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Unlocking the Potential of Peripartum Handoff: Standardizing Nurse Knowledge Exchange (NKE)

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Abstract

Problem The absence of a structured and standardized handoff during patient transfers may result in the unintentional omission of patient information, medical errors and adverse events. No standardized bedside handoff process, referred to as Nurse Knowledge Exchange (NKE), was observed in Hospital A’s peripartum mesosystem during patient transfers from the Labor and Delivery (L&D) unit to the Postpartum unit. Context Hospital A is a medium-sized urban hospital located in Northern California. The peripartum mesosystem includes 21 postpartum rooms and nine laboring rooms. Intervention Through the recruitment of stakeholder engagement, review of literature supporting evidence-based practices, and a mesosystem assessment, a standardized handoff guide was developed and piloted. This standardized handoff guide aimed to improve communication between nurses and patients as well as promote patient-centered care. Pilot champions were educated on the use and importance of the guide, and then observed utilizing the guide during patient transfers. Measure The comprehensiveness of the NKE was measured using a binary coding system. Results The pilot study indicated a notable improvement in the comprehensiveness of the NKE when the standardized handoff guide was used. The percentage of bedside NKE improved from 33.5% to 77% and the overall comprehensiveness of NKE regardless of location improved from 74% to 91%. Conclusion The standardized handoff guide significantly enhanced the comprehensiveness of the bedside NKE. The involvement of key stakeholders in promoting such a change proved essential for the success of the pilot project and the sustainability of the suggested change going forward.

Keywords: NKE, handoff communication, peripartum, bedside report
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The Joint Commission (TJC) defines handoff as “a transfer and acceptance of patient care responsibility achieved through effective communication” (2017, para. 2). They go on to state that ensuring that the handoff is effective, accurate and comprehensive is a key area in healthcare where the potential for patient harm can be reduced. A study of Harvard-affiliated hospitals found that 1,744 patient deaths were associated with communication failure over a five-year time period (Bukoh & Siah, 2020). TJC estimates that around 80% of medical errors can be attributed to communication failure during the handoff process, and the American College of Surgeons identifies 85% of adverse events to be due to breakdown in verbal communication (Robins & Dai, 2015).

TJC issued Sentinel Event Alert 58: Inadequate hand-off communication to alert healthcare providers that handoff requires clear communication and that the expectations of both the sender and receiver of information must be clearly identified and understood (TJC, 2017). TJC encouraged healthcare leadership to standardize critical content to reduce the omission of information and promote face-to-face handoffs so that the sender and receiver, which includes the patient and family members, if appropriate, are encouraged to actively participate. The involvement of the patients during bedside handoff helps reduce the incidence of discrepancies because the patient can validate and add additional information (Bukoh & Siah, 2020). Conducting handoffs at the bedside is essential to ensure the accuracy of the handoff while simultaneously promoting patient autonomy and involvement in their care.
Problem Description

In a Northern California hospital, henceforth referred to as Hospital A, nurse handoff is termed Nurse Knowledge Exchange (NKE). This Quality Improvement (QI) project focuses specifically on the NKE that occurs during a patient’s transfer from the Labor and Delivery (L&D) unit to the Postpartum unit, which was observed to be disorganized, missing key content and happening away from the patient’s bedside. Hospital A’s peripartum mesosystem consists of two units divided between two floors. The third floor consists of a hybrid Antepartum and Postpartum unit and an L&D unit. There are 11 hybrid antepartum and postpartum rooms on the hybrid unit as well as nine labor, delivery, recovery (LDR) rooms, three triage rooms, two post-anesthesia care rooms, and two operating rooms dedicated to the L&D unit. The sixth floor consists of ten postpartum rooms. There are 107 L&D nurses, of whom 33 are per diem, 17 are travel nurses, and 57 are part time. There are 69 postpartum nurses, of whom 12 are per diem, one is a travel nurse, and 56 are part time.

A pre-survey was advertised on a flyer around the mesosystem (see Appendix A). It was completed by twenty-one L&D and ten postpartum nurses. The feedback provided during informal conversations showed that more than half of the respondents reported that the current handoff process is less than “very effective” in facilitating communication during the patient transfer process (see Graph B1). Furthermore, only 29% of respondents reported that they always do NKE at the patient’s bedside and 49% reported that NKE is done somewhere other than at the patient’s bedside (see Graph B2 and B3). Baseline observations further emphasized this deviation from best practice and showed that on average only 33.5% of NKE content is covered at the bedside and 74% is covered at either the bedside or nurses’ station (see Figure 1). This use of a patient-centered and comprehensive handoff in this mesosystem at Hospital A is suboptimal,
which could add to the tension between the units and ultimately could increase the risk of adverse events as well as staff and patient dissatisfaction.

**Figure 1**

*NKE Baseline Observations: Overview*

![Bar chart showing percentages of handoff completion.

### Available Knowledge

**PICOT Question**

The Population, Intervention, Comparison, Outcome, and Timeframe (PICOT) tool was used to develop the following PICOT question: For peripartum Registered Nurses, does implementing a standardized handoff tool enhance the comprehensiveness of the handoff process during Labor and Delivery to Postpartum patient transfers over a two-week period?
Search Methodology

The following literature review analyzes the evidence-based research associated with the stated PICOT question. Initially, searches were conducted on Google Scholar, PubMed, and CINAHL Ultimate using the keywords “bedside handoff”, “bedside report”, “obstetrics”, “postpartum”, “labor”, and “standard”. It was discovered that there is ample research on bedside shift handoff; however, there is little research on the handoff given during patients transfers from a L&D unit to a Postpartum unit. It was quickly determined that research on comparable mesosystems would be valuable to include. Comparable mesosystem patient transfers were identified to include Emergency Room (ER) to Intensive Care Units (ICU), Operation Room (OR) to Post Anesthesia Care Unit (PACU), OR to ICU and Triage to L&D. Including these comparable mesosystem patient transfers yielded additional research on implementing standardization tools to aid in the handoff given between microsystems. Articles published in the last ten years that evaluated the content of bedside handoff or patient or nurse satisfaction were assessed. Ten journal articles with good quality evidence were selected and evaluated using the John Hopkins Evidence Table in Appendix D due to their relation to this QI Project’s aim (Dang & Dearhold, 2018). Of these ten articles, one was Level I (randomized control study), three were Level II (quasi-experimental), two were Level III (systematic mixed-method reviews), and four were Level V (QI project, non-experimental study, and literature review). This synthesis of information provided strong evidence in a variety of clinical settings to support the standardization of handoff to improve various factors in the microsystem.
**Literature Synthesis**

Available knowledge ascertained evidence that bedside handoff is essential in providing patient-centered care. Elue and colleagues (2019) conducted a retrospective cross-sectional study that implemented a bedside shift report (BSR) on an Obstetric and Postpartum unit. This study asserted that BSR increases patient satisfaction, specifically in Hispanic and public insurance patient populations, who are both historically underserved populations. This study also argues that BSR increases the visibility of nurse leaders from the patient perspective, thus enhancing the patient's perception of overall care (Elue et al., 2019). Moreover, in a systematic review, Williams (2018) summarizes that a BSR decreases potential risk to patients and increases the quality of care and patient satisfaction scores compared to a traditional shift report, which happens away from the patient’s bedside. BSR was also found to promote better staff relationships and teamwork (Williams, 2018). In a QI project, Ho (2018) developed a handoff tool for nurses to utilize during patient transfers from the Emergency Room (ER) to the ICU. An educational session trained the nursing staff in both microsystems on the use of the standardized handoff tool. After only a two-week pilot period, nurse handoff satisfaction improved from 54% to 77% (Ho, 2018). These additional outcomes of patient and nurse satisfaction are benefits that would bode well for improving the culture and dynamic between the L&D and Postpartum units in Hospital A.

Despite this evidence, Tobiano and colleagues (2019) assert that nurses have an abundance of reasons for refraining from performing handoffs at the bedside, primarily due to concerns related to patient privacy. The evaluated studies outlined these barriers as well as potential ways to alleviate them. The primary theme, however, is that nurses need to understand the evidence-based literature that supports bedside handoff so that they are fully
informed and further motivated to identify ways to alleviate or remove barriers to providing this essential component of patient-centered care. Kim and colleagues (2020) conducted a cross-sectional study and identified that some of the primary factors that impact the quality of a handoff are the existence, or lack, of a standard handoff method and education regarding the handoff method. The authors recommended that an essential piece in implementing a standardization handoff tool is to include staff in the creation and education of it to promote the use and longevity of the tool (Kim et al., 2020). Creating a tool without gaining the buy-in from staff and providing proper education on its usage is undermining its potential effectiveness. The involvement of members of both the L&D and postpartum nurses in both the development and education of this tool is key to ensuring lasting benefits of change in this mesosystem.

Bukoh and Siah (2020) conducted a systematic review that argues that patient involvement in bedside handoff and a structured handoff tool help to reduce the number of patient complications, medication errors and general adverse events. Various tools were utilized in the studies evaluated, which emphasizes that specializing the tool for the unique microsystem or mesosystem is a key component to the success of the tool. The transfer from an L&D unit to a Postpartum unit is considered intra-hospital and, thus, the standardization tool must be designed to meet the needs of these two specific microsystems. Enhancing patients' hospital experience by involving them in their plan of care through bedside handoff elevates the care provided by encouraging patient autonomy as well as displaying skillful management of care. In a prospective intervention study, Lee and colleagues (2018) asserted that a bundle process intervention improved transfer times, reduced delays in care, and improved completion of handoff during patient transfers from triage to L&D. The bundle
process intervention included defining and standardizing roles and implementing a bedside huddle process, which included a visual aid to guide handoff. The visual aid can help guide the structure of the handoff and clearly identifies what information the nurses are responsible for in the handoff. This form of standardizing handoff, with the use of a visual aid, provides nurses with a guideline to follow instead of a checklist or nursing brain to complete, which would ensure unnecessary double charting is avoided. Similarly, postpartum nurses in Hospital A are often caring for two to three couplets already when receiving a new transfer from L&D. A guide allows postpartum nurses to retain their own personalized organization system when receiving handoffs while simultaneously ensuring the content delivered is standardized.

Robins and Dai (2015) explained that implementation of a handoff checklist can improve handoff recall of six essential components from 54% to 92% in OR to PACU patient handoff. This randomized control study, which was conducted on a comparable mesosystem, attests that utilizing a checklist to promote retention of and compliance with complete handoffs can increase the accuracy of patient handoff and does not delay transfer time or the delivery of care. In a prospective quasi-experimental intervention study, Nematollahzadeh and colleagues (2022) found that creating a checklist and educating staff on the use of the tool reduced the frequency of technical errors and missed content during handoff between the cardiac OR and cardiac ICU. The frequency of the inclusion of important content, such as the patient's weight and the size of the endotracheal tube, improved significantly from 19.4% and 3.2% before the intervention to 100% and 100%, respectively (Nematollahzadeh et al., 2022). During the education sessions regarding the tool, the staff were also trained on the importance of reducing disruptions by dedicating their full attention to the handoff and not concurrently completing tasks that can be delayed, such as moving lines or changing machine settings. The NKE
handoff guide can similarly promote a comprehensive handoff that retains important information while simultaneously improving the flow of information.

Lin and colleagues (2015) completed a QI project across 125 nursing units in Hospital A’s hospital system. The project devised a process to develop and implement a specialized and standardized NKE for each unit. This process included six core components, including providing unit support to ensure the occurrence of bedside handoff, standardizing the content of NKE based on the unit's needs, and patient-centered handoff that included patient involvement. By identifying unit champions, who were able to recognize the needs of the unit to ensure the appropriate content was included in the NKE standardization, this project saw 100% of the medical/surgical units and 77% of the specialty units implement their new NKE formats (Lin et al., 2015). This project not only saw success in its implementation but also resulted in an increase in the mean regional Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) score for nurse communication. Lin and colleagues' publication mirrors the goals of this QI project because they share similar macrosystems and it outlines the steps needed to involve staff in developing and implementing a change in NKE practices.

To enact best practice, which is evidence-based practice, the staff in the microsystem must be involved in the initiation, development, and implementation of the change. In the process of standardizing handoff to improve patient care, patient and nurse satisfaction, and promote the retention and comprehensiveness of the handoff, it is essential to consider the prospective longevity and unit specific effectiveness of the change. This QI Project aims to generate change in the mesosystem that has lasting positive impacts on patient experience, the culture and ultimately, patient outcomes.
**Rationale**

Change is inevitable and as the world changes and evolves, systems and policies must adapt. Change theories outline different ways to approach assessing a need for change, recruiting support for change and ways to incorporate change in a microsystem. Leaders of QI improvement projects must utilize at least one change theory to structure their project so that they can best prepare their project for success and evaluate the effectiveness of the implementation and change. Many of these theories also enforce the need for stakeholder buy-in.

One such change theory is Kotter’s Eight-Step Change Model, which includes eight crucial steps to promote the success and longevity of change. The eight steps are as follows: (1) create a sense of urgency, (2) establish a change movement team, (3) outline a strategic vision, (4) enlist a “volunteer army”, (5) carve the way to action by removing barriers, (6) communicate and celebrate short-term wins, (7) continue to push for change and improvements, and (8) engrave change in the culture of the microsystem (Kotter, n.d.). Kotter’s change theory aims to create a movement of change in the microsystem and ensure that everyone continues to strive for improvements. Ensuring stakeholder buy-in is also embedded within the framework because it relies on individuals assuming leadership and recruiting a “volunteer army” to promote the change of culture. Conversely, this framework relies on the mass accumulation of support before much can be achieved, which can lead to a prolonged timeline for change.

Kotter’s Eight-Step Change Model is ideally set up to support the standardization of NKE at Hospital A. It will be helpful to ensure there is ample support from staff to implement change. Currently there is significant dissatisfaction among both L&D and postpartum nurses regarding the transfer process. Although many staff members in the mesosystem expressed their frustration, the analyzed baseline data and the literature review must be compellingly presented...
to garner the support of the staff and confirm that the standardization of NKE is urgently needed in this mesosystem. If any successful, long-lasting changes are to be made, the support of the staff must be obtained by gathering a change movement team and “volunteer army”. This can be achieved by involving staff and considering their input regarding potential changes as well as potential barriers. Nurses can be invited to share the way they prefer to both give and receive handoffs and provide feedback on each other.

**Ethical Considerations**

This project meets the guidelines for an evidence-based QI project. An IRB review was not required. A statement of non-research determination (SONRD) form was completed to validate this QI initiative followed by a review and approval by University of San Francisco School of Nursing and Health Professions clinical faculty (see Appendix E). The project described received no funding and the project group members declare no conflict of interest for the project.

This project is related to the American Nurse Association Code of Ethics Provision 1.2, which emphasizes the importance of the “Relationships with Patients” (American Nurses Association, 2015, p. 17). Establishing a good rapport with patients can begin by involving them in their care. Bedside handoff ensures that patients gain an understanding of the overall approach to their care at the time and the planned care going forward. Furthermore, it promotes the inclusion and special consideration of factors that are unique to the patients, including their beliefs and lifestyle, by providing them the space to contribute their thoughts and wishes. Involving patients in a comprehensive bedside handoff garners trust between the patient and the nurses releasing and assuming care.
This project is related to the University of San Francisco’s Jesuit value of *cura personalis*, which is the care for the whole person (University of San Francisco, n.d.). Involving the patient at the bedside and ensuring a comprehensive NKE displays skillful management of the patient’s care. This, in turns, instills trust in the patient that the nursing staff are properly informed of their needs and are striving to provide the best patient centered care as possible. Part of delivering a bedside NKE is to be acutely aware of the language being used. By using alternative phrases that are less likely to be misinterpreted by non-medical personnel as Blameful, the nurses are tending to the mental and emotional wellbeing of the patient and family members.

**Project AIM**

This project aims to improve the comprehensiveness of Nurse Knowledge Exchange (NKE) for postpartum nurses by the end of April 2024 by 5% during L&D to postpartum patient transfer through the implementation of a standardized handoff guide. Through the implementation of a standardized handoff guide, this project also hopes to achieve some secondary outcomes. This tool seeks to improve patient satisfaction, nurse satisfaction, unit relations and patient safety. Additionally, the standardized handoff guide aims to generate a supportive, team-oriented environment and patient and family-centered setting. By clearly outlining the responsibilities of both the L&D and postpartum nurses regarding clinical information involved in handoff, this project strives to promote clear communication and expectations in the mesosystem. By doing so, the project hopes to improve unit relations, ultimately resulting in smoother transfers of care and the improvement of patients’ overall care and experience.
Methods

Context

Microsystem Assessment

**Purpose.** Hospital A is a medium-sized urban hospital located in Northern California and serves the surrounding community and counties. It is associated with a hospital system that spans nine states and serves 12.5 million people (Hospital A, n.d.b). Hospital A serves 215,000 members in San Francisco and is identified as a referral center for high risk perinatal and neonatal services (Hospital A, 2017). Hospital A’s L&D and Postpartum units provide acute inpatient care to pregnant individuals and their newborns. Over 3,000 babies are born in this mesosystem a year (Hospital A, n.d.a). The mesosystem involves a collaborative effort to ensure the health and safety of both mothers and babies during all stages of labor.

**Patients.** This microsystem serves pregnant people in all stages of labor, neonatal patients, and patients' families. These patients are typically from the surrounding Northern California communities and counties. Hospital A serves both insured and uninsured individuals.

**Professionals.** One unit director oversees both units, and there are two L&D assistant nurse managers as well as two postpartum assistant nurse managers. There are 107 L&D nurses, of whom 33 are per diem, 17 are travel nurses, and 57 are part time. There are 69 postpartum nurses, of whom 12 are per diem, one is a travel nurse, and 56 are part time. The other healthcare team members of this interdisciplinary team include registered obstetricians, neonatologists, anesthesiologists, medical residents, physician assistants, surgeons, surgical technologists, midwives, doulas, unit secretary, social workers, lactation consultants, and nutritionists. Additional auxiliary staff involved in ensuring the operation of this microsystem include security guards, Chaplains, food service workers, housekeeping, and information technicians. Both L&D
and Postpartum units have respective unit-based councils (UBCs) that consist of 6-10 nurses from the respective unit. These nurses are responsible for discussing and initiating changes that they identify on their units with the approval of the unit director and assistant nurse managers.

**Processes.** This mesosystem includes various processes related to the care of pregnant people and their newborns. Firstly, the patient is admitted to the unit. Patients are typically triaged in the designated triage rooms on the third floor. If the patient meets the criteria to be admitted, they are transferred to one of the hybrid rooms as an antepartum admission. The patient may receive a Pitocin induction, prenatal education, pain assessment and treatment, and vital signs and fetal monitoring. When the patient has met the required criteria and is laboring, the patient is transferred into an L&D room. If applicable, the patient may then be transferred into the Operating Room (OR) for surgical interventions. Once the patient has delivered and is stabilized, the patient and the newborn are then transferred to a postpartum room. After delivery, the nurses closely monitor the mother for blood loss and infection. The nurses are also closely monitoring the mother and newborn for hypoglycemia, vital signs abnormalities and pain levels. Both the L&D and postpartum nurses will include patient education on breastfeeding, newborn care, options for contraceptives, and postpartum care, including wound care, mobilization of the mother, and perineal care. A lactation consultant is also referred to for additional breastfeeding and nutritional needs.

**Patterns.** This mesosystem relies heavily on effective communication between staff members. Relaying information among providers promotes the safety and well-being of the patients. Ensuring clear, respectful, and supportive communication between the interdisciplinary team and the patient and their family is essential to promoting patient autonomy and patient-centered care. A pattern observed in Hospital A during L&D to Postpartum transfers is
that the NKEs content and style varied depending on the nurses involved. Additionally, staff on all levels reported in informal feedback sessions that there is substantial tension between the two units. This tension was observed to result in disorganized collaboration during transfers and many nurses expressing their frustration with the other unit, even in front of the patient. This extended beyond floor staff and there appeared to be little direct communication between the nurse manager or assistant nurse manager and the floor staff. This absence of transformational leadership resulted in floor staff feeling disconnected and their concerns weren’t heard by management.

**SWOT Analysis**

A SWOT (Strength, Weaknesses, Opportunities, and Threats) analysis was conducted on the mesosystem in Hospital A (see Appendix F). Hospital A was recognized as one of Newsweek’s America's Best Maternity Hospital 2023 (Newsweek, 2023), highlighting its pursuit of high-quality, affordable health care services as stated in its mission. The pre-survey and informal feedback revealed multiple workflows needing refining and potential standardization. Based on the baseline data collected through the pre-survey and observations, a fishbone analysis was developed to outline the key barrier and areas of concern in the mesosystem (see Appendix G). The SWOT analysis emphasized that one of the biggest barriers was an internal peripartum mesosystem weakness: the current culture. To counter the internal weaknesses and external threats identified, two of the most encouraging strengths recognized were engaged unit-based councils (UBCs) and the content comprehensiveness of the existing handoff. Furthermore, the opportunities residing in this project is that it is evidence-based and focuses on promoting a culture of safety, which offers a strong backbone for establishing the need for the proposed change. One of the most prominent themes was the absence of clear communication, especially
between the two microsystems. This analysis guided this project and its timeline as outlined in a Gantt Chart (see Appendix H).

**Financial Considerations**

A cost-benefit analysis was completed to determine the financial impacts of the current state of the mesosystem and the project’s potential impact (see Appendix I). The initial state of the mesosystem did not afford nurses with a structure to conduct NKEs. As a result, confidential patient information was openly discussed between nurses at the nurses’ station and in the hallway. Discussing patient information in such a public location is in violation of the Health Insurance Portability and Accountability Act (HIPAA). The U.S. Department of Health and Human Services dictates that through the HIPAA, individuals have the right to privacy regarding their personal and medical records. This includes ensuring the security of information a doctor, nurse or other healthcare provider puts in an individual’s medical record and any conversation a medical provider has (Office for Civil Rights, 2022). In Hospital A’s mesosystem, NKEs occurring in the unsecure location of the nurses’ station and hallways, where anyone walking past may overhear the handoff, could be subject to a HIPAA violation fine. Such a violation would be classified as a Tier 2 Violation, which is a “violation that the covered entity should have been aware of but could not have avoided even with a reasonable amount of care” (The HIPAA Journal [THJ], n.d., HIPAA Violation Classifications Tier 2 section). It falls short of a Tier 3 violation because it does not qualify as “willful neglect”, however, a Tier 2 violation costs between $1,379-$68,928 per violation (THJ, n.d., 2024 HIPAA Penalty Structure Tier 2 section). During baseline observations, 85% of the observed NKEs occurred at least partially at the nurses’ station or in the hallway (see Figure C1). Consequently, if Hospital A was
charged the minimum Tier 2 violation for 85% of their 3,000 transfers per year, Hospital A would owe over the maximum charge of $2,067,813 (THJ, n.d, 2024 HIPAA Penalty Structure Tier 2 section.). The significant financial implications alone are a strong incentive to improve the process of handoff to ensure patient privacy is respected.

**Intervention**

The QI project introduced a standardized NKE guide and nurse education surrounding the guide (see Figure 2). The guide was developed with over 40 L&D and 25 postpartum nurses feedback and revisions. The guide outlines the necessary content to include in a NKE during a patient transfer from the L&D unit to Postpartum unit as well as reminds the nurses that it is best practice to deliver NKE at the bedside and with a computer. The guide is split into five sections, three of which are designated as the L&D nurse’s responsibility and the remaining two as the postpartum nurse’s responsibility. This delegation of responsibilities allows for a streamlined NKE and sense of comradery between the two microsystems because the expectations of how NKEs should be delivered and received are clearly outlined. The NKE guide was placed on the mobile computer so that it could easily be referred to and would encourage the use of a computer during bedside handoffs. The first L&D section is dedicated to introductions and the patient’s background. The second L&D section is dedicated to the situation, specifically the delivery and the baby’s progress since delivery. The final L&D section is dedicated to doing a focused assessment and involves both nurses tracing the IV lines and assessing for bleeding. The first postpartum section indicates that a computer is to be used while reviewing orders, plan of care and upcoming tasks and labs. The final postpartum section instructs the nurse to ask the patient if they have any questions and involve them in the development of goals for the shift.
To prepare for the pilot study of the guide, multiple presentations and meetings were held with the two respective unit-based councils (UBCs). Both the L&D and Obstetrics (OB) councils
were independently updated on the project’s progress. Through presentations including literature reviews, project updates, and baseline and post-intervention results, key stakeholders buy-in was slowly achieved (see Appendix J and K). The QI team requested their assistance in increasing awareness of the project and, thus, nurses’ willingness to participate in the pilot study. The impromptu nurse champions were recruited to pilot the guide. To ensure the impromptu nurse champions received the same education, an education script was developed (see Appendix L). The script outlined how to approach the L&D charge nurse about identifying which nurses anticipated an upcoming transfer and could be impromptu champions. When an impromptu L&D champion was confirmed, the receiving postpartum nurse was also identified and educated. The education script outlined how to educate the champions on the importance of NKEs based on literature, provide an overview of the guide’s components, and finish up with asking the champions if they have any questions or feedback. On the bottom of this document, example phrases were prepared for consideration when receiving pushback from nurses on the guide given the early pushback noted due to staff member’s resistance to change.

**Study of the Intervention**

A Plan-Do-Study-Act (PDSA) cycle, outlined in Appendix M, was developed to trial and evaluate the effectiveness of a standardized handoff guide in improving the comprehensiveness of NKE during the L&D to Postpartum patient transfers. In the “Plan” phase, an education script was developed to ensure a standardized education is given to each champion in preparation for piloting the handoff guide. Champions are L&D and postpartum nurses who are willing to trial the guide during a transfer from L&D to Postpartum. They are identified by the QI Team approaching the charge nurse on the L&D unit to determine which L&D nurse anticipates transferring their patient during their shift. The L&D nurse and the corresponding postpartum
nurse are educated on the need for and use of the guide. The education aims to substantiate the need for the guide by including literature outlining the implications of improved handoffs as well as completing handoffs at the bedside. Furthermore, the education aims to emphasize that the baseline observations found that on average 74% of the NKE content was already being covered (see Graph C1) and the guide is meant to improve patient-centered care and patient outcomes. The QI Team anticipated resistance from both L&D and postpartum nurses because many had expressed their satisfaction with the current NKE style, despite on average only 33.5% of the content being covered at bedside. After the champions agreed to participate and were educated, a member of the QI Team introduced themselves to the patient and asked if they were comfortable with the student observing the transfer. Upon patient approval, the member watched the transfer and evaluated the comprehensiveness of the NKE based on the established guide.

During the “Do” phase, the QI Team aimed to observe ten L&D to postpartum patient transfers and evaluate the comprehensiveness of the NKE based on the established guide. A spreadsheet was developed to organize the observation data (see Appendix N). It reflected a similar spreadsheet that was used to evaluate the baseline observation data (see Appendix O). A binary numeral method was used in both spreadsheets to indicate if the content was covered as advised. If the information was included in the NKE at the bedside, the transfer received a “1” for the information. If the information is not covered at the bedside, the transfer received a “0” for the information. After completion of the transfer, both the L&D and postpartum nurses involved were asked to complete a post survey to obtain feedback on the guide and their perceived barriers to using it in the future (see Appendix K).

In the “Do” phase, the QI Team was able to observe ten patient transfers from L&D to Postpartum during which one or both participating nurses were educated on the guide, and the
guide was used during the NKE. The “Study” phase revealed a theme of the L&D nurses being extremely willing to learn more about the project and be unit champions. Postpartum nurses were more resistant to guide, especially using a computer and conducting the NKE at the bedside. Educating both the L&D and corresponding postpartum nurses was an unexpected barrier due to the fluid dynamic of the mesosystem. Delayed transfers and nurses’ breaks impeded three of the ten transfers to include educated L&D and postpartum nurses. Because all ten L&D nurses were educated, the guide was utilized in all the observed transfers, however, three of the postpartum nurses were not educated prior to the transfer. The findings emphasized that educating both nurses is essential to the success of the tool, specifically with the NKE occurring at the bedside and with a computer. This finding aligned with the feedback the QI group received from the pre-survey and during informal discussions because postpartum nurses had expressed their dislike of both. The guide, however, showed significant improvement in the average comprehensiveness of the NKE, including the use of a computer and the NKE occurring at bedside when both nurses were educated on the guide.

In the “Act” phase, feedback was applied from the post-survey (see Appendix P) and informal feedback sessions to modify the guide in preparation for the next PDSA. The assistant nurse manager was approached to receive support in response to the significant push back from some nurses, especially in postpartum. Due to the nature of this QI project with individuals who are not members of the mesosystem suggesting change, the assistant nurse managers’ promotion of the guide could provide more sustainable change going forward. A suggested phrases table was developed to aid nurses in promoting patient-centered care by revising the verbiage they use during NKE (see Appendix Q). This table aims to alleviate nurses' hesitancy to cover certain content at the bedside while promoting supportive and empowering language around the new
mother. Additionally, this guide is being sustained going forward by the UBCs. The QI Team organized a folder to share this project’s findings so far and streamline the transition of responsibility of this project.

**Outcome Measures**

The primary outcome measure for this QI project is the comprehensiveness of the NKE. This comprehensiveness is determined by observing the patient transfer from L&D to Postpartum and evaluating if the necessary content was covered appropriately. A checklist based on the guide was used to assess the NKE comprehensiveness. Additionally, feedback was obtained through a pre-survey and post-survey that evaluated the perceived comprehensiveness of the NKE by both L&D and postpartum nurses.

**Results**

The results of this study were promising, and it received encouraging feedback from staff on both units. The average bedside NKE comprehensiveness improved from 33.5% at baseline to 77% with the use of the guide (see Graph R1). Furthermore, 91% of the NKE content was covered regardless of location, which is a stark improvement from 74% before the utilization of the guide (see Graph S1). The introduction and background portion of the NKE improved from 29% to 80% being covered at the bedside with the use of the guide (see Figure 3). Similarly, the situation and baby progress portions of NKE improved from 36% to 80% and 19% to 71% (see Figure 3), respectively. Most significantly, computer use and the recommendations portion improved from 18% to 76% with the use of the guide (see Figure 3). None of the observed NKEs involved a computer at baseline. TJC encourages a form of technology, such as a computer, to be used because it can help reduce the chance of human error when nurses recite patient information (TJC, 2017). After the impromptu champions were educated and provided the tool, 60% of the
observed transfers included a computer (see Appendix S1). During informal feedback sessions with the impromptu champions, L&N nurses expressed their appreciation for involving a computer at the bedside so that they could refer to it when discussing the complexities involved in a pregnancy and delivery. Additionally, 70% of the transfers occurred completely at the patient’s bedside, thus reducing the percentage of transfers at risk of a HIPAA violation from 85% to 30% (see Graph R3). The post survey results also indicated that 70% of nurses reported that the handoff they gave or received with the guide was “extremely comprehensive” while the remaining 30% said it was “very comprehensive” (see Figure T1). Both the subjective and objective data showed significant improvement in the NKE comprehensiveness and nurse perceived NKE comprehensiveness.

Figure 3

Improvement in NKE Comprehensiveness
Discussion

Summary

Hospital A’s mesosystem involving the L&D and Postpartum units was observed to harbor a substantial amount of tension between staff members, and staff did not adhere to a standard NKE delivery. To clarify expectations, promote patient-centered care and collaboration, and align with best practices, an NKE guide was developed. Baseline observations detected that on average only 33.5% of the NKE was occurring at the bedside during patient transfers from L&D to Postpartum. Best practice emphasizes the importance of conducting handoffs at the bedside, involving the patient and utilizing a computer to ensure accuracy. Hospital A’s deviation from best practice makes it vulnerable to HIPAA violations, suboptimal patient outcomes and care, and tension between staff members. The guide reinforces the content that must be covered during a comprehensive NKE and reminds nurses to use a computer during handoff. The guide, which was laminated and posted on mobile computers available on the Postpartum unit, aimed to foster a partnership between the two units by indicating which nurse was responsible for which content and actions during the transfer.

When the guide was utilized, the overall bedside NKE comprehensiveness improved from 33.5% to 77%, and computer use improved from 0% to 60% (see Graph R1 and R4). Additionally, the percentage of NKEs occurring at the nurses’ station or in the hallway decreased from 85% to 30% (see Graph R2). This transition to doing the NKE at the bedside promotes patient involvement as well as reduces the chances of a HIPAA violation. The projected potential yearly HIPAA Tier 2 violation charges based on the baseline observation data amounted to $2,067,813. This project change was estimated to cost Hospital A $34,846.80, which would leave the net savings to be $2,032,966 (see Appendix I). Additionally, post-survey results
indicated that 70% of nurses appraised the handoffs as “extremely comprehensive” when utilizing the guide and the remaining 30% judged it as “very comprehensive” (see Figure T1). These results endorse the guide as both objectively and subjectively successful. The guide was found to successfully standardize the content, the NKE delivery location, and expectations between nurses. With the pilot study completed, the next step in this project is to formalize the education. An hour-long education session dedicated to this guide will allow nurses to run through practice scenarios utilizing the guide, promoting collaboration between the L&D and postpartum nurses in a less stressful and demanding environment. Regardless, the first pilot study of this guide generated encouraging formal and informal results and feedback, which point to the potential for long-term positive outcomes.

Limitations

The QI Team anticipated limitations and attempted to mitigate their impact as much as possible. Firstly, the pilot study was short in duration and involved a small sample size. Due to the time constraints of the QI Team and the mesosystem, only ten NKEs were observed utilizing the guide. As a result, the long-term impacts of the guide, including sustainability, were not well observed. Furthermore, the education of the impromptu champions, although methodically thought out and prepared, often was rushed due to the dynamic nature of the two units. In some transfers, only the L&D impromptu nurse champion was able to be educated on the guide, which limited the guide’s potential going into the transfer. A more formal nurse champion education session in the future could mitigate this limitation. For some of the champions, this was their first formal exposure to the guide because they were not on the UBCs and many were per diem nurses who worked infrequently. Lastly, this mesosystem currently has a unique set of challenges
related to interprofessional and unit relationships. This may restrict the generalizability of the results because of these unique characteristics.

**Conclusion**

The NKE guide, although met with resistance from some nurses, was found to improve the comprehensiveness of NKE during patient transfers from L&D to Postpartum. The refinement of the delivery of handoff helps to improve patient safety, standardize nurses’ workflow to promote collaboration and camaraderie, and improve patient outcomes and hospital experiences. The sustainability of the project will rely on the engagement and prioritization of the UBCs as well as the potential for incoming students to resume the project in the upcoming semester. The QI Team recruited the UBCs support, however, due to time constraints, the official transfer of responsibility for this project was suboptimal because few members of the UBC could dedicate time to the project. The prospect of having the next cohort of QI students return in the upcoming semester offers some further encouragement that a formal group will resume the implementation of this guide. The overarching goal of this project is to improve patient safety, enhance the patient experience and nurture a collaborative environment where the nurses from both L&D and Postpartum may unite to align with Hospital A’s commitment to exceptional and high-quality patient care. The data collected from the pilot study revealed the NKE guide’s potential and ignited some change innovators within the mesosystem. The impact of this minor and cost-effective change could have a far-reaching positive impact on patient outcomes, the units and staff members relationships and the patients and families hospital admission experience.
References


Ho, Amy, CNL as outcomes manager: Improving communication during the ER to ICU handoff (2018). *Master's Projects and Capstones*. 834. https://repository.usfca.edu/capstone/834

Hospital A. (n.d.). *Our model.*


https://blogs.bmj.com/bmj/2018/02/08/humanising-birth-does-the-language-we-use-matter/


University of San Francisco. (n.d.). *Our Mission and Values.*

https://www.usfca.edu/who-we-are/reinventing-education/our-mission-and-values


Appendix A

Pre-Survey

Figure A1

_L&D to PP Handoff Flyer_

1. **Take survey**
   - ~2 min long
   - **CONFIDENTIAL!**
   
   [Scan link]
   
   https://usfca.qualtrics.com/jfe/form/SV_0ulXbeARHHu9Ugu

2. **Share it with a coworker**
   - Your feedback will help guide QI initiatives

3. **Grab a treat**
   - Located in the breakroom

Questions? Email us!

USFQIPROJECT@GMAIL.COM
Table A1

*Pre-Survey Questions*

**QI: Pre-Survey**

Hello, we are the University of San Francisco ME-MSN nursing students conducting a quality improvement (QI) project on your microsystem focused on NKE during patient transfers from L&D to Postpartum. Thank you for taking the time to complete our pre-survey.

Please answer every question. Remember this is an anonymous survey and will only be used to aid in measuring the impact of our intervention [checklist tool]. Please refrain from including any staff names or patient identifying information.

**Department/Unit:**

- [ ] Postpartum
- [ ] L&D

**Years of nursing experience:**

________________________________________

**Process: How do you give or receive a handoff report during patient transfer from L&D to Postpartum?**

- [ ] Over the phone
- [ ] In person (hallway, nurse's station)
- [ ] At the patient's bedside
- [ ] Other __________________________________________
Patient-Centered Care: How often do you give or receive a handoff/NKE report at the patient's bedside during a patient transfer?

- Always
- Very frequently
- Occasionally
- Rarely
- Never

If a handoff/NKE report is not done at the patient's bedside, what are some common reasons why?

Comprehensiveness: How comprehensive do you find the current handoff you give or receive during a patient transfer?

- Extremely comprehensive
- Very comprehensive
- Moderately comprehensive
- Slightly comprehensive
- Not comprehensive
Effectiveness: How effective do you find the current handoff you receive in facilitating communication during the patient transfer process?

- Extremely effective
- Very effective
- Moderately effective
- Slightly effective
- Not effective at all
- Unsure

Overall Satisfaction: Overall, how satisfied are you with the report you receive for patient transfers?

- Very satisfied
- Somewhat satisfied
- Neither satisfied nor dissatisfied
- Somewhat dissatisfied
- Extremely dissatisfied

Suggestions for Improvement: Please provide any additional comments or suggestions for improving the report checklist.

Thank you for taking the time to complete this survey. Your feedback will help us identify areas for improvement and enhance the effectiveness of our nursing practices. If you have any questions or concerns, please contact usfqproject@gmail.com
Appendix B

Pre-Survey Results

Graph B1

_Pre-Survey Effectiveness Results_

Effectiveness: How effective do you find the current handoff you receive in facilitating communication during the patient transfer process?

![Graph B1](image)

- Extremely Effective
- Very Effective
- Moderately Effective
- Slightly Effective
- Not Effective at all
- Unsure

Graph B2

_Pre-Survey NKE Frequency Results_

Patient-Centered Care: How often do you give or receive a handoff/NKE report at the patient's bedside during a patient transfer?

![Graph B2](image)

- Never
- Rarely
- Occasionally
- Very Frequently
- Always
Graph B3

*Pre-Survey Location Results*

**Process:** How do you give or receive a handoff report during patient transfer from L&D to Postpartum?

- Other: 0%
- At the patient's bedside: 4%
- In person (hallway, nurses station): 45%
- Over the phone: 51%

Graph B4

*Pre-Survey Comprehensiveness Results*

**Comprehensiveness:** How comprehensive do you find the current handoff you give or receive during a patient transfer?

- Extremely Comprehensive: 6%
- Very Comprehensive: 0%
- Moderately Comprehensive: 23%
- Slightly Comprehensive: 19%
- Not Comprehensive: 52%
Appendix C
Baseline Observation and Analysis

Graph C1

*NKE Baseline Observations: Overview*

Graph C2

*NKE Baseline Observations: Categories Averages*
Graph C3

*NKE Baseline Observations: Introduction and Background*

![Graph C3]

Graph C4

*NKE Baseline Observations: Situation*

![Graph C4]
Graph C5

*NKE Baseline Observations: Baby Progress*

<table>
<thead>
<tr>
<th></th>
<th>Bedside ONLY</th>
<th>Bedside OR Nurses Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>APGAR score</td>
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</tr>
<tr>
<td>Weight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood Glucose Check</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeding plan/last feed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breastfeeding Assessment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Void(s)/Stool</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Average Percentage of Completion

Graph C6

*NKE Baseline Observations: Assessment*

<table>
<thead>
<tr>
<th></th>
<th>Bedside ONLY</th>
<th>Bedside OR Nurses Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspect wounds/incisions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV Sites</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fundal assessment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambulation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Void/foley catheter</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Average Percentage of Completion
Graph C7

*NKE Baseline Observations: Computer Use and Recommendations*

![Bar chart showing computer use and recommendations]

Figure C1

*NKE Baseline Observations: Location of NKE*

![Pie chart showing location of NKE]

- NKE at Bedside ONLY
- Part of NKE at Nurses Station/Hallway
## Appendix D

### Johns Hopkins Evidence Appraisal Table

<table>
<thead>
<tr>
<th>Journal #</th>
<th>Citation</th>
<th>Evidence Type</th>
<th>Sample, Sample Size, Setting</th>
<th>How Does Article Address Problem?</th>
<th>Quality of Evidence</th>
<th>Other Highlights from Article (consider including limitations &amp; outcomes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bukoh, M. X., &amp; Siah, C. R. (2020, April). A systematic review on the structured handover interventions between nurses in improving patient safety outcomes. <em>Journal of Nursing Management</em>, 28(3), 744-755. <a href="https://doi.org/10.1111/jonm.12936">https://doi.org/10.1111/jonm.12936</a></td>
<td>Systematic Review</td>
<td>Sample/sample size: 9 studies published between 2008-2017; total of 1,169 22–38-year-old RNs working on inpatient medical and surgical wards. Setting: Articles found on MEDLINE, CINAHL, Web of Science, EMBASE, Scopus, and CENTRAL via Ovid.</td>
<td>A study on Harvard-affiliated hospitals found that 1,744 patient deaths were associated with communication failure over a five-year time period. A structured handoff tool was found to help reduce errors and, thus, improve patient safety. The involvement of the patient during bedside handoff helped reduce the incidence of discrepancies because the patient can validate and add additional information. Involving the patient in the process of handoff is essential to ensure the accuracy of the handoff and promote patient autonomy and involvement in their care.</td>
<td>Level III B Good quality with transparency, self-reflection and scrutiny.</td>
<td>Limitations: The same structure handoff model/format was not implemented across all the studies. This led to some debate regarding if the reduction in adverse events is due to the use of a structured handoff. These studies looked at different microsystems and different specialty handoffs. Different studies were used to focus on different measurements related to the safety and effectiveness of patient handoffs. Outcomes: The studies supported that the number of patient complications, medication errors and general adverse events was reduced when a standardized handoff model was used.</td>
</tr>
<tr>
<td>2</td>
<td>Elue, R., Simonovich, S., Tariman, J., Newkirk, E. A., &amp; Neerhof, M. (2019). Bedside shift report enhances patient satisfaction for Hispanic and public insurance patients and improves visibility of leadership in obstetric and postpartum settings. <em>Journal of Nursing Practice Applications &amp; Reviews of Research</em></td>
<td>Quasi-experimental study (Retrospective cross-sectional and longitudinal HCAHPS surveys)</td>
<td>Sample/sample size: 289 postpartum women over the age of 18 who were discharged between October 14, 2017, and April 15, 2018; 146 patients were involved in the pre-bedside shift report group and 143 in the post-bedside shift report group.  Setting: Tertiary care facility in Chicago metropolitan area, specifically obstetric and postpartum care area.</td>
<td>Bedside shift report has been found to increase patient satisfaction on an obstetric and postpartum unit in Hispanic and public insurance patient population. Bedside shift report was also found to increase the visibility of nurse leaders from the patient perspective, thus enhancing the patient's perception of overall care. This shift did not require any additional responsibilities to be assigned to the leaders, however, the bedside shift report simply made them more visible to patients. The change to bedside shift or handoff does not require additional responsibilities to be assigned to a nurse. This transition to bedside does not add to the workload of nurses and instead shifts the location of the handoff. Education is needed regarding how to</td>
<td>Level II B Good quality with transparency, self-reflection and scrutiny, and insightful interpretation</td>
<td>Limitations: This study was based on self-reported data, which meant that there were many people who didn’t respond to the survey and these nonresponses could have skewed with the results. Additionally, this study only allowed for the 3 months to pass after the implementation of bedside shift report, and it is argued that more time could have yielded more generalizable results because bedside shift report takes time to master. Outcome: Bedside shift report improves patients’ satisfaction with the care provided and promotes the visibility of the leadership team on the unit.</td>
</tr>
</tbody>
</table>
| 3 | Ho, Amy, CNL as outcomes manager: Improving communication during the ER to ICU handoff (2018). | QI Project | Sample/sample size: 20 RNs (10 ER RNs, 10 ICU RNs) Setting: private hospital, designated cardiac arrest center in Alameda County | A standardization tool was implemented to help with nurse handoff from ER to ICU. A one-hour class was given to educate 10 ER and 10 ICU nurses on the tool as well as have them practice using it. They were able to give real time feedback during the class and a pre and Level V B Good quality with clear aims and objectives, and reasonably consistent recommendations with Limitations: The sample size was small, and it was implemented in a private hospital. The pilot duration was only two weeks and the feedback after this single pilot study was not then applied to a new pilot. Outcomes: The implementation of a
navigate barriers; however, this study suggests that there are many perceived positive impacts according to the patient and little additional work required by the nursing staff. |
Setting: 8 small and medium-sized (150-400 beds) hospitals in South Korea | This study reported that based on the nurses’ survey, the primary factors that impact the quality of a handoff are level of education, work patterns, duration of hospital employment, handoff method, degree of satisfaction | Level V  
B Good quality with clear aims and objective, fairly definitive conclusions | Limitations: This study was limited to small and medium hospitals, however, the size of the hospital and its effects (i.e. resources available) on the results were not considered. Both Kardex and |
<table>
<thead>
<tr>
<th></th>
<th>evaluatio of nurses in small and medium-sized hospitals.</th>
<th>with the current handoff method, errors occurring at the time of giving the handoff, errors occurring at the time of receiving the handoff, handoff guidelines, and appropriateness of handoff education time. It was thus suggested that implementing guidelines to standardize handoffs could help improve the nurses’ evaluations of the quality of handoff. The results also emphasized that education regarding the guidelines and standardization are essential to improve the quality of handoffs. Including staff in the creation and education of standardization tools is crucial to promote the use and longevity of the tool’s success.</th>
<th>drawn, and logical argument for opinions provided drawn, and logical argument for opinions provided</th>
<th>EMR handoffs were evaluated as synonymous and, thus, the different methods were not taken into consideration. Outcome: Standardizing handoff processes and providing proper education on these processes were seen as potential ways to improve patient handoff based on nurses’ surveys.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Lee, D. D., Colwill, A. C., Teel, J., &amp; Srinivas, S. K.</td>
<td>Quasi-experimental Study (Prospective intervention study)</td>
<td>Sample/sample size: 17 pregnant people as baseline pre-intervention, 10 pregnant</td>
<td>This study looked at a bundle process intervention, which included defining and standardizing roles and implementing a bedside huddle on Level II B Good quality with transparency, verification, self-determination, and logical argument for opinions provided</td>
</tr>
</tbody>
</table>
| 6 | Lin, M., Heisler, S., Fahey, L., McGinnis, J., & Whiffen, T. L. (2015). Nurse knowledge ExchangePlus: QI Project | Sample/sample size: 64 medical/surgical units, 61 specialty units, including ICUs, maternal-child health and pediatric units | Implementing a standardized nursing bundle that clearly identifies necessary components of Nurse Knowledge Exchanges (NKEs) can improve the standardization of NKEs as well as the nurse communications. | Level V A High quality with clear aims and objective s, consistent results across multiple settings, and consistent reflection, scrutiny and insightful interpretation | Limitations: Specifics regarding how unit nurse champions identified how to implement on each individual unit was not focused on, which would mean the replication of the project would be difficult. | Outcomes: The unit-specific |}


people during implementation phase, 50 pregnant people 6-month post-intervention

Setting: Triage and L&D units in an urban academic tertiary center

L&D for closed-loop communication.

For defining and standardizing roles during huddle, a standardized script was used to relay important information when transferring a pregnant patient from triage to the L&D unit.

Additionally, a bedside huddle safety board was posted for RNs and providers to use as a visual guide for their bedside handoff. This study found that this intervention bundle reduced the bedside report/huddle time and, consequently, reduced the delay in patient care.

Additionally, no patient-centered data was obtained, especially regarding the patients experience during bedside handoff.

Outcomes: Having script guides for handoff can standardized the information shared and visual aids can be helpful in keeping handoffs up to date, which can all improve transfer times and reduce the delay in care.
| 7 | Nematollahazadeh, Z., Jahani, S., Ghanbari, S., & Sayadi, N. (2022, January). The effect of standard patient handover intervention | Quasi-experimental Study (Prospective intervention study) | Sample/sample size: Sixty-two handover cases between the operating room (OR) and intensive care unit (ICU); 31 before training and 31 after training | Setting: the cardiac OR | The study initially observed nurses, nurse assistants and nurse anesthetists who are involved in the handoff of patients during 31 cardiac OR to cardiac ICU transfers. Three primary forms of data were collected during the control group handoffs: 1) demographic and occupational information of nurses and demographic and | Level II B Good quality with self-reflection, scrutiny and participant-driven inquiry | Limitations: This intervention study was conducted in a specialized clinical setting in Iran and, thus, is difficult to generalize. Additionally, this study included a small sample size. Outcomes: This intervention was found to reduce the frequency of technical errors and number of |
ion on improving the quality of transfer from the operating room to the intensive care units. *Nursing and Midwifery Studies, 11*(1), 17-23. [https://nmsjourna l.kaums.ac.ir/article_157014_f1ed3c e0b803f2be7967bd290.pdf](https://nmsjourna l.kaums.ac.ir/article_157014_f1ed3c e0b803f2be7967bd290.pdf)

and cardiac ICU in Golestan Hospital of Ahvaz city, Iran

medical information of patients. 2) checklist of 11 questions focusing on the patient’s condition during the survey. 3) checklist to assess the quality-of-care transfer.

The intervention staff were then educated on the standard process of handoff, which was based on the handoff checklist items used during initial observations.

During the intervention, staff were trained in how to reduce disruptions and remain fully focused during handoffs. They also were trained in the use of the checklist tool and how to communicate with each other.

Handoffs that are not standardized have been found to overlook on average 36-40% of patient clinical information. Disruptions during handoffs. The standard handoff checklist also was found to significantly reduce the frequency of unintentionally omitting or not recalling key information such as “patient weight”, bypass duration, issues related to bypass separation, “size of endotracheal tube” and “the results of the echocardiographic examination” after handoff.

| 8 | Robins, H., & Dai, Fa. (2015). Handoffs in the postoper Randomized Control Study | Sample/sample size: 29 PACU RNs and 29 CRNAs | The Joint Commission estimates that around 80% of medical errors can be attributed to communication | Level I B Good quality with transparency, self-reflection | Limitations: This study was limited in size and, thus, is not generalizable yet. The focus on the six key components also was limited |
| Setting: Postoperative anesthesia care unit (PACU) | failure during the handoff process. The American College of Surgeons contributes 85% of adverse events to be due to breakdown in verbal communication. Utilizing a checklist to guide handoff improved the RNs retention of key components of handoff, thus reducing the chance of key information being omitted or forgotten. The inclusion of this checklist did not delay transfer times or the delivery of patient care, however, it increased the accuracy of the patient handoff. The addition of a checklist or guideline will not substantially add to the workload of the nurses and will aid in the smooth and safe transfer of patients between the L&D and postpartum units. | and scrutiny and did not assess the overall comprehensiveness of the handoff. Outcomes: A handoff checklist improved handoff recipients' recall of six essential components from 54% to 92% in OR to PACU patient handoffs. |

| Sample/sample size: 54 articles, including 21 studies and Standardizing handoff can be helpful in promoting patient-centered handoff, however, Level III B Good quality with transpare Limitations: Although most of the research and QI projects were of high quality, many | Systematic Mixed-Methods Review Sample/samp | Systematic Mixed-Methods Review Sample/samp | Systematic Mixed-Methods Review Sample/samp |


<table>
<thead>
<tr>
<th>10</th>
<th>Williams, C. L. (2018). A comparison of the risks and benefits of nursing bedside</th>
<th>Literature review</th>
<th>Sample/sample size: 8 articles</th>
<th>This systematic review suggests that a bedside shift report decreases potential risk to patients and increases the quality of care and patient satisfaction scores compared to a traditional shift report, which</th>
<th>Level V B Good quality with fairly definitive conclusions drawn and logical argument</th>
<th>Limitation: There is ample literature on the benefits of bedside shift reports, however, there has been little data collected on traditional shift reports.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I., Whitty, J. A., &amp; Chaboye r, W. (2019). Reprint of: Patient participation in nursing bedside handover: A systematic mixed-methods review. <em>International Journal of Nursing Studies</em>, 97, 63-77. <a href="https://pubmed.ncbi.nlm.nih.gov/31181413/">https://pubmed.ncbi.nlm.nih.gov/31181413/</a></td>
<td>25 quality improvement projects</td>
<td>Setting: Literature Search 1 was conducted on CINAHL, Medline and PsychINFO; Literature Search 2 was done using backward citation and reference lists from Literature Search 1; Literature Search 3 was conducted on Scopus</td>
<td>nurses need to remain flexible due to the dynamic atmosphere of healthcare. This review presented options to alleviate concerns about completing handoff at the bedside including gaining patient consent and speaking quietly to maintain confidentiality. Standardizing handoff can reduce confusion and clarify pertinent information; however, nurses must use their judgment on how to individualize it. For example, in L&amp;D certain information (ie psychosocial situations) may not be appropriate to state in front of the patient due to patient safety concerns.</td>
<td>Quality with fairly definitive conclusions drawn and logical argument</td>
<td>Issue: There was ample literature on the benefits of bedside shift reports, however, there has been little data collected on traditional shift reports.</td>
<td></td>
</tr>
</tbody>
</table>
| shift report vs. traditional shift report: A systematic review of the literature | between 2013-2018 from Google Scholar, Cumulative Index of Nursing and Allied Health Literature (CINAHL), and Ovid databases. | happens at the nurse station or outside the patient’s room. Conducting the shift report at the bedside also helped ensure that patients saw their nurse within the hour of shift change, which hopefully reduces the incidence of complications during this time. Additionally, a bedside shift report was found to promote better staff relationships and teamwork as well as allow for both the nurses to complete safety checks together.

The current culture and dynamic between the L&D and postpartum units is tense and most handoffs occur outside the patients’ rooms. Involving the patient in the handoff process could help reinvigorate a sense of unity and teamwork among staff. | for opinions provided Outcome: Bedside shift report is crucial to promote shift report accuracy and involvement of the patient. Although it currently isn’t standardized in many organizations, management and senior nurses should educate staff on it being the best practice and create an implementation plan that addresses potential barriers. |
Appendix E

Statement of Non-Research Determination

Project: Statement of Determination and Non-Research Determination Form

Student Name: Kiana Killian

Title of Project: Standardization of Nurse Knowledge Exchange (NKE) on the Peripartum Microsystem

Brief Description of Project

Need for the Project
The peripartum microsystem at Hospital A does not currently have a standardized NKE process. Our preliminary observation data disclosed that 73.8% of the necessary NKE content is covered at or away from the bedside, however, only 33.5% of it is covered solely at the bedside. Nurses reported feedback on a pre-survey that only 64% feel they give or receive very comprehensive or better NKEs. Furthermore, nurses communicated through informal discussions and the pre-survey that the NKE handoff process is currently inconsistent and incomplete and endorsed the current project’s aim.

Aim Statement
By April 7, 2024, we aim to improve the comprehensiveness of Nurse Knowledge Exchange (NKE) for postpartum nurses by 5% during the labor and delivery (L&D) to postpartum patient transfer through the implementation of a standardized handoff tool.

Description of Intervention(s)
A handoff guide employing best practices is proposed for nurses to use during patient transfers. Floor nurses and leadership on both L&D and postpartum units provided their feedback to develop the guide.

Desired Change in Practice
By standardizing the NKE process with our checklist guide, the NKE given during patient transfers from L&D to postpartum will be consistent, contain all the necessary NKE content, and include computers (WOWs).

Outcome measurement(s)
The checklist guide will measure the comprehensiveness of the observed NKEs. The patient transfers will receive a score that is based on the percent of necessary NKE content covered and the location it is given.
To qualify as an Evidence-based Change in Practice Project, rather than a Research Project, the criteria outlined in federal guidelines will be used: (http://answers.hhs.gov/ohrp/categories/1569)

☐ This project meets the guidelines for an Evidence-based Change in Practice Project as outlined in the Project Checklist (attached). Students may proceed with implementation.

☐ This project involves research with human subjects and must be submitted for IRB approval before project activity can commence.

Comments:

**EVIDENCE-BASED CHANGE OF PRACTICE PROJECT CHECKLIST**

*UNIVERSITY OF SAN FRANCISCO School of Nursing and Health Professions*

**Instructions:** Answer YES or NO to each of the following statements:

<table>
<thead>
<tr>
<th>Project Title: Standardization of Nurse Knowledge Exchange (NKE) on the Peripartum Microsystem</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>The aim of the project is to improve the process or delivery of care with established/accepted standards, or to implement evidence-based change. There is no intention of using the data for research purposes.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>The specific aim is to improve performance on a specific service or program and is a part of usual care. All participants will receive standard of care.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>The project is NOT designed to follow a research design, e.g., hypothesis testing or group comparison, randomization, control groups, prospective comparison groups, cross-sectional, case control). The project does NOT follow a protocol that overrides clinical decision-making.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>The project involves implementation of established and tested quality standards and/or systematic monitoring, assessment or evaluation of the organization to ensure that existing quality standards are being met. The project does NOT develop paradigms or untested methods or new untested standards.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>The project involves implementation of care practices and interventions that are consensus-based or evidence-based. The project does NOT seek to test an intervention that is beyond current science and experience.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>The project is conducted by staff where the project will take place and involves staff who are working at an agency that has an agreement with USF SONHP. The project has NO funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
The agency or clinical practice unit agrees that this is a project that will be implemented to improve the process or delivery of care, i.e., not a personal research project that is dependent upon the voluntary participation of colleagues, students and/or patients.

If there is an intent to, or possibility of publishing your work, you and supervising faculty and the agency oversight committee are comfortable with the following statement in your methods section: "This project was undertaken as an Evidence-based change of practice project at X hospital or agency and as such was not formally supervised by the Institutional Review Board."

**ANSWER KEY:** If the answer to ALL of these items is yes, the project can be considered an Evidence-based activity that does NOT meet the definition of research. **IRB review is not required. Keep a copy of this checklist in your files.** If the answer to ANY of these questions is NO, you must submit for IRB approval.

*Adapted with permission of Elizabeth L. Holmam, MD, Director and Chair, Partners Human Research Committee, Partners Health System, Boston, MA.

**STUDENT NAMES (Please print):**

Student Name: Kiana Killian

Signature of Student: [Signature]

**DATE:** 03/08/2024

**SUPERVISING FACULTY MEMBER NAME (Please print):**

Supervising Faculty Member Name: Scott Hebinck

Signature of Supervising Faculty Member: [Signature]

**DATE:** 03/08/2024
Appendix F

SWOT Analysis

**SWOT ANALYSIS**

**Strengths**
- Clear objective and need
- Strong support from unit leadership
- Existing handoff covers 74% of necessary content
- Interdisciplinary collaboration
- Engaged unit-based councils
- Commitment to safety

**Weaknesses**
- Resistance to change/current culture
- Physical constraint (confined space to bring WOWs into postpartum rooms)
- Suboptimal managerial involvement
  - Staff turnover
  - NKE compliance data unknown
  - Time constraints

**Opportunities**
- Evidence-based
- Promotes culture of safety
- Staff development
- Patient centered
- Medical resident-focused teaching hospital
- Joint Commission mandated standardized bedside handoff in 2010

**Threats**
- Time constraints
- Slow-moving change
- Limited educational opportunities for new nursing workforce
- Physical/environmental constraints (unit not designed for peripartum)
Appendix G

Fishbone Analysis

Nurse Knowledge Exchange (NKE) Standardization

Fishbone Analysis

- **People**
  - Not shift standard to have a postpartum charge
  - Notification of a patient transfer varies
  - Low morale between units
  - Roles/responsibilities unclear for nurses involved in transfer process
  - Absence of NKE checklist tool

- **Environment**
  - Multiple people in patients' rooms contributing to a lack of privacy
  - Confined physical space
  - Highly distracting room
  - High stress unit
  - LD nurses don't float to PP Unit
  - Variable NKE requirements around NKE
  - Multiple interruptions during NKE
  - Unknown processes on policy of NKE and notice of transfer

- **Equipment**
  - Suboptimal use of Vocera
  - Computers in hallway versus bedside
  - Majority slow adopters
  - Variable NKE processes
  - Transfer of patients NKE not seen as priority
  - Low priority to give family centered care

- **Material**
  - -

- **Methods**
  - -

- **Culture**
  - -

Team: Kiana Killian, Kimberly Martinez, Lillian Quach, Gaby Ochoa, Gabby Romena
# Appendix H

## Gantt Chart

### PROJECT TITLE
Unlocking the Potential of Peripartum Handoff: Standardizing Nurse Knowledge Exchange (NKE)

<table>
<thead>
<tr>
<th>TASK TITLE</th>
<th>DUE DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> Project Planning</td>
<td></td>
</tr>
<tr>
<td>Literature Review</td>
<td>3/3/2024</td>
</tr>
<tr>
<td>Evidence Appraisal Table</td>
<td>2/25/2024</td>
</tr>
<tr>
<td>Meeting with NM, OBIC</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Develop NKE Checklist &amp; Feedback</td>
<td>2/15/2024</td>
</tr>
<tr>
<td>Finalize NKE Checklist</td>
<td>3/21/2024</td>
</tr>
<tr>
<td>Develop Pre-Survey Questions</td>
<td>2/14/2024</td>
</tr>
<tr>
<td>Finalize Pre-Survey Questions</td>
<td>2/14/2024</td>
</tr>
<tr>
<td>Develop Pre-Survey Flyer</td>
<td>2/16/2024</td>
</tr>
<tr>
<td>Disseminate Pre-Survey Flyer</td>
<td>3/13/2024</td>
</tr>
<tr>
<td>Develop Post-Survey Questions</td>
<td>4/1/2024</td>
</tr>
<tr>
<td>Finalize Post-Survey Questions</td>
<td>4/1/2024</td>
</tr>
<tr>
<td><strong>2</strong> Implementation</td>
<td></td>
</tr>
<tr>
<td>Observe Baseline Transitions</td>
<td>3/8/2024</td>
</tr>
<tr>
<td>NKE Checklist Staff Education</td>
<td>4/1/2024</td>
</tr>
<tr>
<td>Observe Post-Education Transitions</td>
<td>4/12/2024</td>
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<tr>
<td><strong>3</strong> Project Evaluation</td>
<td></td>
</tr>
<tr>
<td>Develop Post-Survey Flyer</td>
<td>4/1/2024</td>
</tr>
<tr>
<td>Collect Post Survey Responses</td>
<td>4/12/2024</td>
</tr>
<tr>
<td>Analyze Pre/Post Survey Responses</td>
<td>4/19/2024</td>
</tr>
<tr>
<td><strong>4</strong> Project Performance</td>
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</tr>
<tr>
<td>Poster Presentation</td>
<td>4/30/2024</td>
</tr>
<tr>
<td>Submit Paper to USF Repository</td>
<td>5/13/2024</td>
</tr>
<tr>
<td>Present to KP Leadership</td>
<td>5/8/2024</td>
</tr>
</tbody>
</table>
# Appendix I

## Cost-Benefit Analysis

### Implementation of Standardized NKE

**Aim:** By the end of April, 2024, the project aims to improve the comprehensiveness of Nurse Knowledge Exchange (NKE) for postpartum nurses by 5%, during the labor and delivery (L&D) to postpartum patient transfer through the implementation of a standardized handoff tool.

By: Kianna Killian, Kimberly Martinez, Gaby Ochoa, Lillian Quach, Gabby Romanova

<table>
<thead>
<tr>
<th>Description</th>
<th>Total expenses</th>
</tr>
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<tbody>
<tr>
<td>Cost of guide</td>
<td>$6.80</td>
</tr>
<tr>
<td>CNL educator cost</td>
<td>$17,600.00</td>
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<tr>
<td>Nurse education</td>
<td>$17,160.00</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$34,366.80</strong></td>
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</tbody>
</table>

### Hospital Savings (Cost Avoidance)

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total births per year</td>
<td>3,000 per year = 3,000 transfers per year</td>
</tr>
<tr>
<td>Transfers in violation of HIPAA Compliance</td>
<td>85% = 2,550 transfers</td>
</tr>
<tr>
<td>HIPAA Compliance Violation</td>
<td>$1,379.89 / 929 (Tier 2 violation) = average: $35.154</td>
</tr>
<tr>
<td>Cost avoidance</td>
<td>$2,067,913</td>
</tr>
<tr>
<td><strong>Net Savings</strong></td>
<td><strong>$2,032,966</strong></td>
</tr>
</tbody>
</table>
Appendix J

L&D Council Presentation Key Slides

Our Project

**PICOT Question:** For peripartum RNs, does implementing a standardized handoff tool enhance the comprehensiveness of the handoff process during L&D to PP patient transfers over a 2 week period?

**Aim Statement:** By the end of April 2024, we aim to improve the comprehensiveness of NKE for PP RNs by 5% during the L&D to PP patient transfer through the implementation of a standardized handoff tool.

---

<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Study Design</th>
<th>Findings</th>
</tr>
</thead>
</table>
| Lin et al. | 2015 | Till Kaiser South California nurse units implemented NKEplus, which included report/safety check standardization, unit support for uninterrupted bedside report, and patient collaboration to fill out care boards. | After implementation, aggregate HCAHPS scores improved by 6.2 to 5.9%.
Nurse satisfaction was not assessed. Change was not sustained after project. |
| Lee et al. | 2018 | A quality improvement project implemented practice to define and standardize roles of team members and to include a huddle safety board during handoff between triage and L&D. | Huddle compliance increased from 48% to 84% and, thus, reducing delays in patient care. |
## Literature Review

<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Study Design</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nematollahzadeh et al.</td>
<td>2022</td>
<td>A prospective intervention study observed 62 cardiac OR to cardiac ICU handoffs, half before staff training and half after staff training.</td>
<td>Implementing the standardized handoff protocol reduced the frequency of technical errors and unintentional omission of information as well as the number of disruptions during handoff.</td>
</tr>
<tr>
<td>Dai &amp; Robins</td>
<td>2015</td>
<td>A randomized control trial studied 60 OR to PACU handoffs where half utilized a standardized handoff checklist and the other half did not.</td>
<td>92% of RNs who used the checklist were able to recall all information provided in the report compared to 54% of RNs who did not use the checklist.</td>
</tr>
</tbody>
</table>

## Our Progress So Far...

- **Baseline Observations**: Observed 20 patient transfers over the course of 3 weeks.
- **Requested Feedback**: Pre-survey helped to identify current barriers and practices to bedside NKEs.
- **Pilot Project**: In the beginning stages of implementing our handoff guide intervention.
Our Evaluation Tool

Baseline Observations

74%
Percent of NKE completeness, regardless of location

33.5%
Percent of NKE occurring at bedside

38.5%
Goal of bedside NKE completeness by the end of April
Baseline Observation Trends

Never occurred
Computer used at bedside

Always occurred
At Bedside: Name(s) **check bands**

Always covered
At Bedside OR Nurses station:
Introductions, Pregnancy History, Time/Type of Delivery, Pain control method

Important Content

Bedside vs. Bedside+N5

29% vs. 82.5%

Situation

Baby Progress

36% vs. 95%

19% vs. 74%

Our Tool

Will be laminated and placed on each PP WOW
Suggested Phrases

Replacing exclusive or clinical language with plain language that the user can understand:

<table>
<thead>
<tr>
<th>Exclusive Language</th>
<th>Plain Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;SNB&quot;</td>
<td>&quot;Your teeth/teeth&quot;</td>
</tr>
<tr>
<td>&quot;PnP&quot;</td>
<td>&quot;Extra breathing after childbirth&quot;</td>
</tr>
<tr>
<td>&quot;IVH&quot;</td>
<td>&quot;Intraventricular hemorrhage/haemorrhage&quot;</td>
</tr>
<tr>
<td>&quot;PROM&quot;</td>
<td>&quot;Premature rupture of membranes&quot;</td>
</tr>
<tr>
<td>&quot;VPT&quot;</td>
<td>&quot;Vaginal prolapse after consensual birth&quot;</td>
</tr>
</tbody>
</table>

Avoid disorienting or transaction language:

- "fetal "BECA" / induction" (unsuitable/unnecessary) "Prophylactic antibiotic" "not feeling it way"
- "Failure to progress" (when there is a medical diagnosis) "compromised induction"
- "surgical history" "medical history" "painful contractions" "strong contractions"

Example of poor language | Suggested alternative language
---|---
"Fetal distress" | "Changes in the baby's heart rate pattern"
"Trial of forceps" | "To see if we can help the baby deliver naturally"
"Labour ward" | "Labour suite"
"Artificial rupture" | "Artificial rupture"
"Blood clot" | "Blood clot, which will be checked at delivery"
"Big baby" | "Large baby"

Respecting women as autonomous adults

- "My woman" (for the pregnant woman) "Use her name, or say "The woman is doing well"
- "Grip the staff members" "Members"
- "Good job" (for the labourer) "You are doing really well"

Respecting women as individuals (rather than simply a consumer and evaluation for producing a baby)

- "Delivered" | "Safe delivery"
- "The baby/infant is 1.2.2.2." | "Use her name, or say "The woman in room 1.2.2."
- "I'll go and check on her" | "If she is happy and she asks, go ahead and check on her."
- "She" (when speaking in the room) "Use her name and be careful to avoid using (her) name other than her surname"
- "she's 10.2.2.2." | "Use her name, or say "The woman's name is cornelius from dilated"

Respecting the woman's autonomy as a decision-maker

- "You must have a cesarean section or any other action" "You're not allowed to..." | "I would recommend/suggest a cesarean section because... give benefits, risks, and alternatives to any recommendations of abortion"
- "Rescue assisted" | "Rescue assisted"
Education

1. Introductions
2. What is NKE
3. Why is it important
4. Overview of the tool components
5. Responsibility & Accountability
6. Questions
Appendix K

Obstetrics Council Meeting Presentation Key Slides

**Pilot Project**

1. Identifying both unit and impromptu champions
2. Briefly educating champions on use of the tool
3. Observing tool in use in ~10 NKEs (10/10 completed)
4. Collecting post-surveys and feedback from champions
5. Will prepare for the next PDSA cycle

**Education**

1. Introductions
2. What is NKE
3. Why is it important
4. Overview of the tool components
5. Responsibility & Accountability
6. Questions
Preliminary Results

38.5%
Goal of bedside NKE completeness by end of April

77%
Percent of NKE occurring at bedside (with use of guide)

91%
Percent of NKE completeness, regardless of location (with use of guide)

Suggested Phrases

PROMOTING EMPOWERING LANGUAGE AT THE BEDSIDE

SUGGESTED Phrases

1. "I AM HERE FOR YOU"
2. "WE WILL GET THROUGH THIS"
3. "YOU ARE NOT ALONE"
4. "IT'S OKAY TO ASK FOR HELP"

SUGGESTED 2. "LOVING LANGUAGE"

1. "YOU ARE LOVED"
2. "WE ARE DOING OUR BEST"
3. "YOU ARE STRONG"
4. "YOU ARE CAPABLE"

SUGGESTED 3. "STRONG LANGUAGES"

1. "YOU ARE STRONG"
2. "YOU ARE BRAVE"
3. "YOU ARE PERSEVERING"
4. "YOU ARE WINNING"

SUGGESTED 4. "CONSTRUCTIVE LANGUAGES"

1. "WE ARE GROWING STRONGER"
2. "WE ARE LEARNING"
3. "WE ARE OVERCOMING"
4. "WE ARE GETTING BETTER"

SUGGESTED 5. "CONSTRUCTIVE LANGUAGES"

1. "WE ARE GROWING STRONGER"
2. "WE ARE LEARNING"
3. "WE ARE OVERCOMING"
4. "WE ARE GETTING BETTER"

SUGGESTED 6. "CONSTRUCTIVE LANGUAGES"

1. "WE ARE GROWING STRONGER"
2. "WE ARE LEARNING"
3. "WE ARE OVERCOMING"
4. "WE ARE GETTING BETTER"

SUGGESTED 7. "CONSTRUCTIVE LANGUAGES"

1. "WE ARE GROWING STRONGER"
2. "WE ARE LEARNING"
3. "WE ARE OVERCOMING"
4. "WE ARE GETTING BETTER"

SUGGESTED 8. "CONSTRUCTIVE LANGUAGES"

1. "WE ARE GROWING STRONGER"
2. "WE ARE LEARNING"
3. "WE ARE OVERCOMING"
4. "WE ARE GETTING BETTER"
The Future of the Project

**Future PDSA Cycles**
- Shared Google Drive with UBC over the summer
- Students hopefully returning in the Fall to resume the project

**Future Education**
- Group session
- Scenarios (role playing)
- Leadership support
Appendix L

Impromptu Champion Education Script

COMMUNICATION TO CHARGE NURSE

I wanted to touch base regarding impromptu training we're planning for nurses who will be involved in patient transfers from Labor & Delivery to Postpartum. The goal of this training is to ensure a smooth handoff process and optimize patient care during these transitions. Could you please point us to the nurses who will be involved in transfers today? Thank you for your support in improving our patient care processes.

COMMUNICATION TO NURSE CHAMPION

**Trainer:** Hey there! Today, I wanted to go over this patient centered tool we've developed with your help for smooth patient bedside handoffs from Labor & Delivery to Postpartum. It's all about making sure we don't miss any important detail and maintaining patient safety. You know? Literature suggests bedside handoff improves patient outcomes. 80% of serious medical errors are due to ineffective handoff communication (Wollenhaup et al., 2017). Bedside handoff between nurses has become essential in a clinical environment, particularly as the healthcare model embraces a more patient- and family-centered care approach (Lin et al., 2015). Our goal with this new process is to improve patient safety, continuity of care, and communication among the healthcare team and our patients.

**Holding a laminated sheet or tablet with the tool**

**Trainer:** Let's break it down real quick. This is our bedside handoff tool. It's like a cheat sheet to help us cover everything we need to during the handoff.

**Pointing to each section on the tool**

**Trainer:** Here's how it works. First off, we introduce ourselves at the bedside and pull up the computer for quick access to records. Then, we dive into the background like allergies, pregnancy history, medical history, labs, and information about the delivery.

**Moving down the tool**

**Trainer:** Next up, we check on the patient's progress. How's the baby doing? Any complications with mom? We'll also peek at IV sites and wound care.

**Pointing at the computer section**

**Trainer:** Don't forget to hop on the computer too. Check out the care plan, any orders, and set some goals for the shift and discharge.

**Wrap up + Have updated student checklist handy for observations**

**Trainer:** Lastly, we open the floor for questions and make sure the patient and family are all good to go. Simple, right? I will be in the room observing and being a resource if any questions arise.

**Handing over the tool + Have QR code handy.**

**Trainer:** Here's a copy of the tool for you to keep handy. Give it a try during your next handoff, and let's chat afterward to see how it went. I also have a post-survey for you to fill out after you are done.

PHRASES FOR PUSH BACK

"We will never use computers at bedside"
- The Joint Commission checks for computer use during handoff

"We already do this"
- If you are, that's great! You are one step ahead but not all nurses on the unit are, and this guide will help them make transfers go smoother/faster for you.
- We are not asking you to change the way you give handoff report. This is just a guide to make sure nothing is left out and aims to improve patient outcomes. 80% of serious medical errors are due to ineffective handoff communication and we want to make sure we are doing everything we can to improve that number.
Appendix M

PDSA Cycle

**Modifications:**
We adapted to the feedback and revised the tool based on feedback and suggestions we received.

We responded to unanticipated challenges by approaching the assistant nurse manager for guidance and substantiating the need for change with literature.

The next PDSA cycle will involve piloting the revised tool with the goal of observing 20 transfers.

Getting leadership involved early in the next PDSA cycle will set the expectations of the nurses and encourage their participation.

**Questions & Predictions:**
We anticipate push back from nurses not doing bedside NKE due to privacy concerns or perception of patient needs.

**Who, What, Where, When:**
The QI group will witness 10 transfers from L&D to PP. Unit champions will be identified and educated on the NKE guide. The champions will then utilize the handoff guide during their shifts whenever they are involved in a patient transfer.

**Plan for Collecting Data:**
A group member will follow a unit champion when they are doing NKE and evaluate the comprehensiveness of the NKE by assigning a “0” or “1” if an item or topic was discussed during handoff at the bedside.

**Data Collected & Observations:**
We saw 10 transfers from L&D to PP and successfully recruited the nurses to utilize the NKE Guide during their handoff.

Post-survey was conducted to obtain feedback on use of handoff guide.

We saw use of break nurses during handoff, and found participating in huddle makes everyone aware this pilot is happening and thus more inclined to participate.

PP nurses were resistant to participate in the pilot project.

**Summary & Reflection:**
The L&D nurses are open to participating in the pilot and utilizing the tool during their handoff report to PP.

Absence of culture to do handoff at bedside and to utilize a computer during handoff

Educating both RNs on guide is essential for smooth pilot process

Post-survey results were analyzed to assess the effectiveness of the intervention
## Appendix N

### NKE Post-Intervention Documentation Spreadsheet

<table>
<thead>
<tr>
<th>Key</th>
<th>Count</th>
<th>Did not occur</th>
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<td>0</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
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</table>

<table>
<thead>
<tr>
<th><strong>NKE COMPETENCY TOOL</strong></th>
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</thead>
<tbody>
<tr>
<td><strong>TRANSFER NUMBER</strong></td>
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<td>2</td>
<td>3</td>
</tr>
<tr>
<td><strong>INTRODUCTIONS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Off-going nurse introduces on-coming nurse to patient <strong>“write name on board”</strong></td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>BACKGROUND</strong></td>
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</tr>
<tr>
<td>Name(s); <strong>“check bands”</strong></td>
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<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Age</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Allergies</td>
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<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Pregnancy history (GTPAL, GDM, complications, Pre-E)</td>
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<td>0</td>
<td>1</td>
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<tr>
<td>Prenatal Labs (HIV, Type, RPR, Rubella, GBS, RSV, etc.)</td>
<td>1</td>
<td>0</td>
<td>1</td>
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<tr>
<td>Medical/Surgical History, Psychosocial History, COVID status</td>
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<td>0</td>
<td>1</td>
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<tr>
<td><strong>SITUATION</strong></td>
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<tr>
<td>Time &amp; Type of Delivery</td>
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<td>HR</td>
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<tr>
<td>LAP</td>
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<td>0</td>
<td>1</td>
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<tr>
<td>Laceration/Assess dressing <strong>“view dressing for drainage”</strong></td>
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<td>0</td>
<td>1</td>
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<tr>
<td>Pain Control method/Type of anesthetic</td>
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</tr>
<tr>
<td>Assistive device (R N/A, put 1) Medication(s) given</td>
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<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Complications (Mom + Newborn)</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>BABY PROGRESS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>APGAR score</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Weight</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>BG Check (if not stated, put 0)</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Med (ifrop 9, Vf K, Chemo, etc.)</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Feeding plan/last feed</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Cephalurm, hand expression, bathing assessment</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Vitals</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Weight/Birth (if unsure?)</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>ASSESSMENT</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV sites <strong>“both RNS trace Mg, Pin lines”</strong></td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Fundal &amp; wound assessment <strong>“both RNS assess for bleeding”</strong></td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Amputation (if C/S and hormonal is used, put 1)</td>
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<tr>
<td>Diet</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Void/bladder catheter</td>
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<td>1</td>
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<tr>
<td><strong>COMPUTER</strong></td>
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</tr>
<tr>
<td>Computer used at bedside</td>
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<tr>
<td>Orders &amp; care plan</td>
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<tr>
<td>Upcoming tasks &amp; labs (review labs drawn and schedule for future labs drawn)</td>
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<td>0</td>
<td>1</td>
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<tr>
<td>Recommendations</td>
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<tr>
<td>Goals for the shift and discharge goals <strong>“engage patient and write goals on white board”</strong></td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Questions: Ask patient and family if they have any questions or additional information that they would like to add</td>
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<tr>
<td><strong>Total</strong></td>
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<td>29</td>
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<td><strong>Percentages</strong></td>
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<td><strong>Average</strong></td>
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# Appendix O

## NKE Baseline Observation Documentation Spreadsheet

<table>
<thead>
<tr>
<th>Key</th>
<th>Use not occur</th>
<th>Use occur at discharge</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td></td>
<td>At least some of comfort measures were in place (NCT on PAK Compliant)</td>
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### NKE COMPETENCY TOOL

<table>
<thead>
<tr>
<th>Task Parameter</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<th>9</th>
<th>10</th>
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</thead>
<tbody>
<tr>
<td>INTRODUCTION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Of going nurse introduces on-coming nurse to patient
  with name on board | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |    |
| Background     |   |   |   |   |   |   |   |   |   |    |
| Name(s) “one hand” | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Age            | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Weight         | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Psychiatric history (schizophrenia, depression, anxiety, etc.) | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Family History (i.e., family history of psych, Cushing’s, HIV, etc.) | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Medical/surgical History, Psychosocial History, COVID status | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

### SITUATION

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<tr>
<th>Task Parameter</th>
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<th>3</th>
<th>4</th>
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<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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</thead>
<tbody>
<tr>
<td>Time &amp; Type of Delivery</td>
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<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
</tr>
<tr>
<td>Laboratory results “view dressing for drainage”</td>
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<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
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<td>0</td>
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<td>Pain Control method “type of analgesia”</td>
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<td>0</td>
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<td>0</td>
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<tr>
<td>Complications (Ustus &amp; Newborn)</td>
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<td>0</td>
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### BABY PROGRESS

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<td>Apgar score</td>
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<tr>
<td>Weight</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>MICU (if placed, put 1)</td>
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<td>0</td>
<td>1</td>
<td>1</td>
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<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Meds (i.e., IV, HCAs)</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>Feeding by nasogastric</td>
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<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>Assessment, until nasogastric, feeding</td>
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<td>1</td>
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<td>0</td>
<td>0</td>
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<tr>
<td>Vitals</td>
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<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Vitals &amp; weight (if sterile)</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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### ASSESSMENT

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<th>9</th>
<th>10</th>
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<td>0</td>
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</tr>
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<td>1</td>
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<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pain assessment “both NRS, assess for bleeding”</td>
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<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
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</tr>
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<td>Allergies (i.e., drugs and immunizations)</td>
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<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Diet</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
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</tr>
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<td>Integrity of mother, caregiver</td>
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<td>0</td>
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</tr>
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<td>Bilirubin (if necessary, put 1)</td>
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</tr>
<tr>
<td>Computer used to exceptions</td>
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<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Oamens &amp; care plans</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Upcoming events (surgery, medical issues, etc.)</td>
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<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>Immunizations</td>
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<td>1</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Goals for the unit and discharge goals “manage patient and write goals to unit board”</td>
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<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Goal: Access patient and family if they have any questions or additional information that they would like to add</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Total (minimum 12 row 50)</td>
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<td>11</td>
<td>20</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>7</td>
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</table>

### Percentage (% of 12/row 50)

- 62.70
- 33.33
- 67.70
- 15.15
- 16.15
- 21.21
- 16.10
- 16.10
- 9.25
- 9.25

### Average

33.48
| Variable | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | Average |
| Total | 25 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |
| **MIRE COMPLIANCE TOOL** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Transfer Function | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| **INTRODUCTIONS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Off-ramp travel distance on elliptic route | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| **INTERVENTION** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Non-parametric design | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| **EVALUATION** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nine & type of delivery | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| **DEMOGRAPHICS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sex | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| **COMMUNITY INVOLVEMENT** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Type of community involvement | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| **COMPUTER** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Considered an individual | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| **TOTAL** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 25 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | Average |
Appendix P

Post-Survey

QI: Post-Survey

Hello, we are the University of San Francisco ME-MSN nursing students conducting a quality improvement (QI) project on your microsystem focused on NKE during patient transfers from L&D to Postpartum. Thank you for taking the time to complete our post-survey after utilizing our NKE guide.

Please answer every question. Remember this survey will only be used to aid in measuring the impact of our intervention [NKE guide].

Name:
(This will only be used to follow up on any feedback if necessary)

Department/Unit:

☐ Postpartum

☐ L&D

Comprehensiveness: How comprehensive did you find the handoff you gave or received during a patient transfer after utilizing the NKE guide?

☐ Extremely comprehensive

☐ Very comprehensive

☐ Moderately comprehensive

☐ Slightly comprehensive

☐ Not comprehensive
Effectiveness: How effective did you find the handoff you gave or received in facilitating communication during the patient transfer process after utilizing the NKE guide?

- [ ] Extremely effective
- [ ] Very effective
- [ ] Moderately effective
- [ ] Slightly effective
- [ ] Not effective at all
- [ ] Unsure

Patient-Centered Care: After utilizing the handoff guide, how likely are you to give or receive NKE at the patient’s bedside during a patient transfer?

- [ ] Extremely likely
- [ ] Somewhat likely
- [ ] Neither likely nor unlikely
- [ ] Somewhat unlikely
- [ ] Extremely unlikely

After utilizing the NKE guide, do you foresee a time when you may be unable to use it? If so, what are some reasons why?
Overall Satisfaction: How satisfied are you with the report you gave or received during a patient transfer after utilizing the NKE guide?

○ Very satisfied
○ Somewhat satisfied
○ Neither satisfied nor dissatisfied
○ Somewhat dissatisfied
○ Extremely dissatisfied

Suggestions for Improvement: Please provide any additional comments or suggestions for improving the report checklist.

__________________________________________
## Appendix Q

### Suggested Phrases

#### Promoting Empowering Language at the Bedside

<table>
<thead>
<tr>
<th>Example of Poor Language</th>
<th>Suggested Alternative Language</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Avoid Phrases That Are Anxiety Inducing</strong></td>
<td><strong>“Changes in the Baby’s Heart Rate”</strong>&lt;br&gt;<strong>“Help the Baby with Forceps”</strong>&lt;br&gt;<strong>“Birth Suite”</strong>&lt;br&gt;<strong>“Release the Waters”</strong>&lt;br&gt;<strong>“Show with Some Blood”</strong>&lt;br&gt;<strong>“Healthy Baby”</strong></td>
</tr>
<tr>
<td><strong>Delivered</strong>&lt;br&gt;“The Primagravida in Room 12”&lt;br&gt;“I’ll Go Consent Her”&lt;br&gt;“SHE”&lt;br&gt;“Shes 7cm”</td>
<td><strong>“Gave Birth”</strong>&lt;br&gt;<strong>“The Woman in Room 12”</strong>&lt;br&gt;<strong>“Discuss Informed Consent”</strong>&lt;br&gt;Use her Name or Speak to her Rather than About her <strong>“[Insert Name] is 7cm”</strong></td>
</tr>
<tr>
<td><strong>Respecting Women as Individual</strong></td>
<td><strong>“I Would Suggest a Caesarean Because [Give Benefits, Risks and Alternatives]”</strong>&lt;br&gt;<strong>“She Declined”</strong></td>
</tr>
<tr>
<td><strong>Replacing Codified Language with Plain Language</strong></td>
<td><strong>“Your Waters Have Broken”</strong>&lt;br&gt;<strong>“Extra Bleeding After Childbirth”</strong>&lt;br&gt;<strong>“Bleeding During Pregnancy”</strong>&lt;br&gt;<strong>“Vaginal Birth After Caesarean Birth”</strong></td>
</tr>
<tr>
<td><strong>Failed VBAC/Induction</strong>&lt;br&gt;<strong>Poor Maternal Effort”</strong>&lt;br&gt;<strong>Failure to Progress”</strong>&lt;br&gt;<strong>“Terminate Pregnancy”</strong>&lt;br&gt;<strong>“High Risk”</strong>&lt;br&gt;<strong>“Poor Obstetric History”</strong>&lt;br&gt;<strong>“Painful Contractions”</strong></td>
<td><strong>“Unsuccessful VBAC/Induction”</strong>&lt;br&gt;<strong>“Not Finding it Easy...”</strong>&lt;br&gt;<strong>“Slow Labour”</strong>&lt;br&gt;<strong>“Compassionate Induction”</strong>&lt;br&gt;<strong>“Medically Complex”</strong>&lt;br&gt;<strong>“Strong Contractions”</strong></td>
</tr>
</tbody>
</table>
Appendix R

Project Results

Graph R1

*NKE Comprehensiveness Improvement*

![Graph R1](image)

Baseline Bedside ONLY

Post-Intervention Bedside ONLY

Average Percentage of Completion

Graph R2

*NKE Occurring Fully or Partially at the Nurses Station or In the Hallway*

![Graph R2](image)

Baseline Observations

Post-Intervention Observations

Percentage of Observed NKEs
Graph R3

Computer Use During NKE

<table>
<thead>
<tr>
<th>Baseline Observations</th>
<th>0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-Intervention Observations</td>
<td>60%</td>
</tr>
</tbody>
</table>

0% 20% 40% 60% 80% 100%
Percentage of Observed NKEs
Appendix S

Post-Intervention Observation Results

Graph S1

NKE Post-Intervention Observation: Overview

Graph S2

NKE Post-Intervention Observation: Computer Use and Recommendations
Graph S3

NKE Post-Intervention Observation: Categories Averages

Graph S4

NKE Post-Intervention Observation: Introductions and Background
**Graph S5**

*NKE Post-Intervention Observation: Situation*

**Graph S6.**

*NKE Post-Intervention Observation: Baby Progress*
Graph S7

NKE Post-Intervention Observation: Assessment
Appendix T

Post-Survey Results

Figure T1

Post-Survey Comprehensiveness Results

Comprehensiveness: How comprehensive did you find the handoff you gave or received during a patient transfer after utilizing the NKE guide?

![Comprehensiveness Graph]

- Extremely Comprehensive: 30%
- Very Comprehensive: 70%

Figure T2

Post-Survey Effectiveness Results

Effectiveness: How effective did you find the handoff you gave or received in facilitating communication during the patient transfer process after utilizing the NKE guide?

![Effectiveness Graph]

- Very Effective: 40%
- Extremely Effective: 60%