Simulation-Based Training to Increase Nursing Satisfaction, Timeliness, and Skills Acquisition

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1. **Title:** Simulation-based training to increase staff satisfaction, timeliness, and skills acquisition.

2. **Abstract:**

3. **Problem Description:**
   a. Two thirds of nurses at Dartmouth Hitchcock Medical Center (DH) are dissatisfied with the current skills competency training format.
   b. 20% of nurses wait until the last week to complete the required training.
   c. 10% of nurses do not pass skills/competencies the first time.
   d. Staff skills ambassadors are not properly utilized in the current training format.

4. **Available Knowledge**
   a. Approximately 15-20% of DH nurses wait until the last week to get their skills signed off. The skills check off occurs on the nurse's unit when the nurse is assigned to bedside care.
   b. Approximately 10% of 5W/NSCU nurses do not pass their competency on the first try due to errors in skills demonstration.
   c. Approximately two thirds of 5W/NSCU staff are not satisfied with the current skills sign off practice; due to lack of privacy, distractions and education provided around skills.
   d. Nurse satisfaction increases through the use of simulation training (Foronda, Liu, & Bauman, 2013)
   e. Simulation has proven to be an effective education method to increase the competency of health care providers with complex skills, such as central line insertion and dressing changes. (Foronda et al., 2013; Pope, Baggett, Dubois, Martin, & Gore, 2014; Shin, Park, & Kim, 2015; Stephenson, Billings, & Kowalski, 2015)
   f. A simulation skill training leads to improve compliance with procedures through standardizations of skills across staff. (Allen et al., 2014; Barsuk et al., 2015; Gerolemou et al., 2014; Justus, Wilfong, & Daniel, 2016; Shin et al., 2015; Shinners & Franqueiro, 2017; Stephenson et al., 2015)

5. **Rational**
   a. Moving skills from the bedside while staff are working to the Simulation (SIM) Center will:
      i. Improve staff satisfaction with skills sign off
      ii. Provides dedicated time for skills check off
      iii. Increase staff passing rate on the first time due to decreased distractions present at the bedside during prior skills signoffs
      iv. Having a dedicated skills day is better use of skills ambassador’s time then for smaller groups of time over 8 weeks
   b. **Theoretical Framework**
      i. Kirkpatrick's Levels of Evaluation
ii. Model for Evidenced-Based Practice Change (Step wise approach)

6. Specific Aims
   a. Measure Staff Satisfaction pre and post intervention
   b. To see if it is possible to sign off all RN’s in one unit in 24 hours.
   c. Trend in data changes on 5W/NSCU related to skills sign off (Pre data (Sep) and post data (Dec)
      i. Incidence of Central line associated blood stream infections (CLABSI)
      ii. Incidence of Catheter associated urinary track infection (CAUTI)
      iii. Accuracy of Blood administration documentation

7. Context
   a. DH has identified a need to change the way that skills/competencies are signed off
   b. The purpose of this project is to examine whether implementing a 24 hours SIM skills sign off system will improve staff satisfaction and skills rate and timeliness.

8. Intervention(s)
   a. Reserve skills labs and debriefing rooms for specified date
   b. Collect pre-data on incident of CLABSI/CAUTI and accuracy of Blood administration for one predetermined month before intervention
   c. Select and sign off skills ambassadors on skills after data collection
   d. 6 weeks before notifying staff of SIM day send out staff skills satisfaction survey.
      i. Staff will have two weeks to complete, if response rate <80% at one week send out reminder email
   e. 1 month before skills day:
      i. Email staff video, policies of skills to review for skills day.
      ii. Confirm all supplies are in place or are ordered.
      iii. Post signup sheet with date and times slots for RN’s to sign up.
   f. Two weeks before check sign up sheets and send a reminder email to staff who have not signed up
   g. 1 week before SIM day
      i. collect signup sheet and make master list of room assignments
      ii. Place signage with directions to the SIM
   h. Sim Lab Day RN’s are greeted by a skills ambassador when they arrive
   i. Expectations will be laid out: 1.5 hours to complete all skills, per policy and maintain aseptic technique.
   j. Post intervention survey completed on paper on SIM day
   k. Data collection post intervention on CLABSI/CAUTI/Blood administration will be completed for 1 month

9. Study of the Interventions
   a. Pre-data were collected prior to dissemination of new skills training information
   b. All skills ambassadors received 1:1 training by the DNP student
c. Staff were all given the same videos to watch
d. The DNP student worked closely with the leadership team and nurse educator in attempt to minimize confounding variables.
e. Pre/Post Staff Satisfaction Survey analysis using a Likert scale to measure whether the intervention improves staff satisfaction surrounding skills/competency signoff.
f. Competency completion will be measured in two ways
   i. Completion of competency on first attempt
   ii. Percent of staff that attend the skills day, low staff participation could lead to confounding results.
g. Monitor data on CLABSI/CAUTI through DH associated conditions internal website where the hospital reports this data, which updated in weekly.
h. Blood administration documentation via chart review that will be completed by me for 1-month post 24-hour SIM day looking for an improvement in incident rates and complete documentation.

10. Measure
   a. Percent of RN’s that complete competency on first attempt.
   b. Percent of RN's that attend the skills day
   c. Staff satisfaction measured using a Likert scale to determine percent of staff satisfaction (i.e. percent extremely satisfied)
   d. Monitor for changes in rates of CLABSI/CAUTI based on data retrieved from unit HAC cards
   e. Accuracy of Blood Administration documentation obtained through chart review as either correctly documented or incorrectly documented

11. Analysis
   a. Change in staff satisfaction from pre/post surveys
   b. Percent of staff that participated
   c. Number of staff that passed competencies on first try
   d. Incident of CLABS/CAUTI
   e. Percent of blood administration that is complete vs. incomplete.

12. Ethical Considerations:
   a. DHMC’s current policy (for last 3 years) is that: Staff will not be at risk for termination if they fail to pass any of the clinical competencies.
   b. Skills Ambassadors jobs will not be at risk if they are unable to fulfil the role.
   c. I did sign off the skills ambassadors as the DNP student to ensure identical training for tall.
   d. I did not sign off any staff on the skills day, and thus had no effect on the outcomes.

13. Results:
   a. Pre/Post CAUTI/CLABSI incidence of zero
   b. The proportion of correct blood administration in “pre” (0.35) is not significantly different from the “post” proportion (0.44), using a test comparing two independent proportions (p=0.65).
c. Pre/Post Staff Satisfaction Survey: Every question on the staff satisfaction survey was significantly higher (more positive) at post than at pre (p < 0.001).

14. Summary:
   a. Key Findings:
      i. Staff satisfaction greatly increased when moved from the bedside to the SIM lab.
      ii. Competency passing rate increased from 10-15% not passing on the first time to 100% passing all competencies on the first time.
      iii. Blood administration documentation accuracy increased after the SIM-day, but was not statistically significant.

   b. Particular strengths
      i. Short time frame of intervention, not a lot of time between pre/post data collection and intervention

15. Interpretation:
   a. It is hard to say if there is a direct effect between the intervention and the outcome. 5W/NSCU didn't have any CLABSI or CAUTI during the pre-intervention or post-intervention phase.
   b. Blood administration documentation increased but was not statistically different change.

16. Limitations:
   a. Small sample size, 25 nurses
   b. Skills ambassadors are co-workers and thus they may have felt pressure to pass or assist individuals who were struggling with skills.
   c. 5W/NSCU at the time of the study had several travelers who were not required to go through the training

17. Conclusion:
   a. Moving skills from the bedside while working to the SIM center:
      i. Increased staff satisfaction
      ii. Increased skills signoff on first time
      iii. Allowed for skills to be completed in a shorter time period/more efficiently
      iv. The results of this study point to more research being done in this area to see if the same thing could be done on a larger scale.

18. Funding:
   a. Funding was provided from the existing DHMC nursing education budget. Budget for this educational model did not exceed the typical budget.

Reference:


