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Lessons Learned from a Palliative Care-Related Communication Intervention in an Adult Surgical Intensive Care Unit

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Abstract

Purpose: Multi-disciplinary, palliative care-related family meetings for intensive care unit (ICU) patients can decrease ICU length-of-stay and family anxiety and distress, but it is unclear how to arrange such meetings in surgical ICUs (SICUs).

Materials and Methods: Through meetings with SICU clinician stakeholders, we determined trigger criteria and intervention content. We piloted the intervention over 6 months in a single, 16-bed adult SICU.

Results: Clinician stakeholders reached consensus for a 7 day trigger criteria. A social worker arranged the multi-disciplinary meetings. During the six month pilot, 25 patients were identified but only approximately 60% received meetings. The 7 day trigger identified a patient population with high in-hospital mortality (44%) and prolonged ICU and hospital median lengths of stay (34 and 43 days, respectively). The pilot was stopped at 6 months due to high burden of work for social workers and an inability to standardize meeting content.

Conclusion: The 7 day criteria for SICU admission identified a subset of high mortality SICU patients likely to benefit from proactive palliative care-related meetings. Meetings were arranged but the format did not ensure meeting content and the intense time commitment of arranging meetings prevented sustainability.

Keywords: Surgical intensive care units; Intensive care units; Quality improvement; Communication; Culture change; Palliative care

Introduction

Intensive care unit (ICU) patients and their family members repeatedly identify palliative care-related communication as essential to quality ICU care [1-3]. They emphasize the importance of "timely, clear, and compassionate communication by clinicians" [3], and most want to know their physicians' estimates of prognosis, even if that prognosis is uncertain [4-6]. Evidence supports that proactive palliative care-related communication can decrease use of undesired or ineffective treatments [7,8] reduce ICU length of stay [9,10] and/or promote earlier consensus around goals of care [11]; two recent systematic reviews summarize the evidence supporting the benefits of proactive palliative care-related communication for ICU patients [12,13]. Consequently, professional societies and practice guidelines recommend that ICU clinicians communicate proactively with patients and patient families [14-18] and that meetings occur in an interdisciplinary format [19].

Many surgical ICUs use an "open" or "semi-open" administration model where patient care is delivered by both the primary surgical team and the ICU team and where medical decision-making is shared between the surgical team, ICU team, and patient and family [20]. Previous research suggests that, in surgical ICUs, palliative care-related communication is challenging for many cultural and pragmatic reasons [21-24]. Evidence from our own institution both suggest that surgeons, SICU nurses, and SICU intensivists and nurse practitioners have highly varying levels of satisfaction with communication regarding prognosis [25] and highlights SICU nurse-identified barriers to communication regarding prognosis [26]. Barriers to palliative care-related communication about prognosis include: (A) difficulty arranging meetings, (B) provider, patient, and family member discomfort with palliative care-related communication, (C) perceived lack of education surrounding palliative care-related communication skills, and (D) fear that such conversations lead to conflict between provider teams [26].

We hypothesized that a multi-faceted, interdisciplinary intervention of standardized family meetings could overcome many of the above-identified barriers to palliative care-related communication regarding prognosis in the SICU. Trigger criteria are factors or events that can be used to identify or prompt another event; for example, trigger criteria for blood cultures in an ICU patient typically include fever, leukocytosis, and/or hemodynamic instability. We hypothesized that trigger criteria could identify SICU patients likely to benefit from the intervention and that a pilot study could explore intervention feasibility.

Materials and Methods

The study investigator (RA) assembled a multidisciplinary research steering team with representatives from surgical nursing (RW), surgery (NA), social work (MC), and surgical critical care (RA). Trigger criteria for meetings were developed by consensus between clinician stakeholders (Table 1) as determined through a series of small group meetings. The PI (RA) also completed a systematic review to explore the evidence base concerning communication-related ICU-based interventions [13]. Intervention content was determined through consensus of clinician stakeholders during further small group meetings. The steering team initiated a pilot program and trailed various meeting protocols and tools.

Descriptive demographic and cost information for patients involved in the pilot were collected. Data was abstracted from patient computerized records by two study investigators (RA, KY).

Key stakeholders divisions and departments		
Department/division	**Division**	**Participants**
Anesthesia and Critical Care Medicine	Critical Care	Critical care anesthesiologists
	Entire department	Department chair Residents rotated through SICU
Ethics Committee	N/A	Committee members
Pastoral Care	N/A	Head of hospital pastoral care, SICU liaison chaplain, Staff chaplains
Social Work	Surgical Social Work	Department chair, Social workers-ICU specialized, Social workers assigned surgery
Surgery	Entire department	Department chair, Faculty division heads, Surgical intensivists, Entire faculty
Orthopedics	N/A	Department chair
Obstetrics and Gynecology	N/A	Department chair
Surgical Nursing	N/A	Department chair, Assistant department chair, SICU nurse manager, Senior nurses, Front-line SICU nurses

Table 1: Key clinician stakeholders in surgical intensive care unit family-centered care meeting project.

Results

Over a 22 month period (Jan 2008 – October 2009), the steering team members convened approximately 25 meetings with stakeholders to reach consensus on a trigger criteria. Based on these meetings, the study team chose: (a) trigger criteria of "7 days" and (b) intervention content based a previously published, ICU-based communication intervention in a medical ICU (MICU) [9].

Development of trigger criteria

Study investigators considered a variety of potential trigger criteria including: a Delphi method-identified set of triggers for a SICU-based palliative care consult [27,28]; time-based criteria such as those used in a previous MICU-based palliative care intervention [9] or the Care and Communication Bundle [19]; or a trigger based on a clinician judgment call (such as that "this patient was likely to die") as was used in a prominent French MICU-based communication intervention [29]. In meetings with stakeholders, all possibilities were discussed but consensus developed around a time-based trigger with 7 days chosen; participants appreciated the objectivity and simplicity of time-triggered criteria. Seven days was selected due to previously existing data from our own institution suggesting that patients admitted to our SICU for >7days had a 41% in-hospital mortality [30] and thus, would be most likely to benefit from proactive palliative care-related communication. Stakeholders also noted that no surgery at our institution typically required a greater than 7 day SICU course and thus, any patient in the SICU for >7 days, was likely having a "non-routine" hospitalization where palliative care-related communication was more likely to be beneficial.

Development of intervention content

Stakeholder consensus about intervention content quickly coalesced around an intervention similar to that published by Lilly et al. [9]; this intervention was appealing due to it's relative simplicity (a modified ICU family meeting) and the positive results from the original study (shorter ICU length of stay and higher consensus around goals of care). Amended from Lilly et al., our intervention's meeting objections comprised: (A) reviewing medical facts and treatment options, (B) discussing patient and family understanding of current SICU course, (C) agreeing on a care plan, and (D) determining when to next meet as an interdisciplinary team. Based on these goals and a previously published "toolkit" [19], a general moderator "script" was developed (Appendix A). With approximately five social workers involved in the intervention (as opposed to >40 doctors and nurses), social workers were selected to be the moderator. We structured meetings to have a "pre-meeting" between clinician team members, an actual "meeting" between clinician team members and the patient and family, and a "post-meeting" again between clinician team members. Prior to the meeting, the family received a paper notebook "journal", donated by the Josie King Foundation, and a laminated bookmark; the bookmark listed information about the upcoming family meeting and encouraged the family to use the notebook to organize their thoughts prior to the scheduled meeting. Once a meeting was "triggered", the social worker would contact the patient's family, surgeon, and ICU nurse and physician team to coordinate the time for the scheduled meeting.

Pilot intervention – October 2009 – May 2010

The intervention was piloted in the Weinberg Surgical Intensive Care Unit at the Johns Hopkins Hospital in Baltimore, MD. A 16-bed adult inpatient unit, the Weinberg SICU primarily admits patients following general abdominal, thoracic, otolaryngologic, and gynecologic oncologic surgery. Within the six month pilot period, 25 patients triggered a meeting through the intervention (Table 2) Approximately 60% of these patients received meetings and patient death or transfer out of the SICU were the two primary reasons patients did not receive a meeting. Eleven of these patients had previously undergone general abdominal surgery, 9 had undergone thoracic surgery, 4 had undergone trauma-related or emergency surgery, and 1 had undergone spine surgery.

	All patients	Died	Survived
Number	25	11	14
Mean age (median)	65.4 (66)	62.5 (67)	67.6 (66)
Women (%)	12 (48)	5 (45)	7 (50)
In-hospital mortality (%)	11 (44)	11 (100)	0 (0)
Median hospital LOS (mean)	43 (53)	37 (51)	44 (54)
Median ICU LOS (mean)	34 (41)	34 (47)	32 (37)
Mean # of ICU admissions during hospitalization	1.6	1.6	1.6
Non-elective hospital admission (%)	15 (60)	7 (64)	8 (57)
Mean hospitalization charge; US$ in 2010	165,648	188,148	147,612
ICU: intensive care unit; LOS: length-of-stay			

Table 2: Intervention patient demographics.

In-hospital mortality for the group was 44%. Median ICU and hospital lengths-of-stay were 34 and 43 days, respectively. As compared to survivors, decedents had a longer median ICU length of stay (34 vs. 32 days) but a shorter hospital length-of-stay (37 vs. 44 days). Sixty percent of patients were emergently (non-electively) admitted to the SICU, while the remaining 40% of patients were admissions brought to the SICU after an elective surgery. Patients frequently required re-admission to other adult ICUs within the hospital (i.e., vascular-transplant-trauma SICU, medical ICU, etc.) with the mean number of ICU admissions per patient per hospital course being 1.6. Direct mean charge for care was $165,648 with the primary charge related to ICU admission (Table 3). Finally, only one patient was alert and cognitively intact such that he could participate in the family meeting; all other patients were too sedated, delirious, and/or mentally altered to meaningfully participate in the meeting.

Description	Volume	Direct Charges (US$ in 2010)
Weinberg SICU daily charge	814 days	1,310,953
Mechanical ventilation, subsequent day	625 days	228,075

Weinberg SICU step down IMC unit	108 days	173,935
Leukocyte depleted red cells – processing fee	516 units	140,710
Vascular-transplant-trauma SICU daily charge	46 days	80,079
Fecal collection system	134 kits	76,827
Inpatient CVVHD	173 days	69,483
Platelet pheresis – processing fee	985 units	64,411
Blood gases	2,424 units	61,007
Portable chest x rays	1,357 units	57,588
Operating room charge – price by minute	13,130 min.	57,176
CVVHD bicarbonate solution, adult	1,335 units	54,792
Neurocritical care ICU daily charge	39 days	53,765
Semi-private ward rooms – surgical service	87 days	44,609
Vascular-transplant-trauma SICU stepdown IMC unit	19 days	33,076
Metered dose inhaler treatments – ventilated patients	1,390 units	32,568
ICU: intensive care unit; SICU: surgical intensive care unit; IMC: intermediate care unit; CVVHD continuous veno-venous hemodialysis.		

Table 3: Summed direct charges for FCCM patient group – top 16 items.

Patients were identified for a meeting at 7 days but then it took approximately 7 further days to arrange the meeting. Difficulty arranging the meeting was primarily a consequence of the surgeon operating room schedule or the family's availability for the meeting. Due to physician (surgeon or SICU intensivist) complaints about meetings "lasting too long" with physicians "not talking much", the moderator script was eliminated after three meetings and replaced by a single laminated card (of "11 P's") to help direct meeting content (Appendix B). Moreover, when cards were observed as not being used, their content was further shortened (to "4 P's") (Appendix C) and modified to promote the VALUE mnemonic shown to be effective in a previous study [29,30]. However, card content was still rarely addressed in a meeting. Without the social worker moderator, clinicians rarely inquired about a patient's prior wishes concerning medical treatments and/or a patient's prior beliefs concerning treatment preferences. In conclusion, the intervention did not appreciably facilitate meeting content. Moreover, social workers frequently made more than 10 phone calls, pages, or emails to arrange a single meeting. With the high burden associated with arranging the meeting and the intervention's relative inability to direct meeting content, study investigators halted the pilot study.

Discussion

The intervention was essentially a negative trial – the meetings were prohibitively burdensome to arrange and the intervention itself did not effectively drive meeting content. However, the pilot did succeed in describing a simple and feasible trigger criteria – SICU admission for 7 days – that was both acceptable to SICU clinicians and associated with a high-mortality, high-cost, long-stay SICU patient population.

Contrasting trigger criteria

At the time of the intervention development, only one SICU-based palliative care intervention trial had been published [11] and the SICU-palliative care consult trigger criteria identified by a Delphi method had been published [27] but not yet evaluated. For our intervention, stakeholders considered the Delphi method criteria as a "trigger" but were concerned that some items were subjective ("Futility considered or declared by the medical team", "Death expected during same SICU stay", "A diagnosis with a median survival <6 mos"). They were also concerned that the associated time-related criteria ("SICU stay >1 month") was too long.

Since development of the intervention, three other SICU-based palliative care studies [31-33] and one expert consensus group paper [34] have been published. Conducted by the same research group as the first SICU-based palliative care trial [11], a later trial in a liver transplant population used a similar time-based trigger [32]. Conducted by the same research group that developed the Delphi criteria [27], one trial used those Delphi criteria [31]. The last of the three trials [33] used specific diagnosis-related trigger criteria including: a) age >70 with two or more co-morbidities, b) stage IV cancer, c) mechanical ventilation for >7 days, and/or d) "exceeding expected length of stay by more than 50%". Regarding triggers for consult, the expert consensus group paper [34] generally supported the use of triggers in the SICU, reviewed the Delphi criteria [27] and the study associated with them [31], and promoted the criteria in a Center to Advance Palliative Care published consensus report [35] (which utilizes approx. 8-9 primary and/or secondary criteria to promote a palliative care assessment).

These criteria and triggers are valuable and interesting. By face validity, they identify a patient population with high morbidity-high mortality diagnoses with patients likely to benefit from proactive

palliative care assessment. However, without a "gold standard" to identify which patients and families will most benefit from proactive palliative care, we cannot compare the sensitivity and specificity of trigger criteria. In developing our intervention, we found some stakeholders, particularly surgeons and SICU clinicians, reticent to accept trigger criteria specifically associated with end-of-life care (e.g., "futility considered", "less than six month prognosis", etc.), particularly since this was a QI intervention to improve palliative care-related communication (not end-of-life care). Thus, a "non-judgmental" trigger criteria – 7 days in the SICU – was readily accepted. While stakeholders valued the criteria's "objectivity" and "simplicity", study investigators appreciated that it was easy to implement.

Barriers to intervention success

Prior to the intervention, our SICU nurse focus groups [26] suggested that a key barrier to palliative care in the SICU was the logistics of arranging multi-disciplinary family meetings, and this ultimately was the barrier that halted the pilot intervention. Arranging the meetings required significant time and energy investment and still a prolonged time (typically another 7 days) elapsed between triggering and actually convening the meeting. Though the designation of consultative vs. integrative ICU-based palliative medicine interventions [36] did not yet exist when we were designing this QI intervention, this intervention was integrative – structured around teaching the SICU team to provide better palliative care. In this integrative intervention, our goal was to provide materials so that >40 SICU clinicians could complete sufficient palliative care-related communication during the family meeting; this was prohibitively difficult. Indeed, our experience suggests that for semi-open or open units involving numerous providers and provider groups, such integrative interventions may be prohibitively challenging. In contrast, an intervention utilizing a consultative team would likely involve fewer participants and thus might be more effective. However, this consultative model could overburden palliative care provider resources and would still require surgeon and SICU intensives input both outside of, and during, family meetings.

Limitations to this study include relative lack of patient and family involvement in QI intervention design – an intervention with more surgical patient and family input and guidance may have been more attuned to their needs and consequently been more successful. Secondly, as this was a pilot, we did not prospectively designate primary outcomes or compute power analyses to determine sample size for statistical evaluation of intervention success or failure; the goal was to pilot the intervention and then, with a functioning QI intervention, to measure efficacy in a later trial. Thirdly, we evaluated demographics but didn't have the resources to track when and where meetings occurred, meeting duration, transcribed content of the conversations, and/or who specifically participated in meetings. Finally, the 7 day trigger appears appropriate for our academic, tertiary care institution, but it's generalizability in other situations is unknown and other criteria, such as illness severity scores, could also be used.

Conclusions

The 7-day trigger identified a high-morbidity, high-mortality SICU patient population likely to benefit from proactive communication and palliative care. Moreover, this trigger criteria was widely accepted by surgical stakeholders and simple to implement. However, the logistical burden associated with arranging multi-disciplinary meetings and the difficulty in directing meeting content caused the study team to halt the intervention. In general, SICU clinician time investment and willingness (and ability) to conduct a palliative care-related conversation were key barriers; in particular, physicians (intensivists and surgeons) favoured shorter meetings and less structure to the discussion, though doing so typically led to less family involvement in meetings and less frequent discussion of prognosis or other palliative medicine-related topics. Finally, patient and family input could further contribute to future interventions to improve meeting content and structure. Future interventions to improve communication in surgical and semi-open or open ICU models might also benefit from consultative or mixed approaches as well as utilization of simple and objective trigger criteria.

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