

ANESTHESIA PROVIDERS' PERCEPTIONS
OF USING A PATIENT HANDOFF TOOL

by

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As members of the DNP Project Committee, we certify that we have read the DNP Project prepared by Adam G. Mack entitled “Anesthesia Providers’ Perceptions of Using a Patient Handoff Tool” and recommend that it be accepted as fulfilling the DNP Project requirement for the Degree of Doctor of Nursing Practice.

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Final approval and acceptance of this DNP Project are contingent upon the candidate’s submission of the final copies of the DNP Project to the Graduate College.

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STATEMENT BY AUTHOR

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SIGNED: Adam Mack

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DEDICATION

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ABSTRACT

Up to 80% of serious medical errors occur due to miscommunication from one provider to another (The Joint Commission, 2012). In order to ensure ongoing safe patient care, it is imperative that anesthesia providers communicate effectively and consistently when transferring patient responsibility to other providers, especially to post-anesthesia care unit (PACU) nurses. Multiple patient transfers occur each day and patients are commonly transferred between multiple providers during the same hospital stay. These opportunities are extremely vulnerable to communication errors. Structured patient handoff checklists or tools increase the consistency of information transferred from anesthesia providers to other providers. The Joint Commission recommended in 2012 that all anesthesia providers utilize a standardized patient handoff checklist to increase and improve the quality of data transferred from anesthesia provider to the PACU nurse. Certified Registered Nurse Anesthetists (CRNA) at a local surgical unit provide the bulk of patient handoffs in this postoperative unit, and currently, there is no mandated use of a standardized handoff checklist. As a result, the CRNAs provide a verbal patient handoff that is unscripted. Verbal patient handoffs differ among providers due to individual provider preference. Without using a standardized handoff checklist, there is a risk of increasing communication errors which increase medical errors and negative patient outcomes.

Salzwedel (et al., 2013), in a study when utilizing a handoff checklist, concluded that critical patient data conveyed during patient handoffs increased by 32.4% to 48.7% (Salzwedel et al., 2013). Tscholl et al. (2015) and McElroy et al. (2015) through surveys, determined that data transferred between anesthesia providers was more structured. Handoff checklists increased PACU nurse satisfaction regarding the overall handoff experience (McElroy et al., 2015). No

studies, to date, were found that understand the perceptions and thoughts of CRNAs regarding the utilization of patient handoff checklists or tools in clinical practice. This Doctor of Nursing Practice (DNP) project assesses the perceptions and thoughts of utilizing standardized handoff checklists among CRNAs. The hope of this study is to better understand CRNA perceptions in order to identify potential barriers or knowledge gaps regarding the benefit of utilizing a standardized patient handoff checklists. Data from this project may be used to structure future quality improvement projects aimed at decreasing communication errors and improve patient outcomes.

The results of this project show the majority of CRNAs (89.5%) surveyed for this project were already familiar with handoff checklists. However, only 26.3% of those same participants agreed they currently use a standardized patient handoff checklist. Of the surveyed participants, only 36.8% were interested in utilizing a standardized patient handoff tool even though nearly 50% agreed that using a handoff checklist would increase the consistency of information transferred from anesthesia provider to nurses. This correlates with the 73.7% of participants who already believe they currently transfer pertinent patient information successfully without utilizing a standardized handoff checklist or tool.

Despite studies reporting improved patient outcomes, decreased medical errors, and the Joint Commission's recommendations to use standardized handoff checklists or tools, the majority of anesthesia providers at this facility do not choose to use handoff checklists. By surveying anesthesia providers' thoughts and perceptions, the researcher attempted to answer why anesthesia providers are not utilizing handoff checklists in their daily routines.

INTRODUCTION

Anesthesia providers transfer responsibility of patient care (Patient Safety Network, [PSNet], 2014) to other care providers multiple times each day. Anesthesia providers often take responsibility for the care of their patients from a nurse in the preoperative setting. Patient responsibility continues throughout the surgical procedure until the patient is transferred to a post-anesthesia care unit (PACU) nurse. The anesthesia provider may also transfer the patient to floor nurses if the patient is to remain in the hospital after the procedure is completed. If the patient is to be discharged home, information and directions are frequently provided to a family member or friend. The transfer of patient responsibility and care is often referred to as patient “handoff”. Handoff is an important and necessary process to maintain continuity of patient care during a patient’s stay in the hospital or other health care center (Saleem, Paulus, Vassiliou, & Parsons, 2015). In summary, several researchers have demonstrated that an effective handoff is essential for maintaining and optimizing patient safety. Utilizing handoff checklists is one way to ensure effective communication during patient handoffs.

Background Knowledge

Direct and effective communication is important in providing safe and reliable care for patients (Greenberg et al., 2007). Communication involves exchanging information and ideas between parties. In the perioperative period, multiple handoffs occur between preoperative nurses, intraoperative circulating nurse, anesthesia providers, surgeons, postoperative recovery nurses, inpatient nurses and inpatient house physicians. Educational preparation, communication skills and level of responsibility differ for each type of health care provider. These differences

and perhaps other variables, such as language barriers and experience, play a significant role in effectively providing patient handoff to each other (Saleem, Paulus, Vassiliou & Parsons, 2015).

At every juncture in the handoff process, information is provided by the person currently responsible for the patient's care to the person who will be taking future responsibility for the patient's care. Regarding inpatients, handoffs usually occur as the patient leaves their hospital room for the preoperative holding area (nurse/transporter-to-nurse handoff), then handoff is given from the preoperative nurse to the operating room (OR) nurse (nurse-to-nurse) as well as to the anesthesia provider (nurse-to-anesthesia provider) and occasionally to the surgeon (nurse-to-surgeon). Intraoperatively, anesthesia providers are occasionally relieved and a replacement anesthesia provider assumes temporary responsibility for the patient (anesthesia provider-to-anesthesia provider). Postoperatively, the OR nurse provides handoff to either the PACU nurse or an inpatient floor nurse and the anesthesia provider also delivers a handoff to the PACU or floor nurse. Multiple handoffs for patients undergoing any surgical procedure range from a few providers to several for a typical inpatient surgical procedure. This patient handoff process is susceptible to many opportunities for discrepancies and miscommunication errors (Craig, Smith, Downen & Yost, 2012).

Miscommunication is a significant concern among anesthesia providers, especially during patient handoff, which can result in sentinel patient events (Saleem, Paulus Vassiliou & Parsons, 2015) and subsequently negative patient outcomes. Sentinel events are defined by the Joint Commission as "a patient safety event that reaches a patient and results in any of the following: death, permanent harm, severe temporary harm and intervention required to sustain life" (The Joint Commission, 2016). Other events are considered sentinel if the events require immediate

investigation and response. The Institute of Medicine (IOM) reported from a study done in 1999 that between 44,000 and 98,000 patient deaths occur each year due to communication errors or due to exclusion of important and relevant patient data (IOM; Kohn, Corrigan, & Donaldson, 2000). In 2009, the Joint Commission began focusing on reducing patient handoff errors (The Joint Commission Center for Transforming Healthcare, 2009). Handoff procedures were reviewed to identify root causes that produce barriers in providing effective handoff.

The Joint Commission Center for Transforming Healthcare released a new targeted solutions tool in 2012 for handoff communications. The tool was designed to assist and direct healthcare organizations in preventing errors in patient data during the transfer of important data (The Joint Commission, 2012). The Joint Commission also stated up to 80% of serious medical errors occurred due to miscommunication from one provider to another. Medical errors are regarded as avoidable failures in the delivery of care (Starmer et al., 2015). Recent research suggests medical errors are now the third leading cause of death, after heart disease and cancer (Makary & Daniel, 2016). Delays in treatment, unnecessary treatment, increased length of stay in the hospital and increased costs are also associated with miscommunication during handoffs. However, despite the importance of completing handoffs accurately, communication failures continue to occur (Saleem, Paulus Vassiliou & Parsons, 2015). The Joint Commission recommends that all care organizations use the handoff tool (The Joint Commission, 2012).

Starmer et al. (2015), found that by implementing a patient handoff checklist medical error rates were reduced by 23% after the implementation period to the postimplementation period. The researchers also concluded that preventable adverse patient events were decreased by 30% during the same period. However, not every patient care facility uses any form of

handoff checklist. The checklist is a tool which aids providers during the handoff process. Handoff checklists have shown to improve safety, reduce costs and prevent readmissions (Richter, 2016). There are multiple checklists available to download from the internet, including the tool from The Joint Commission. Despite evidence demonstrating the usefulness of handoff tools and the reduction of medical errors, none of the hospitals in my clinical practicum have utilized any form of handoff checklist or protocol to date. The lack of handoff checklist use by providers could be due knowledge gaps, feasibility or usability concerns.

Local Problem

There potentially existed an underutilization of a handoff checklists by anesthesia providers in their daily practice when communicating with PACU nurses in a local Phoenix hospital. Several factors make the use of a handoff checklist necessary for patient safety: 1) pressure to complete one surgical case and begin the next one in the shortest amount of time possible, and 2) an increase in the number of cases each day. These realities provide multiple opportunities to experience handoff miscommunication. In addition to the statistics reported by the Joint Commission, researchers have explored nurses perceptions of receiving handoffs (Gu, Andersen, Madsen, Itoh, & Siemsen, 2012; McElroy et al., 2015) as well as previous studies regarding patients' perceptions (McMurray, Chaboyer, Wallis, Johnson & Gehrke, 2011) of being involved in handoffs. However, research regarding the perceptions of CRNAs (certified registered nurse anesthetists) concerning the benefits of using a dedicated patient handoff tool or checklist has not been identified through the literature. Surveying CRNAs perceptions, regarding the utilization of a handoff checklist, could identify barriers to utilization of a handoff

checklist and protocols, and potentially lead to increased utilization of checklists, which ultimately have been shown to decrease significant critical patient medical errors.

Purpose

The purpose of this DNP (Doctoral of Nursing Practice) project is to explore the perceptions of CRNAs regarding the use of handoff checklists in the post anesthesia care unit at a local Phoenix area hospital. Specific aims include: 1) Assess the self-perception of the CRNAs own effectiveness of providing handoff to others, especially in regards to PACU nurses receiving the handoff, with or without a handoff checklist, 2) Assessing the perception of CRNAs regarding why they may or may not be utilizing patient handoff tools, and 3) CRNAs' perceptions of support/policies from their immediate chiefs/superiors and/or other upper management personnel in utilizing handoff checklists. As stated previously, research has been conducted on nurses' perceptions and awareness, but to date, few similar studies could be found for anesthesia providers and none for examining the utilization of handoff checklists by CRNAs (McElroy et al., 2015).

Through direct observations in the clinical setting of no utilization of handoff checklists, I identified the need to assess the perceptions of CRNAs regarding using a structured handoff communication tool. The goal of this project was to collect and evaluate data regarding perceptions, knowledge, and utilization of handoff checklists by the CRNAs at a local Phoenix hospital. A summary of the results was reviewed with the anesthesia team leaders and the CRNAs (stakeholders).

Study Question

How do the perceptions and knowledge of CRNAs affect the utilization of a standardized patient handoff checklist in the post anesthesia care unit?

FRAMEWORK & SYNTHESIS OF EVIDENCE

Theoretical Framework

The Theory of Reasoned Action (TRA) was utilized to guide this DNP project. TRA was developed in the 1960s by Martin Fishbein and subsequently expounded upon by Fishbein and Icek Ajzen (Fishbein & Ajzen, 1975). TRA has been useful in illuminating and predicting behaviors related to people's perceptions, beliefs, and attitudes (Lezin, n.d.). The purpose of this proposal is to explore the perceptions, beliefs, and attitudes regarding the use of a patient handoff checklist in the PACU by anesthesia providers. By exploring these topics and utilizing this model, it is hoped that more understanding, regarding what barriers exist, if any, will be gained and used to overcome any existing and future barriers to utilizing the patient handoff checklist.

The Theory of Reasoned Action places emphasis on a person's intentions, thoughts, beliefs and attitudes in directing their behavior (Fishbein & Ajzen, 1975; Lezin, n.d.). Fishbein & Ajzen (1975) state that human behavior is regulated willingly by each individual person. That is to say, actions are a result of one's willingness to make or complete an action. This is often called volition control and it is assumed that human behavior is generally under the voluntary control of each individual. What motivates the action is what TRA models aim to isolate and understand. Behavior intent is one of the most important concepts of TRA (Fishbein & Ajzen, 1975). Many patient handoff checklists exist to aid in the successful safe transfer of patient responsibility and data to others. However, as previously noted, institutions were not witnessed

to be utilizing such tools or checklist protocols. TRA theory identifies that attitudes, beliefs or perceptions exist to persuade the anesthesia provider to willfully or not willfully decide not to use any of the various proven handoff checklist tools. Influence can come from within, due to past personal experiences, or from external sources (inputs). By using the TRA model, the mental triggers that influence decision-making and subsequent actions were explored for this DNP project (see Appendix B.).

Concepts

According to Fishbein & Ajzen (1975), the behavioral intent is the key component of the TRA. Intentions are influenced by a person's attitude regarding the probability that the expected behavior will have the expected outcome utilizing subjective analysis of the risks and benefits of completing an action to produce an outcome. Motivation factors have the ability to influence a specific behavior where the stronger the intention, the higher probability that the desired behavior will be achieved. In this way, behaviors ought to correlate with whether or not the person actually does the desired behavior which, in turn, results in the desired outcome. Intentions must correlate with behaviors (Fishbein & Ajzen, 1975; Lezin, n.d.).

Understanding TRA for use with this proposal is important. Someone who intends on completing a certain action may or may not actually complete that action. Two important concepts of TRA which help to understand behavioral intent are 1) Attitudes towards specific actions and 2) Subjective norms regarding actions (Fishbein & Ajzen, 1975; Lezin, n.d.).

Attitudes are a mental state involving one's beliefs, feelings, thoughts, and influences that affect how a person acts in certain situations. They are a function of a person's thoughts and beliefs about the actual behavior and also regarding the person's beliefs about what the intended

outcome will be (Glanz, Rimer, & Viswanath, 2008). For example, a person's beliefs about the dangers of using smoking tobacco are compared to the person's evaluations of the dangers of using tobacco. This can also be thought of as the degree of the satisfactory or unsatisfactory evaluation of the behavior of interest. Anesthesia providers come from many different educational backgrounds and clinical experiences. These variables contribute to shaping each providers' perspectives and attitudes. It is hopeful that common attitudes will surface through completing this project.

Subjective norms are an individual's perception of outside perceptions such as social norms or cultural norms from his or her peers, family, friends or co-workers regarding the behavior in question (Glanz, Rimer, & Viswanath, 2008). In other words, this refers to acquired beliefs and whether or not others approve or disapprove of the person's behavior. As a result, a person may weigh if others that they hold in high regards have a differing belief system versus their own belief system, and which one will have a stronger effect on the person completing the action. A providers' beliefs may be challenged by those beliefs of their coworkers, organizational culture or peer beliefs and practices. In my observation and experience, anesthesia providers are known to share their opinions of the "right way" to do things with other anesthesia providers, which might influence the practice of recent graduates.

Evaluating the perceptions of an individual and organizational cultures along with common practices will undoubtedly aid in understanding perceptions that may exist as potential barriers in using postoperative patient handoff checklists. As understanding of participants' perceptions surface, new education and training may be developed in the future to increase the use of handoff checklists.

Synthesis of Evidence

Patient handoff is a critical juncture which takes place many times per day in hospitals around the world. This often short period of communication between patient providers is an opportunity to communicate important data regarding each patient's health and healthcare history. However, errors continue to occur throughout the handoff process (Siddiqui et al., 2012; Starmer et al., 2013). The transfer of patient responsibility between providers (Saleem, Paulus, Vassiliou & Parsons, 2015; Greenberg et al., 2007) typically involves verbal communication and as humans are susceptible to making errors, many deficits in data occur during a patient handoff. Greenberg et al. (2007), reviewed 444 surgical malpractice claims that had communication errors and concluded 38% occurred in the preoperative setting, 30% intraoperatively and 32% postoperatively. Of the communication errors, the majority were verbal errors (92%).

Handoff checklists have been created, tested and implemented in recent years (Boat, Spaeth & Kurth, 2013; Petrovic et al., 2015). However, perhaps not all providers use these checklists on a regular basis. There might be several factors such as anesthesia group resistance, lack of education and/or knowledge by providers, lack of hospital leadership on the subject or other barriers preventing the implementation of such protocols (Agarwala, Nurudeen & Haynes, 2015). Understanding the barriers to implementation and sustained use could potentially help overcome the lack of utilization during patient handoff.

To accomplish this, literature searches, using PubMed, Google and the Cumulative Index of Nursing and Allied Health Literature (CINAHL) databases were utilized. Key terms used to search the databases included: nurse, handoff, handover, sign-out, satisfaction, barrier, anesthesia, anesthesiologists, CRNA, providers, perioperative, postoperative, patient, post anesthesia

care unit, PACU, post-surgical, attitudes, perceptions, thoughts, and feelings. Various combinations of phrases were used in an attempt find relevant results. There were very few results specifically relating to anesthesia providers' perspectives, thoughts, and attitudes towards the routine use of handoff checklists. The search yielded approximately 211 results. Articles were included that related to patient handoff in post-anesthesia units or critical care units. There was a lack of sufficient articles found specific to this project's proposal, which has increased motivation to complete this project. Nine articles that demonstrate the necessity of using handoff checklists and the project's proposal were examined further (see Table 1).

TABLE 1. Syntheses of Evidence

Reference	Research Question/Hypothesis	Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
Breuer, R. K., Taicher, B., Turner, D. A., Cheifetz, I. M., & Rehder, K. J. (2015). Standardizing postoperative PICU handovers improves handover metrics and patient outcomes. <i>Pediatric Critical Care Medicine</i> , 16(3), 256-263 8p. doi:10.1097/PCC.0000000000000343	To improve handover communication and patient outcomes	Prospective cohort study	Sample: Sampling of n= 65 preintervention and n=44 postintervention patient handovers on weekdays, for all patients admitted between the hours of 8 am and 8 pm during a 3-month period. N=33 handovers 1 year after implementation. Setting: Multidisciplinary PICU in a university hospital	Data collection: Preintervention surveys were completed by participants to gauge handover characteristics, perceived/experienced barriers and the current state of handover quality on a 5-point Likert scale. Standardized protocol checklists. The same survey was repeated 1 year after intervention. Handovers were observed by the principal investigator. Data analysis: Data were analyzed using JMP v.7. Wilcoxon rank-sum test was used to compare pre- and post-values for both observational and survey data.	Main results were that errors and omissions were decreased postintervention. Anesthesia handoff data was more thorough. Pain scores 2 hours post-admission were 0.9 vs 2.23 and trended toward statistical significance (0.90 vs 2.23; $p = 0.06$). The majority of respondents rated handoff quality as good.
Krombach, J. W., Edwards, W. A., Marks, J. D., & Radke, O. C. (2015). Checklists and Other Cognitive Aids For Emergency And Routine Anesthesia Care-A Survey on the Perception of Anesthesia Providers From a Large Academic US Institution. <i>Anesthesiology and Pain Medicine</i> , 5(4), e26300. http://doi.org/10.5812/aamp.26300v2	To understand the current stance of anesthesia providers on perioperative checklists as well as potential reasons for pushback.	Questionnaire	Sample: 69% of 312 anesthesia providers (faculty, fellows, residents, including interns and CRNAs) responded. 44% were anesthesiologists, 36% were residents and 19% were CRNAs	Data collection: A web-based survey was developed by departmental checklists focus group. The survey questions were vetted and agreed upon by consensus. A survey link was emailed to all faculty, residents and CRNAs within the Department of Anesthesia at UCSF. Survey period lasted four weeks. Data analysis: Data was downloaded from the host website and analyzed using IBM SPSS Statistics v22. Pearson Chi-Square test was used to account for	Less than 50% of respondents valued the use of routine checklists. Very junior and very experienced providers place significantly higher value on checklists. Less than 33% of providers were concerned about distraction and delay of patient care. A “strong” minority of

Reference	Research Question/Hypothesis	Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
			<p>Setting: All with a full-time position within the Department of Anesthesia at the University of California, San Francisco were surveyed, including Univ. Hospital, San Francisco General, Veterans' Affairs Hospital, Kaiser Permanente and Children's Hospital of Oakland</p>	<p>the difference in years of experience with a binary yes/no input.</p> <p>Likert scales used in the survey were analyzed using the independent samples Kruskal-Wallis-Test.</p>	<p>providers feel uncomfortable using checklists.</p> <p>98% of respondents felt the time-out was important (40%) or very important (58%). One provider felt the time was unnecessary.</p> <p>64% felt they could adequately perform without a checklist.</p> <p>66% of providers with less than 2 years' experience did not feel they could perform in an emergency situation.</p>
<p>McElroy, L. M., Macapagal, K. R., Collins, K. M., Abecassis, M. M., Holl, J. L., Ladner, D. P., & Gordon, E. J. (2015). Clinician perceptions of the operating room to intensive care unit handoffs and implications for patient safety: a qualitative study. <i>American Journal Of Surgery</i>, 210(4), 629-635. doi:10.1016/j.amjsurg.2015.05.008</p>	<p>To describe clinician perceptions of OR-to-ICU handoffs.</p>	<p>Grounded theory</p>	<p>Sample: N=38 in-person interviews in the OR-to-ICU handoff process within the last year (a total of N=45 eligible participants).</p> <p>Setting: Surgical ICU at Northwestern University</p>	<p>Data collection: In-person semistructured cognitive interviews and unstructured critical incident interviews. All interviews were recorded and transcribed verbatim.</p> <p>Eligible participants were emailed (45 total) and could respond if they chose to participate. 38 responded.</p> <p>Data analysis: A professional transcription service analyzed recordings for accuracy.</p>	<p>25 cognitive and 13 critical incident interviews were examined with a total of 25 surgeons, fellows, anesthesiologists, anesthesia residents ICU RNs and surgical residents</p> <p>Themes during handoff that were</p>

Reference	Research Question/Hypothesis	Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
				Thematic analysis was used to identify recurrent themes through repetition of patterns. Themes were compared within in each interview and codes were applied to similar themes. This continued until saturation of themes occurred.	<p>helpful were RNs receiving notice the patient was on their way. Nearly all participants agreed on the importance of participation in handoff by all parties involved and that the ICU RN was central to an effective handoff.</p> <p>Most participants agree handoff checklist offered a consistent avenue to receive correct patient data, but some worried about added workload of such checklists.</p> <p>Limitations include a small sample size and limited to one population of patients.</p>
Nagpal, K., Abboudi, M., Manchanda, C., Vats, A., Sevdalis, N., Bicknell, C., & ... Moorthy, K. (2013). Improving postoperative handover: a prospective observational study. <i>American Journal Of Surgery</i> , 206(4), 494-501 8p. doi:10.1016/j.amjsurg.2013.03.005	To improve postoperative handover through the implementation of a new handover protocol.	Prospective study	Sample: A total of 90 handovers were evaluated by a trained researcher, 50 before and 40 after the	Data collection: The trained researcher observed the handovers using an assessment tool to evaluate the quality of the handover before and after the implementation of the new handover protocol. 20% of the handovers were observed by a	The interrater reliability calculated by Spearman correlation was found to be significant (P = .964, P < .001).

Reference	Research Question/Hypothesis	Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
			<p>introduction of a new handover protocol. Handovers of patients who had undergone major vascular (n = 41) and major gastrointestinal (n = 49) surgical procedures were observed. Operative patients included 55 males and 35 females, with a median age of 64</p> <p>Setting: PACU of an acute teaching hospital.</p>	<p>2nd observer to assess for interrater reliability.</p> <p>Data was rated using Likert scales.</p> <p>Data analysis: Statistical methods included the Mann-Whitney U test for continuous variables, chi-squared test for categorical variables, and Spearman rank correlation to assess relationships using the Statistical Package for Social Sciences version 16.0 software.</p>	<p>After the new handover protocol, there was a significant reduction in the number of information omissions per handover, from 9 to 3 (P < .001). The largest reduction in information omissions per handover was observed for surgical information, which decreased from 4.2 to .8 (P < .001). Information omissions per handover of both patient-specific information 2.6 to 1.3 (P < .001) and anesthetic information fell from 3.4 to 1.5 (P < .001).</p> <p>Nurses' satisfaction improved after using the checklist from a median of 4 to 5 (P < .001, Mann-Whitney test).</p>

Reference	Research Question/Hypothesis	Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
<p>Petrovic, M. A., Aboumatar, H., Baumgartner, W. A., Ulatowski, J. A., Moyer, J., Chang, T. Y., & ... Martinez, E. A. (2012). Pilot implementation of a perioperative protocol to guide operating room-to-intensive care unit patient handoffs. <i>Journal of Cardiothoracic and Vascular Anesthesia</i>, 26(1), 11-16. doi:10.1053/j.jvca.2011.07.009</p>	<p>To evaluate the impact of a standardized handoff process on patient care and provider satisfaction.</p>	<p>Prospective study</p>	<p>Sample: A convenience sample of 30 handoffs preintervention and 30 handoffs postintervention.</p> <p>Setting: 15-bed adult CSICU of a large tertiary care center.</p>	<p>Data collection: Observers were trained and calibrated by one of the investigators. The observer was not part of the clinical or management team. Handoff participants were given a post-handoff survey to complete. Two hours after the handoff, observers collected data about events that occurred after the handoff.</p> <p>Data elements collected included a description of the handoff procedure, environment, duration, type of providers at the bedside, and the information shared during the handoff.</p> <p>Provider satisfaction was assessed using an anonymous 9-item survey based on a 5-point Likert scale.</p> <p>Data analysis: Satisfaction survey responses pre- and post-intervention (n=149, n=137 respectively) were analyzed, and a Cronbach alpha coefficient was calculated.</p>	<p>The presence of all team members simultaneously at the bedside increased from 0% preintervention to 68% postintervention (Fisher exact test: $p < 0.001$).</p> <p>The overall handoff of information significantly increased from 78% to 84% after intervention (Mann-Whitney U test: $p = 0.01$).</p> <p>170 satisfaction surveys in the preintervention period and 138 postintervention periods were completed.</p> <p>Percentage of respondents answering “strongly agree” increased among handoff senders (OR providers) increased significantly in the postintervention</p>

Reference	Research Question/Hypothesis	Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
					period compared with a preintervention period.
<p>Petrovic, M. A., Aboumatar, H., Scholl, A. T., Gill, R. S., Krenzischek, D. A., Camp, M. S., & ... Martinez, E. A. (2015). The perioperative handoff protocol: evaluating impacts on handoff defects and provider satisfaction in adult perianesthesia care units. <i>Journal Of Clinical Anesthesia</i>, 27(2), 111-119 p. doi:10.1016/j.jclinane.2014.09.007</p>	<p>To evaluate a new perioperative handoff protocol in the adult PACU</p>	<p>Prospective, Cross-sectional</p>	<p>Sample: N=103 surgical patients (n=53 pre-intervention, n=50 postintervention)</p> <p>Setting: Perianesthesia care unit in a tertiary care facility serving 55,000 patients annually</p>	<p>Data collection: Data were collected (over 4 weeks) daily by a trained observer who monitored OR-to-PACU handoffs using a standardized observation form. Observers tracked 15 different aspects.</p> <p>Practitioners (anesthesia, surgery & PACU RNs) then answered a 9-question satisfaction survey and rated using a 5-point Likert scale.</p> <p>PACU RNs were questioned 2 hours after handoff regarding a number of clarification calls made to OR staff, technical issues, management issues, and near-miss events.</p> <p>Data analysis: Data were analyzed with the Minitab 15 Statistical Software. Handoff was defined as the time when the patient arrived to when all OR members departed. The Mann-Whitney <i>U</i> test was used for statistical significance and Fisher exact test was used for categorical variables.</p>	<p>103 handoffs were observed in the pre- and postintervention phases. Duration of handoff increased from 9 to 11 minutes in preintervention compared to postintervention cases ($P = .01$).</p> <p>OR providers' participation increased from 21% to 83% postintervention ($P < .01$).</p> <p>The average number of missed patient data from provider to RN decreased from 7.57/handoff to 1.2/handoff ($P < .01$) postintervention.</p> <p>247 total satisfaction surveys were completed. All 9 satisfaction item increased in</p>

Reference	Research Question/Hypothesis	Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
<p>Salzwedel, C., Bartz, H., Kühnelt, I., Appel, D., Haupt, O., Maisch, S., & Schmidt, G. N. (2013). The effect of a checklist on the quality of post-anaesthesia patient handover: a randomized controlled trial. <i>International Journal for Quality in Health Care</i>, 25(2), 176-181 6p. doi:intqhc/mzt009</p>	<p>That a postoperative checklist for handover between anesthesiologist and PACU nurse would increase the amount of information transfer during patient handover in the PACU.</p>	<p>Randomized-controlled study</p>	<p>Sample: Total of 120 handovers, some randomized (n=76, n=80) and some non-randomized (n=40) in 3 phases.</p> <p>Inclusion criteria (patient 18 years or older with an elective surgical intervention).</p> <p>Setting: PACU of the University Hospital Hamburg-Eppendorf. The PACU serves 16 operating suites.</p>	<p>Data collection: Two senior anesthesiology staff defined terms and proposed a checklist that was agreed upon. After the implementation of the checklist, handovers were randomized.</p> <p>Handoffs were videotaped by the same investigator.</p> <p>Data analysis: Videos were analyzed independently by two investigators (C.S. and I.K.). Each investigator provided independent scores of each handoff video.</p> <p>Data were analyzed using Microsoft Excel 2003 and SPSS 11.5. Comparison of the overall items handed over, the Mann-Whitney test was used. The chi-squared test was used to compare differences in percentages between each investigator. Mann-Whitney test was also used to compare the duration of handoff.</p>	<p>scores for all RNs and surgeons and was statistically significant for 5 out the 9 items.</p> <p>120 handovers were analyzed. The percentage of items handed over increased significantly using the checklist (25–75%37.8–70.9%) compared with Group B without the use of the checklist from 32.4% to 48.7% ($P < 0.001$).</p> <p>Instructions about items that should be included in handovers, but without the use of the checklist was not associated with an increase in the number of items handed over (32.4% vs. 24.3% ($P = 0.303$)).</p> <p>Handovers took longer (median of 120.5 seconds vs. 85.5 seconds preintervention) ($P = 0.003$).</p>

Reference	Research Question/Hypothesis	Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
Starmer, A. J., Sectish, T. C., Simon, D. W., Keohane, C., McSweeney, M. E., Chung, E. Y., Yoon, M. S., Lipsitz, S. R., Wassner, A. J., Harper, M. B., & Landrigan, C. P. (2013). Rates of medical errors and preventable adverse events among hospitalized children following implementation of a resident handoff bundle. <i>JAMA: Journal of the American Medical Association</i> , 310(21), 2262-2270 9p. doi:10.1001/jama.2013.281961	To determine whether introduction of a multifaceted handoff program was associated with reduced rates of medical errors and preventable adverse events, fewer omissions of key data in written handoffs, improved verbal handoffs, and changes in resident-physician workflow.	Prospective intervention study	Sample: 1255 patient admissions (n=642 before and n=613 after intervention), with 84 residents (n=42 before and n=42 after) for 3 months before and then 3 months after. Setting: 2 inpatient units at Boston Children's Hospital.	Data collection: Direct observational and survey data were collected from those who provided written informed consent; residents were provided small incentives (cookies, gift cards) for providing data. Data analysis: All analysis was completed using SAS/STAT version 9.2. Pearson χ^2 for dichotomous variables and the Wilcoxon rank sum (2 sample) test for continuous variables. Characteristics of patients were compared using the Cochran Mantel-Haenszel test for dichotomous variables and a stratified Wilcoxon test for continuous variables. Error rates (per 100 admissions) were compared using Poisson regression, with a dichotomous covariate for before vs after the intervention period.	Eighty-four residents 97.7% (20 first-year interns, 22 third-year residents) after the intervention ($P = .88$). Medical errors decreased from 33.8 per 100 admissions (95% CI, 27.3-40.3) to 18.3 per 100 admissions (95% CI, 14.7-21.9; $P < .001$), and preventable adverse events decreased from 3.3 per 100 admissions (95% CI, 1.7-4.8) to 1.5 (95% CI, 0.51-2.4) per 100 admissions ($P = .04$) following the intervention.
Tscholl, D. W., Weiss, M., Kolbe, M., Staender, S., Seifert, B., Landert, D., & ... Noethiger, C. B. (2015). An Anesthesia Preinduction Checklist to Improve Information Exchange, Knowledge of Critical Information, Perception of Safety, and Possibly Perception of Teamwork in Anesthesia Teams. <i>Anesthesia And Analgesia</i> , 121(4), 948-956. doi:10.1213/ANE.0000000000000671	Evaluate whether the APIC complementing the WHO surgical safety checklist is suited to improve outcomes.	Prospective interventional study	Sample: 4 areas (16) ORs used in the implementation. 285 team members, 272 team members in control group. Only inductions of general anesthesia of	Intervention: 285 team members were given the preinduction checklist to use before induction while 272 did not use it. Data collection: iSurvey software for tablets was created. 5 trained observers who were anesthesiologists rated information exchanges and clinical performance during general inductions and	Adherence was 88% after the introduction of the checklist. The target rate of completeness was 90%. Information exchange was 99% of APIC

Reference	Research Question/Hypothesis	Study Design	Sample and Setting	Methods for Data Collection and Data Analysis	Findings
			<p>elective adult cases were included.</p> <p>Setting: 7 operating areas, totaling 34 operating rooms in a university hospital over 131 days</p>	<p>performed surveys post-intubation with team members after the patient was hemodynamically stable. Participants used the tablet to answer the multiple choice survey questions. Participants also rated their perception of safety and teamwork on a scale from 0% to 100%.</p> <p>The observation was started when the last provider arrived in the OR and ended when the last induction drug was given to induce anesthesia.</p> <p>Data analysis: Statistical analysis was performed using Stata 11.2 and GraphPad Prism 6.0 software. The sample size was determined by using 2-group Fisher exact test of equal proportions. The analysis was repeated for 5 team-level outcomes.</p> <p>Univariate and multivariate regression analyses were performed. Four different subgroup analyses were performed as well.</p>	<p>group, 3% for the control group (CG). Knowledge of critical information was 84% for APIC, 49% for CG, Perception of safety was 55% for APIC group and 23% for CG.</p> <p>Limitations included study was not randomized, some cross-contamination occurred between providers in different groups.</p>

Nagpal et al. (2013), Petrovic et al. (2012) and Petrovic et al. (2015) studied the utilization of handoff checklists and the impacts these have during patient handoffs. They studied the senders (operating staff, including surgeons, nurses and anesthesia providers) and receivers (generally unit physicians and nurses) relationships and mannerisms during the transfer of patient information. They analyzed the personal interactions between providers during with patients who are transferring from the operating room to the PACU and from the operating room to critical care units. In both areas of study, these researchers demonstrated an increase in satisfaction from the nurses at a higher rate than the surgeon or anesthesia providers.

Tscholl et al. (2015) and McElroy et al. (2015) used surveys in their studies which demonstrated the data transferred was more organized. Both studies shared similarities in that the majority of participants who used the checklist felt they were beneficial in increasing the completeness of data provided and received during patient handoff experiences. This led to an increase in self-satisfaction regarding the overall handoff experience between operating room providers and nurses assuming responsibility for the patients. The results demonstrated an 88% adherence rate after the introduction of a checklist. Generally, the nurses experienced a markedly higher rate of satisfaction (McElroy et al., 2015).

Critical patient data conveyed from anesthesia provider to the post-anesthesia care unit (PACU) nurse improved from 32.4% to 48.7% utilizing patient handoff checklists in a randomized-control trial (RCT) (Salzwedel et al., 2013). Knowledge from utilizing the checklist was gained by the receiving nurses and operating staff, including surgeon, operating room nurse, and anesthesia providers. However, some limitations in their study included the inability to assure all anesthesia providers were capable of using the checklist in each phase of the

study. Also of interest, no certified nurse anesthetists were included. Certified registered nurse anesthetists were the targets of this DNP project. Another potential limitation of this study was the Hawthorne effect (participants' awareness of the improvement study) accuracy and bias may have been affected. One strength is that this study was a randomized-controlled study (Salzwedel, Bartz, Kühnelt, Appel, Haupt, Maisch, & Schmidt, 2013).

The importance of successfully transitioning to the utilization a handoff checklist is supported in several studies (Nagpal et al., 2013; Salzwedel et al., 2013; Tscholl et al., 2015). Tscholl et al. (2015), found that 88% of participants who responded to a repeat survey after one year still maintained their usage of the checklist. Sustaining the use of a checklist is one of the lingering concerns of checklist implementation projects. Although several surveys have shown an increased rate in participants' satisfaction (mainly from the nursing point of view) (Petrovic et al. 2012; Nagpal et al. 2013), research is scarce in specifically focusing on the perceptions and opinions of anesthesia providers regarding the utilization of a handoff checklist. The gap in knowledge as to what motivates the use of the evidenced-based checklist and what triggers the CRNA to abandon utilizing the checklist needed to be explored further.

METHODS

Design

Elements of both exploratory and descriptive study designs were used for this DNP project in order to describe the perceptions of anesthesia providers in regards to utilizing structured patient handoff checklists as part of a standard protocol. This study used a survey tool to gather demographic, nominal and qualitative data for analysis. Descriptive statistics and theme analysis (Polit & Beck, 2012) were used to describe, summarize and synthesize information

gathered from a survey regarding anesthesia providers' perceptions related to handoff checklists. Nominal type data was used to convert non-quantitative data such as anesthesia providers' opinions and/or perceptions into quantitative data by using a number rating scales on questionnaires (Polit & Beck, 2012).

This approach was appropriate for studying such perceptions and personal insights as descriptive studies can use quantitative and/or qualitative method of analysis (Polit & Beck, 2012). Using descriptive design methods enabled this author to understand perceptions and feelings of this particular group of CRNAs. The data were categorized and summarized to generate analysis of the information gathered (Minichiello, Aroni, Timewell, & Alexander, 1990).

Ethical Considerations

Participants were not forced to participate in the research study. Each participant had the option to choose to volunteer and/or choose to leave the study at any time. Coercion to begin or to remain in the research study did not occur. For this DNP project, I informed the participants of the intended purpose and the potential benefits of their participation and receipt of their completed survey demonstrated their implied consent of their own free will. There was no monetary compensation offered.

The participants in this study were not from a vulnerable population (anesthesia providers). Completing the survey/questionnaire within the desired timeframe was the only obligation. Participants were able to complete the questionnaire online, in private, without any pressure from peers, management or the author. This data collection lessened the stress of providing coerced or hurried responses to questions while in the presence of others.

Confidentiality of participants was protected. Only minimal personal identifiable data was gathered, and the data was secured within the Qualtrics software suite offered through The University of Arizona. Participants could access the survey from the clinical site or at home, thus allowing the participants protection and privacy from peers and survey organizers. Participants were able to complete their questionnaires in a time and place of their choosing throughout the survey period. There was no patient information or data collected or utilized for this DNP project. Lastly, IRB endorsement from The University of Arizona and the College of Nursing was obtained before any data collection occurred.

Setting

This DNP project was conducted in a local metropolitan hospital in Phoenix, Arizona. The hospital utilizes twelve operating suites and completes approximately 12-35 surgical procedures each weekday.

Participants

Any and all CRNAs were the main participants of this project. There are approximately 15-25 anesthesia providers who work in the hospital's surgical department. The goal is to have each anesthesia provider complete the online survey/questionnaire to capture their thoughts, beliefs, and attitudes regarding the utilization of a standardized patient handoff checklist.

Instrument

The questions for this survey were adapted from a similar existing Likert-scale survey used by Dr. Kelly Pond (Pond, 2014) in a handoff implement project where she studied participant satisfaction after implementation of a handoff checklist. Dr. Pond confirmed validity of the survey tool through experts, advanced-practices nurses and professors at The Ohio State

University. Dr. Pond's DNP project, regarding perceptions of anesthesia providers postimplementation, is similar to the purpose of this project. This tool was chosen as it closely related to the author's desire to understand perceptions of CRNAs. The Likert-scale was preferred for the survey as it measures a level of agreement and disagreement and serves to ascribe a quantitative value to qualitative data. The tool also incorporates elements of the Theory of Reasoned Action, which attempts to identify thoughts, beliefs, perceptions and attitudes that encourage or discourage actions by a person. Dr. Pond granted permission to the author via an email communication (See Appendix D.) to use and adapt her survey tool for this project.

The author desired to understand the perceptions of CRNAs of handoff checklists before a handoff tool was implemented in the future. In this way, future handoff checklist implementation strategies may consider the CRNAs perceptions of this study. The current survey tool used for this project is included in Appendix A. The online survey (See Appendix A) was constructed containing 10 three-point Likert-scale questions, which were utilized for collecting data regarding the anesthesia providers' thoughts and perceptions of handoff checklists. In addition, three open-ended questions were used, which allowed participants to describe their thoughts, feelings, and perceptions concerning handoff checklists. This permitted participants the freedom to describe, to the best of their ability, their true feelings and perceptions regarding handoff checklists. The three-point Likert scale questions provided the opportunity to determine if the CRNAs agreed or disagreed with the statements listed regarding their perceptions (Polit & Beck, 2012).

Data Collection

Following IRB (Institutional Review Board) approval, the online survey, created through Qualtrics, was made available electronically for 10 days via The University of Arizona. Participants were notified of the upcoming survey via text messages, verbally and via email. Reminders were emailed twice to participants who had not completed the survey as well as verbally in person as was needed.

Data Analysis

Two-part data analysis was conducted. First, descriptive evaluation of the quantitative survey responses was performed. The descriptive analysis of the responses from the demographic and Likert scale survey questions provided a simple summary of the sample and measures obtained from the data. Second, the data provided by the three open-ended questions were analyzed and content was assessed for general themes and patterns. Themes were used to try and understand the providers' perceptions of utilizing a patient handoff checklist or tool. The responses in their entirety are listed in Appendix B.

Results

Sample Description

The online survey was distributed via email to 22 CRNAs working at a Phoenix metropolitan hospital. The population included full-time salaried CRNAs, locums CRNAs (full-time) and part-time CRNAs who provide anesthesia services at this facility. Each potential participant was emailed a link to the survey and was asked to complete it within seven days. In the end, the survey was open for 10 days in total. Nineteen CRNAs participated in the online survey for an 86% response rate. Table 2 summarizes the years of experience of anesthesia providers.

Table 2. *Sample Description*

CRNA Years of Experience		
0-5 Years	5	26.3%
6-10 Years	9	47.4%
11+ Years	5	26.3%
Total	19	100%

Of the 19 participants, 26.3 % (n=5) had 0-5 years of anesthesia experience, 47.4% (n=9) had 6-10 years of experience and 26.3 % (n=5) had 11 years or greater of anesthesia experience. Overall results grouped by years of experience, participants with 6-10 years of experience and 11+ years of experiences expressed barriers may exist with anesthesia providers who are “seasoned” and that there could be pushback from those with more time working as anesthetists. One participant offered that because seasoned providers have their own standard “routine” of providing patient handoff it may be difficult for them to switch to using “someone else’s... checklist” (See Appendix B). Participants with 0-5 years’ experience (26.3%, n=5) responded that they would be interested in utilizing a standardized handoff checklist more than those participants with more anesthesia experience. These results were somewhat expected, as it is perceived that seasoned or experienced providers may be “set in their ways”. Looking at the group as a whole, please refer to Table 3 for all participant survey results.

Table 3. *Responses of the Anesthesia Providers (CRNAs) at Phoenix Metropolitan Hospital*

<u>Question</u>	<u>Response</u>
Agree	n (%)
Neutral	n (%)
Disagree	n (%)

Q1. I am familiar with the purpose of using a standardized patient handoff checklist.

Agree 17 (89.5%)

Neutral 1 (5.3%)
Disagree 1 (5.3%)

Q2. My current site offers a standardized handoff checklist or tool.

Agree 6 (31.6%)
Neutral 0
Disagree 13 (68.4%)

Q3. My current site mandates that anesthesia providers utilize a handoff checklist.

Agree 5 (26.3%)
Neutral 2 (10.5%)
Disagree 12 (63%)

Q4. My current site mandates that anesthesia providers utilize a handoff checklist, but I do not use the handoff checklist."

Agree 2 (10.5%)
Neutral 2 (10.5%)
Disagree 15 (78.9%)

Q5. I have utilized a standardized patient handoff checklist or tool in the past.

Agree 11 (57.9%)
Neutral 0
Disagree 8 (42.1%)

Q6. I currently use a standardized patient handoff checklist at my clinical site.

Agree 5 (26.3%)
Neutral 1 (5.3%)
Disagree 13 (68.4%)

Q7. I feel by utilizing a standardized patient handoff checklist the consistency of patient information transferred by me to the PACU provider will improve.

Agree 9 (47.4%)
Neutral 7 (36.8%)
Disagree 3 (15.8%)

Q8. I feel I safely transfer pertinent patient information without utilizing a standardized patient handoff checklist or tool.

Agree 14 (73.7%)
Neutral 4 (21.1%)
Disagree 1 (5.3%)

Q9. I am interested in utilizing a standardized patient handoff tool when transferring patient care in the future.

Agree 7 (36.8%)

Neutral	8 (42.1%)
Disagree	4 (21.1%)

Q10. I feel there is little benefit in utilizing a patient handoff checklist or tool.

Agree	7 (36.8%)
Neutral	6 (31.6%)
Disagree	6 (31.6%)

In questions 1 and 6 the majority of CRNAs (89.5%, n=17) were familiar with handoff checklist utilization, however only 26.3% (n=5) of those surveyed currently state they use currently use a standardized patient handoff checklist, while 68.4% (n=13) disagreed. The data from question 9 shows that only 36.8% (n=7) of participants are interested in utilizing a standardized patient handoff tool even though in question 7, 47.4% (n=9) agree that by utilizing a patient handoff checklist the consistency of information transferred from anesthesia provider to PACU RN will improve. This correlates with the fact that in question 8, 73.7% (n=14) already feel they currently successfully transfer pertinent patient information without utilizing a standardized handoff checklist or tool. Question 10 asked if participants feel there is little benefit in utilizing a patient handoff checklist or tool in which 36.8% (n=7) marked they agreed with this statement, while 31.6% (n=6) were neutral, and 31.6% (n=6) disagreed with this statement. Thus, excluding the neutral responses, 36.8% (n=7) felt there is little benefit while 31.6% (n=6) disagreed.

Of the participants surveyed, in question 2, 68.4% (n=13) disagreed that their current site offers a handoff checklist for their use, while 31.6% (n=6) agreed that their site offered a handoff checklist or tool. In question 3 and 4, the CRNAs were asked if their current site offered a handoff checklist, but the anesthesia provider did not use it and 78.9% (n=15) disagreed, while

10.5% (n=2) agreed while 10.5% (n=2) remained neutral. 57.9% (n=1) agreed, in question 5, that they have utilized a standardized handoff checklist in the past, while 42.1% (n=8) disagreed.

Overall, it appears the anesthesia providers' thoughts and perceptions demonstrate they perceive by using a standardized handoff checklist the consistency of the data transferred to the PACU RN will improve, but the majority feel they already transfer pertinent patient data safely without the use of handoff checklist as they currently practice. Please refer to Table 3 for participant all survey results.

Qualitative Data Themes

Participants were also asked three open-ended questions. Themes from participants describing their perceptions regarding utilizing a standardized checklist include the following: 1) They are helpful and should be mandatory; 2) They are unnecessary and create more paperwork; 3) Using a standardized form could be too consuming; 4) Make it part of the regular chart, whether paper or electronic in the future. See Appendix B for a full list of qualitative statements offered by study participants.

DISCUSSION

Clear and effective communication during patient handoff is undoubtedly an important component of providing safe patient care. Patients are vulnerable to various communication errors during time spent in the perioperative setting. The Joint Commission for Transforming Healthcare, as mentioned previously, released an updated targeted solutions tool in 2012 to improve handoff communications (The Joint Commission, 2012) as up to 80% of serious medical errors occurred due to miscommunication from one provider to another. The solution was designed to assist and educate healthcare organizations across the country to better prevent

communication errors in patient data during the transfer of patient responsibility. Even though The Joint Commission began promoting the use of a standardized handoff tool or checklist, but as the data showed, the majority (63.2%) of survey participants indicated their current clinical site does not mandate the use of a handoff checklist.

Recalling the Theory of Reasoned Action model described earlier, behaviors, and subsequently, a person's actions are directed by a person's intentions, perceptions, thoughts, beliefs, and attitudes. In this project, data gathered from the CRNAs surveyed, the majority feel they currently transfer pertinent patient information without utilizing a standardized patient handoff checklist or tool. Thus, this corroborates the fact that many CRNAs in this project currently do not use a handoff checklist, based on components of TRA. One of the major themes leading to potential barriers in utilizing a standardized handoff checklist was based on data that CRNAs perceived an increase in the amount of time it would take to add an additional form or requirement during their daily handoff routines.

The attitudes and perceptions of the key data points may suggest CRNAs do not want to be burdened with additional paperwork, processes or procedures, which is not surprising based on the survey results. Although, 37% of participants are interested in utilizing a standardized patient handoff checklist in the future. Peer pressure and the perceived benefits of utilizing a structured handoff checklist could lead to increased utilization in the future (Fishbein & Ajzen, 1975; Lezin, n.d.).

Three questions were posed to elucidate qualitative statements. The first asked participants to describe their thoughts and opinions on utilizing a standardized handoff checklist. There were 16 responses to this question, in a little less than half perceived that checklists were

not necessary and that they would take up additional time, while nearly two-thirds thought they would open to the idea of utilizing a checklist sometime in the future. The data may suggest that CRNAs' attitudes may shift in the future, thus modifying intentions which ultimately lead to new behaviors and action. Action, in utilizing handoff checklists, supports the goal communicated by The Joint Commission for improving patient safety.

The second question asked respondents to describe any barriers that may exist that prevented them from utilizing a standardized handoff checklist or tool. There were 14 responses to this question. Nearly 60% of respondents perceived that more paperwork and the additional time requirements would be the most common barrier in preventing them using a standardized checklist. Outside influences, as noted in TRA theory, could potentially improve CRNA perceptions, thus leading to increased actions. External influences by a management or anesthesia chiefs, for example, may prove helpful in increasing handoff checklist utilization (Fishbein & Ajzen, 1975; Lezin, n.d.).

The third question asked participants to describe their perceptions of the usefulness of utilizing a standardized handoff checklist. A majority of CRNAs feel the usefulness of using handoff checklist will be accomplished by making it "mandatory", "streamlined" and involve both "anesthesia providers and PACU staff". One respondent replied that they "have plans to institute this year". This corroborates and supports The Joint Commission's position on utilizing handoff checklists in all surgical settings. However, as was somewhat expected, other individuals felt checklist utilization could be difficult with "seasoned providers" to implement. One stated "I don't think [standardized handoff checklists] or their use should increase", and one simply stated they were "unnecessary". Perceptions can be difficult to alter. It is concluded from

the data that time is perceived as an important factor in utilizing a standardized handoff checklist, and most participants who replied were not opposed to utilizing one in the future and that making it a mandatory process would be beneficial in its usefulness.

Understanding the participants' thoughts and perceptions, and applying the data gathered from this project, should be considered in future projects if handoff checklists implementation is attempted. It will be important to understand the current perceptions in order to plan for methods of changing those perceptions if an implementation project is to be attempted.

Limitations

Various limitations surround this DNP project, even though this survey achieved a very respectable 86% response rate from the participants. However, it is worth mentioning some CRNAs also work part time in other facilities and may have other experiences than at this one particular Phoenix metropolitan hospital. There were no physician anesthesiologists included in this survey. This limitation may impact perceptions and thoughts regarding the use of a standardized handoff checklist based on experiences from other clinical locations.

Additional participant demographic data could have been gathered such as age, gender, the level of education, to determine any correlation with the data obtained. Data is only applicable to the participants at the studied clinical site. This evidenced-based project, due to the size and scope of the survey, is not expected to be generalized to other clinical sites, but may potentially serve to encourage further research in additional similar clinical sites. There was a typo in one of the questions, which could have potentially made it difficult to understand, but the response demonstrated an accurate understanding of the question.

In future studies, it is recommended to include additional questions to assess for any previous participant knowledge of the national standards since 2012 requiring implementation of handoff checklists by The Joint Commission. Future studies should also include questions about if the participants utilized paper or electronic anesthesia records for charting. This may also influence perceptions regarding time management concerns that were noted. Lastly, it would be beneficial to survey management to understand if management plays a role in providing any education and training during patient handoffs, and if management is aware of the national standards of utilizing a standardized patient handoff tool as is suggested by The Joint Commission.

CONCLUSION

There were no official projections mentioned in this project from the author as to how the participants were expected to respond to the survey questions. However, the results were not surprising, but alarming. The survey results are what the author, indeed, anticipated to a degree, that the mutual perceptions that additional time would be needed to complete a standardized handoff checklist, would not be welcomed. Also, the perception that adding “another form” to be completed creates more work for the anesthesia provider. The fact that the majority of anesthesia providers surveyed felt they already safely transfer pertinent patient information without utilizing a standardized patient handoff checklist or tool was to not unforeseen. If the opposite was true, it is assumed providers would be seeking to utilize standardized checklist more frequently at the studied clinical site.

This project survey added some valuable information in clarifying the perceptions of some certified registered nurse anesthetists at one local hospital. Nearly all of the providers

surveyed are aware that handoff checklists exist. The majority are not opposed to utilizing a handoff checklist in the future, but more than half are concerned with the perceived additional time it may take to complete the form on each patient as well as completing additional paperwork outside the anesthesia record. There was a significant percentage that felt providers with more years of experience may not embrace the implementation of a checklist into their current handoff routines. The results show perceptions do vary. However, the evidence of this project demonstrates, requiring the utilization of handoff checklists would aide in the future utilization of patient handoff checklist with the majority of participants. Additional patient handoff checklist education provided to CRNAs and hospital management may potentially be recommended if, as one of the participants mentioned, they “have plans to institute this year” at the clinical site studied. Any implementation efforts or projects will not be included in this research project.

Implications for Patient Outcomes and DNP Practice

The American Association of Colleges of Nursing (AACN) describe a position statement regarding Doctoral of Nursing Practice as “any form of nursing intervention that influences health care outcomes for individuals or populations, including the direct care of individual patients, management of care for individuals and populations, administration of nursing and health care organizations, and the development and implementation of health policy” (AACN, 2006). DNP practitioners, including nurse anesthetists, also demonstrate advanced competencies in complex practices and leadership roles, advanced knowledge to improve patient outcomes, increased leadership skills to enhance patient health care delivery and to increase the supply of faculty for future practice instructors.

Doctorally-prepared advanced-practiced nurses play a vital role in promoting new health care initiatives, patient-directed care, and future research to improve patient outcomes. DNP-prepared practitioners are prepared to be tomorrow's leaders today. They advocate for patient safety by promoting and utilizing evidenced-based research into their own practices. As the healthcare landscape continues to change, and patient care delivery systems become more complex, many traditional medical providers will lean on the advanced-practice providers to ensure high-quality patient care and increased access to care. Utilizing postoperative handoff checklists will reduce communication errors between anesthesia provider and PACU nurses. Understanding the anesthesia providers' perceptions of the utilization of handoff checklists will hopefully help aid in successful implementation at this medical facility. This project exemplifies that DNP-prepared practitioners will continue to create quality improvement projects that are designed to improve patient outcomes.

SUMMARY

Clear and precise communication is imperative when providing care to patients. Up to 80% of medical errors are due to verbal communication. Understanding providers' perceptions in regards to the utilization of evidenced-based tools and protocols to improve patient outcomes are essential in improving patient handoffs. The researcher hopes the information learned from this survey will be utilized in future projects to strategically increase the use of patient handoff checklists, which have proven to decrease verbal communication errors and improve patient outcomes.

APPENDIX A
QUESTIONNAIRE

APPENDIX A

A Survey of Anesthesia Providers' Perceptions of Using a Patient Handoff Tool

I am a current Doctorate of Nursing Practice (DNP) student at The University of Arizona College of Nursing. I am conducting a study of anesthesia providers at St. Luke's Medical Center (SLMC) titled, **A Survey of Anesthesia Providers' Perceptions of Using a Patient Handoff Tool**.

This study is under review and awaiting approval by The University of Arizona IRB (will be updated later after IRB approval).

There is an online survey with questions concerning your perceptions and thoughts regarding the use of patient handoff checklists between anesthesia providers and PACU nurses. There are minimal questions about your tenure and work experience. Patient handoff is defined as the transfer of responsibility and care of a patient from one provider to another provider.

The online survey should take less than 10 minutes of your time. All personally identifiable information collected will remain anonymous and confidential.

Completing and submitting the online survey indicates your implied consent to participate in the study. Your participation is voluntary and any refusal to complete the survey will negate your responses.

Patient handoff is a critical time between providers where pertinent, personal and critical data is transferred from one provider to another. The successful or unsuccessful exchange of data between providers directly impacts patient care throughout the patient's stay. Due to multiple handoffs for each patient from the preoperative setting to the postoperative setting accurate data transfer can be susceptible to communication errors.

Your participation is greatly appreciated. Improved understanding of anesthesia providers' perceptions and thoughts will aid in the improved utilization of handoff checklists through answering the survey questions and rating your responses to questions.

Thank you for your participation in this study,

Adam Mack, MS, RN

A sample of the survey is included below, but will be in a digital form built with Qualtrics and this is the initial draft of such questions.

Years of experience (yrs): 0-5 6-10 11+
How long in current job (yrs): 0-5 6-10 11+

Questions	Agree	Neutral	Disagree
1. I am familiar with the purpose of using a standardized patient handoff checklist.	Agree	Neutral	Disagree
2. My current site offers a standardized handoff checklist or tool.	Agree	Neutral	Disagree
3. My current site mandates that anesthesia providers utilize a handoff checklist.	Agree	Neutral	Disagree
4. My current site mandates that anesthesia providers utilize a handoff checklist, but I do not use the handoff checklist.	Agree	Neutral	Disagree
5. I have utilized a standardized patient handoff checklist or tool in the past.	Agree	Neutral	Disagree
6. I currently use a standardized patient handoff checklist at my clinical site.	Agree	Neutral	Disagree
7. I feel by utilizing a standardized patient handoff checklist the consistency of patient information transferred by me to the PACU provider will improve.	Agree	Neutral	Disagree
8. I feel I safely transfer pertinent patient information without utilizing a standardized patient handoff checklist or tool.	Agree	Neutral	Disagree
9. I am interested in utilizing a standardized patient handoff tool when transferring patient care in the future.	Agree	Neutral	Disagree
10. I feel there is little benefit in utilizing a patient handoff checklist or tool.	Agree	Neutral	Disagree

1. In your own words, please describe your thoughts/opinions on utilizing a standardized handoff checklist.
2. In your own words, please describe if any barriers exist that prevent you from utilizing a standardized checklist or tool.
3. In your own words, please describe your perceptions of the usefulness of utilizing a standardized handoff checklist.

APPENDIX B
QUALITATIVE STATEMENTS FROM CRNAs

APPENDIX B

1. In your own words, please describe your thoughts/opinions on utilizing a standardized handoff checklist.

- a. Necessary and should be mandatory.
- b. Interested in trying.
- c. Would be Helpful.
- d. Quick easy consistency
- e. Not necessary
- f. That may be useful in our facility where there are high turnover rates in PACU and inexperienced staff.
- g. It's a valuable tool to communicate pertinent information about your patient so the PACU RN can safely take care of the patient.
- h. I feel that as hospitals/surgery centers utilize EMRs at an increasing number that this checklist should be built into the handoff or patient transfer screen. Increased paperwork gets checked off regardless and usually isn't adding more benefit.
- i. There already exists a standard handoff report, where all pertinent and vital information should be exchanged.
- j. Utilizing a handoff checklist may decrease near miss events by helping the PACU RN to have written information regarding the patient's history and anesthetic course in order to better make informed narcotic, antibiotic, and respiratory actions.
- k. Although a standardized form may help with some information, it would create "robots" who think only of checking boxes and filling in blanks, not painting the entire picture or paying special attention to small details. For example, do arrhythmias occur only with BP drops to certain levels? What was urine output like during periods of hypotension? These are things that won't be targeted by a standardized checklist.
- l. I think it could be valuable.
- m. I don't really feel a standardized checklist would be greatly beneficial. More time consuming than worth it.
- n. I use it in my practice and it helpful.
- o. Unnecessary.
- p. Routine standardized anything gets skipped.

2. In your own words, please describe if any barriers exist that prevent you from utilizing a standardized checklist or tool.

- a. None
- b. More forms
- c. No barriers. Just not used at our facilities yet
- d. None
- e. No barriers
- f. Staff may push back.
- g. Sometimes I get in a hurry to rush off to my next case and omit pertinent info.
- h. Cumbersome extra charting/paperwork. Time constraints.
- i. just personal preference

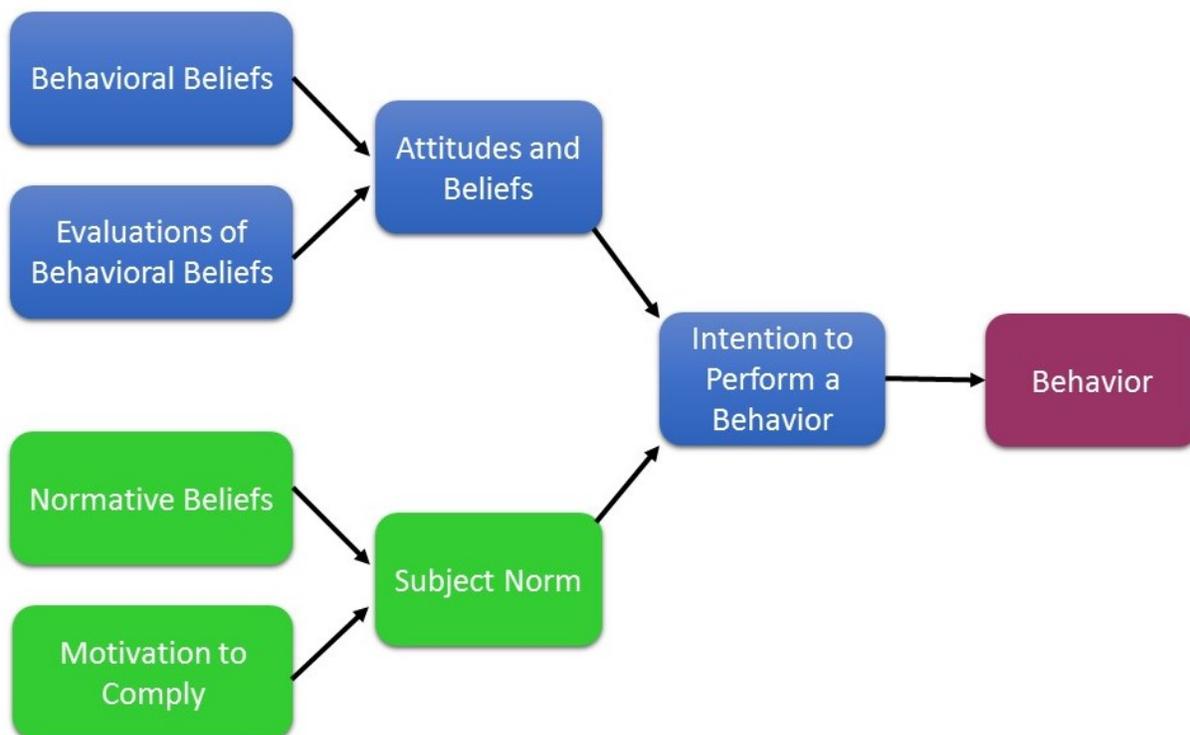
- j. The barrier to prevent providers from utilizing the tool would be time. Personnel is already barraged with paperwork and charting. This would be an additional item to complete.
- k. I'm not opposed to using standard forms, I am opposed to forcing patients to behave within the boundaries that are described on these forms. There are often patient variations, and therefore they fall "outside" the standard form. This then creates "havoc" and inconsistencies.
- l. Too many patient and case variances to adequately create a simple checklist that would apply to all scenarios
- m. Not sure
- n. More unnecessary paperwork. Pacu RNs either don't want pertinent info either. Writing it down won't matter. All info is already on anesthesia preop & record.

3. In your own words, please describe your perceptions of the usefulness of utilizing a standardized handoff checklist.

- a. Make it mandatory.
- b. Make it streamlined.
- c. Would be helpful and have plans to institute this year
- d. Make part of the record
- e. Force documentation
- f. Make it a policy.
- g. Make it simple, concise, easy to utilize and not just "another" sheet of paper charting.
- h. Difficult with seasoned providers that have their own standard handoff routine to switch to someone else's made up checklist
- i. With an EMR the checklist could be built into the last page of the record, as a required form to submit.
- j. I don't like standardized forms and don't think their use should be increased.
- k. By involving anesthesia providers, and PACU staff
- l. Unnecessary

APPENDIX C
THEORY OF REASONED ACTION

APPENDIX C



Theory of Reasoned Action (Adapted from Ajzen & Fishbein, 1980)

APPENDIX D

PERMISSION REQUEST TO ADAPT SURVEY FROM DR POND

APPENDIX D



Adam Mack <adammack@email.arizona.edu>

DNP Project Permission Request to Adapt Survey Questions

Adam Mack <adammack@email.arizona.edu>
To: Adam Mack <adammack@email.arizona.edu>

Thu, Jun 22, 2017 at 11:53 AM

Hi Adam,

Feel free to use the survey. You are so lucky to be a student of Dr. Piotrowski and Dr. Torabi.

Best of luck,

Kelly Pond

*Kelly Pond, DNP, MSN, CRNA
Professor of Instruction
Nurse Anesthesia Program
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MGH 319 (330) 972-5925*

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