

Implementing Skin-to-Skin Contact in the Obstetrical Surgical Suite Project Plan

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Abstract

Breastfeeding is associated with numerous health benefits to newborns. There are multiple evidence-based interventions that improve rates of exclusive breastfeeding. One such intervention is providing skin-to-skin contact between the newborn and mother immediately following birth. This intervention involves placing the healthy newborn nude on his mother's bare chest immediately after birth. Gwinnett Women's Pavilion implemented this intervention for maternal/newborn dyads following vaginal birth in January 2013. This facility is also pursuing designation as a Baby-Friendly Hospital, a program designed by the World Health Organization and the United Nations Children's Fund to promote exclusive breastfeeding. The facility has determined that it desires to expand the skin-to-skin program to include maternal/infant dyads following cesarean birth in the operating room. In order to safeguard a successful implementation, a formal plan was formulated. This plan includes an evaluation of the implementation of skin-to-skin contact following vaginal birth.

Keywords: Breastfeeding; Obstetrics; Quality; Evidence-Based Practice; Cesarean

Introduction

Project Title

Designing a Program Plan for Implementing Skin-to-Skin Contact (SSC) in the Obstetrical Surgical Suite (OB OR).

Purpose of this document

The quality improvement project involves designing a plan for expanding the facility's SSC program to the OB OR for cesarean births. The expansion of this program helps promote the agency's strategic objective to achieve Baby Friendly designation. This project involves collaborating with the facility's Nursing Care & Quality Council program planning only; implementation of the program is not part of this DNP project.

Setting

The setting is a 76-bed maternity facility that is located on the campus of a large suburban tertiary care medical center located in the metropolitan Atlanta area. The facility performs an average of 5,400 births annually, of which 1,650 are cesarean births. Professionals involved include registered nurses, obstetricians, certified nurse-midwives, surgical technicians, and anesthesia providers that work in the maternity facility.

Background

Every major national and international maternal/infant health organization recognizes and endorses breastfeeding as the superior form of infant nutrition [1-6]. Breastmilk supplies all the required nutritional components needed by infants as well as anti-infective and anti-inflammatory substances only available in breastmilk [6]. A plethora of epidemiological studies have provided a solid body of evidence that breastfeeding confers a multitude of short-term and long-term health benefits. These benefits of breastfeeding are highly correlated with a dose response, with exclusive breastfeeding for six months and continued breastfeeding for two years being the most important preventative intervention to reduce global infant mortality [5]. Exclusive breastfeeding rates in the US and Georgia are distressingly low [7]:

Measure	US Rate (2014)	Georgia Rate (2014)	Healthy People 2020 Target
Any breastfeeding at 6 months	55.3%	55.0%	60.6%
Any breastfeeding at 12 months	33.7%	27.9%	34.1%
Exclusive breastfeeding at 3 months	46.6%	44.6%	46.2%
Exclusive breastfeeding at 6 months	24.9%	20.7%	25.5%

In order to promote breastfeeding and support mothers and infants to successfully establish and maintain breastfeeding as recommended, the United Nations Children's Fund (UNICEF) and the World Health Organization (WHO) launched the Baby-Friendly Hospital Initiative (BFHI) in 1991 [8]. The BFHI consists of ten "steps" designed to guide organizations in adopting policies and practices that promote successful breastfeeding. Step 4 is "help mothers initiate breastfeeding within one hour of birth" [8]. This step requires that, barring medical complications, term newborns are placed skin-to-skin with their mothers immediately following birth and allowing them to remain there uninterrupted for an hour or through the first breastfeed [9]. A Cochrane review of SSC, updated in 2016 and an unpublished in-depth systematic review of SSC and breastfeeding [10] concluded that *SSC improves breastfeeding success and prolongs duration of breastfeeding* [11]. Bartick and Reinhold (2010) [12] estimated that if 90% of US families could comply with medical recommendations to breastfeed exclusively for 6 months, healthcare costs in the United States would be reduced by \$13 billion per year and prevent an excess of 900 infant deaths. At a rate of 80% compliance the numbers are \$10.5 billion and 741 deaths. Maternal satisfaction with obstetric care is another important indicator that should be measured and analyzed.

In July of 2012, the facility decided to embark on a mission to implement the Baby-Friendly Hospital Initiative (BFHI). During 2013, the facility participated in a statewide initiative to perform a gap analysis designed to identify opportunities to achieve Baby-Friendly status. One of the gaps identified was with Step 4 of the BFHI. Step 4 is "help mothers initiate breastfeeding within one hour of birth" [8,9].

In January of 2013, the facility successfully implemented SSC following vaginal birth, and has since made the decision to expand the intervention into the OB OR for cesarean births. The facility has concluded that expanding SSC into the OB OR is consistent with its mission and values and is a part of its strategic plan to become designated as a Baby-Friendly Hospital and charged a task force from the facility's Nursing Care & Quality Council to formulate a plan. Current care in the OB OR involves drying the newborn and placing it under a radiant warmer for assessment followed by swaddling and handing to the mother several minutes following birth. SSC then begins in the post anesthesia care unit (PACU).

Project Purpose

The purpose of this DNP project is to design a comprehensive plan for the implementation for Skin-to-Skin Contact (SSC) program in the facility's Obstetrical Surgical Suite (OB OR) as a component of the facility's overall plan to achieve Baby Friendly Hospital designation. There is also accreditation support for the project. The Joint Commission has a Perinatal Care Core Measure to measure the percentage of newborns that exclusively received breastmilk while in the facility. Facilities began reporting this measure to the Joint Commission in January 2014 [13].

Project Assumptions and Constraints

Assumptions:

- All healthy couplets at 36 weeks or greater will be offered SSC in the OB OR
- SSC will continue in the PACU
- Breastfeeding is initiated whenever the newborn exhibits hunger cues and mother is able to hold newborn for feeding

Constraints:

- Net impact of staffing (productivity) must not be significantly increased.
- Other changes must be cost-neutral

Theoretical Framework

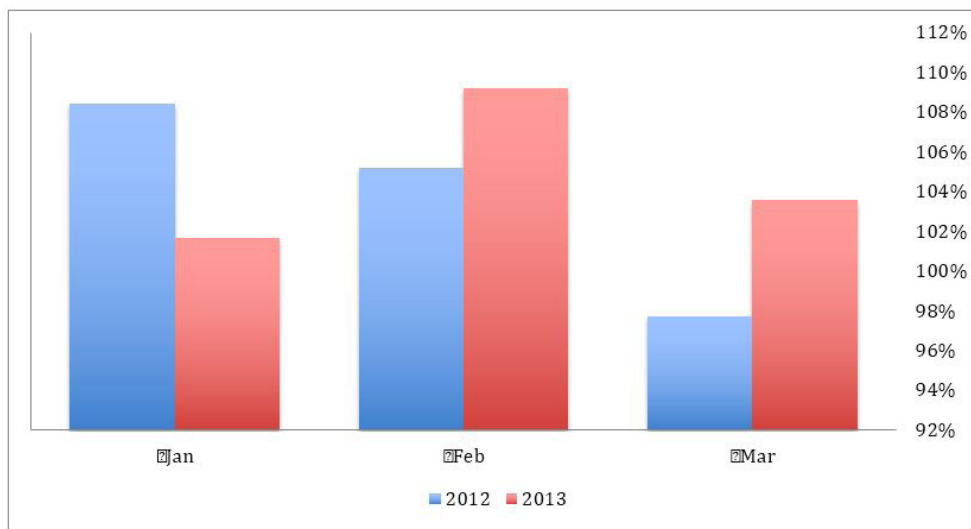
The project is framed using the Stage Theory of Organizational Change (STOG). According to Glanz, Rimer, and Viswanath (2008, p. 338) [14] this theory "...is based on the idea that organizations pass through a series of steps or stages as they change. By recognizing those stages, strategies to promote change can be matched to ... the process of change." The theory is based on the early works of Lewin (1951) [15] and the later Diffusion of Innovations theory by Rogers (2003) [16]. Kaluzny and Hernandez (1988) [17] developed the four-stage model that will be used for this project. The facility has already progressed through the first stage: awareness of a problem. This project will focus primarily on stage two: the identification stage. In this stage, the organization begins to initiate action by developing policies, procedures, and allocation of resources. Involved stakeholders are invited to construct the plan and keep the organization apprised of the development of the plan. The final two stages, implementation and institutionalization, will be addressed at a later date and are outside the scope of this DNP project.

Evaluation of SSC Following Vaginal Birth

Skin-to-skin contact (SSC) was implemented following vaginal births in January 2013. An evaluation of that implementation was conducted.

Results: Impact on Staffing

Staffing productivity reports for three months following implementation of SSC following vaginal births were compared to the same three-month period the prior year to identify any impact on staffing that may be attributable to the implementation. Productivity is calculated by the Finance Department using actual hours paid for staffing as compared to expected hours needed as adjusted for volume and computing a percent of target. When the percent of target is greater than 100 it indicates that more actual hours were paid than expected (adjusted for volume), whereas a percent of target of less than 100 indicates that fewer actual hours were paid than expected. These values for the time periods are in the below chart:



Analysis: No significant impact on staffing was realized as a result of implementing SSC following vaginal birth, $t(2) = 0.462$, $p < 0.05$. Because one variable is continuous and the other is unpaired-dichotomous, a student's t -test was used for analysis.

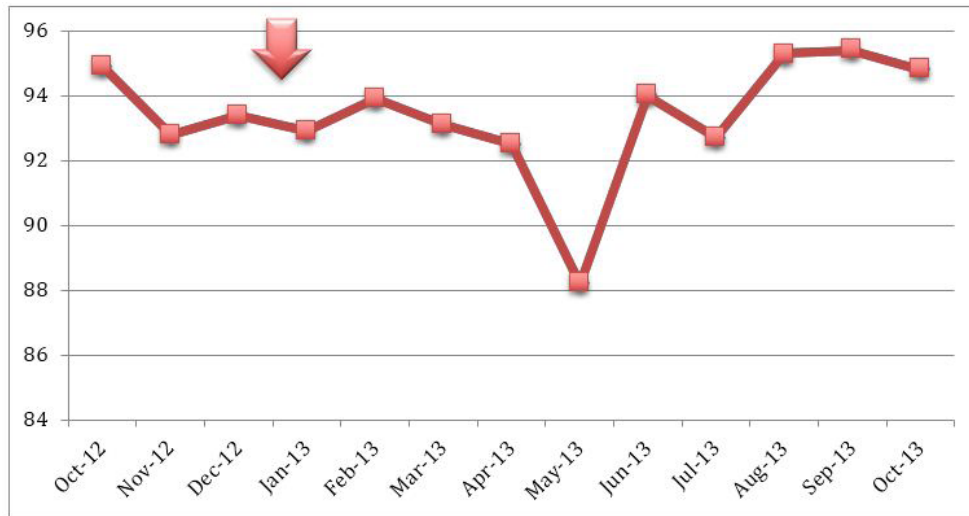
Operational Changes

Operational changes were necessitated by the implementation of SSC following vaginal births. Prior to the implementation, most routine interventions were performed within the first 15-30 minutes following birth. This included weighing the baby, administering routine medications, swaddling the baby, and providing limited information about breastfeeding to the mother. A labor & delivery registered nurse who was called to the room to function as a "baby nurse" did most of these routines. With the implementation of SSC, this baby nurse still attended the birth, but only performed rapid assessment of neonatal transition while the baby was skin-to-skin with the mother. No further interventions were done if the newborn was deemed stable. The primary labor & delivery nurse delayed all other interventions until one hour after birth. This did result in shifting of tasks to the new couplet's nurse. All members of the delivery team had to adjust their expectations as well. Unless the mother insisted, the newborn's weight would be delayed. Initially this presented problems to the Pharmacy, who needed the newborn's weight in order to process the routine newborn orders. Changes were made to the ordering process to accommodate this delay. Now nursing and pharmacy are able to initiate standing orders without a weight, as none of the standing medication orders are weight-based. This delay also required the labor & delivery nurse to remember to obtain and record the weight after the first hour. A few physicians were reluctant to not have the infant's weight to record in their delivery note. Now the note just refers the reader to "see newborn chart." To assist with patient and family education, an educational flyer was developed and the nurses were educated on how to explain the benefits of SSC and use the flyer as reinforcement.

Results: Patient Satisfaction

Patient satisfaction is measured using questionnaires mailed to a sample of patients following discharge from the facility. The questionnaire and analysis is provided through PressGaney Associates. The questionnaire consists of a variety of questions and presented to the patient for rating on a 5-point Likert-type scale. The questionnaire's psychometrics indicate high validity ($F(37, 565519) = 46373.744$, $p < 0.001$, $R^2 = 0.75$ (adjusted $R^2 = 0.748$) and reliability (Cronbach's alpha = 0.856) [18]. Data is made available to the facility and includes the mean score. Of particular interest for this project is the question "Please rate the amount of time you had to bond with your baby." This question was selected because prior to implementing SSC, it was routine to separate mom and baby for assessment and intervention after birth. To determine if SSC following vaginal births impacted this result, the data were pulled for the three-month

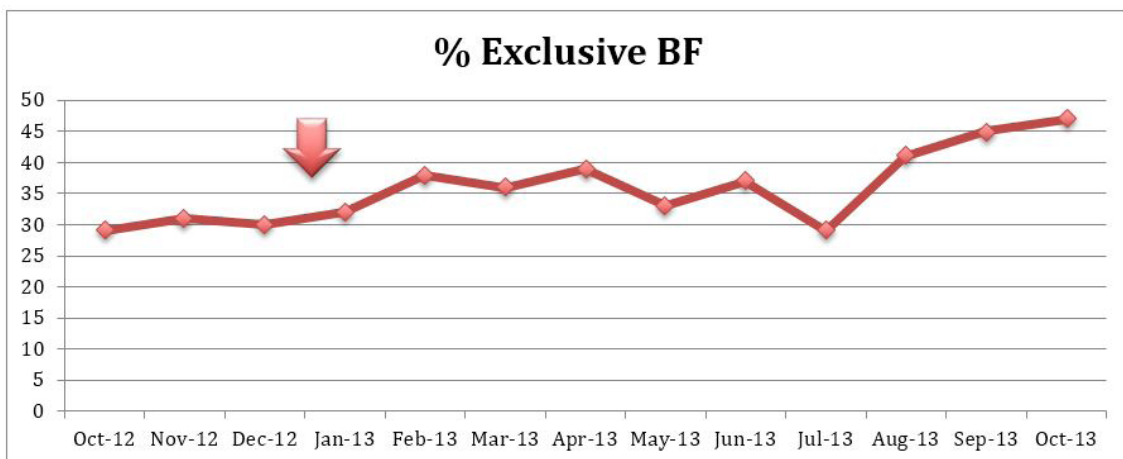
period prior to the intervention being implemented, and for ten months following SSC implementation. While data collection continues, for the purpose of SSC impact, the analysis stopped at ten months because at this point a new intervention was also implemented. This data are presented in the chart below:



Analysis: Patient satisfaction was not significantly different after implementation of SSC, $t(9) = -0.640, p = 0.75$. Because one variable is continuous and the other is unpaired-dichotomous, a student's *t*-test was used for analysis.

Results: Breastfeeding Outcomes

Because the evidence suggests that SSC improves breastfeeding rates, data was collected prior to and after the implementation of SSC. These data are collected by the facility via chart reviews. Of particular interest are the results related to exclusive breastfeeding while in the facility. A quality improvement team developed a data collection tool where the nurses make a checkmark to indicate which type of feeding a baby receives at each feeding. A baseline of three months prior to the implementation of SSC was established. To determine if there was a significant difference in the rate following SSC implementation, data was collected for ten months following SSC. While data collection continues, for the purpose of SSC impact, the analysis stopped at ten months because at this point a new intervention was also implemented. The data are presented in the chart below:



Analysis: Differences in exclusive breastfeeding for three months prior to implementing SSC and for ten months after implementation were significant, $\chi^2(1, N=1232) = 10.53, p = 0.001$. Because both variables are unpaired dichotomous variables with large frequencies, χ^2 was used for analysis.

Time Management

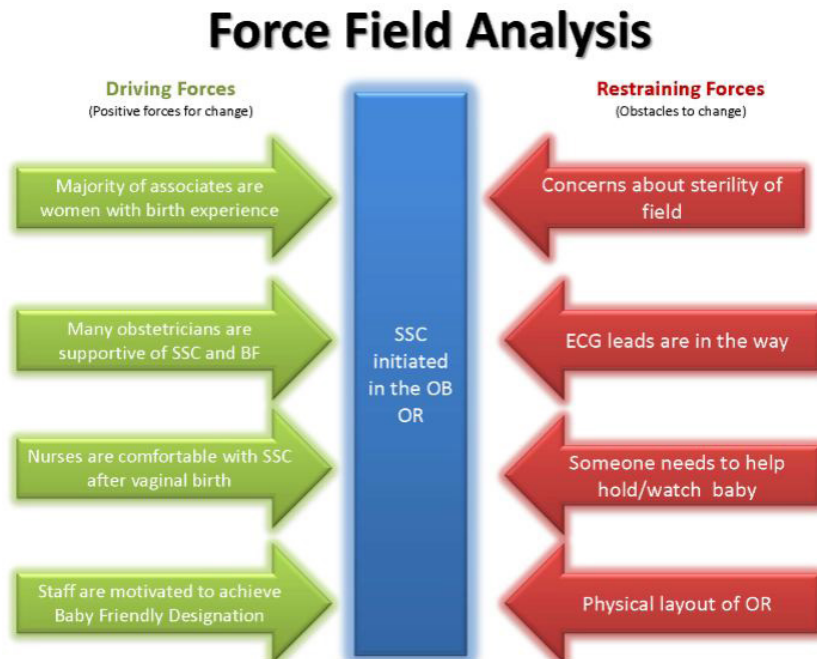
Schedule

Phase	Start Date	End Date
Education about SSC in the OB OR	October 2014	Ongoing
Small tests of change	November 2014	November 2014
Roll-out	December 2014	January 2015

Pre-Implementation Planning

Driving and Restraining Forces

The Nursing Care & Quality Council discussed the driving and restraining forces for implementing SSC in the OB OR. Resultant from those discussions, a force field analysis was produced.



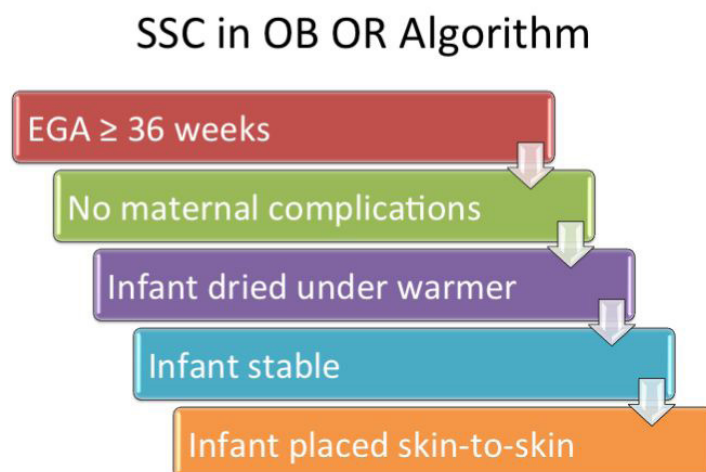
This force field analysis will guide the implementation plan so as to take advantage of driving forces and develop solutions to mitigate the restraining forces.

The team's primary concern was related to the need to have a nurse attend the newborn in the OR. The Association of Women's Health, Obstetric, and Neonatal Nurses (AWHONN) and the Association of peri Operative Nurses (AORN) have specific staffing guidelines related to nurse staffing in the OR [19,20]. Both of these organizations recommend that the circulating nurse have no other duties and that an additional nurse is needed to care for the newborn while in the OR, continuing into the PACU until certain critical elements are met. Because one of the project constraints is that there be no significant increase in productivity, meeting this guideline will be a challenge.

The team also reviewed available published implementation projects to identify any additional concerns or barriers identified by other teams [21-24]. No additional barriers were identified from these teams, but it was noted that many of the same restraining factors were identified by the team.

Process Algorithm

An algorithm was designed as a high-level overview of the sequencing of the intervention.



Education Plan

To ensure consistent information is shared with all stakeholders, a plan for education was developed by the Nursing Education and Professional Development Council. Education was categorized by role and impact.

Audience	Plan
Labor & delivery nurses and surgical techs	Computer-based learning module; in-service at staff meetings; morning announcements during shift huddle
Anesthesia professionals	Educational flyer; presentation at department meetings; on-the-fly discussion by team
Obstetrical providers	Educational flyer; presentation as CME at Department meeting
Resuscitation and Admit Teams	Computer-based learning module; in-service at staff meetings; morning announcements during shift huddle

Education will be focused on:

- achieving Baby Friendly Hospital designation,
- the benefits of SSC,
- making sure mothers having a cesarean are not categorically deprived of having the SSC experience,
- minor changes to routine placement of ECG leads,
- how to avoid contaminating the sterile field,
- assisting the mother with SSC,
- alternative options (including SSC with father or significant other), and
- on-going assessments of newborn during SSC.

Quality Management

The Nursing Care & Quality Council determined a set of process and outcome measures to be analyzed as an integral part of the implementation.

Process Measures

Process measures will be used to evaluate whether key steps of the intervention are executed as designed. The process measure to be evaluated is summarized in the table below:

Measure	Method/tool
Percentage of maternal/infant dyads at ≥ 36 weeks without medical complications that received SSC in the OB OR	Report that pulls data from the EMR. Numerator is the number of maternal/infant dyads at ≥ 36 weeks without medical complications that received SSC in the OB OR; denominator is the number of maternal/infant dyads at ≥ 36 weeks without medical complications that delivered via cesarean. No statistical analysis will be performed because there is not cohort prior to the implementation.

Outcomes Measures

Measure	Method/tool
For patients that delivered via cesarean at ≥ 36 weeks without medical complications, the patient's perception of having adequate time to bond with her newborn.	PressGaney Questionnaire item "Amount of time I had to bond with my baby," qualified as mothers delivering via cesarean at ≥ 36 weeks without medical complications. This measure is reported as a percentage of patient's responding to the question with a "4" or a "5" on a 5-point Likert-type scale. Because one variable is continuous and the other is unpaired-dichotomous, a student's t-test will be used to determine if there is a significant difference between scores 3 months prior to implementation and 3 months after implementation.
Percentage of maternal/infant dyads at ≥ 36 weeks without medical complications that were delivered via cesarean that exclusively received breastmilk while in the hospital.	Report that pulls data from the EMR. Numerator is the number of maternal/infant dyads at ≥ 36 weeks without medical complications where the infant received only breastmilk while in the hospital; denominator is the number of maternal/infant dyads at ≥ 36 weeks without medical complications. Because both variables are unpaired dichotomous variables with large frequencies, χ^2 will be used to determine if there is a significant difference between rates 3 months prior to implementation and 3 months after implementation.

Small Tests of Change

The members of the Nursing Care & Quality Council will conduct small tests of change. Nurse champions for both day and night shifts have volunteered to conduct the small tests of change. These champions will select one patient that meets the criteria on their shift and explain the intervention to the patient. If the patient is willing to participate, the nurse will advise the surgeon, surgical tech, anesthesia personnel, and the neonatal teams that the patient will be having SSC in the OB OR according to the algorithm. The nurse champions will document the small tests of change on a facility standard PDSA form. Within 3 days of the small test of change, available members of the Nursing Care & Quality Council will have a conference call to review and make recommendations for the next small test of change. It is during this phase that the nurse champions will work out issues identified during the force field analysis exercise. This phase will last for one month, or longer if additional small tests of change are needed to refine the process. A particular goal of this phase will be testing having a nurse attend the newborn while in the OR.

The model for the small tests of change will be the Plan-Do-Study-Act model developed by William Deming (1993) [25].



Step	Action
Plan	The nurse champions will select a patient and discuss the intervention with the patient. With the patient's verbal agreement, the nurse champions will conduct a briefing with the members of the surgical team for that case.
Do	The nurse champions will use the SSC in the OB OR algorithm.
Study	The nurse champions will conduct a debriefing with the surgical team members and document what went well and what needs improvement. The patient will also be asked for feedback. The results of the review will be shared with the Nursing Care & Quality Council via conference call.
Act	The Nursing Care & Quality Council will make any needed changes to the algorithm and consider any improvement ideas that arose. Following any tweaks to the process, the cycle will begin again using the same Brief-Debrief sequence [26].

Intervention Rollout

Staged Plan

Following the completion of the small tests of change, the Nursing Care & Quality Council will revise the final rollout plan. The rollout will be staged. The first stage will be scheduled cesarean deliveries on day shift. The rationale for this is that there are more resources available during day shift to assist. The nurse manager, clinical nurse specialist, and nurse educator will be available to assist. After 3-4 weeks, the second stage will begin which includes "add-on" cases on both shifts. These cases are classified by the surgeon as being non-urgent. This will allow exposure of the intervention to the night staff. After an additional 3-4 week period, the third stage will begin which includes all patients that meet the criteria in the algorithm. During the rollout phase, a data collection form will be used by the circulator to identify patients that received SSC and any issues or concerns that arose during the case. Following each stage, the Nursing Care & Quality Council will review any issues that arise and make recommendations.

Issue Management Plan

An issue log will be maintained at the PACU nurses station for any member of the surgical team to log any issues they encounter. The Nursing Care & Quality Council via conference call will review this log on a bi-weekly basis.

A master issue management log will be maintained (see appendix I for template). This will document all issues that are identified and the action(s) taken to resolve the issue.

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