

7-12-2018

An Exploration of NICU Nursing Staff Perspective on the Change from Pod to Private Room Patient Care

Julie Nickles
jnickles28@att.net

Follow this and additional works at: <https://irl.umsl.edu/dissertation>



Part of the [Maternal, Child Health and Neonatal Nursing Commons](#)

Recommended Citation

Nickles, Julie, "An Exploration of NICU Nursing Staff Perspective on the Change from Pod to Private Room Patient Care" (2018).
Dissertations. 769.
<https://irl.umsl.edu/dissertation/769>

This Dissertation is brought to you for free and open access by the UMSL Graduate Works at IRL @ UMSL. It has been accepted for inclusion in Dissertations by an authorized administrator of IRL @ UMSL. For more information, please contact marvinh@umsl.edu.

An Exploration of NICU Nursing Staff Perspective on the Change from Pod to
Private Room Patient Care

Julie L. Nickels

M.S.N., Masters of Science in Nursing, St. Louis University, 2007
B.S.N. Bachelors of Science in Nursing, St John's College of Nursing, 2002

A Dissertation Submitted to The Graduate School at the University of
Missouri-St. Louis
in partial fulfillment of the requirements for the degree
Doctor of Nursing

August
2018

Advisory Committee

Nancy Magnuson, DSN, CS, FNP-BC
Chairperson

Lisa E. Merritt, DNP, CPNP-PC/AC, PMHS

Pamela Lesser, MSN, RN

Introduction

When discussing issues that impact nursing one must first look at the environment, population, and other competing forces. The propose of this project was to explore how a structural design change in a Neonatal Intensive Care Unit (NICU) patient care work environment can impact the nurses' perception of providing care.

Neonatal intensive care units were established after the death of President Kennedy's son who died from respiratory issues. Due to this child's early death, the United States became aware of the number of newborns who were delivered early and died because of lung immaturity. This spurred new sub-specialties of neonatal intensive care nurses and neonatologists in the fields of nursing and medicine. The NICU was initially designed to care for preterm infants with respiratory problems, but today it has become an extremely complex service testing the limits of viability.

The NICU typically employs a cohort model of care. In this model of care multiple infants are in the same room or pod. In the 1980's decreased inpatient stays resulted in the need to educate parents about best practices for normal full-term neonates. With success of single room maternity care, the increased need for changes in neonatal care became apparent. Today, new parents desire extended contact with their extremely preterm and often very sick infant. This trend has led a standard of single room care in NICU's nationwide (Harris, Shepley, White, Kolberg, & Harrell, 2006). Studies have evaluated the benefits of

single room NICU care for families, however an extensive literature review failed to reveal how this transition affects nursing staff.

The nurses who participated in this project are all neonatal intensive care nurses. Many have worked in this unit for over thirty years. Over half of those currently employed have a tenure of 15 or more years. During their time working in the NICU they have faced many changes, however the change from a cohort to single patient room work environment is a drastic change. The nurses play a vital role in the care and support for the infants and their families. Anxiety with changing the model of care from cohort style to private room care was expressed by the NICU nurses. This was related to the quality of care provided, maintaining the sense of nursing staff community and team work, and the availability of customary level of support (from each other) in daily nursing activities. Negative perceptions resulting from this anxiety potentially had an impact on the overall satisfaction of the NICU nursing staff. It was the goal of this project to identify via survey the actual concerns of the NICU staff prior to the change (pre-change) and again 6 weeks after the change (post change). Data was compared to determine whether the things that were seen as major stressors (perceptions of anxiety) pre-change were present as major stressors in the post change survey.

Review of the Literature

The literature reviews were completed mostly on the internet using CINHALL. Some of the key words were NICU, pod style, private rooms, nursing perspective, effects on care and single-family rooms. All years were searched initially but was narrowed to 2006 and above after the initial research. Any article

that mentioned the nursing or family perspective about a move to private family rooms was reviewed.

One of the first papers published on single family room design and its impact was in 2006 in the *Journal of Perinatology* (Harris, Shepley, White, Kolberg, & Harrell). This group of researchers published an executive summary looking at three main areas physical/building, patient impact and staff experience. For this paper, the emphasis will be on staff reported results. Harris and colleagues sent a survey to one hundred sixty staff with a 47% return rate. Four hypotheses were tested improvement with changed environment, less stress in the new environment, higher job satisfaction and physical environment better. The results of the study demonstrated a need for future better constructed studies. The second key finding was that the overall nursing philosophy and nursing model drives the perception of the staff not the physical layout. One positive result was an improvement in job satisfaction. Smith and colleagues introduced the concept of ergonomics and human factors (Smith, Clayton & Schoenbeck, 2009). The main goal of their study was to compare a physical change to perceived performance among the staff. While their study tried to address the ergonomics and human impact of such a structural change, the focus was more physical than emotional aspects of the work environment. Smith's group used experimental design to compare two phases of quality. The results from the staff pre-and post-move perception was analyzed by a multivariate ANOVA. This would show if the specific design contributed to quality better, worse, or the same. This study did a better job at trying to address staff

concerns, but still focused more on physical layout of the unit. An earlier study by Harris et al., (year) reported improved staff satisfaction and team support. The initial study in 2006 created a platform for future studies on nurses' response to a patient care model change. Smith's group compared three different types of ward/pod/cohort models to new single-family rooms. What was different in this study was the very concentrated focus on human factor. They used a closed-loop model of performance design to assess work outcomes related to employee perception versus design features. The need for individualized care for very high-risk infant drove the need for single family rooms. Authors in the 2009 study found that a less congested work environment lead to decrease stress. The second key finding was that because of the design change team work was decreased compared to before. Participants in the study reported concerns of isolation. In 2013, Swanson et al described their longitudinal study on cohort care to single room. Much like Smith's study the need to identify concerns before the change and to monitor process following the change is essential in how it affects the staff and families during this very vulnerable time (Smith, Clayton, & Schoenbeck, 2009). In this study, they did compare differences by job titles (NICU nurse practitioners [NPs]). Like Smith's study the nurses had concerns for teamwork. This was not perceived the same by NP and family members. Both studies would suggest that a new unit has a greater impact on the nurses than the families and other disciplines.

Family centered care has become the norm in the world of perinatal healthcare. For many years it was understood that newborns requiring intensive

care services may receive that in a cohort or open ward. Today because of consumer demand, privacy concerns, and evidence base care for the extremely preterm infant there is a major push for single family room units. Domannico's et al. in 2010 tried to address parent and staff's perceptions of an open ward versus single family room. In this paper they used a well validated, Likert scale to conduct their study (Domanico, Davis, Coleman, & Davis). The conclusion from the study showed that staff and family preferred single rooms regarding privacy and HIPPA, general noise, lighting control and foot traffic. There were differences in observed interpersonal communication among professionals.

Family centered care is a topic of great discussion in the literature.

Optimal health outcomes are achieved when patients' family members play an active role in providing emotional, social, and developmental support. This can be affected by the design of the NICU. The goal of the NICU design is to take in to account infants', families', and staff members' medical, developmental, educational, emotional, and social needs. In cohort style NICUs, concerns about confidentiality are expressed by staff on a routine basis. The move to private family rooms helps to alleviate privacy concerns and enable better parent participation. Private patient rooms have also been associated with more positive feelings about work, decrease in nurse turnover, and improved job performance (Gooding, Cooper, Blaine, Franck, Howse, & Berns, 2011).

A few studies have evaluated the nurse-parent and nurse-infant interactions in the NICU. This is important to note as these interactions can influence the perceptions the nurses have of private rooms and the care provided.

It was reported that nurses regard the quality of the interactions as better in private family rooms when compared to open-bay style nursing. A private room was found to increase the nurse-family interaction significantly. The interaction was found to be more meaningful and less fragmented. Also, nurse-infant interaction time was not decreased when moving to private rooms. The nurses spent an average of three times more work time interacting with the infant and parents (Toivonen, Lehtonen, Loyttyneimi & Axelin, 2016).

Few articles were found which looked at the actual nursing perspective. One of these looked at nurse attitude, motivation, job satisfaction and emotional state of the nurses who were changing to a private room NICU. In this particular study all of categories (quality of environment, quality of patient care, job-related quality, job related health/safety, patient and staff safety, and interaction with technology) were significant in moving to private patient rooms with the exception of 4 categories. The four categories which showed no significant change was observed with the move from pod style to private rooms were the quality of being an employee, off job life, quality of health and safety and overall ability to interact with others (Stevens, Helseth, Khan, Munson & Smith, 2010).

Methods

The overall design of the project was exploratory. Current nurses were given the opportunity to complete a Likert scale survey within survey monkey. Information about the survey was sent via email to all NICU nurses, along with an explanation of the purpose of the study, due dates and how results will be shared. This process was then repeated 6 weeks after the move into the new private

room unit. The survey was aimed to identify nurses' concerns about the change in delivery of care after transitioning to a private room NICU.

This study occurred at SSM St Mary's Hospital, a teaching facility located in an urban area just outside St. Louis Missouri. About 65% of the patients in this facility are covered by Medicaid or are uninsured. The NICU employs 68 registered nurses supported by physician and neonatal nurse practitioners from SSM Health Cardinal Glennon services. The unit transitioned from a 28-bed pod style nursing unit, which had no facilities to allow a parent to stay overnight, to a 42-bed unit with all private rooms with sofa sleepers in each room.

A convenience sample of the 68-neonatal intensive care registered nurses who were employed throughout this transition were given the opportunity to answer the survey. Once the survey was available weekly email reminders were sent to all staff. There were celebrations when half of the desired surveys were completed as well as at the completion of the survey. This was done to acknowledge the accomplishment. The survey was also mentioned in the daily huddle, which was completed at change of shift to encourage participation.

Administrative approval was obtained from the Nursing Director of Women's Services at St. Mary's Hospital. Human subject approval was obtained from University of Missouri St. Louis's Institutional Review Board (IRB) as well as the IRB at St. Mary's Hospital.

A pre-and post-confidential survey designed by the primary author, using a Likert scale was used to collect data (see appendix 1). The scale used was 0 being strongly disagree to 4 being strongly agree. The survey was designed to

identify the nursing perspective regarding sense of community, care delivered, availability of support in daily activities and teamwork. The survey was delivered through survey monkey which ensured confidentiality. The intervention in the study was the move from a pod style nursing to a private room unit.

Results

There were 49 surveys returned during the pre-design change and 43 returned during post-design change. (see table 1). The number of completed surveys was not large enough to use the paired t-test therefore the Wilcoxon Signed Rank test was performed. Wilcoxon signed-rank test showed nurses had a statistically significant positive change in the level of satisfaction of their work environment ($z = -4.000$, $p < .001$). It also showed there was a significant increase in their satisfaction with the quality of care provided ($z = -5.468$, $p < .001$), quality of family focused care ($z = -2.828$, $p .005$) and safety is a priority ($z = -3.464$, $p < .001$). The results also showed a significant decline in the quality of family/nurse interactions ($z = -2.828$, $p .005$) and in determination to give their best at work ($z = -3.000$, $p .003$). The 2 areas which had no significant changes were employees help others ($z = -0.686$, $p .493$) and satisfaction with the quality of communication ($z = -0.707$, $p .480$).

When looking at the effects of years of experience on nursing perception the Kruskal Wallis test was used. Overall there was no significant relationship between years of experience and nursing perceptions. However, 2 questions did show significance. These included post design change question 4 ($p = .026$) and

pre-design change question 6 ($p=.034$). Both showed an increase satisfaction in the nurses with less experience.

Written comments were reviewed for all pre and post surveys. The 43 written responses in the pre-design change surveys could be broken down into 4 main groups. These included the fear of isolation from coworkers, not receiving help when needed, staffing not being adequate as well as becoming familiar with the new equipment. 34 nurses included a written comment on the post design change survey. The 5 categories of concerns from the nurses were as follows: the admission process, overstimulation for the nurses, getting help when needed, unable to see/hear other patients and communication.

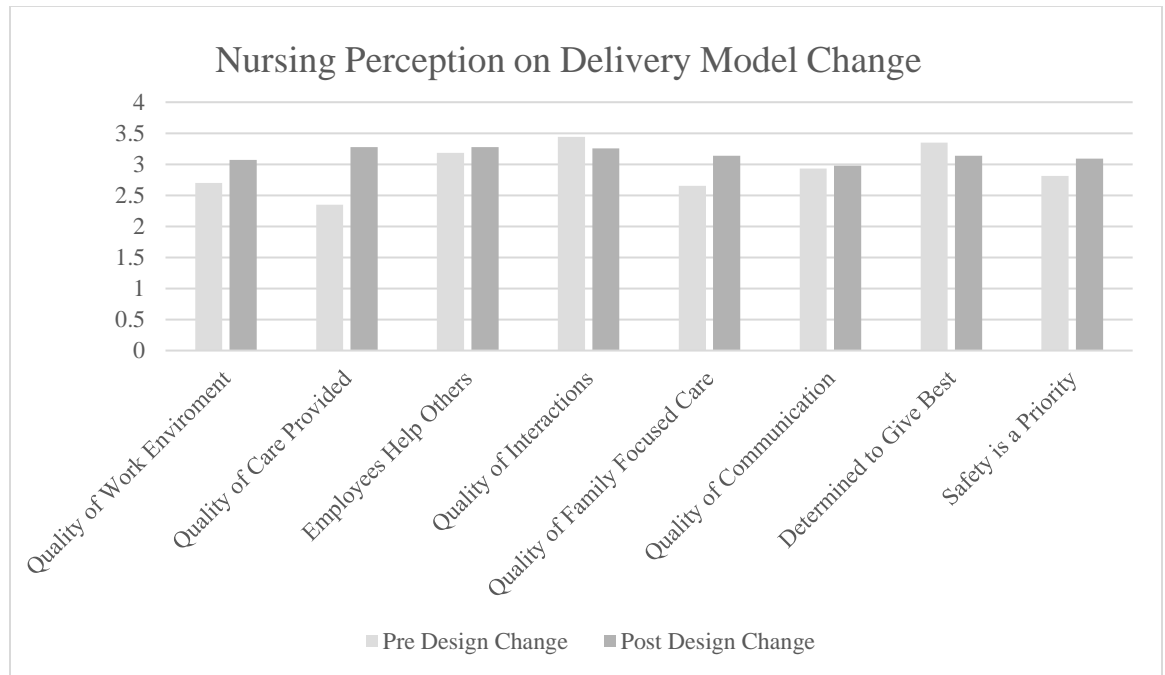


Figure 1. Plot of the median values for each category of the nursing perceptions survey. Lighter shaded bars represent the pre-move perception and the darker shaded bars represent the post-move perception.

Discussion

The intent of this investigation was to evaluate the differences in the concerns of the NICU staff prior to the move to single family rooms compared with their concerns after the move. The survey covered several aspects of both the physical as well as emotional support in the 2 different environments. These both could play a role in the overall satisfaction of the nursing staff.

The results show that actual satisfaction in work environment, the quality of care being provided, quality of family-focused care, and patient safety nurses expressed after the change were significantly better than what they perceived before the move. However, the experience of the quality of family/nurse interactions and in their determination to give their best at work showed a decline after the move. How the nurses felt about the help they received from one another and the quality of communication did not change significantly.

These results provide guidance when planning for a similar move. While these nurses experienced positive changes in many areas of their clinical practice, the decline in family/nurse interactions and their attitudes at work are troubling. Future research should focus on strategies to prepare the nurses for positive increased interactions with the families, and to determine what factors caused the negative work attitudes after the move. Perhaps another survey, six to twelve months after the move would indicate whether these changes continued or were part of the transition.

Conclusion

Not much is known about how a delivery model change affects nurses' perception of daily interactions as well as care delivered. This project was intended to capture the nurses perceived attitude regarding change and its effect on teamwork and patient care. The goal would identify the nurses' before and after the change while making appropriate medication to care as necessary. These findings can guide future unit or patient transitions, while directing focus areas for further study.

References

- Domanico, R., Davis, D. K., Coleman, F., & Davis, B. O. (2010). Documenting the NICU design dilemma: parent and staff perceptions of open ward versus single family room units. *Journal of Perinatology*, 30(5), 343-351. doi:10.1038/jp.2009.195
- Gooding, J. S., Cooper, L. G., Blaine, A. I., Franck, L. S., Howse, J. L., & Berns, S. D. (2011). Family support and family-centered care in the neonatal intensive care unit: origins, advances, impact. *Seminars in Perinatology*, 35(1), 20-28. doi:10.1053/j.semperi.2010.10.004
- Harris, D. D., Shepley, M. M., White, R. D., Kolberg, K. J., & Harrell, J. W. (2006). The impact of single family room design on patients and caregivers: executive summary. *Journal of Perinatology*, 26. doi:10.1038/sj.jp.7211583
- Smith, T. J., Clayton, S., & Schoenbeck, K. (2009). Transition from an open bay to a private room neonatal intensive care unit design-a human factors evaluation. PsycEXTRA Dataset. doi:10.1037/e577352012-006
- Stevens, D. C., Helseth, C. C., Khan, M. A., Munson, D. P., & Smith, T. J. (2009). Neonatal intensive care nursery staff perceive enhanced workplace quality with the single-family room design. *Journal of Perinatology*, 30(5), 352-358. doi:10.1038/jp.2009.137
- Swanson, J. R., Peters, C., & Lee, B. H. (2013). NICU redesign from open ward to private room: a longitudinal study of parent and staff perceptions. *Journal of Perinatology*, 33(6), 466-469. doi:10.1038/jp.2012.157

Toivonen, M., Lehtonen, L., Löyttyniemi, E., & Axelin, A. (2017). Effects of single-family rooms on nurse-parent and nurse-infant interaction in neonatal intensive care unit. *Early Human Development*, 106-107, 59-62.
doi:10.1016/j.earlhumdev.2017.01.012

Table 1. ANALYSIS OF DATA

Wilcoxon signed rank test the differences between pre- and post-design change groups

Variable	Pre-design Change Group		Post-design Change Group		z	p
	M	SD	M	SD		
Question 1	2.698	0.741	3.070	0.737	-4.000	<.001
Question 2	2.349	0.870	3.279	0.826	-5.468	<.001
Question 3	3.186	0.764	3.279	0.591	-0.686	.493
Question 4	3.442	0.590	3.256	0.759	-2.828	.005
Question 5	2.651	0.752	3.140	0.743	-4.583	<.001
Question 6	2.930	0.669	2.977	0.886	-0.707	.480
Question 7	3.349	0.573	3.140	0.861	-3.000	.003
Question 8	2.814	0.794	3.093	0.811	-3.464	<.001

Appendix 1. Survey Questions

1. I am satisfied with the quality of my work environment
2. I am satisfied with the quality of care provided
3. Employees in my unit help others when needs arise
4. I am satisfied with the quality of family/nurse interactions
5. I am satisfied with the quality of family focused care
6. I am satisfied with the quality of communication with care team members
7. I am determined to give my best at work
8. I feel safety is a priority
9. What is your biggest concern about being a staff nurse since moving to the new unit
10. I have _____ years of NICU experience