

IMPROVING NURSE-PHYSICIAN COMMUNICATION AND SATISFACTION IN THE INTENSIVE CARE UNIT WITH A DAILY GOALS WORKSHEET

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- **OBJECTIVE** To evaluate the effect of a standardized worksheet on physicians' and nurses' perceptions of their understanding of goals of care and on patients' length of stay in an intensive care unit.
- **METHODS** A worksheet was completed daily during multidisciplinary rounds and was posted at each bedside in the medical intensive care unit at Beth Israel Medical Center in New York. Information recorded included tests or procedures, medications, sedation, analgesia, catheters, consultations, nutrition, mobilization, family discussions, consents, and disposition. Attending physicians, residents, and nurses completed a questionnaire before implementation of the worksheet and 3 times afterwards. Responses were scored on a 5-point scale (1 = understand nothing, 5 = completely understand). Continuous variables were analyzed by using a t test; categorical variables, by using a χ^2 test.
- **RESULTS** Before the worksheet was implemented, scores for understanding goals were 3.9 for nurses and 4.6 for physicians. Scores increased to 4.8 for nurses ($P = .001$) and 4.9 for physicians ($P = .03$) 6 weeks later, an improvement that remained at 9 months. Both groups showed significant improvement in communication scores that lasted for 9 months. Most responders wanted to continue using the worksheet. During the study, the mean stay in the unit was 4.3 days, down from 6.4 days for the analogous 9-month period in the preceding year ($P = .02$).
- **CONCLUSION** Nurses' and physicians' perceptions of their understanding of the goals of care and of communication between them were improved and stays in the unit were shortened when the worksheet was used. (*American Journal of Critical Care*. 2006;15:217-222)

Communication between physicians and nurses is essential to the function of intensive care units (ICUs) and significantly affects patients' outcomes and length of stay.¹ Satisfaction scores indicate that communication between staff and patients' family members about end-of-life care could be improved.² Staff interaction and coordination are critical factors in preventing mortality.^{3,4} Unwanted or ineffective care can occur when the goals of care are not expressed effectively, increasing costs and the

likelihood of medical errors. Modern ICUs are generally run with a multidisciplinary team of providers who perform specific tasks. Communication among the different members of the team is essential because the entire team must clearly understand the daily goals of care. In one study,⁵ when a physician and a clinical nurse specialist were assigned specifically to communication with patients' families, communication improved and goals of care were more likely to be achieved. In another study,⁶ use of a daily goals form significantly improved understanding of the goals of care for the day and reduced ICU length of stay. On the basis of the results of that study,⁶ we started a quality improvement initiative in the medical

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ICU at Beth Israel Medical Center in New York City to determine whether use of a goals worksheet would enhance communication among members of the patient care team, patients, and patients' family members.

Methods

The institutional review board approved publication of the results of this study, which was done as a quality improvement project. The study was done in the medical ICU of Beth Israel Medical Center, a 697-bed teaching hospital serving the Lower East Side of Manhattan and Brooklyn. The ICU is a 16-bed, "closed" unit with a full-time nurse manager and a medical director; it is staffed by full-time attending physicians (attendings) trained in pulmonary and critical care medicine, fellows training in pulmonary and critical care medicine, and residents and interns training in internal medicine. The unit has 1 fellow, 4 internal medicine residents, and 4 medical interns. The nurse-to-patient ratio is 1:2, with all staffing by registered nurses. For each patient, daily bedside rounds are conducted with attending, fellow, and house staff assigned to the ICU, together with the nurse assigned to that patient. During teaching rounds, a mean of 30 minutes is spent with each patient, and the patient's condition, intercurrent events, pathophysiology, differential diagnosis, and plan of care for the day are reviewed. Each patient is also seen by a full-time nutritionist, a social worker, a physical therapist, and a respiratory therapist as needed. Consultants in other specialties are called as needed. No computerized order entry or data input system was in place at the time of the study.

To improve the quality of care, we designed a daily goals worksheet with input from ICU nurses, fellows, and attendings (Figure 1). Each worksheet was discarded the day after use and was not included in the permanent medical record. After the worksheet was reviewed with all of the ICU nurses and physicians, we began using it daily on January 1, 2004. To assess the effect of this effort on perceptions of staff members, we surveyed all attendings, residents, interns, and nurses assigned to the ICU from January through March 2004. They were given a questionnaire designed to assess satisfaction with communication before the goals worksheet was implemented (Figure 2), and they were given the original questionnaire and an additional questionnaire about the usefulness of the worksheet (Figure 3) after the worksheet was implemented. Both questionnaires were administered 1 week, 6 weeks, and 9 months after the worksheet was first used. Responses were scored on a 5-point scale (1 = understand nothing, 5 = completely understand).

Length of stay was analyzed for the first 9 months after the goals worksheet was implemented and was

compared with the length of stay for the same 9-month period in the preceding calendar year.

Statistical Analysis

Length of stay and questionnaire data were entered into a Microsoft Excel spreadsheet (Microsoft Excel 2000, Microsoft Corporation, Redmond, Wash). Statistical calculations were performed by using Microsoft Excel. Length of stay was assumed to be normally distributed. Descriptive data were presented as mean and SD. Continuous variables were analyzed by using a *t* test. Differences in categorical data for the before and after surveys were analyzed by using a χ^2 test. A *P* value of .05 or less was considered significant.

Results

The mean length of time required to fill out the worksheet was 1 minute. Everyone given the questionnaire returned it completed. The influence of the goals worksheet on the nurses' perceptions of understanding of goals of care and communication before, 6 weeks after, and 9 months after the worksheet was implemented are summarized in Table 1. The physician's results are summarized in Table 2.

After 6 weeks, the most significant improvements were in understanding of the goals for the day: nurses' scores improved (*P* = .001) from 3.9 (SD 1.02) to 4.8 (SD 0.39) and physicians' scores improved (*P* = .03) from 4.6 (SD 0.67) to 4.9 (SD 0.32). Scores remained high 9 months later in both groups: 4.4 (SD 0.51) for nurses and 4.6 (SD 0.61) for physicians.

Both physicians and nurses also reported significant improvement in communication with each other: nurses' scores improved (*P* = .03) from 3.6 (SD 0.87) to 4.3 (SD 0.87), and physicians' scores improved (*P* = .01) from 3.4 (SD 0.90) to 4.7 (SD 0.48). Communication scores remained high 9 months after the worksheet was implemented (4.2 for nurses and 4.4 for physicians).

Attitudes about the desire to use the worksheet changed in opposite directions before and after implementation. After using the worksheet, nurses were more likely to want to continue to use it, (71% before to 93% after, *P* = .02), whereas physicians were less likely to want to continue using the goals worksheet (100% before to 64% after, *P* = .07). Comparison of the 6-week follow-up survey with the 9-month follow-up survey showed that the nurses thought that the worksheet had a positive effect on patients' outcomes (*P* = .01, SD = 0.49-0.78). The physician's responses to this question did not change significantly between 6 months and 9 months follow-up. No other responses on the questionnaires showed significant differences between 6 and 9 months follow-up, although under-

MICU DAILY PLAN WORKSHEET	
NAME: _____ BED #: _____ DATE: _____	
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; margin: 0;"><u>TESTS / PROCEDURES</u></p> <p>- _____ <input type="checkbox"/></p> <p>- _____ <input type="checkbox"/></p> <p>- _____ <input type="checkbox"/></p> <p>- _____ <input type="checkbox"/></p> <p>- _____ <input type="checkbox"/></p> <p>- _____ <input type="checkbox"/></p> <p>- _____ <input type="checkbox"/></p> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; margin: 0;"><u>MEDICATIONS (CHANGES/APPROVALS)</u></p> <p>- _____ <input type="checkbox"/></p> <p>- _____ <input type="checkbox"/></p> <p>- _____ <input type="checkbox"/></p> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; margin: 0;"><u>SEDATION / ANALGESIA</u></p> <p>- _____ <input type="checkbox"/></p> <p>- _____ <input type="checkbox"/></p> <p>- _____ <input type="checkbox"/></p> </div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; margin: 0;"><u>OTHER</u></p> <p>- _____ <input type="checkbox"/></p> <p>- _____ <input type="checkbox"/></p> <p>- _____ <input type="checkbox"/></p> </div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; margin: 0;"><u>CATHETERS</u></p> <p>- _____ <input type="checkbox"/></p> <p>- _____ <input type="checkbox"/></p> <p>- _____ <input type="checkbox"/></p> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; margin: 0;"><u>CONSULTS</u></p> <p>- _____ <input type="checkbox"/></p> <p>- _____ <input type="checkbox"/></p> <p>- _____ <input type="checkbox"/></p> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; margin: 0;"><u>NUTRITION</u></p> <p>- _____ <input type="checkbox"/></p> <p>- _____ <input type="checkbox"/></p> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; margin: 0;"><u>MOBILIZATION</u></p> <p>- _____ <input type="checkbox"/></p> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; margin: 0;"><u>FAMILY DISCUSSION / CONSENTS</u></p> <p>- _____ <input type="checkbox"/></p> <p>- _____ <input type="checkbox"/></p> </div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; margin: 0;"><u>TRANSFER</u></p> <p>- _____ <input type="checkbox"/></p> </div>
<div style="border: 1px solid black; height: 40px; margin-top: 10px;"></div> <p>HOUSESTAFF TEAM:</p>	

Figure 1 Daily goals worksheet used in the medical intensive care unit (MICU).

standing of tasks and of plans for transfer tended to be better among physicians than among nurses.

After the worksheet was implemented, the mean length of stay in the ICU declined. For the 9-month

period starting in January 2004, the mean stay was 4.3 days, down from 6.4 days for the same 9-month period in 2003 ($P = .02$; Figure 4). The ICU staff did not change during this interval, nor were any other spe-

GOALS SURVEY SHEET

1. How well do you understand the goals of care for these patients?
Completely understand (5)
Mostly understand (4)
Understand somewhat (3)
Understand little (2)
Understand nothing (1)
2. How well do you understand the tasks that need to be completed today?
Completely understand (5)
Mostly understand (4)
Understand somewhat (3)
Understand little (2)
Understand nothing (1)
3. Do you understand what needs to be done to move this patient to the next level of care?
Completely understand (5)
Mostly understand (4)
Understand somewhat (3)
Understand little (2)
Understand nothing (1)
4. How would you rate the communication between you and the physicians (nurses) taking care of your patients?
Excellent (5)
Very good (4)
Good (3)
Fair (2)
Poor (1)
5. Would you like to use a patient care goals sheet for your patient to improve communication between the physicians (nurses) and yourself?
Yes/No

Figure 2 Survey given before the worksheet was implemented.

GOALS SURVEY SHEET

1. How well do you understand the goals of care for these patients?
Completely understand (5)
Mostly understand (4)
Understand somewhat (3)
Understand little (2)
Understand nothing (1)
2. What was the effect of the goals sheet on communication?
Large effect (4)
Moderate effect (3)
Mild effect (2)
Nothing (1)
3. What was the effect of the goal form on patients' outcomes?
Large effect (4)
Moderate effect (3)
Mild effect (2)
Nothing (1)
4. How long on average did the form take to complete?
____ Minutes
5. Did the form negatively affect patient care?
Yes/No
6. Would you like to continue to use this patient care goals sheet for your patients to improve communication between the physicians (nurses) and yourself?
Yes/No

Figure 3 Additional survey given after the worksheet was implemented.

Table 1 Mean scores for nurses' responses to questions on goals survey sheet

Question	Score				
	Before worksheet	6 weeks after worksheet	P (before vs 6 weeks after)	9 months after worksheet	P (6 weeks vs 9 months)
Understand goals of care	3.9	4.8	.001*	4.4	.03*
Understand tasks	4.4	4.7	.28	4.5	.38
Understand plans for transfer	4.1	4.3	.35	4.4	.60
Communication between nurses and physicians	3.6	4.3	.03*	4.2	.79
Would you like to use a daily worksheet?	15/21 (71%)	13/14 (93%)	.02*	14/18 (78%)	.24

*Significant.

Table 2 Mean scores for physicians' responses to questions on goals survey sheet

Question	Score				
	Before worksheet	6 weeks after worksheet	P (before vs 6 weeks after)	9 months after worksheet	P (6 weeks vs 9 months)
Understand goals of care	4.6	4.9	.03*	4.6	.23
Understand tasks	4.8	5.0	.08	4.5	.06
Understand plans for transfer	4.4	4.5	.08	4.5	.40
Communication between nurses and physicians	3.4	4.7	.01*	4.4	.18
Would you like to use a daily worksheet?	12/12 (100%)	9/14 (64%)	.07	13/17 (76%)	.46

*Significant.

cific interventions directed at reducing length of stay in the ICU implemented.

Discussion

The results of this study support the use of a simple goals worksheet to improve communication between nurses and physicians. Theoretically, communication with other members of the healthcare team, patients, and patients' families would also improve, although those aspects were not specifically examined in this study. A link between communication and outcomes for ICU patients has been shown in numerous studies.⁷ This link affects mortality, length of stay, and ICU costs. We found a significant reduction in length of stay in the ICU during the first 9 months of use of the goals worksheet. More of the goals for the day may have been accomplished when a sheet posted on a clipboard at each patient's bedside in a private ICU room was reviewed several times each day, or perhaps the overnight nursing staff understood the plan of care for the patients and acted accordingly, or perhaps the shorter stay was related to other factors that we did not measure. Improved communication between doctors and nurses on the day and night shifts probably influenced decisions about level of sedation of intubated patients pending extubation who became alert

during the night. Nurses commented that urgent needs for patients' care sometimes precluded full attendance at morning bedside rounds, and that they understood the plan of care better with the worksheet. In one example, a nurse pulled away from rounds was better able to plan care because she knew from the worksheet that her patient was scheduled for a computed tomography scan that day.

Our simple worksheet was designed as a template with spaces for the team to fill in the plan during morning rounds. A minimal amount of time was required to fill in the worksheet. The worksheet was reviewed during evening walk rounds, a step that made it easy to assess the day's progress. This worksheet can easily be modified and applied to other units in the hospital. Posting of a worksheet at each patient's bedside may also have improved communication between patients' families and healthcare providers, enhancing satisfaction among family members. We intend to evaluate this possibility further in a future study.

Other studies⁸ have indicated that the perception of collaborative interaction between nurses and physicians is significantly different in the 2 groups. Physicians tend to rate the quality of communication as better than nurses rate it. Our study had similar results: nurses perceived more improvement in communication with the

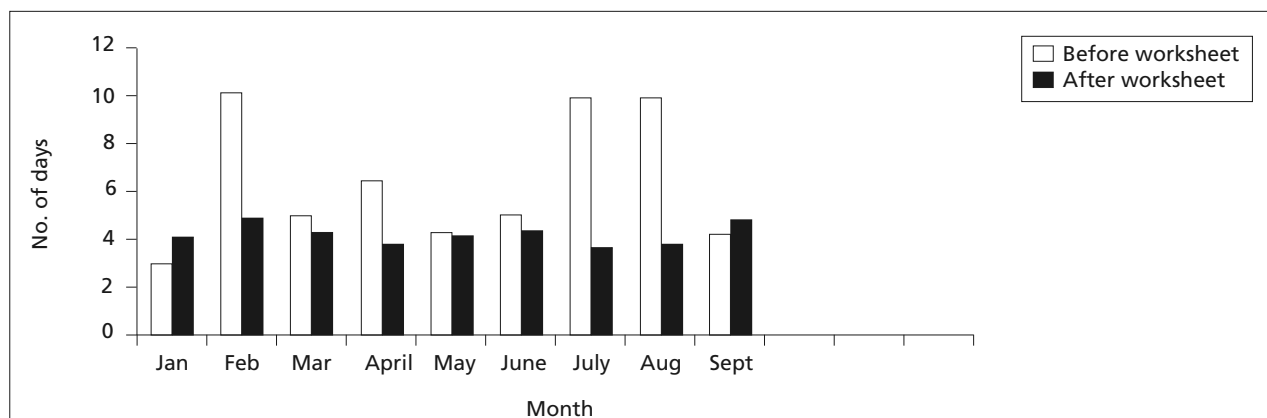


Figure 4 Length of stay in the intensive care unit during the 9 months of the study (mean 4.3 days, SD 0.63 days) compared with the same 9 months of the preceding year (mean 6.4 days, SD 2.5 days).

goals worksheet than doctors did. This discrepancy has a detrimental effect on conflict resolution.⁸

This study has several limitations. It was conducted in 1 ICU in a teaching hospital for a short period, so the conclusions may not apply to other settings such as a community hospital without house staff, where communication and collaboration between physicians and nurses may be different. Also, these results may be different depending on the training and composition of the nursing staff. Our ICU has a mostly female nursing staff, and with more male nurses the results might have been different. Previous studies⁹ suggest that female nurses rate teamwork with physicians less favorably than male nurses do.

Potential future projects include studying the influence of use of a worksheet on mortality and assessment of the satisfaction of other members of the ICU team and patients' family members with the use of this tool.

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