a patient who is actively hemorrhaging after cesarean delivery must be transferred to an operating room that has the necessary equipment and blood for transfusion readily available. It would not be appropriate to attempt to control bleeding in a labor and delivery suite that has limited operating room resources if there is a surgical suite available. The best physical location of the patient should be determined by the availability of supplies for treating the most likely complications, necessary physiologic monitoring, and appropriate staffing of personnel.¹⁹ It is not appropriate to choose a surgical or anesthesia recovery location based solely on the normal routine of the organization or the personal preferences of the surgeon or anesthesia provider. Additionally, appropriate interdisciplinary team members must have access to the patient and maintain good communication to effectively coordinate patient care.²⁰

For example, a patient with severe obstructive sleep apnea who undergoes a procedure with known severe postoperative pain must be transferred to a location where the patient's pain can be treated while the patient is continuously being assessed for respiratory complications—not discharged home to self-care. Sometimes the appropriate level of care includes a transfer to an intensive care unit or outside facility that has advanced re-

1. Healthcare providers must assess the patient, not the monitors.
2. The quality of the information relayed during transfer of care depends on the physical assessment skills and documentation of the previous healthcare provider.
3. Patient care should not be transferred to a healthcare provider whose competence is questionable.
4. Fatigue associated with excessively long work shift can impair transfer of care events.
5. One underperforming or incompetent team member can make other team members appear incompetent.

Table 3. Lessons Learned From the Closed-Claims Study^a

^aThese lessons learned were identified as important by the researchers because of their potential impact on patient safety but did not occur consistently enough during the thematic analysis to emerge as themes.

sources. Failure to transfer the patient to the appropriate level of care can result in death or permanent disability.

• **Theme 2: Production Pressure Leads to Normalization of Deviance.** Production pressure leads to normalization of deviance, which can impair patient safety and outcomes. Production pressure has been associated with dangerous practices of medication administration in the perioperative setting.²¹ This theme is highly related to themes 3, 4, and 5 because production pressure is one of the contributing factors in those themes. *Production pressure* can be defined as placing an emphasis on the quantity of healthcare services provided over the quality, for the purpose of increasing revenue.²² Examples of production pressure identified in this study include the following: (1) quickly transferring patients from the operating room to the postanesthesia care unit (PACU) to increase operating room utilization rates, (2) discharging patients home for self-care after an office-based procedure or same-day surgery to allow more patients to be admitted to the PACU, (3) quickly processing patients in the preoperative anesthesia area to increase the number of surgeries performed in a shorter timeframe, and (4) anesthesia personnel transferring an unstable patient to the PACU without stabilizing the patient before leaving the operating room because the anesthesia provider needs to start another surgical case.

Normalization of deviance occurs when an unacceptable practice or behavior becomes acceptable over time at a specific location.²³ Normalization of deviance may become part of an organization's culture and is acceptable at that location, but the behavior does not meet national standards or guidelines for clinical practice. Normalization of deviance develops over time as inappropriate actions are taken without immediate repercussions.²³ An example of normalization of deviance is a facility that allows food and beverages inside the operating room because there is no extra staff to provide work breaks. Most of the examples of normalization of

deviance identified in this study include (1) TOC to an inappropriate level of care based on the patient's physiologic status, (2) lack of healthcare provider vigilance in assessing and monitoring the patient, and (3) allowing lateral or vertical TOC to occur during high-risk patient care events (eg, anesthesia induction/emergence, during a patient's cardiopulmonary arrest).

Each episode of production pressure identified in this study was associated with some type of normalization of deviance. Production pressure results in healthcare providers focusing on productivity and efficiency at the expense of vigilance and patient safety.²⁴ It has been well documented that production pressure is a major contributing factor in the occurrence of preventable adverse events in anesthesia settings.²² The use of pre-induction anesthesia time-outs, surgical time-outs, and perioperative checklists have been shown to help reduce the impact of production pressure on patient safety^{22,25} because it increases clinicians' vigilance.

• **Theme 3: Patient Assessment and Medical Chart Review Performed by Receiving Clinician.** Healthcare providers must conduct their own patient assessments and health information record review during the TOC period without relying solely on another provider's reported findings. This decrease in vigilance was evidenced by both the clinician who is giving report forgetting to relay important information and the receiving clinician relying solely on the information in the report without performing his or her own patient physical assessment or reviewing the patient's health information record. Communication failure is the major cause of TOC-related adverse events.² The communication failures found during this closed-claims study might have been identified by the receiving healthcare clinician if he or she had reviewed the patient's chart, personally assessed the patient, or been more vigilant in monitoring the patient during the TOC process.

One example of this theme is a case in which the surgeon asked the operating room scheduler to add on a patient for a hernia repair. If any of the clinicians performing a preoperative assessment had fully reviewed the patient's medical record and personally assessed the patient, it would have been identified that the patient was actually supposed to have an emergency bowel resection for repair of an incarcerated hernia and was at extremely high risk of pulmonary aspiration at induction. This patient's medical record stated that the patient had severe abdominal pain and had been vomiting for the last several hours. The physician's notes even mentioned the correct surgery and emergency status.

• **Theme 4: Communication Failures and Poor Patient Assessment.** Interdisciplinary team communication failure after the TOC is completed is a leading cause of poor patient outcomes. As previously discussed, it is already known that communication failure is the leading

cause of TOC-related adverse events. One important finding of this study is that communication among all interdisciplinary team members must be maintained even after the TOC process is completed. Patient care is an interdisciplinary team event²⁶ that requires good communication among all healthcare providers. Some examples of poor interdisciplinary team communication identified in this study include (1) a surgeon not conveying that a procedure is an emergency and the case being delayed because not all team members were aware of the need for urgency and (2) acute changes in the patient's physical status not being communicated in a timely manner to other team members because of a lack of vigilance or delayed patient assessment.

• **Theme 5: Poor Patient Assessment After Transfer of Care Occurs.** The fifth theme is that inadequate patient monitoring and physical assessment after the TOC is completed is a leading cause of poor patient outcomes. Many of the adverse outcomes in this study were related to either delayed patient assessment or lack of vigilance in monitoring the patient. Production pressure is a major contributing factor to both of these. It is important that healthcare organizations recognize the importance of not overemphasizing efficiency and productivity at the expense of patient safety. Also, clinicians need to be reminded that even though complications rarely occur, vigilance should be maintained with monitoring the patient so that they can promptly intervene when complications happen.

• **Theme 6: Transfer of Care During High-Risk Time Periods.** Theme 6 is that TOC should not occur during high-risk patient care events or during periods of patient hemodynamic or respiratory instability. Information is often lost with each TOC event,^{2,4} so during periods of patient instability (or high risk of instability) a TOC can endanger the patient because of failure to relay important information needed to guide patient care. Additionally, clinicians are often distracted from patient monitoring during the TOC process.

For example, one closed claim involved multiple lateral TOC events of nurse anesthetists during a single surgical case in which large volumes of hypotonic irrigation were used. The need to evaluate serum sodium levels was lost during the TOC events, and the patient experienced severe hyponatremia that was not identified until the patient was in the PACU. Some other examples of poor outcomes caused by TOC during high-risk patient care events include (1) a lateral TOC by a nurse anesthetist during surgery resulting in failure to relay to the receiving nurse anesthetist that the patient was very difficult to intubate; (2) a lateral TOC by a nurse anesthetist while the patient experienced new-onset airway obstruction during heavy patient sedation with propofol resulting in a complete airway obstruction, leading to hypoxic encephalopathy immediately following the TOC; and (3)

a vertical TOC of a hemodynamically unstable patient from a nurse anesthetist to a PACU registered nurse resulting in delayed treatment of hypotension. These examples show the importance of trying to minimize TOC adverse events during periods of actual or potential patient hemodynamic instability.

• **Limitations.** There are several limitations of this study. First, a single reviewer initially identified the closed claims to be included in the review, with the entire research team approving those claims before data analysis. It is possible that other relevant closed claims were excluded. However, the robust nature of the data (ie, extensively detailed narrative text) and data saturation during qualitative analysis supports the identification of themes that may inform improved patient care practices. Second, retrospective data analysis is useful for determining associations but cannot prove causation.²⁷ Third, all closed-claims databases are inherently biased because they describe only the cases in which adverse outcomes led to a lawsuit initiation, and the findings are not generalizable to other populations.²⁸ Also, CNA is a single insurance company that covers nurse anesthetists across the United States, but the nurse anesthetists in these closed claims cannot be assumed to be representative of all nurse anesthetists.

Other limitations of closed-claims datasets identified in the anesthesia setting include²⁸⁻³¹: (1) frequency rates of adverse events cannot be calculated; (2) usually closed-claims datasets do not meet statistical assumptions for parametric statistical tests or modeling (primarily random sampling and normality of data); and (3) all closed-claims databases are inherently biased to the specific healthcare providers and patients included in them and cannot be used for broad generalizations. The goal of qualitative research is not generalizability.²⁷

• **Suggestions for Future Clinical Practice and Research.** Most of the current research on TOC events focuses on preventing information loss during the TOC between 2 individual providers, with a primary focus on the tools to standardize the information included in the TOC report. The TOC process needs to incorporate continuous patient assessment. Also, patient care is an interdisciplinary team event with many intragroup and intergroup dynamics, and because of this, future research should incorporate theoretical frameworks focusing on group interactions for creating high-reliability teams. Additionally, studies on TOC in the perioperative setting should expand the focus to include the role of continuous patient assessment, monitoring, and maintaining interdisciplinary team communication.

Braaf et al³² reported that communication failure occurs because essential information was hidden in documents, was inaccurate, or was not verbally relayed during the TOC. Future research needs to address how information technology can be designed and implemented to

better support the information needs of the perioperative interdisciplinary team. For example, clinical decision support tools can be designed to summarize perioperative patient care events for the purpose of improving shared situational awareness of the entire interdisciplinary team. This would allow for the most important information relative to the surgical setting to be quickly retrieved and shared among team members.

Conclusion

This study identified several important findings with clinical implications. First, patients should be transferred to an appropriate level of care that includes a physical location that is suitable for treating potential or known complications in terms of available equipment and adequately trained personnel. The appropriate level of care should not be determined solely by the personal preferences of the patient care team members or an organization's normal routine. Second, healthcare organizations must recognize the role that production pressure can create an unsafe care environment. Efficiency and productivity do not need to be emphasized to the point that clinicians are forced to abbreviate or eliminate necessary patient care activities (eg, patient assessments or reviewing health information records before providing patient care). Third, clinicians need to maintain their physical assessment skills and be able to determine hemodynamic instability without relying solely on the physiologic monitors. Lastly, it is not ideal for TOC to occur during periods of actual or potential patient hemodynamic or respiratory instability because this can greatly contribute to poor patient outcomes.

Most of the literature on TOC discusses the role of communication failure in contributing to adverse patient care events and identifies useful tools and checklists to standardize the TOC process to help prevent loss of information. What this study adds to the body of literature is the importance of the receiving clinicians incorporating their own patient physical assessment and review of health information record during TOC events without relying completely on the information relayed during the TOC. This study also demonstrates the importance of maintaining continuous communication among all interdisciplinary team members because poor team communication may result in impaired patient outcomes. The strength of this study is in the use of qualitative data analysis techniques that provide richer descriptions of adverse events related to TOC than is possible with quantitative research approaches.

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