

The Effect of a Family Support Intervention on Physician, Nurse, and Family Perceptions of Care in the Surgical, Neurological, and Medical Intensive Care Units

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Many patients in the intensive care unit (ICU) have predictable medical and discharge outcomes, but some trajectories are marked with medical uncertainty. Stressed family-surrogates receive multiple medical updates from a variety of personnel. These circumstances can lead to confusion, which may result in conflicts and dissatisfaction with care. This study examined the effects of adding a family support coordinator to the surgical, neurological, and medical ICUs on family, physician, and nurse satisfaction with communication and care. A quasi-experimental design was conducted in 2 sequential phases (baseline and intervention). The data sources were 2 surveys: (1) Family Satisfaction Survey and (2) Nurse and Physician Perception and Satisfaction Survey. Family Satisfaction Survey data, a combined data set, were collected in the 3 ICUs. Nurse and Physician Perception and Satisfaction Survey data were collected from the attending physicians and critical care nurses in the medical and neurological ICUs. Results show that family ratings of satisfaction with ICU team communication and care generally increased as a result of the intervention. Overall, physician and nurse perceptions of communication and care did not change as a result of the intervention. **Key words:** *communication, family support, ICU, satisfaction*

MANY PATIENTS in the intensive care unit (ICU) have predictable medical

and discharge outcomes, but some patients' trajectories are marked with medical uncertainty and no clear sense of hospitalization length. Moreover, there is the possibility that a surrogate will have to make difficult, value-laden decisions during the patient's length of stay, creating the possibility of 2 or more viable medical options, including withdrawing life supports and moving to comfort care only

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or continuing ICU care. To complicate matters, stressed family-surrogates often spend day after day in the ICU setting, receiving multiple medical updates from a host of medical personnel from varying specialties. These circumstances lend themselves to confusion and frustration, which can result in conflicts and increased lengths of stay. If protracted conflicts persist and are not adequately resolved, stress, and possible emotional harm to both family members and staff, may result, including posttraumatic stress disorder.¹

Prior research has examined nonmedical factors that may affect families of patients receiving ICU care and types of interventions focused on providing family support in the ICU. Communications between ICU medical staff and family members²⁻⁵ and assessment of family burden⁶ have been examined. Nonmedical interventions designed to provide support to families in the ICU, including palliative care services,⁷⁻⁹ ethics consultations,¹⁰⁻¹³ social work,^{14,15} and pastoral care¹⁶ have been studied. Other studies have examined family satisfaction in relation to spiritual care, end-of-life family discussions, and communication.^{17,18} The impact of a designated liaison, family support coordinator, and a comprehensive program focused on family support and satisfaction has been studied.¹⁹⁻²² Finally, family members' perceptions of emotional strain, communication, and satisfaction in the ICU have been compared with the expectations of care providers,²³ and this growing body of research points underscores the importance of family support in the ICU and the many possible ways such support may be improved.

The purpose of this study was to further examine the effects of a family support intervention that had been previously tested in the surgical ICU.²⁰ This intervention added a family support coordinator (FSC) to the ICU care team with the goal of providing enhanced, family-focused support from the outset of the patient's admission, increasing the possibility of maintaining consensus and reducing protracted conflicts. It was hypothesized that the addition of the position of an FSC to the care team, a position staffed by an experienced

ICU nurse, could increase family satisfaction with support team communication and care. Moreover, the care team's perceptions of the quality of communication with, and care for, the families were also examined.

METHODS

Study design and data sources

A quasi-experimental design was employed and data collected in 2 sequential phases (baseline and intervention) in 3 ICUs (surgical, medical, and neurological). The data sources were 2 surveys: (1) Family Satisfaction Survey (FSS) and (2) Nurse and Physician Perception and Satisfaction Survey (NPPSS). Family Satisfaction Survey data, a combined data set, were collected in the surgical, medical, and neurological ICUs at a large teaching hospital in the northeast. Nurse and Physician Perception and Satisfaction Survey data were collected from the staff in the medical and neurological ICUs only (data from staff were not collected in the surgical ICU). The Figure summarizes the data collection process, its timeline, and sample sizes.

Inclusion criteria

The focus of this study was on the ICU patient population at greatest risk for medical complications and uncertainty in outcomes and their family members. All patients admitted to the 3 ICUs during the data collection

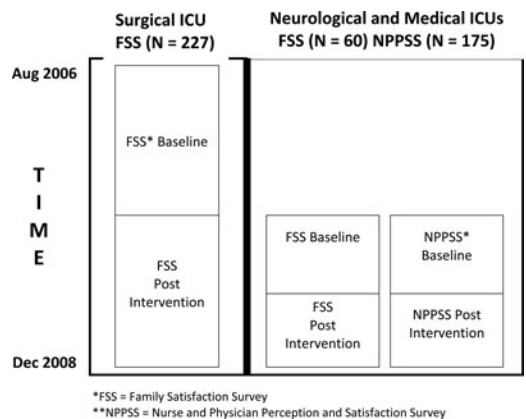


Figure. Data collection process and timeline.

time frame were screened by the attending physician. On day 2 of admission, at which time a reliable short-term prognosis could be made, the attending physician was asked: Do you expect this patient to be in the surgical ICU on day 5? If the answer was “yes,” the patient and his or her family were enrolled in the study; if “no,” they were excluded. The average accuracy rate for physician prediction of patient’s length of stay was 85% during baseline and 86% during the intervention phase across the 3 ICUs. In the surgical ICU, 650 patients were screened (190 included) during baseline and 648 patients were screened (187 were included) during the intervention phase. In the medical and neurological ICUs combined, 195 patients were screened (40 were included) during baseline and 176 patients were screened (39 were included) during the intervention phase.

Intervention

The new role of FSC was added to the 3 ICU teams. The FSC functioned, for the duration of the patient’s stay, as a communication liaison between the patient’s family and the health care team. The FSC’s role was to (1) daily assess the family’s information needs; (2) interpret and explain relevant medical information; (3) assist the family in processing medical information to facilitate well-informed decision making; (4) identify and provide referrals for meetings with physicians and needed services, including social work, pastoral care, and ethics consultation; and (5) enhance the health care team’s understanding of the family’s needs, including the family’s perspectives on and concerns about the patient’s condition, prognosis, and treatment plan. The scope of the FSC did not include delivering new medical information on diagnosis or prognosis but was to facilitate the understanding of the provided medical information. Three separate nursing professionals (a nurse practitioner and 2 registered nurses) functioned in the role of FSC over the course of the combined data collection efforts, and only one FSC worked on any given unit at any one point in time. All FSCs were trained in basic psychosocial and assessment counseling

skills by a social worker experienced in working with families and patients in the hospital setting.

After patients were identified who met the inclusion criteria during the intervention phase, the FSC offered her services to the family. Families were informed that the FSC could assist them in communicating with members of the ICU medical team, help them to comprehend the provided medical information, and obtain needed support from representatives from the areas of social work, pastoral care, and ethics consultation. Families were provided with contact information for the FSC, along with a list of other relevant hospital and community services. The FSC checked in on a daily basis, either by telephone or in person, and discussed the patients’ situations with the attending physicians. The FSC routinely arranged and attended family meetings and met with medical staff to discuss family concerns assessed during one-on-one meetings with various family members.

Instruments and survey procedure

Family Satisfaction Survey

Family satisfaction was measured by the Critical Care Family Assistance Program Family Satisfaction Survey (FSS), an adaptation of the family satisfaction survey developed by Heyland et al.²⁴ The adaptation used in the present study was validated by Dowling and Wang.²² Families were asked to rate the quality of each team member’s communication and care and their satisfaction with care and treatment provided by the ICU team. See Table 1 for question content.

One family member (the family’s primary spokesperson and/or patient surrogate) was surveyed the day the patient was ready to leave the ICU. A research associate (not the FSC) either administered the survey orally or left the survey for the family to self-administer (most family members self-administered the survey). For families that could not be located while on site, or if the patient died, the research associate followed up with a phone call or sent a survey by mail.

Table 1. Comparison of Pre- and Postintervention Family Satisfaction^a

Survey Area	Mean			F	P	Effect Size
	Pretest	Posttest	Pooled SD			
1a. Nursing communication	4.31	4.50	0.86	3.33	.069	0.21
1b. Nursing care	4.59	4.77	0.66	5.27	.022	0.27
1c. Physician communication	3.77	4.26	1.09	14.36	.001	0.45
1d. Physician care	4.48	4.77	0.72	11.39	.001	0.41
1e. Social worker communication	4.12	4.33	1.08	2.21	.139	0.19
1f. Social worker care	4.14	4.40	1.03	3.41	.066	0.25
1g. Pastoral communication	4.25	4.52	1.04	2.26	.135	0.27
1h. Pastoral care	4.36	4.68	0.95	3.38	.068	0.34
1i. Ethics communication	4.08	4.48	1.04	1.27	.266	0.38
1j. Ethics care	4.17	4.58	0.95	1.63	.208	0.43
2. How well staff met your family member's needs regarding pain, comfort, and anxiety	4.46	4.59	0.79	1.85	.175	0.16
3. How well ICU staff helped you understand tests, treatments, and condition of your family member	4.15	4.49	0.94	9.43	.002	0.36
4. Degree to which you were included in the decision-making process for your loved one	4.27	4.49	1.01	3.32	.070	0.22
5. Degree to which the ICU team helped you as a family member consider and select treatment decisions for your loved one	4.13	4.50	1.01	8.93	.003	0.36
6. Degree to which ICU team considered your needs as a family member	4.16	4.54	0.93	11.78	.001	0.41
7. Degree to which you feel safe and secure in our hospital environment	4.64	4.78	0.73	2.77	.097	0.20
8a. A private place in the hospital to sleep or rest while waiting	0.36	0.67	0.48	11.93	.001	0.66
8b. A way for the ICU team to contact me	0.84	0.95	0.31	6.60	.011	0.35
8c. Information on advance medical directives	0.81	0.83	0.39	0.06	.800	0.04
8d. Referral to social worker, chaplain, or ethics consultant for assistance with making decisions	1.00	1.00	0.00	...	...	...
8e. Personal support from pastoral care services	0.75	0.94	0.37	7.41	.008	0.52
8f. Information from social worker on available resources	0.67	0.91	0.40	17.09	.001	0.60
8j. Contact information for physicians or members of the ICU team	0.80	0.89	0.37	3.59	.060	0.25
9. Do you feel there were any conflicts or disagreements about your family member's medical treatments or care in the ICU?	1.00	1.00	0.00	12.16	.002	...
15. FSC rating		4.75	0.49	...	...	NA

Abbreviations: FSC, family support coordinator; ICU, intensive care unit; NA, not available.

^aQ1-7: 1 = very poor, 5 = very good; Q8a-j: 0 = needed but did not receive; 1 = needed and received; Q9: 0 = no, 1 = yes; Q15: 1 = not helpful at all, 5 = very helpful. Bolded entries indicate statistical significance.

Nurse and Physician Perception and Satisfaction Survey

The FSS was specifically adapted for this study to measure nurse and physician perceptions of family communication and decision-making quality and the degree to which the ICU teams perceived that they provided information/referral to allied health care services. In the neurological and medical ICUs, the research associate administered surveys to both the attending physician and the main nurse involved in the care of each study patient. (Data were collected only in the medical and neurological ICUs, as this study component was added after implementation in the surgical ICU. See the Figure for the data collection timeline.) See Table 2 for item content.

Participants

One hundred ninety patients were enrolled in the study during baseline and 187 patients during the intervention phase in the surgical ICU; for the medical and neurological ICUs, 40 patients were enrolled during baseline and 39 patients during the intervention phase. The family members of all enrolled patients were invited to complete the FSS.

Statistical analyses

Analysis of variance (ANOVA) was used to compare the difference in FSS and NPPSS item mean scores before and after the introduction of the FSC. For both the FSS and NPPSS, exploratory factor analysis did not reveal a theoretically sound factor structure, so analyses were run on individual items. This allowed for exploration of family satisfaction with and professional perceptions of specific areas of medical service delivery. To minimize the risk of a type 1 error, Bonferroni corrections were made for each set of analyses that were run; α level was adjusted to .0021 (.05 divided by the 24—the number of items on each survey). Standardized mean differences (effect sizes) were computed to estimate the effect of the intervention on perceptions of communication, care, and services provided in the ICUs; such an approach allows for comparison of effects across items and surveys.²⁵

RESULTS

Demographics

In the surgical ICU, patients' average age at baseline was 56.4 years and that at the intervention phase was 61.5 years. The average age difference was 5.1 years ($P < .05$). During baseline, there were 66% male and 34% female patients; during the intervention phase, there were 65% male and 35% female participants. Thirty-eight patients died in the surgical ICU during baseline, and 40 died during the intervention phase. In the neurological and medical ICUs, the average age of patients during baseline was 61.17 years and that during the intervention phase was 61.78 years. The difference was not statistically significant. During baseline, there were 55% male and 45% female patients; during the intervention phase, there were 54% male and 46% female patients. Seven patients died during both the baseline and intervention phases, for a total of 14 patient deaths.

Those interviewed were spouses, sons, daughters, and, rarely, other relatives. In the surgical ICU, the FSS response rate for the baseline and intervention phases was 55% and 56%, respectively. In the neurological and medical ICUs, the total response rate for the baseline and interventions phases was 55% and 56%, respectively. For the NPPSS, the response rate from physicians was 100% at baseline and 80% during the intervention phase; from nurses, it was 100% during baseline and 87% during the intervention phase.

Analysis of FSS

Table 1 provides the details on the baseline and postintervention differences for the FSS combined data set (data from the surgical, neurological, and medical ICUs). Compared with baseline, family members during the intervention phase reported significantly higher levels of satisfaction with physician communication; physician care; degree to which the surgical ICU staff helped in understanding tests, treatments, and condition of the patient; the degree to which the ICU team

Table 2. Comparison of Physician and Nurse Perception and Satisfaction (Pre- and Postintervention Combined)^a

Perception and Satisfaction Area	Mean			F	P	Effect Size
	Physician (N = 80)	Nurse (N = 96)	Pooled SD			
1. How effectively do you feel you and the family of this patient communicated?	4.05	4.13	0.93	0.30	.588	0.08
2. How well do you feel you met the family member's needs regarding pain, comfort, and anxiety?	4.18	4.21	0.83	0.07	.791	0.04
3. What is your sense of how well the family was able to make effective decisions for the patient?	3.94	3.83	1.04	0.41	.522	-0.10
4. To what degree did the ICU staff include the family in the decision-making process for the patient?	4.27	4.26	0.72	0.01	.919	-0.02
5. How well did the ICU staff address each family member's needs?	4.17	4.16	0.77	0.02	.897	-0.02
6. Did the ICU staff provide any of the following services or areas of information for this family?						
a. Advance medical directives	0.46	0.51	0.50	0.34	.561	0.09
b. Referral to pastoral care	0.25	0.55	0.47	14.86	.001	0.63
c. Referral to social work	0.56	0.69	0.48	2.78	.098	0.27
d. Referral to ethics service	0.00	0.06	0.18	4.30	.040	0.34
e. Contact information for physicians or the ICU team	.60	.83	0.43	11.26	.001	0.54
7. Do you feel there were any conflicts or disagreements with the family about this patient's medical treatments or care while in the ICU?	0.09	0.14	0.32	0.75	.389	0.13
8. Was there an ethics consultation?	...	...	0.00	...	...	...
9. How would you describe the ability of the family members to make decisions regarding their loved one?	4.01	3.79	1.14	1.64	.203	-0.20
10. To what degree did the ICU staff help the family members of this patient to consider, select, and make treatment decisions for their loved one?	4.10	3.74	0.99	5.06	.026	-0.36
13. Rate the degree to which you found the FSC helpful	3.78	4.04	1.15	1.04	.311	0.23

Abbreviations: FSC, family support coordinator; ICU, intensive care unit.

^aQ1-5: 1 = poor, 5 = extremely well; Q6-7: 0 = no, 1 = yes; Q9: 1 = very poor ability, 5 = very good ability; Q10: 1 = no assistance provided, 5 = considerable assistance; Q13: 1 = not helpful, 5 = very helpful; Bolded entries indicate statistical significance.

considered their needs as a family member; the help received from the ICU team when they needed a private place in the hospital to sleep or rest while waiting; and information from the social worker on available resources, that is, discharge planning, emotional support, community resources. Positive effect sizes for family survey items indicate overall improvement in all areas.

Analysis of NPPSS

Table 2 provides details of the differences in NPPSS scores between nurses and physicians and effect sizes. The first series of ANOVAs compared nurse and physician ratings with the baseline and postintervention scores combined. The ANOVA revealed 2 areas in which nurses reported significantly higher ratings than physicians. In particular, nurses reported higher frequency of ICU staff providing referral to pastoral care and contact information for physicians or the ICU team. The directionality of the effect sizes shows that nurses reported higher ratings (ie, perceptions of increased quality in family decision making and communication and more information/referral provided to the family) in 9 areas whereas those by physicians in 5 areas. One of the notable areas that physicians indicated for higher rating is the degree to which ICU staff helped family members to consider, select, and make treatment decisions for the patient.

The second set of analyses was conducted to examine the differences between nurse and physician ratings on the NPPSS during baseline. During baseline, only one ANOVA was significant ($P < .001$), indicating that nurses were significantly more likely to report that the ICU team made referrals to pastoral care. Furthermore, the 10 positive and 3 negative effect sizes during baseline indicate that nurses initially reported higher ratings than physicians in 10 areas and physicians reported higher ratings than nurses in 3 areas. Examination of effect sizes revealed that during baseline, physicians tended to be more satisfied with the degree to which the ICU staff helped family members make treatment decisions for the patient than the nurses (Table 3).

The third set of analyses examined the differences between nurse and physician ratings on the NPPSS postintervention. The ANOVA revealed no significant differences between physician and nurse ratings on the NPPSS items. Examination of effect sizes indicated that physicians reported higher ratings than nurses in 8 areas and nurses reported higher ratings than physicians in 5 areas. Most notably, physicians tended to be more satisfied with the family decision-making process ($d = -0.39$) and how the ICU staff addressed family needs ($d = -0.32$) than nurses; nurses were more likely to report that the ICU staff provided referrals to pastoral care ($d = 0.39$) and ethics consultation ($d = 0.38$) than physicians.

DISCUSSION

As in the original study in the surgical ICU,²⁰ the present investigation addresses the effectiveness of the FSC on communication and patient and family satisfaction in a select group of ICU patients at greatest risk for extended length of stay. To capture these patients, the inclusion criteria relied on physicians' ability to predict 5-day length of stay. These inclusion criteria did not capture patients who died before the second-day screening, which may have affected the study results regarding satisfaction. Ideally, families of patients, especially those at higher risk for complications, need optimal support from the moment of admission on day 1, which this study did not provide. We would expect that earlier contact with the families by the FSC would have an overall positive impact on both family and ICU caregiver satisfaction results.

Additional data for this study were collected in the neurological and medical ICUs. In this setting, helping family surrogates come to terms with end-of-life decision making, especially with older, chronically sick patients, can be taxing on ICU caregivers. Once the potential contribution of the FSC was understood, critical care team members embraced the benefits of having the FSC serve as a communication liaison with family members.

Table 3. Comparison of Pretest Data for Nurse and Physician Perception and Satisfaction Survey^a

NPPSS Item	Mean			F	P	Effect Size
	Physician (N = 40)	Nurse (N = 51)	Pooled SD			
1. How effectively do you feel you and the family of this patient communicated?	3.95	4.28	0.81	3.67	.059	0.41
2. How well do you feel you met the family member's needs regarding pain, comfort, and anxiety?	4.10	4.36	0.72	2.93	.090	0.36
3. What is your sense of how well the family was able to make effective decisions for the patient?	3.92	3.77	1.02	0.48	.493	- 0.15
4. To what degree did the ICU staff include the family in the decision-making process for the patient?	4.08	4.15	0.73	0.24	.628	0.10
5. How well did the ICU staff address each family member's needs?	4.00	4.23	0.66	2.63	.108	0.35
6. Did the ICU staff provide any of the following services or areas of information for this family?						
a. Advance medical directives	0.36	0.48	0.50	0.94	.335	0.23
b. Referral to pastoral care	0.19	0.61	0.46	14.67	.001	0.91
c. Referral to social work	0.44	0.67	0.49	4.46	.038	0.49
d. Referral to ethics service	0.00	0.05	0.17	1.50	.226	0.29
e. Contact information for physicians or the ICU team	0.48	0.83	0.44	12.09	.001	0.79
7. Do you feel there were any conflicts or disagreements with the family about this patient's medical treatments or care while in the ICU?	0.05	0.14	0.29	2.33	.130	0.31
8. Was there an ethics consultation?	...	...	0.00	...	...	...
9. How would you describe the ability of the family members to make decisions regarding their loved one?	4.06	3.81	1.14	0.93	.338	- 0.21
10. To what degree did the ICU staff help the family of this patient to consider, select, and make treatment decisions for their loved one?	4.03	3.74	0.90	2.06	.155	- 0.32

Abbreviations: ICU, intensive care unit; NPPSS, Nurse and Physician Perception and Satisfaction Survey.
^aQ1-5: 1 = poor, 5 = extremely well; Q6-7: 0 = no, 1 = yes; Q9: 1 = very poor ability, 5 = very good ability; Q10: 1 = no assistance provided, 5 = considerable assistance. Bolded entries indicate statistical significance.

To be effective, the introduction of a new role such as that of the FSC requires full buy-in and, in part, strong leadership exhibited by key ICU critical care team members. This is an important consideration for further studies involving the FSC or any other new roles aimed at enhancing communication.

As in most ICUs, the staffs of the surgical, neurological, and medical ICUs provide quality care and support to families prior to the intervention. Nevertheless, compared with baseline without FSC involvement, there were significant results on a range of areas that showed increased family satisfaction during the intervention. Most of these areas, particularly physician communication, are consistent with the key objectives behind the implementation of the FSC role. The daily demands that confront critical care physicians, including providing expert clinical care to many patients while mentoring fellows, residents, and students in a teaching hospital context, can limit the available time with distressed families. By serving as the liaison between families and physicians, the FSC can dedicate a significant amount of time to each family to facilitate available lines of communication between all stakeholders so that the family's medical questions are adequately answered.

The area of physician communication is closely related to other areas where there were significant increases in family satisfaction, including "degree to which the ICU staff helped in understanding tests, treatments, and condition of the patient" and the "degree to which the ICU team considered their needs as a family member." Other areas of significant increases in satisfaction suggest that the additional attention and support the family receives can have a global affect, making them better satisfied in other areas as well, such as how medical care is provided. This possible positive systemic impact of the FSC, we speculate, contributes to reduced stress on the parts of both family and the ICU care team and, furthermore, to the possibility of a more constructive approach to medical decision making.

Possibly because of the small sample size of nurses and physicians, there were no sig-

nificant results about how the FSC affected the perspectives of ICU physicians and nurses relative to the families for whom they provide support. This is an important area of research with implications for how physicians, and especially nurses, cope with the stress of the daily experience of caring for very sick patients and their distressed families in the ICU.²⁶⁻²⁹ The effect sizes suggested that physicians were consistently more satisfied with the degree to which the ICU team helped family members to consider, select, and make treatment decisions for the patient as than the nurses during both the baseline and intervention phases. This study does not provide any explanation of this finding, and having a better understanding of the factors that influence physician appraisal of the quality of family decision-making process and how such assessments impact communication behaviors in health care encounters could be helpful to explore in future research.

CONCLUSIONS

Comparative analyses between baseline and intervention FSS data indicated that families reported a higher level of satisfaction after the intervention. In particular, higher satisfaction with physician communication and care, and degree to which ICU staff consider the needs of family members and help them feel secure in the hospital environment, appears directly related to the intervention provided by the FSC. On the contrary, analyses revealed that physician and nurse perception and satisfaction with ICU care did not change as a result of the intervention. More comprehensive, multi-institutional research is needed to confirm whether or not improved communication could have a broader positive effect on all areas of ICU care, especially increasing the satisfaction with the quality of medical care provided and on reducing length of stay. To the extent these 2 possibilities converge, an important common ground between increased quality of care and a reduction in cost of care will have to be identified.

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