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DOI: https://doi.org/10.31979/etd.gjnr-yzn4
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Standardizing Patient Transfer Process Among Nurses From Labor & Delivery to Mother-Baby Unit: A Quality Improvement Project

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A master's project completed in partial fulfillment of the requirements for the degree of Masters Science—Nursing, Family Nurse Practitioner at the Valley Foundation School of Nursing, San José State University

May 2023

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STANDARDIZING PATIENT TRANSFER PROCESS AMONG NURSES FROM LABOR & DELIVERY TO MOTHER-BABY UNIT: A QUALITY IMPROVEMENT PROJECT

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Family Nurse Practitioner Program

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May 1st, 2023

Abstract

Purpose: To implement and evaluate the efficacy of a standardized patient transfer process among registered nurses (RN) from Labor & Delivery (L&D) to Mother-Baby Unit (MBU) using PDSA cycle to improve RN satisfaction and reduce patient transfer time

Conceptual Framework: PDSA Cycle

Setting: Labor & Delivery and Mother-Baby Unit of a tertiary care hospital

Methods: The project consisted of collecting both objective (estimated patient transfer time from L&D to MBU) and subjective data (anonymous nursing pre- and post-intervention surveys). Standardization of transfer process included implementing a transfer checklist, patient transfer tool, updating the workflow, and a sample patient transfer video. The evaluation of surveys and comparison of pre- and post-intervention transfer time was utilized to determine if the interventions were effective in reducing patient transfer time and improving the RN's experience with the patient transfer process or needed further modifications.

Results: The average time of patient transfer process was 28 minutes before intervention phase, while post-intervention was 27 minutes. During pre-intervention phase, out of 52 Registered Nurses (RNs), 24 were satisfied with the patient transfer process and 12 were satisfied with the patient transfer duration. During post-intervention phase, while only 17 out of 33 RNs were adhering to the updated workflow, 16 were content with the patient transfer process and 15 were pleased with the patient transfer time.

Clinical Implications: Standardizing patient transfer process can enhance the experience of registered nurses while transferring patients from L&D to MBU.

Key words: patient transfer process, patient transfer checklist, RN experience, Labor & Delivery, Mother-Baby Unit.

Standardizing Patient Transfer Process Among Nurses From Labor & Delivery to Mother-Baby Unit: A Quality Improvement Project

Introduction/Background

Patient handoff between registered nurses (RNs) is a vital step during change of shifts or patient transfers to another unit. The information passed on during patient handoff is necessary to provide and maintain the continuity of patient-centered medical care. Nurse-to-nurse handoffs take place during shift change, at the time of transfer, or intra-shift. Nursing handoff presents an opportunity to build the nurse-patient relationship as information relevant to the current patient condition and necessary care is being communicated to the receiving nurse. The Joint Commission estimates that about 80% of adverse outcomes due to medication errors are related to the miscommunication between healthcare personnel at the time of transfer or during a shift handoff (Riesenberg, 2012). All pertinent patient information should be relayed to the receiving nurse to prevent any significant events that might affect patient care. A satisfactory patient report requires that the nurse communicates patient information that is relevant to the current patient condition and necessary patient care (Raeisi et al., 2019). In addition to the communication about the transfer, stabilizing the patient before transfer, selecting correct mode of transfer, accompanying the patient during transfer and patient handoff (Kulshrestha & Singh, 2016), an efficient flow of transfer is crucial to a safe and effective patient transfer. Raeisi et al. (2019) emphasize the impact of interpersonal behaviors and positive relationships among nurses in facilitating a productive and efficient patient handoff.

Effective nurse-to-nurse communication is a crucial part of the healthcare as it directly impacts the quality of patient care and affects patient's perception of the overall care received during their hospital stay (Mortensen et al., 2020). Implementing a transfer checklist between

two in-patient units can standardize patient handoffs by reducing the transfer time and improving RN experience and patient safety. Raeisi et al. (2019) exhibited the significance of using a checklist in improving the transfer of ICU patients by facilitating the transfer process and improving the quality and efficiency of the patient handoff. Furthermore, standardizing the transfer flow is crucial because the absence of a standardized handoff method can lead to an ineffective handoff (Kim et al., 2021), which further initiates a cascade of events that might cause patient dissatisfaction, medication errors, ineffective patient care, and adverse outcomes. The purpose of this paper is twofold: (a) to present a brief literature on the results of standardizing patients transfer process in improving patient-centered care and quality of patient transfer process; and (b) and to discuss the quality improvement project of standardizing patient transfers from L&D to MBU at a local hospital.

Purpose of the Present Quality Improvement Project

The patient transfer process from Labor & Delivery to Mother-Baby unit at a local county hospital in Bay Area (California) was not standardized. The importance of systematizing patient transfers was recognized after RNs of both units expressed concerns about the patient transfer process on multiple occasions. Collectively, RNs suggested interventions to reduce the duration of patient transfers, provide an organized layout of patient transfer process, and standardization of the patient handoff between the two units. It is predicted that the results from this quality improvement (QI) project will demonstrate the effectiveness of standardizing patient handoffs in a hospital setting. There is no record of any previous QI projects being put into effect prior to this study at this site. The purpose of this QI project was to implement and evaluate the efficacy of a standardized patient transfer process using plan, design, study, and act (PDSA) cycle to

improve RN satisfaction and reduce patient transfer time while maintaining the quality of patient handoffs between L&D and MBU.

Literature Review

Literature Review Strategies

The databases PubMed, The Cumulative Index to Nursing and Allied Health Literature (CINAHL) Complete, and Google Scholar were researched with the keywords: “patient transfer checklist”, “patient handoff”, “nurse-to-nurse handoffs”, “SBAR handoffs”, and “intra-hospital patient transfer”. Any meta-analyses and systematic reviews were eliminated from the results. Eight current (published within the last five years) research study articles were selected as the primary articles after establishing their clinical relevance to the patient handoffs, interventions to improve intra- and inter-hospital patient transfers, and nurse-to-nurse communication.

Research Article 1

The results of a study by Kim et al. (2021) identified the important handoff components by collectively surveying 425 nurses at small and medium-sized South Korean hospitals. Nurses were given self-reporting questionnaires that focused on evaluating nurses’ demographic data, nurse handoff characteristics and quality, and perception of patient safety. The results of this study displayed important factors affecting the quality of nurse-to-nurse handoffs were education level, workflow, duration of employment, method of handoff, satisfaction degree of current method of handoff, errors during giving or receiving handoff, handoff process, and handoff training. While rating the quality of patient handoffs, the participants rated the quality of information the highest, but they rated the process and quality of handoffs the lowest (Kim et al., 2021). Since only 8.4% of participants reported receiving formal handoff education, researchers

concluded that formal education should be provided to nurses after developing and standardizing a structured patient handoff process.

Research Article 2

While the results of the study by Kim et al. (2021) recommended standardizing and implementing a structured handoff process, Ghosh et al. (2021) evaluated the effectiveness of a standardized Situation, Background, Assessment, Recommendation (SBAR) communication tool on overall bedside handover process, patient satisfaction, and acceptance among nurses in surgical gastroenterology unit. In addition, Ghosh et al. (2021) assessed compliance rates to the new protocol among nurses. Before and after implementing the SBAR tool, nurse-to-nurse handoffs were observed using a checklist and patient satisfaction surveys were collected. The overall nursing handoff process was scored based on time, location, process, interaction, and communication with the patient. The nurses were provided with formal education about SBAR handoff process using lectures and modules. Ghosh et al. (2021) found that post-intervention, in addition to better compliance to SBAR among nurses, overall clinical handoff scores in all categories and patient satisfaction scores were found to be improved. Based on the results, the authors concluded that by implementing a standardized nursing handoff practice, patient and nurse's satisfaction can be improved (Ghosh et al. 2021).

Research Article 3

Similar to the study presented above by Ghosh et al. (2021), the following experimental study conducted by Blazin et al. (2020) evaluated the effectiveness of using the communication tool: I-PASS, in order to decrease medical errors and prevent harm to the patients at a pediatric hospital. The I-PASS tool is similar to SBAR communication tool and stands for illness severity, patient information, action list, situational awareness and contingency plans, and synthesis by

receiver (Blazin et al., 2020). Using I-PASS implementation, three written handoff tools containing relevant patient information were designed for bedside nurse-to-nurse handoff, physician handoff, and temporary transfer to diagnostic imaging/procedures. After formal training and implementation of I-PASS program, adherence to I-PASS was high for inpatient bedside handoffs and transfer to imaging/procedures. Post-implementation, perceived handoff error rates dropped for nurses and overall handoff performance improved among all three groups. In addition, most participants reported better personal handoff experience and performance after utilizing the handoff program. Based on the findings, Blazin et al. (2020) identified three major factors responsible for the adaptation, implementation, and continued use of I-PASS tool. They were as follow: (a) support of the institution; (b) customized written tools for each setting; and, (c) use of direct observations of the handoff process with feedback.

Research Article 4

While the two studies (Ghosh et al., 2021; Blazin et al., 2020) mentioned above focused on evaluating the success of a standardized handoff process, Tacchini-Jacquier et al. (2020) aimed to develop an evidence-based and standardized nursing handoff tool for shift or intra-hospital handoffs at a hospital in Switzerland. A modified version of Delphi data collection survey was used among French and German-speaking 264 nurse experts at different sites of a public hospital. After performing a systematic review of literature to find essential components of evidence-based and effective nursing handoff, survey collection was done in two steps where the content of the second survey were based on the responses from the first. In third and final round, cognitive debriefing was conducted where a group of participants validated the consensus items for handoff process after discussing and explaining them. The consensus items for the standardized handoff process included items about staff attitudes during handoffs, safe staffing

ratios, and the most pertinent information during nursing handoffs. Role of limitations within an organization such as staffing time limits, were perceived to play an important role during nursing handoffs. Additionally, researchers found that despite being from different clinical backgrounds, nurses displayed very high rates of consensus among items necessary for an effective nurse-to-nurse handoff, including positive staff attitudes. Interestingly, nurses did not reach consensus on providing medication list during handoff and importance of bedside handoff during the final phase of this study.

Research Article 5

Even though most of the research about patient transfers and nurse-to-nurse handoffs is conducted for in-patient settings, the importance of an effective patient handoff during patient transfers to post-acute care facilities is highlighted in this next study. The focus of the study conducted by Streelman and Staffileno (2021) consisted of standardizing handoff from acute care to post-acute care to improve communication and reduce readmissions. The researching team implemented the Plan, Do, Study, Act (PDSA) cycle to meet their goals of reducing readmissions post-discharge. Long-Term Care (LTC) Handoff tool was designed in the *Plan* act and nurses received education before implementation of the tool in the *Do* act. After analyzing the results in the *Study* act, the designed tool was permanently implemented at the study site during the *Act* part and a decision was made to implement a similar tool in other units. The results of the study revealed that hospital readmissions decreased by 1.6% post-implementation of the handoff tool. In addition, patient surveys displayed slight improvement in transfer process, and most nurses reported feeling content with the quality of the handoff tool.

Research Article 6

While the researchers mentioned in previous articles (Ghosh et al., 2021; Blazin et al., 2020; Streelman & Staffileno, 2021) discussed the importance of implementing a standardized tool, Guimaraes Telles et al. (2020) analyzed the factors contributing to ineffective communication between nurses during patient handoffs. Data collection was initiated by researchers using the STROBE tool to directly observe patient handoff process in a public hospital of Rio de Janeiro over the course of 4 months, and a questionnaire to indirectly gather information about barriers to communication between nurses. The STROBE tool stands for Strengthening the Reporting of Observational Studies in Epidemiology and was created to help define the results of observational studies in an organized and sufficient form (Malta et al., 2010). Based on the findings, the researchers concluded that factors interfering with communication during patient handoff mostly occurred at the nurse's station, thus highlighting the importance of bedside handoff in reducing communication-related errors and improving patient satisfaction. Lack of standardized tool for handoff, delayed availability of the receiving nurse, and loud noises were found to be the key factors resulting in communication failures and ineffective patient transfers.

Research Article 7

Similar to the results presented by Streelman and Staffileno (2021), Akrami et al. (2019) conducted a quasi-experimental study and evaluated the use of a transfer checklist in improving the quality of intra-hospital transfer of critically ill patients. The researchers developed a safe transfer checklist after observing transfer process at a control group hospital, which was later introduced to nurses at an intervention group hospital. Both control and intervention groups were affiliated with the same University of Medical Sciences, and both groups of patients had similar mean age, gender, and transfer characteristics. Post-intervention, the quality of intra-hospital

transfer process was analyzed in the intervention group and found to be significantly higher than the control group. Based on the findings, the researchers concluded that the quality of patient transfer process improved because nurses were required to use the checklist after receiving adequate training on the use of checklist.

Research Article 8

While most of the research that relates to intra-hospital transfers focuses on improving patient safety and experience, Germack et al. (2019) conducted a study to understand the effects of patient transfers on hospital staff. Nurses, physicians, and support staff were interviewed and directly observed to understand the patient transfer process of the hospital. Based on the results, the researchers were able to generate three major findings that were affecting cooperation and causing conflicts between staff during patient transfers. They were as follow: (a) participating staff identified that hospital policies impeded safe and qualitative patient transfers by creating power imbalances among groups; (b) participants identified positive relationships with staff on other units helped in facilitating transfers; and, (c) patient care and patient's placement in the receiving unit were affected by the lack of verbal communication for admission orders from providers and the lack of verbal handoff between the sending and the receiving nurses. At the time of this study, an electronic transfer checklist was recently implemented to replace verbal patient handoff between sending and receiving nurses. Participants reported that lack of verbal communication led to conflicts when pertinent patient information required to provide safe patient care at the receiving unit was unavailable in the checklist. Additionally, patient transfers were affected when providers were unaware of the nurses' scope of practice at the receiving units, causing a delay or rearrangement of the patient to another unit with a higher level of care.

Summary of the Brief Literature Review

Based on the aforementioned studies, a majority of the study results demonstrate that implementing a standardized SBAR checklist results in improved patient-centered medical care and quality of patient transfer process by the following: (a) increasing patient and RN satisfaction levels; and, (b) lowering medical errors and readmission rates (Akrami et al., 2019; Blazin et al., 2020; Ghosh et al., 2021; Streelman & Staffileno, 2021). In addition to the level of education and duration of employment of nurses, the quality of nurse-to-nurse handoffs is affected by the handoff process and training, support of the nurse leaders, adequate staffing, delayed availability of the receiving nurse, and staff attitudes towards other staff members (Blazin et al., 2021; Guimaraes Telles et al., 2020; Kim et al., 2021; Tacchini-Jacquier et al., 2020). While most researchers support creating a checklist for patient transfer, Germack et al. (2019) found that replacement of a verbal handoff report between nurses with an electronic transfer checklist was a threat to patient's safety due to the following factors: (a) decreased nurse satisfaction rates; (b) placement of patients in units where their medical needs were not met; and, (c) lack of pertinent patient information and orders in the electronic checklist to provide efficient care. While the study by Guimaraes Telles et al. (2020) highlighted the importance of bedside handoff in reducing communication-related errors and improving patient satisfaction, nurses participating in the study by Tacchini-Jacquier et al. (2020) did not reach consensus on including bedside handoff as part of the standardized process. In addition to creating and implementing a standardized checklist, providing formal education to the clinical staff is crucial to ensure nursing compliance (Ghosh et al., 2021; Kim et al., 2021; Streelman & Staffileno, 2021). A study by Germack et al. (2019) was the only research study conducted to note that positive relations with staff on receiving units helps in facilitating patient transfers.

Research Question

Since nurses who care for patients in L&D and MBU collaborate with each other, it is essential to develop a transfer checklist, standardize nursing SBAR communication tool, establish an expected patient transfer flow, and strengthen relations among the nurses to improve patient safety, nurse satisfaction rates, enhance patient experience, and build nurse-patient relationship. The necessity to improve the workflow between L&D and MBU poses the following research question: Does implementing a patient transfer checklist and standardizing patient transfer flow for nurses in the L&D and MBU improve the transfer process by reducing the transfer time and improving RN experience with the patient transfers?

Methodology

Conceptual Framework

Under the supervision of the director of both units, the transfer project team consisting of Assisted Nurse Manager (ANM) of Labor & Delivery and Mother-Baby Unit, 3 L&D RNs (including the author), and 5 MBU RNs was created. The outline of this QI project was inspired from the Quasi-experimental design without a control group while using W. Edwards Deming's Plan, Do, Study, Act (PDSA) cycle ("PDSA Cycle," n.d.) to strategize this QI project. There are a variety of quasi-experiment designs but a quasi-experiment design containing a pretest and posttest was applied to this study. Quasi-experiment design allows researchers to illustrate a relationship between an intervention and an outcome while evaluating the effects of interventions without using randomization (Harris et al., 2006). A quasi-experiment research design is widely used to evaluate the advantages of specific interventions in medical field and consists of pre- and post-intervention measurements among non-randomized groups (Harris et al., 2006). This project design allowed the project team involved in this quality improvement project to assess whether implementing a transfer checklist and an anticipated transfer flow had any positive effects on

improving the quality of patient transfers. Furthermore, the author of this QI project evaluated the effectiveness of the proposed checklist in increasing the satisfaction rate among nurses by utilizing pre- and post-intervention surveys.

Setting/Participants

The setting of this study was a local tertiary care county hospital. The participants for this QI project were a convenience sample of 80 L&D and MBU registered nurses who worked for all three shifts (day, evening, and night). Considering this QI project lacked a control group, the sample consisted of a group of non-randomized nurses who have been working on either unit. The exclusion criteria consisted of any contracted, staff, extra-help, or per-diem nurses who have been working on their units for less than six months.

Data Collection

This QI project was discussed with the acting coordinator of SJSU's FNP program in a virtual meeting. The author filled out the Institutional Review Board (IRB) exclusion worksheet with the acting coordinator, and the submission of an application for IRB's approval was waived as this QI project did not meet the criteria for a systematic investigation. In order to protect the human participants in this QI project, exclusive anonymous data were collected during this project and no patient health information or identification of nurses were gathered. Any paper data collected during this project were secured in a locked cabinet and electronic information was stored in a password-protected computer. The details of the pre- and post-intervention subjective and objective data collection are discussed in the results section. A detailed plan to execute this QI project is presented in Appendix A.

Plan Phase

During the pre-intervention phase, or the *plan* step of PDSA cycle, the project team held in-person and virtual meetings to discuss the patient transfer process from L&D to MBU, share constructive feedback of RNs, and discuss the most crucial component of this project – the interventions. The project team worked closely and devised a list of interventions to standardize the transfer process from L&D to MBU. The team created a transfer tool (Appendix B) inspired from the Situation, Background, Assessment, and Recommendations (SBAR) form in MBU for intra-shift patient handoffs, a transfer checklist for L&D RNs (Appendix C), and a video containing step-by-step details of an accepted patient transfer process. The steps followed to create the transfer video are listed in the Appendix D. The purpose of the transfer tool was to specify the relevant patient information to be exchanged during patient transfer from L&D to MBU. In addition, pre-intervention surveys were distributed and collected anonymously. The pre-intervention nursing surveys accumulated the opinions and perceptions of RNs about the patient transfer standards. A sample of the pre-intervention survey is listed in the Appendix E. Furthermore, the project team frequently visited both units to gather feedback of RNs privately and remind them to participate in pre-intervention surveys. The analysis of feedback received through in-person interactions and open-ended discussions in the pre-intervention surveys led to modifications in the proposed interventions by the members of the project team. In addition, the transfer checklist, patient transfer video, patient transfer tool, and workflow between L&D and MBU were updated to incorporate the Intravenous Pump Integration. The hospital had recently undergone an updated workflow where the Baxter Intravenous Pumps were being electronically integrated into the Electronic Health Record (EHR) system.

The *plan* phase lasted four months altogether and the data collection occurred during the last two weeks of those four months. During this first phase, objective data were collected about

the estimated patient transfer time from L&D to MBU using a data collection form (Appendix F). The form was placed at the L&D charge nurse's desk and L&D RNs were introduced to the purpose of the data collection form by the author and L&D's ANM privately and through e-mail. Over a period of 16 days, 35 records were entered on the data collection form anonymously by the nurses. Over a period of 2 weeks, 52 RNs filled out pre-intervention surveys and submitted them anonymously to the ANM of their unit. The surveys were collected by the author and stored in a locked cabinet. After finalizing the steps and changes in workflow between two units, a transfer video was created by the author and 3 L&D RNs who were not part of this QI project. The findings collected in the pre-intervention phase were analyzed and the interventions were implemented during the second step – *do*.

Do Phase

During the second phase of the project, the author introduced L&D staff to the transfer tool, the transfer checklist, and the video demonstrating an efficient patient transfer process during a staff meeting. The MBU staff was educated about the interventions mentioned above by their ANM through e-mail, in-person conversations, and printouts of the interventions. The patient transfer tool was a paper-based intervention. Since RNs are encouraged to use electronic system while giving or receiving patient handoffs, they were not required to use the patient transfer tool per the instructions of the director of L&D and MBU. Adherence to the transfer checklist and updated transfer process was implemented in both units by the managers. An e-mail was sent to the L&D staff by their ANM, which highlighted and emphasized the important changes to the workflow between L&D and MBU. The updated changes were as follow: (a) L&D RN assessing newborn's axillary temperature within 15 minutes of the transfer; (b) transferring newborns skin-to-skin with the birthing individual in a wheelchair or a gurney; and,

(c) bedside handoff between L&D and MBU nurse. After the checklist and process was implemented in the *do* step, post-intervention data collection was initiated marking the beginning of the third phase of this project– *study*.

Study Phase

The *do* phase lasted for one month and was followed by the *study* phase for a total of three weeks. After one month of implementing and reinforcing interventions, data collection form was utilized again to gather estimated time for postpartum patient transfers from L&D to MBU. After another two weeks, surveys similar to the pre-intervention phase were distributed to the staff, and the staff was encouraged to respond through e-mail and private interactions. A sample of post-intervention survey is listed in the Appendix G. After sufficient data were gathered, the author interpreted the entries on data collection form and post-intervention surveys to understand the effectiveness of the actions implemented during the previous phase – *do*.

Act Phase

The final step – *act*, involved the project team deciding to reintroduce and reimplement the interventions for another three months after receiving feedback through post-intervention surveys that a significant number of nurses were unfamiliar with or unaware of this project and its interventions. The updated transfer workflow, patient transfer tool, transfer video, and transfer checklist will be rediscussed with the staff through e-mail, staff meetings, laminated printouts, and in-person conversations. After three months, the team will reassess the effectiveness of the updated patient transfer process using the data collection form and post-intervention surveys before making any decisions to modify the interventions implemented through this QI project.

Measurement – Pre- and Post-intervention Nursing Surveys

As part of the pre-intervention surveys, nurses were questioned about how long they have been working on their units. The two surveys consisted of 5-point *Likert scale* questions and focused on assessing nurses' perception of the quality of the patient transfer process between L&D and MBU. The quality of patient transfer and nurses' experience with patient transfers were assessed through multiple *Likert scale* sentences. An estimated time to transfer patients from L&D to MBU was collected during the pre- and post-intervention phase of this project. The post-intervention surveys evaluated the usefulness of the transfer checklist and transfer process introduced in the second step of the study. Usage of *Likert scale* allows participants to express their level of agreement or disagreement with a specific statement (McLeod, 2019). Additionally, post-intervention surveys determined whether changes introduced in the *act* part of the study improved nurses' perception of the quality of care received by their patients. Both pre- and post-intervention surveys included open-ended opportunities for respondents to provide feedback or share concerns. Since the *Likert scale* was created by the project team, the validity of the scale was evaluated by the director and assistant nurse managers of both units as a way of evaluation by expert judges (Boateng et al., 2018).

Data Analysis

The significance of the data collected in this QI project is to to determine whether the interventions that were implemented in this study should be permanently integrated into the workflow between L&D and MBU or if further modifications are required. The results of pre- and post-intervention surveys were analyzed using descriptive statistics including means and frequencies in order for the author to demonstrate any significant differences between the pre- and post-intervention findings. The means of pre- and post-intervention patient transfer time were compared to determine the effectiveness of changes executed during the *act* phase of the

project. Frequency of responses were analyzed to examine the pre- and post-intervention nursing surveys. Any feedback provided by participants in the open-ended portion of the pre-intervention nursing surveys was evaluated using subjective interpretation by the project team. The responses were considered to modify the interventions for the *do* phase of this QI project. The feedback gathered from the open-ended parts of the post-intervention surveys were considered during the *act* phase of this QI project and will be integrated into the re-implementation of the interventions introduced during this QI project.

Results

The following section will present the qualitative and quantitative data that were obtained from the following factors: (a) pre-intervention surveys; (b) post-intervention surveys; and, (c) the duration of time of the patient transfer process before and after the implementation of the interventions.

Pre-intervention Results

As presented in Table 1 below, the average time to transfer a postpartum couplet (mother and newborn) from L&D to MBU was 28 minutes during the pre-intervention phase. The average of 28 minutes was based on the 35 entries collected in 16 days. Sixteen entries were collected in the AM shift, 13 in PM, and only six entries were gathered from NOC shift. An average patient transfer time was 26.9, 30.2, and 24.8 minutes respectively to the AM, PM, and NOC shifts. The shortest patient transfer duration was 10 minutes while the longest duration was 60 minutes. While the surveys were handed out to everyone, only 52 RNs participated and filled out anonymous pre-intervention nursing surveys (Table 2). Out of 52 nurses, 22 of them had been working on their respective departments for more than nine years. Twenty-four RNs reported dissatisfaction with the patient transfer process and 10 of those 24 RNs had been

working at this hospital site for more than nine years. Twenty-four RNs agreed that the transfer process lacks organized workflow. While 16 nurses were not satisfied with the patient transfer time, 32 RNs agreed that the patient information exchanged during patient handoffs was sufficient to provide patient-centered medical care. In the open-ended part of the pre-intervention surveys and the feedback received verbally by the project team members, some of the L&D RNs expressed concerns about the patient transfer time duration and inconsistent patient transfer process. On the other hand, a majority of MBU RNs requested interventions to improve neonates presenting to MBU with low axillary temperatures and to encourage L&D RNs to complete their required documentation before transferring the postpartum patients.

Table 1: Pre-intervention Data Collection Form Findings

Total number of entries: 35

Average time to transfer patients from L&D to MBU: 28 minutes

Nursing shift	AM	PM	NOC
Number of entries	16	13	6
Average time to transfer patients (minutes)	27	30.2	24.9

Table 2: Pre-intervention Nursing Survey Results

1. How long have you been working in your unit?				
<1 year	1-3 years	3-6 years	6-9 years	>9 years
12	14	3	1	22
2. I am satisfied with the current patient transfer process.				
Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
4	24	11	11	2

3. All relevant patient information is communicated at the time of transfer.				
Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
1	6	10	30	5
4. The current patient transfer process consists of steps that are followed in an orderly manner.				
Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
1	24	12	14	1
5. I am satisfied with the amount of time it takes to transfer an uncomplicated postpartum couplet.				
Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
6	16	17	12	1
6. The information communications at the time of transfer helps provide efficient patient-centered medical care.				
Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
1	6	10	32	3

Post-intervention Results

During the post-intervention period of six weeks, the average time to transfer a postpartum couplet from L&D to MBU was 27 minutes based on the 21 entries collected (Table 3). The number of entries that were documented on the data collection form by the participants were as follows: (a) AM shift: 7; (b) PM shift: 10; and, (c) NOC shift: 4. An average patient transfer time was 23.6, 28, and 31 minutes respectively to the AM, PM, and NOC shifts. The shortest patient transfer duration was 13 minutes while the longest duration was 60 minutes. As compared to the 52 pre-intervention surveys, only 33 post-intervention surveys were collected

after the implementation of the updated changes during the *do* phase of this QI project (Table 4). Out of the 33 RNs, 16 had been working on their units for more than 9 years. Surprisingly, only 17 out of 33 RNs reported adhering to the updated patient transfer workflow. A majority of the 16 RNs who anonymously disclosed not following the updated process expressed their unawareness of any changes implemented regarding the patient transfer process.

Furthermore, it was noted that 16 RNs expressed satisfaction with the updated patient transfer workflow, and 15 were satisfied with the number of minutes it takes to transfer an uncomplicated postpartum couplet from L&D to MBU. The patient transfer video was commended as 22 RNs acknowledged that the transfer video established clear steps to be followed during a patient transfer from L&D to MBU. The responses to the statement if the updated transfer process consists of organized steps are as follows: (a) four nurses responded with disagreement; (b) 12 nurses responded with agreement; and, (c) 17 nurses responded with neither agreement nor disagreement. Out of 33, 12 RNs agreed that the standardization of patient transfers has improved the quality of patient transfer process, and 15 RNs believed that it enhanced the quality of patient care. Open-ended responses included concerns about inconsistent use of the standardized interventions, and requests for the project team to reintroduce the interventions to the staff.

Table 3: Post-intervention Data Collection Form Findings

Total number of entries: 21

Average time to transfer patients from L&D to MBU: 27 minutes

Nursing shift	AM	PM	NOC
Number of entries	7	10	4
Average time to transfer patients (minutes)	23.6	28	31

Table 4: Post-intervention Nursing Survey Results

1. How long have you been working in your unit?				
<1 year	1-3 years	3-6 years	6-9 years	>9 years
4	7	6	0	16
2. Are you using the transfer checklist and transfer tool, while adhering to the updated workflow demonstrated in the video provided to you?				
Yes	No			
17	16			
3. I am satisfied with the *updated* patient transfer process.				
Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
0	2	14	16	0
4. All relevant patient information is communicated at the time of transfer.				
Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
0	2	11	18	2
5. The *updated* patient transfer process consists of steps that are followed in an orderly manner.				
Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
0	4	17	12	1
6. I am satisfied with the amount of time it takes to transfer an uncomplicated postpartum couplet.				
Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
2	5	10	15	1

7. The information communicated at the time of transfer helps provide efficient patient-centered medical care.				
Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
0	1	11	19	2
8. The updated transfer process (updated workflow, transfer video, transfer checklist, & transfer tool) has helped improve the quality of the patient transfer process.				
Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
0	0	19	12	2
9. The transfer process (demonstrated in the video) established clear steps to be followed during a patient transfer.				
Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
0	0	8	22	3
10. The transfer checklist and the updated transfer workflow enhanced the quality of care provided to the patients.				
Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
0	0	15	15	3

Discussion

The purpose of this quality improvement project was to determine whether the interventions implemented will have a positive impact on the time it takes to transfer a postpartum couplet from Labor & Delivery unit to the Mother-Baby unit and the satisfaction levels of registered nurses in both units by standardizing the transfer process through the adoption of the *plan*, *do*, *study*, *act* model. Based on the results obtained, it was discovered that this QI project did not substantially improve the average patient transfer time but demonstrated

an overall improvement in RN satisfaction. As compared to the average patient transfer time from L&D to MBU of 28 minutes before the standardization of the patient transfer process, the average patient transfer time was 27 minutes after the workflow was updated during this QI project. The sample size of 21 submissions of patient transfer time during post-intervention phase compared to 35 during the pre-intervention phase could be one of the factors behind the negligible difference between both averages. Impact of volunteer participation by nurses can be noted here as only 21 patient transfer times were recorded out of the 70 patient transfers that occurred from L&D to MBU during the post-intervention phase. While this QI project did not result in a significant amount of improvement in patient transfer time, it improved the quality of the patient transfer process and quality of patient-centered care.

When comparing the responses of pre- and post-intervention nursing surveys, the author noticed that the standardization of the transfer process from L&D to MBU resulted in general improvement in RN satisfaction levels. Nurses reported higher satisfaction with the transfer process in post-intervention surveys, which is consistent with the results presented by Ghosh et al. (2021) where implementing a standardized nursing handoff practice led to an improvement in nurses' satisfaction levels. While only 21% nurses were satisfied and 46% were dissatisfied with the previous patient transfer process, 48% nurses were satisfied and only 6% were dissatisfied with the updated patient transfer process. The pre-interventions surveys revealed that 46% nurses believed the transfer process was disorganized, while only 12% described it as disorganized during the post-intervention surveys. About 23% RNs were content with the patient transfer duration in the *plan* phase, 45% RNs expressed satisfaction with the time spent to transfer patients during the *study* phase. An interesting finding recognized while analyzing the post-intervention survey responses was that while 67% RNs appreciated the quality of the patient

transfer video, only 51% reported adhering to the steps listed in the video. As the results found in the study by Blazin et al. (2020) demonstrated, providing formal training to participants can results in higher adherence rates to the implemented interventions.

Based on the findings obtained from this QI project, the author suggests that the true efficacy of the interventions introduced during the standardization of the patient transfer process can only be understood with a stronger and more rigorous implementation of those interventions with the support of the supervisors and formal RN education. As highlighted by Akrami et al. (2019), requiring the use of transfer checklist after providing a formal training to participating nurses can further improve the quality of the patient transfer process. Despite the formal implementation of the interventions during the *do* phase, many nurses reported unawareness of any workflow updates during the post-intervention phase. The evidence of inconsistency and noncompliance behavior among the nurses to the interventions may have affected the average patient transfer time and overall satisfaction levels of nurses. In addition to the e-mail, staff meetings, and printouts of the updates, one-on-one formal nurse education may be necessary for further reduction in the patient transfer time while improving the RN satisfactions levels.

One major limitation of this quality-improvement project was the voluntary participation of nurses for objective data collection, and pre- and post-test surveys. The lower participation rates of nurses could have been the result of the following two factors: (a) busy in-patient settings; and, (b) the need to complete two volunteer surveys with a gap of a few months in between them. Voluntary participation affected the sample size as fewer nurses participated in filling out the post-intervention surveys as compared to the pre-intervention surveys. A second limitation was noted to be the decrease in the nurses' compliance rate in the use of the transfer checklist, patient transfer tool, and the updated transfer process. In the post-intervention nursing

surveys, only 17 nurses reported adhering to the steps of the new workflow. The interventions implemented throughout this QI project were integrated into the workflow from L&D to MBU. However, no interventions were incorporated into any hospital policies. Despite the addition of transfer checklist and the updated transfer process in both L&D and MBU, extra-help, per-diem, and part-time nurses might have had difficulty adhering to the revised system due to a limited of exposure to the patient care and patient transfers. Furthermore, some staff members may have been reluctant to adopt the standardized process due to the familiarity and comfort level with the previous transfer workflow.

While analyzing the results collected, the author noted that time was a constraining factor in completing this QI project. Allowing for more time to implement the strategies and collect the responses may have resulted in different findings. The pre-intervention data collection period lasted only two weeks, but the post-intervention responses were fewer in number even though the post-intervention data collection phase was three weeks long. Considering this fact, higher response rate is less likely unless more rigid implementation of adherence to the interventions occurs in both units. Incentivizing responses from the staff or mandatory participation in data collection could have facilitated higher response rate. Furthermore, the objective data collection was affected by the following two factors: (a) number of newborn deliveries during the period of data collection; and, (b) and the number of entries on the data collection form. As the second data collection form had only 21 patient transfer times cataloged, lack of incentive and survey fatigue may have affected the volunteer participation during the *study* phase of the project. Additionally, the data collection form did not identify if the patient transferred from L&D to MBU had normal spontaneous vaginal delivery or cesarean section. The pre- and post-intervention surveys did not specify if the respondent worked in L&D or MBU, which may have

impacted the interpretation of the results and prevented the author from deducing any patterns of responses from either unit. Lastly, this quality improvement project is limited to the transfer flow between L&D and MBU at this hospital only, and the results cannot be generalized to transfers to other units across this hospital, patient discharges, or other in-patient settings.

In summary, this quality improvement project designed to reduce the postpartum couplet transfer time from labor and delivery to mother-baby unit and improve the experience of registered nurses by implementing a list of interventions resulted in the following: (a) improved overall experience of registered nurses participating in the patient transfers; and, (b) insignificant amount of reduction in the time it takes for patients to be transferred from L&D to MBU. The efficacy of the interventions introduced during this project was affected by the reduction in nurses' compliance to the updated workflow, volunteer participation, survey fatigue, and lack of incentives for participants. Updating the workflow from L&D to MBU by implementing a transfer checklist, transfer video, and patient transfer tool can improve the satisfaction of nurses with the patient transfer process and transfer time. Despite the inconsiderable difference between the average patient transfer time of pre-intervention and post-intervention phases, nurses who participated in the surveys reported improved satisfaction with the time it takes to transfer an uncomplicated postpartum couplet from L&D to MBU. The analysis of both objective and subjective data collected in the pre- and post-intervention phase of this quality improvement project resulted in a final decision to reintroduce the interventions and re-evaluate in three months before making any further modifications to the updated workflow.

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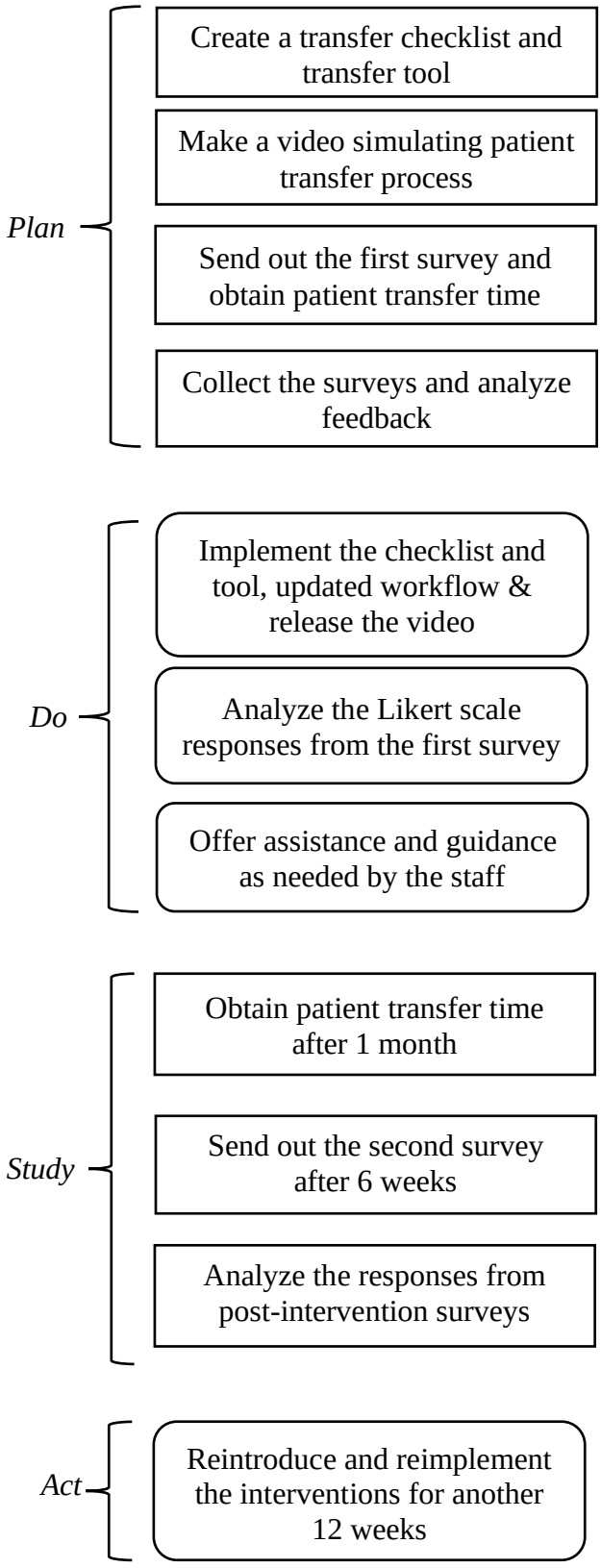
Appendix A

L&D to MBU Transfer Project Layout



Appendix B

L&D to MBU Patient Transfer Tool

Name Age Pronouns
Allergy Language
OB PEDI
Med. Hx
GA G P ROM (Color)
DOB TOB M/F
VAG/CS ANESTHESIA H/H
BLD type GBS HBsAG
HIV RPR RUB TOX
Covid IV IV Fluids
VS EBL/QBL
PERINEUM FUNDUS LOCHIA
DRESSING VOID/FOLEY
MEDS After Delivery
Recommendations
Newborn Name
FP HV YC
APGAR Birth Weight
Length AGA/SGA/LGA
Last Feed LATCH Score
VOID Y/N STOOL Y/N
CBP HUGS ID

Legend for Patient Transfer Tool

OB – Obstetrician

PEDI – Pediatrician

Med. Hx – Medical History

GA – Gestational Age

GP – Gravida, Para

ROM – Rupture of Membranes

DOB – Date of Birth

TOB – Time of Birth

M/F – Male/Female

VAG/CS – Vaginal/Cesarean Section

H/H – Hemoglobin/Hematocrit

BLD type – Blood Type

GBS –Group B Streptococcus

HBaAG – Hepatitis B surface antigen

HIV – Human Immunodeficiency Virus

RPR – Rapid Plasma Reagin

RUB – Rubella

TOX – Urine Drug Screen

IV – Intravenous Line

VS – Vital Signs

EBL/QBL – Estimated Blood Loss/Quantitative Blood Loss

FP – Foot prints

HV – Hepatitis B Vaccine

YC – Yellow Immunization Card

APGAR – Appearance, Pulse, Grimace, Activity, Respiration

AGA/SGA/LGA – Appropriate/Small/Large for Gestational Age

LATCH score – Latch, Audible Swallowing, Type of Nipple, Comfort, Hold

CBP – Cord Blood Panel for Newborn

HUGS – Infant Security Alarm Number

ID – 5 digit number matching with birthing parents

Appendix C

Patient transfer checklist

- Sign the patient delivery summary in Electronic Health Record (EHR).
- Make sure Baby Friendly documentation is complete in EHR.
- Complete & Resolve L&D Education and Care Plans.
- Obtain newborn vital signs within 15 minutes of transfer.
- Dissociate Baxter IV pumps in EHR. Verify infusions.
- For PACU: Disassociate Phillips Monitor.

Appendix D

Steps for the Patient Transfer Process

The video consisted of a scenario where a postpartum couplet is transferred from L&D to MBU. The video is created with the staff members of L&D and MBU units. No real patients are involved in this video demonstration. The following steps are demonstrated in the video:

1. L&D Charge Nurse will notify MBU Charge Nurse about patient who has delivered and obtain the room number for transfer.
2. The video will start with how the transfer process is started in L&D.
3. The primary L&D nurse will call MBU Charge Nurse to notify about the anticipated transfer time and to confirm the room number and primary RN's name in MBU.
4. L&D RN will assess newborn's vital signs within 15 minutes of transfer.
5. Discontinue IV fluids, clear the IV infusion program, and verify infusions in L&D. IV fluids to be administered TKO until MBU RN programs the IV pump in MBU after patient transfer.
6. Initiate skin to skin of newborn with birth parent in a wheelchair or swaddle newborns tightly for birth parent to hold in their arms at the time of transfer. Newborns to not be transferred in a newborn crib.
7. The primary L&D nurse will transfer the postpartum couplet with the patient's birth partner and another L&D staff member (if needed).
8. Once arrived in MBU, the primary L&D nurse will transfer the patient to the bed while MBU primary nurse will be assisting as needed.
9. Both L&D and MBU primary nurses will check 2 patient identifiers and assess patient's fundus and IV lines together.

10. Furthermore, both nurses will check the newborn ID with the mother and the birth partner and confirm the correct HUGS security alarm number.
11. The resource nurse or the charge nurse will take patient's vital signs if indicated, such as patient on Magnesium sulfate infusion. Full patient assessments will occur after report has been given and L&D RN has been released.
12. L&D primary nurse will deliver patient handoff to MBU primary nurse at the bedside. If primary MBU RN is unavailable at the time of transfer, Charge Nurse or Resource Nurse will take report.
13. Any confidential patient information that the birth partner might not be aware of, will be shared outside the room.
14. L&D nurse will answer patient's questions and address any concerns appropriately. L&D nurse will exit after thanking and congratulating the patient and their family.

Appendix E

Pre-intervention survey

(This survey intended to collect feedback of nurses on patient transfer process from Labor & Delivery to Mother-Baby Unit before implementing the changes in the *do* phase of the project.)

1. How long have you been working in your unit?
    a. <1 year
    b. 1-3 years
    c. 3-6 years
    d. 6-9 years
    e. >9 years
2. I am satisfied with the current patient transfer process.
    a. Strongly Disagree
    b. Disagree
    c. Neither Disagree nor Agree
    d. Agree
    e. Strongly Agree
3. All relevant patient information is communicated at the time of transfer.
    a. Strongly Disagree
    b. Disagree
    c. Neither Disagree nor Agree
    d. Agree
    e. Strongly Agree
4. The current patient transfer process consists of steps that are followed in an orderly manner.
    a. Strongly Disagree
    b. Disagree
    c. Neither Disagree nor Agree
    d. Agree
    e. Strongly Agree
5. I am satisfied with the amount of time it takes to transfer an uncomplicated postpartum couplet.
    a. Strongly Disagree
    b. Disagree
    c. Neither Disagree nor Agree
    d. Agree
    e. Strongly Agree
6. The information communicated at the time of transfer helps provide efficient patient-centered medical care.
    a. Strongly Disagree
    b. Disagree
    c. Neither Disagree nor Agree
    d. Agree
    e. Strongly Agree

7. Provide any feedback or share concerns regarding patient transfer between L&D and MBU.

Appendix F

DATA COLLECTION FORM

Project: Patient transfer time from L&D to MBU

(This document is aimed at collecting information about an estimated time it takes to transfer a postpartum patient from Labor and Delivery to Mother-Baby Unit).

Date	Time left for MBU	Time returned to L&D	Estimated time it took to transfer

Appendix G

Post-intervention survey

(This survey intended to collect feedback of nurses on patient transfer process from Labor & Delivery to Mother-Baby Unit after the *do* phase of the transfer project.)

1. How long have you been working in your unit?
    a. <1 year
    b. 1-3 years
    c. 3-6 years
    d. 6-9 years
    e. >9 years
2. Are you using the transfer checklist and transfer tool, while adhering to the updated workflow demonstrated in the video provided to you?
    a. Yes
    b. No
3. I am satisfied with the **updated** patient transfer process.
    a. Strongly Disagree
    b. Disagree
    c. Neither Disagree nor Agree
    d. Agree
    e. Strongly Agree
4. All relevant patient information is communicated at the time of transfer.
    a. Strongly Disagree
    b. Disagree
    c. Neither Disagree nor Agree
    d. Agree
    e. Strongly Agree
5. The **updated** patient transfer process consists of steps that are followed in an orderly manner.
    a. Strongly Disagree
    b. Disagree
    c. Neither Disagree nor Agree
    d. Agree
    e. Strongly Agree
6. I am satisfied with the amount of time it takes to transfer an uncomplicated postpartum couplet.
    a. Strongly Disagree
    b. Disagree
    c. Neither Disagree nor Agree
    d. Agree
    e. Strongly Agree
7. The information communicated at the time of transfer helps provide efficient patient-centered medical care.
    a. Strongly Disagree
    b. Disagree

    c. Neither Disagree nor Agree
    d. Agree
    e. Strongly Agree
8. The updated transfer process (updated workflow, transfer video, transfer checklist, & transfer tool) has helped improve the quality of the patient transfer process.
    a. Strongly Disagree
    b. Disagree
    c. Neither Disagree nor Agree
    d. Agree
    e. Strongly Agree
9. The transfer process (demonstrated in the video) established clear steps to be followed during a patient transfer.
    a. Strongly Disagree
    b. Disagree
    c. Neither Disagree nor Agree
    d. Agree
    e. Strongly Agree
10. The transfer checklist and the updated transfer workflow enhanced the quality of care provided to the patients.
    a. Strongly Disagree
    b. Disagree
    c. Neither Disagree not Agree
    d. Agree
    e. Strongly Agree
11. Provide any feedback or share concerns regarding patient transfer between L&D and MBU.