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Title of Project:
Risks Of Inaccurate Or Incomplete Preoperative Assessments In Freestanding ASCs

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Abstract

Purpose
The aim of this study was to model risks and weaknesses in preoperative nursing assessments in the freestanding Ambulatory Surgery Centers (ASC) setting.

Scope
Freestanding ASCs conduct over 12 million procedures annually, performing a wide variety of surgical procedures involving anesthesia of all types. Freestanding ASCs are physically separated from inpatient hospitals, limiting access to emergency assistance or specialty consultation. Consequently, preoperative assessments that identify individuals who may be better served in a more intensively resourced environment take on a heightened level of importance.

Methods
Nurses, physicians, and administrators from 11 Joint Commission-accredited ASCs participated in individual Failure Mode and Effects Analyses at their facility. ASC teams and project staff conducted walk-throughs and examined processes for unsafe practices, process barriers, and other weaknesses.

Results
The most frequent and significant risks (failures) in the preoperative nursing assessment process involved (1) medication ordering and administration, (2) medication reconciliation, and (3) application of the Universal Protocol and surgical site marking. Other common risks were related to patient identification and clinical handovers. System wide tools to facilitate safe processes and continuity in communication are needed to improve patient safety in ASCs.

Key Words
Ambulatory Surgery Centers, FMEA, risks, preoperative nursing assessment

Final Report

Scope

Ambulatory Surgery Centers (ASCs) specialize in providing a wide variety of surgical procedures ranging from minimally invasive to complex and involving anesthesia of all types. In addition to performing a diverse set of procedures ASCs serve a wide variety of patients, from infants to the elderly, many with multiple comorbid conditions.

The use of ASCs is ever increasing. In 2007, there were 4,964 Medicare provider ambulatory surgical centers in the United States[1] conducting over 20 million procedures.[2]

The confluence of more centers, conducting more procedures, on more complex patients portends more errors. Many believe that studies of errors in the outpatient setting underestimate the magnitude of the problem[3] and speculate that outpatient settings may be more prone to errors than inpatient settings. Still, few studies have documented the types of errors that may occur in the outpatient surgical setting. The studies that do exist have focused on anesthesia administration or lipoplasty,[4] primarily in hospital-based facilities instead of freestanding facilities.[5-8]

The aim of this study was to model risks and weaknesses in preoperative nursing assessments in the freestanding ASC setting. Freestanding ASCs are defined for the purposes of this study as those that are physically separated from inpatient hospitals, thus limiting access to emergency assistance or specialty consultation if needed. Preoperative assessments, to confirm that the patient is a good candidate for the intended surgery and anesthesia in the scheduled setting[9] or to identify patients who would be better served in a more intensively resourced environment, are critical to providing safe care and preventing patient harm. The preoperative assessment also identifies specific risks associated with the patients' age, physical condition, etc., such as an increased chance of deep vein thrombosis or a potential drug interaction. Failure to conduct or act upon the findings of a preoperative assessment could result in an adverse event, including avoidable perioperative complications, unanticipated transfer to a higher level of care, or even death.

Risks and weaknesses were identified through the use of a popular and effective form of hazard analysis, the failure mode and effects analysis (FMEA). Failure mode and effects analyses provide a group-oriented, structured, and stepwise approach to inventory risks, quantify the effects of risks, and prioritize actions that could prevent or mitigate failures.[10-13] Current literature details the experiences of some individual organizations in evaluating multiple processes, medication management being the most frequently cited.[14-27]

Researchers from The Joint Commission, supported by United Surgical Partners International (USPI) and Battelle Memorial Institute, Pacific Northwest Division (Battelle), conducted the risk analysis component of FMEA on preoperative nursing assessment processes in 11 Joint Commission-accredited USPI ambulatory surgical centers to identify process flaws and weaknesses that in turn will inform prevention strategies.

The research questions in this descriptive study were:

- What are the risks and weaknesses in the preoperative nursing assessment process that could result in patients being inappropriately cleared for surgery in the ambulatory surgical center setting?
- What is the process for communicating the preoperative assessment results throughout patient care transitions and handoffs?

- What triggers the person performing the assessment to consult with a physician about diverting the patient from having the procedure performed in the facility?
- What triggers the person performing the assessment to have the patient cleared by a specialty (e.g., cardiology) prior to being approved for the procedure in the facility?
- What might be missed in the preoperative nursing assessment and why?
- What is the process for resolving disagreements about patient candidacy for surgery?

Methods

Site selection
A survey in preparation for sample selection was conducted to identify variation in preoperative assessments across ASCs. Representatives from 98 USPI ambulatory surgical centers responded to questions pertaining to the conduct of their preoperative assessments. The ASCs were found to vary on only one major dimension, primary physician clearance. Responses showed that nearly two thirds (62%) of the responding surgical centers required clearance from the patient's primary physician prior to surgery, but the other 38% did not. This breakdown was reflected in the sites selected for the study.

Joint Commission staff selected 10 study sites and one pilot site based upon eight criteria: Each site had to:

1. Be freestanding.
2. Be Joint Commission accredited. This ensured that preoperative assessments were done and that the organization was familiar with risk assessment, as these are both Joint Commission standards.
3. Perform orthopedic and pain alleviation procedures onsite. These procedures were used to standardize examples of the process being analyzed.
4. Administer general anesthesia onsite, again helping standardize examples of the process being analyzed.
5. Use both Registered Nurses (RNs) and Licensed Practical Nurses (LPNs) or Licensed Vocational Nurses (LVNs) to conduct assessments, because 99% of responding surgical centers have RNs complete assessments and 22% also use LVNs or LPNs.
6. Demonstrate the commitment of individual ASC leadership to participate in the study.
7. Demonstrate commitment to integrating the FMEA process into existing quality improvement activities.
8. Ensure that the findings would be shared within and throughout the organization.

Ambulatory surgical centers meeting these criteria were divided into two groups, centers that required preoperative clearance by the patient's primary physician and those that did not. Seven sites were selected from the first group and four were chosen from the second. Participating ASCs identified a contact person who was responsible for facilitating communications between the research team and the ASC personnel.

A local ASC that met all criteria and required preoperative clearance was selected as a pilot site to test and refine methods. A local site was selected to allow additional Joint Commission observers to attend. The pilot site followed all the procedures of the study, including attending a web-based instruction session, submitting a preliminary process map, and participating in a 6-hour onsite FMEA with a Joint Commission facilitator. The pilot test ran very smoothly, and the information gathered from the pilot site was included in the results.

Web-based instruction
Project staff conducted a web-based presentation (Webex) prior to the onsite FMEAs to educate ASC staff members about FMEAs, the study, and their role in the process. The Webex was presented on two separate days to accommodate the schedules of the ASCs and staff. Ten of the 11 ASCs, along with the USPI corporate team partner, participated in the Webex presentation. One ASC did not participate due to caseload issues. There was a question, answer, and discussion period at the end of each presentation. A slide presentation was made and revised based on feedback from participants.

During the presentation, the project coordinator instructed each team to develop a simple process map, outlining the preoperative nursing assessment process as it occurs in their facility, in preparation for the onsite FMEA. The process maps were submitted to the project coordinator prior to the onsite visit and used to guide the onsite discussion.

At the conclusion of the onsite FMEA studies, participants were asked to complete a survey to determine, among other things, if they thought the Webex presentation had been useful to help them prepare for the onsite process. Thirty-five of those who responded to the survey had. Of the 35 respondents who had participated in the Webex presentation, 49% (n=17) found the training helpful, 17% (n=6) did not, and 34% (n=12) had no opinion.

Onsite risk analysis component of an FMEA:
Successful implementation of FMEA consists of identifying risks in the system and accurately predicting their effect.[18,19, 28, 29] Implementation includes:

1. Selecting a process for study.
2. Assembling a team involved in the process studied to review the information and make informed recommendations.
3. Organizing information about the process under study using a flow chart or other tool.
4. Identifying places where the process can fail.
5. Determining the potential effect on the patient should the failure occur.
6. Assigning a criticality rating to each of the risks (this step tends to be more qualitative in healthcare than in other high-risk settings[30]).
7. Identifying the specific cause of the problems (root cause).
8. Redesigning the process(es).
9. Developing strategies so that:
    a. failure can be prevented;
    b. the rate of failure can be reduced; or
    c. failures can be detected so corrective measures can be taken before the patient is harmed.
10. Identifying and implementing measures of effectiveness.
11. Implementing a strategy of maintaining the effectiveness of the redesigned process over time.

The risk analysis component of an FMEA (steps one through six) was conducted onsite at each of the participating ASCs. The same, specially trained Joint Commission staff member facilitated the FMEAs at each site. The ASCs assembled an internal multidisciplinary team that included, at a minimum, a physician, nurse, and administrator knowledgeable about the process to participate.

A 6-hour agenda for the onsite FMEA visit and the project coordinator's biographical information were sent electronically to each site contact person in advance of the visit. The FMEA team, which consisted of between three and nine staff members as well as the project coordinator, began the FMEA process by gathering in a designated work area that varied from an administrator's office to an empty procedure room.

The project coordinator reviewed with the group the goal of the study, the agenda, the FMEA process, and each member's role. Participants were also advised of their rights within the study.

The FMEA team conducted a "walk-through." The team moved throughout the facility following the path of the patient, refining the process maps as they went. Members of the ASC staff who were encountered during the walk-through contributed to the discussion, and team members joined or left the group based on the needs of the facility.

Following the walk-through, FMEA team members and the project coordinator returned to the work area. Here, large easel pads were set up, and the group worked together to refine the process maps to reflect current practice with more detail than the initial ASC process maps. Each process step and the attendant subprocess steps were identified.

The FMEA team and facilitator examined the assessment process both as it was designed to work and as it is actually implemented. After the process maps were revised, the team examined each process step again, identifying potential failure(s) for each step and ranking the potential failure's perceived probability, severity, and detectability between one and five. These numbers were multiplied together (*probability x severity x detectability)*, and a Risk Priority Number (RPN) was calculated. This number allows the team to establish relative ranks. Higher RPNs represent greater risk, and low RPNs represent lower risk.

Participants were given a reference adapted from Spath's[31] (2003) work as a guide for the ranking. Upon completion of the ranking activities by all ASCs, the research team realized a design flaw: the severity reference comingled the concepts of severity and duration. This may have impacted the participant's effort to rate the severity of potential harm for the three more severe rankings. However, because all FMEAs were reviewed by relative rank and grouped into themes across all ranks, the impact was minimal.

The FMEA team and facilitator compiled and discussed the risks and conducted a focused review of the risks with high RPN scores. No attempt was made to redesign systems or evaluate the value of identified safeguards. The team also reviewed a list of the research questions and commented on any question they did not feel had been answered fully. This resulted in additional discussion and further refinement of the tool.

All process maps were ultimately formatted into Visio forms and distributed both electronically and via U.S. mail to each ASC team for affirmation and approval. An MS Access database was created for storage and analysis of data collected during the onsite FMEA. Data were entered and categorized by ASC number, process step, subprocess step, risks, probability rating, severity rating, detectability rating, RPN score, and comments. All data elements collected in the FMEA process were entered into the database. The Access database afforded data accessibility to generate Excel and Word documents for further data analyses. All ASCs were sent a summary of their results in a Word-formatted document via electronic mail.

Results

A general overview of the results will be followed by a review of the findings for each specific research question.

Though each ASC had their own method of conducting and communicating preoperative nursing assessments, six common phases were identified across all 11 ASCs.

These were scheduling; a telephonic or onsite pre-assessment; patient arrival and registration; patient preparation for procedure; transfer to the OR; and final time out. However, the timing of these common activities, and the way in which they were accomplished, varied across the different centers.

After the onsite FMEAs were completed and information garnered was entered into the access data base, the research team members met in person to review the findings and to cull out the common themes. The research team began by analyzing the five highest-ranked failure modes and process steps, as measured by RPN, for each center. Because each ASC used different terminology to describe components of their nursing assessments, project staff developed broad categories that corresponded with the common phases of every center's assessment process. These categories then were used to analyze failure modes and RPNs across centers for each general component of the assessment process. The most useful categories for analysis were:

- Risk points in descending order
  - within and across ASCs
  - by phase within and across ASCs
  - by process step within and across ASCs
- Top risk rankings for each ASC
  - Risk rankings are calculated by multiplying severity and frequency, detectablity is not a factor.

Salient risk points and components of the assessment process were identified. The most common themes related to higher risk across all centers were (1) issues related to medication management administration and documentation, (2) issues related to medication reconciliation, and (3) completion of the final time out and marking of the surgical site. Although similar risk points were present across most phases, similar risk points were ranked higher as the patient progressed through the process. For example, failure to receive an accurate medication allergy history was perceived as a common risk point in all phases; however, the RPN for this risk was smaller at registration than in the transfer to the OR phase, because the ASCs were relying on redundant processes to "catch" any errors as the patient progressed through out the process.

The team analyzed the risk points by first evaluating those with the highest RPN within each ASC. Codes and code descriptions were developed, and risk points were categorized by the team. All risk points were eventually categorized by the PI and project staff.

Medication ordering and administration processes –
Medication errors harm an estimated 1.5 million people and kill several thousand each year in the United States.[32] Although errors are common throughout the medication management process, they occur most frequently during prescribing and administering.[32]

Risk points centered on the administration of preoperative antibiotics and medications used for sedation and anesthesia. Each ASC had their own policies for when preoperative antibiotics were to be administered and how their administration was to be documented. However, FMEA team members in the majority of ASCs had an inconsistent understanding of when preoperative antibiotics were to be administered and how orders varied according to physician preference.

Several ASCs identified the common risk of filing to communicate to each other that a patient was sedated. In one ASC, nurses, surgeons and anesthesiologists had vastly different interpretations as to who was documenting the administration of anesthetics and other agents given prior to and during the surgery itself.

Disruptions and distractions, illegible or missed orders, preparation of the wrong medication or dosage, and missed physician protocols were risk points reported for all sites. ASCs also reported that current patient weights were often unavailable for weight-based ordering. Finally, rote processes and their impact on staffs' perceptions of orders (e.g., three patients in succession had cataracts removed from the right eye, the fourth patient is scheduled for removal of a cataract from the left eye but receives preoperative medications in the right eye) was a common risk point.

Medication reconciliation –
Medication reconciliation is a process designed to prevent medication errors at patient transition points,[33] and it includes:

- Creating the most complete and accurate list possible of all medications the patient is currently taking;
- Comparing the list against orders being written;
- Bringing any discrepancies to the attention of the prescribing health professional and making changes to the orders when appropriate;
- Updating the list as needed;
- Communicating the list to the next provider of care whenever the patient is transferred or discharged and providing the list to the patient at the time of discharge.

The ASCs took different approaches to obtaining current medication and medication allergy histories. In all ASCs, a physician's office often faxed or verbally reported a list of current medications, which was then verified with the patient upon their arrival. All ASCs included the receipt of incorrect or incomplete referral information as a risk point. Some ASCs gathered initial information over the telephone and verified it with the patient after the patient physically arrived. Other ASCs took the initial medication history onsite. In either case, common risk points identified were the inability to reach the patient, the patient presenting as a poor historian, language barriers, and failure of the patient to bring their current medications to the ASC the day of the procedure for verification of medication and dosage.

Interruptions and distractions were a common risk point as well. Clerical errors, including misfiling, use of wrong forms or chart, and the inability to reach physicians to verify information, were also universal risk points. Three ASCs identified the potential risk point of failing to verify the assessment after the first time it was taken over the telephone even though substantial time may have passed. Last, all ASCs identified competency issues, such as insufficient or incomplete assessments, failure to review of diagnostic tests, and the inaccurate conduction or documentation of diagnostic tests, as risk points.

Application of the Universal Protocol with emphasis on surgical site marking –
Wrong site, wrong procedure, and wrong person surgeries are sentinel events that persist despite more than 30 professional groups advocating the use of a universal protocol. In early 2007, the second Wrong Site Surgery Summit addressed concerns raised by a number of professional organizations and a continued increase in the occurrences of reported wrong site surgery cases and agreed that the Universal Protocol is effective if properly implemented and consistently followed, although they opined that further refinements to, and elaboration of, the Universal Protocol will likely be required to make the protocol consistently successful across all healthcare organizations.[34]

All ASCs in the study defined their preoperative assessment process to include the elements of the Universal Protocol, and all but one included the final time out in the OR.

However, there was wide variation in the way the protocol was implemented within and between organizations. Responsibilities varied between areas within the same organization, by the type of procedure, by staff involved, and by point in time. This lack of standardization was recognized by most as a risk point.

This lack of standardization led to inconsistently applied processes to verify the correct person, procedure, and body site and to mark the procedural site. Though every ASC had policies detailing how this was to be done, every ASC had difficulty with compliance, particularly with physicians who infrequently treated patients in the ASC. Marking the incorrect site was a universally recognized risk. The ASCs relied on redundant verification of the marked site to limit that risk, yet all agreed that redundant verifications were not always completed. The way the final time out was conducted also varied between and within centers. Although many ASCs reported that all activity stopped and everyone participated fully in the time out, other ASCs changed staff during the final time out, conducted the time out without the surgeon present, or did not cease other activities during that time. Nursing involvement varied significantly across sites.

Less common but consistently identified themes were related to patient identification and problems with handover communication.

Patient identification issues –
Throughout the healthcare continuum, the failure to correctly identify patients continues to result in medication errors, wrong person procedures, and other errors.[35,36] Patient misidentification can occur at many points within the process of providing care and is identified as a root cause of many errors.[35]

The ASCs had divergent processes for identifying patients during telephonic preregistration, once the patient arrived onsite, and throughout the delivery of care. Consistent risks encountered across the sites included the failure of the patient to bring adequate verification of identity, presenting with information that was not theirs for insurance purposes, limited English proficiency, and patients with the same or similar names.

All ASCs generated identification bands for patients, but these were often applied at different phases of the process within the same organization or were not consistently affixed appropriately. Sometimes, bands were taped to a chart or a gurney as opposed to being secured around the patient's wrist. Even if the correct band was applied, the risks of staff failing to check the band and reliance on the patient to respond to their name correctly were universal. One ASC identified the additional risk of relying that the patient is in the correct bed or area (e.g., "the next case is in bed 3") as they progressed through the process.

Handover communication –
Handover communication is the process of passing patient-specific information from one caregiver to another, from one team of caregivers to the next, or from caregivers to the patient and family for the purpose of ensuring patient care continuity and safety.[35] Breakdown in communication was the leading root cause of sentinel events reported to The Joint Commission between 1995 and 2006.[37] During their time in an ASC, a patient is treated by a number of staff as they move through different areas within the facility. The handover communication between staff members might not include all the essential information, or information may be misunderstood. These gaps in communication can result in inappropriate treatment and harm to the patient.[38]

Participating ASCs used a combination of written and verbal communication to manage patient handovers, often relying on the interpersonal abilities of staff rather than formal processes to communicate salient information and report discrepancies or concerns such as abnormal lab values and anticoagulant use. Every ASC identified inadequate or illegible documentation and inadequate verbal reporting as significant risks when updating information and communicating important changes in a patient's history or condition between areas and between providers.

Mechanical failures were identified as risk points for handovers. Universally, the breakdown of the fax machine was cited as a risk point, causing the ASC not to receive complete information for referrals or diagnostic test results. Some ASCs identified the risks of using temporarily affixed visual cues, which could be easily changed by accident, to convey information. Examples are the use of removable "sticky" notes or turning a chart in a pre-determined way.

Research Findings by question.

Four research questions were answered.

1. What is the process for communicating the preoperative assessment results throughout patient care transitions and handoffs?
   Nurses are usually the first professionals involved in conducting the preoperative assessment in the ASC setting and must communicate information among other nurses, the surgeon, and the anesthesiologist caring for patients at varying times in the process. Patients, their family members, or caregivers often complete a written self-assessment form that is reviewed and verified by the nurse, or the patient history information is communicated verbally to the nurse during an interview. That interview occurs via telephone, in person, or both. Additional information from past ASC visits, physician office records, or preoperative testing results may also be accessed by the nurse. The nurse's assessment is communicated to others verbally, in writing, through the use of visual cues, or via a mixture of the above.
   Risk points specific to these handovers were (1) the failure to receive complete or accurate information from referral sources or diagnostic services; (2) the inability to reach referral sources to verify questionable information; (3) taking incomplete or inaccurate histories; (4) reliance on others rather than performing redundant tasks; (5) reliance on interpersonal abilities rather than formal processes to give information; (5) inadequate or illegible written and inadequate verbal communication: (6) being lulled into complacency by rote processes; and (7) clerical errors, such as misfiling or the use of wrong forms or chart.

2. What triggers the person performing the assessment to consult with a physician about diverting the patient from having the procedure performed in the facility? What triggers the person performing the assessment to have the patient cleared by a specialty (e.g., cardiology) prior to being approved for the procedure in the facility?
   The nurse synthesizes the information gathered during the preoperative assessment and identifies information that concerns them enough to halt the patient progressing toward the procedure until his or her concerns are addressed. Many ASCs have developed guidelines to standardize this determination. An example of a common guideline is requiring further evaluation of patients taking the prescription anticoagulant clopidogrel bisulfate, or Plavix, until the patient's medical information is reviewed by medical staff within the ASC or additional clearance is obtained from the patient's primary care provider.

Other commonly cited assessment factors identified that could trigger the nurse to obtain additional testing, consult with a physician, or have the patient seen by a specialist prior to being approved for the procedure include the inability to obtain a thorough history because of suspicions that the patient is a poor historian, limited English proficiency or little available information, abnormal lab or other diagnostic results, or drastic changes in physical status or the onset of new symptoms since the referral.

These concerns could also result in additional testing, postponement, or reassignment of the case to a different, higher-level facility, cancellation of the case altogether, or simply a plan to go forward.

3. What might be missed in the preoperative nursing assessment and why?

Patient information regarding medications, allergies, and other pertinent information could be missed during the preoperative nursing assessment due to risks inherent to the patient, clinician, or system. Risks inherent to the patient include language or communication barriers, being a poor historian, or purposively holding information back from the nurse and falsifying their identity.

Risks stemming from clinicians included factors pertaining to nurse's abilities and work habits. Poor or inadequate history taking, inaccurate recording of the history or current medications and allergies, failure to follow specific protocols for preoperative antibiotics, failing to document medication administration, or informing a colleague during handoff that a medication was or was not administered were often-identified risks potentially leading to medication errors. Risks specific to reviewing laboratory or diagnostic indices included forgetting to verbally communicate abnormal lab values or vital signs or not having redundant checks for these indices as the patient progressed, assuming that someone else had reviewed them. Substantial potential for risk was identified in activities associated with marking the correct site, reviewing the consent, and conducting a thorough time out. Finally, personal factors such as language or communication barriers, perceived time constraints, forgetfulness, confusion over a change in rote processes, and failing to follow or apply established guidelines during the patient assessment also were cited.

Risks intrinsic to the system included poorly defined processes, inadequate information retrieval systems, inadequate access to equipment, and insufficient redundant processes to act as a failsafe. Accepted physician preference variations, such as allowing sites to be marked one way for one physician and another way for a different physician, or preoperative antibiotics being administered at different times because of physician preferences, were oft-identified risk points. Finally risks were associated with time constraints, disruptions, and distractions.

4. What is the process for resolving disagreements about patient candidacy for surgery?

A separate and distinct process step identified was the resolution of disagreements about the patient's candidacy for a procedure. All participating ASCs had guidelines for establishing candidacy for surgery. The patient's candidacy is first assessed by a nurse, who determines if the patient's candidacy was questionable. Concerns are communicated by the nurse to the anesthesiologist, surgeon, or nursing and administrative management. This may happen once or at different, even multiple, points in time during the course of the preoperative nursing assessment process. Although most disagreements are resolved informally, often one person of authority resolves any concerns.

This authority figure varied by center and included medical directors, anesthesiologists, and the nursing director. Mechanisms are in place in many ASCs to bring these issues to their Board of Directors for final resolution, but these are infrequently used by staff. Risks specific to the resolution of disagreements included the failure of those involved to be able to effectively communicate their concerns and the availability of the authority figure in the event that differences cannot be informally resolved.

Limitations:

The relatively small number of ambulatory surgical centers selected to participate in the study are not, nor were they intended to be, representative of all ASCs. However, because very little is known to date about the risks of preoperative nursing assessment in ASCs, this work will inform strategies for avoiding risk that are likely be relevant across the population of ambulatory surgical centers.

The comingling of concepts of severity and duration on the reference scale may have impacted the overall RPN. However, because all RPNs were reviewed by relative rank and grouped into common themes across all ranks, this impact in minimal.

Barriers:

It was difficult to sustain the commitment of all participants throughout the activities. Because the Webex and the onsite risk analysis temporarily disrupted healthcare services, some members of the FMEA team would leave the activity intermittently due to patient or operational needs of the ASCs. One site did not attend the Webex training session at all due to caseload. There were several ASC sites in which identified participants either did not participate or sporadically entered and left the room throughout the onsite FMEA process. However, practicing clinician's participation was integral to the success of the process, and the interruptions could not be avoided. Findings were frequently summarized for all members during the FMEA to minimize the loss of information due to disruption. The FMEA teams were multidisciplinary and varied in number, from three to nine members; some teams were highly congruent, engaging in lively discussion, whereas other teams required more direction and support from the project coordinator. Group dynamics differed. In some ASCs, participants worked together and consensus was reached. In other ASCs, some group members dominated, stifling others from voicing opinions, resulting in an uneasy consensus. The facilitator managed each group's dynamics with varying success.

Although the process was completed in all sites, the 6-hour time allotment for the onsite FMEA process was insufficient for all sites. Several groups worked through scheduled breaks or stayed late to complete the FMEA.

Meeting space was determined by the onsite team coordinator and ranged from an administrator's office to a conference room to an empty procedure room. This presented challenges to ongoing documentation of work. Walls were used to display the working charts and were not always amenable for use. Some rooms were located in traffic patterns, and doors were opened and closed frequently to allow pass through or access to materials.

Conclusions and recommendations:
Practice/Education/Future Research:

This study identified the most significant risks associated with the preoperative nursing assessment process used in freestanding ASCs but was never intended to evaluate the mechanisms put into place to prevent errors at the identified risks within the ASCs.

This study identified the necessity of developing and testing tools and processes that ASCs may use to enhance their pre-operative assessment process to facilitate continuity and safety in patient care in:

- Medication ordering and administration
- Medication reconciliation
- Application of the Universal Protocol with emphasis on surgical site marking Patient identification and
- Clinical handovers

Poorly articulated assessments and incomplete or unread documentation are process flaws well discussed in the literature, but additional work should focus on work process related to temporarily affixed visual cues and their use in workflows.

List of Publications and Products:

Presentation
Kupka, N and Orman, M. Risks of Inaccurate or Incomplete Pre-Operative Assessments in Free-Standing ASCs: Turning Research into Action. *The Joint Commission and Joint Commission Resources Annual Ambulatory Care Conference: Quality and Safety—Passwords to Success*; 2008 Oct 2-3; Chicago, IL.

Poster
Kupka, N., Bickham, D., Young, J. and Orman, M Risks of Inaccurate or Incomplete Pre-operative Assessments in Freestanding ASCs. *Agency for Healthcare Research and Quality.- Promoting Quality . . . Partnering for Change.* 2008 Sept 7-8; Bethesda, MD.

Additional Dissemination
Many individuals have contacted the research team seeing information about the results of this study. Preliminary information has been shared with them.

An article will be submitted to AORN journal by July 30, 2009.

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