A movement has been underway to change the critical care delivery paradigm from paternalistic to "family-centered care" such that the unit of care is the patient’s family, not just the patient.1

Family-centered care recognizes that patients are embedded within a social structure and web of relationships, and this framework must be incorporated into all communication and decision making between members of the unit’s team.

BACKGROUND Survey data revealed that families of patients in a surgical intensive care unit were not satisfied with their participation in decision making or with how well the multidisciplinary team worked together.

OBJECTIVES To develop and implement an evidence-based communication algorithm and evaluate its effect in improving satisfaction among patients’ families.

METHODS A multidisciplinary team developed an algorithm that included bundles of communication interventions at 24, 72, and 96 hours after admission to the unit. The algorithm included clinical triggers, which if present escalated the algorithm. A pre-post design using process improvement methods was used to compare families’ satisfaction scores before and after implementation of the algorithm.

RESULTS Satisfaction scores for participation in decision making (45% vs 68%; Z = -2.62, P = .009) and how well the health care team worked together (64% vs 83%; Z = -2.10, P = .04) improved significantly after implementation.

CONCLUSIONS Use of an evidence-based structured communication algorithm may be a way to improve satisfaction of families of intensive care patients with their participation in decision making and their perception of how well the unit’s team works together. (Critical Care Nurse. 2013;33[5]:56-69)
health care team and families in the intensive care unit (ICU). Effective, consistent communication with families of critically ill patients is one of the most important family needs and the strongest predictor of satisfaction with care. Communication includes engaging families to become active partners in decision making. Unfortunately, communication may be complicated by family dynamics, nurses’ and physicians’ lack of training in skilled communication, time constraints, and unclear goals and processes. Moreover, communication between ICU providers and families is often inconsistent, insufficient, and of poor quality. As a result, patients’ families often express that they feel uninformed and disenfranchised from clinical decision making in the care of their loved ones.

Local Problem

Family satisfaction data are routinely collected as part of our surgical ICU (SICU) process improvement program.

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Upon discharge from the SICU, 1 member of a patient’s family is asked to complete the ICU’s family satisfaction survey. Upon receiving an order for transfer from the ICU, a staff member provides a family member with the survey. The family member is asked to place the completed survey in a locked box near the entrance to the unit. Participation is completely voluntary and confidential. The information is used to evaluate the services of the SICU as perceived by patients’ families. The ICU family satisfaction survey is used throughout the organization’s 10 ICUs.

This 20-item survey is based on the Critical Care Family Satisfaction Survey (CCFSS) that was developed to serve as a proxy for patient satisfaction and measure overall satisfaction with care. The survey has 5 subscales: (1) Assurance (need to feel hope for a desired outcome), (2) Information (need for consistent, realistic, and timely information), (3) Proximity (need for personal contact and to be physically and emotionally near the patient), (4) Support (need for resources, support systems, and ventilation), and (5) Comfort (need for personal comfort). The CCFSS has a 5-point Likert-type scale (1 = very dissatisfied, 5 = very satisfied). Our hospital modified the CCFSS to a 4 point Likert-type scale (1 = never, 2 = sometimes, 3 = usually, 4 = always). The CCFSS has established construct validity ($\chi^2$ goodness of fit = 1.0) and reliability (Cronbach $\alpha$, 0.93–0.96).

The data are collected, entered, and analyzed by members of the hospital’s Division of Clinical Decision Support at the end of each month. Monthly reports are sent to each unit. Our goal is to achieve excellence, which we define as 90% or more of family members ranking each item with a 4, the highest score possible. Recent data revealed less than 90% ratings of excellence in 3 categories: (1) How often were you able to share in decisions regarding your family members’ care on a regular basis?, (2) How well did the nurses, doctors, and other staff work together as a team?, and (3) How often was support and encouragement given to you during your family member’s stay in the unit?

Intended Improvement

In response to these demonstrated needs, we formed a multidisciplinary team, the SICU supportive care team, to address these issues and improve family satisfaction in these 3 areas. The team included 3 registered nurses, the SICU nursing education coordinator, a palliative care nurse, the SICU medical director, a social worker, a chaplain, a...
patient advocate, a quality and safety improvement expert, and an expert on evidence-based practice methods. The team’s goal was to develop an evidence-based practice protocol to improve satisfaction of family members of SICU patients with their participation in decision making, their perception of how well we worked together as a team, and their satisfaction with the amount of support and encouragement they received during the ICU stay.

**Study Questions**

The questions that guided our performance improvement initiative were as follows: Can the use of an evidence-based communication algorithm improve SICU family members’ satisfaction with (1) how often they are able to share in decisions regarding their family member’s care on a regular basis?, (2) how well the doctors, nurses, and other staff work together as a team?, and (3) the amount of support and encouragement they feel they receive during the ICU stay?

**Methods**

**Ethical Issues**

Ethical guidelines for quality improvement projects, as described elsewhere, were addressed and adhered to in the planning and implementation of this project. To maintain privacy, all interactions with family members were conducted in a private room or in a private conference room. To ensure confidentiality, all data collected were nonidentifiable and no protected health information was collected from patients or their family members.

**Setting**

This initiative took place in a 19-bed surgical (non-cardiac) ICU at the University of Maryland Medical Center, which is a 780-bed Magnet-designated level I trauma center located in Baltimore, Maryland. The unit is staffed with 70 full-time-equivalent registered nurses, and 83% of the nurses have a bachelor’s degree or a higher degree in nursing. The unit also has 12 full-time-equivalent patient care assistants. At the time of this project, no advanced practice nurses were working in the SICU. Medical care is provided by an intensivist service that includes a board-certified critical care attending physician, a day-shift and night-shift surgical critical care fellow, surgical and anesthesiology residents, and medical interns. Other members of the health care team that provide support for patients and patients’ families include a social worker, a palliative care nurse, a patient advocate, and a chaplain. Before this project was implemented, these health care team members provided their services upon request from a nurse or physician. However, no criteria to guide the requests for their services had been established, and therefore when patients and their families received these supportive services varied widely.

**Planning the Intervention**

The team’s first step was to conduct a critical appraisal of the research and other sources of evidence for interventions that ICU health care teams can use to improve satisfaction of patients’ families with participation in decision making and interdisciplinary communication. The literature search was conducted by using the following key terms: communication, intensive care unit, critical care, family, and guidelines on CINAHL, MEDLINE, and PubMed. Inclusion criteria were articles in English. We excluded pediatric and neonatal populations as well as articles that did not focus on provider and family communications. The team met monthly to appraise the evidence. A review of the evidence supported the following conclusions, which then became the foundational building blocks of our algorithm:

- Family-centered care requires shared decision making with the health care team and the patient’s family as partners.
- The key to shared decision making is regular communication.
- Standardized procedures ensure communication with the patient’s family occurs early in the ICU course.
- Interventions to improve communication between ICU caregivers and family members are proactive protocols.

We modeled our communication algorithm on the Transformation of the ICU performance initiative’s “Care and Communication Bundle” for ICU palliative care. This initiative has 9 “process measures” that focus on what caregivers should do to improve communication between clinicians and patients/families. The palliative care process measures are stratified by length-of-stay triggers at ICU day 1 (identify appropriate decision maker,
determine advanced directives and resuscitation status, provide an information leaflet, perform regular pain assessment, provide optimal pain management), ICU day 3 (offer social work and spiritual support services), and ICU day 5 (provide interdisciplinary family meeting).

We used the Transformation of the ICU’s concept of communication bundles to group our evidence-based interventions into the “SICU Family Supportive Care Algorithm” (Figure 1A-1C). Evidence to support the interventions in the algorithm is summarized in Table 1. The interventions are grouped into bundles of communication processes that should occur within 24 hours, 72 hours, and 96 hours of a patient’s admission to the SICU. One strategy recommended facilitating the initiation of family conferences by using clinical situations as “automatic triggers” for family conferences.21 We incorporated this strategy into our supportive care algorithm through the use of clinical triggers (Figure 1A-1C). These triggers were identified by the team as clinical conditions commonly associated with a high risk of patient death in our SICU. A recent systematic review on interventions to improve communication with ICU family members recommended timely and intensive communication for family members of patients with a high risk of death. If any of these clinical triggers are present, the nurse escalates the algorithm and immediately expedites the 72- and 96-hour communication interventions.

The bedside nurse initiates the algorithm within 24 hours of admission (Figure 1A). The goal of the interventions in the 24-hour bundle is to inform families about the importance of their participation in decision making and to inform them of the resources available to help them participate in decision making. Within 24 hours of admission, the SICU nurse and family discuss power of attorney/decision maker and advance directives. The nurse provides the family with additional resources including a resource folder that includes names, roles, and contact information of members of the health care team including social worker, clergy, patient advocate, and palliative care. Families are also given a handbook, “Partnering With You for the Safest Care” that describes how patients and/or family members can be active members of the health care team and the importance of their role in the partnership to ensure medication safety, pain management, and infection prevention through hand washing. This handbook is given to all patients and their families who are admitted to our hospital. Within 24 hours of admission, a member of the intensivist team meets with the family.

Also within the first 24 hours after a patient’s SICU admission, the patient’s family is encouraged to watch an on-demand 10-minute video, available on the television in the patient’s room, that describes SICU supportive care services, including roles of the various members of the health care team, visitor guidelines, our relationship-based care model, and their role as a partner in addressing pain management and preventing infections.

The goal of the interventions in the 72-hour bundle (Figure 1B) is to reaffirm and ensure that the family is receiving support and encouragement and has been informed and is aware of the services of all members of the health care team that are available to help them participate in decision making. Family members are encouraged to participate in decision making during rounds, and on an as-needed basis.

The goal of the 96-hour bundle (Figure 1C) is to plan for and implement a family meeting with the multidisciplinary team. The 96-hour bundle was chosen for the family meetings on the basis of our historical data, which showed that the mean length of stay in our SICU was 3 days. We reasoned that patients in the SICU after ICU day 3 were more likely to have a complex ICU course and their families would be burdened with difficult decisions. As previously recommended,26 each family meeting addresses a medical update, values and preferences of the patient, goals of care, treatment plans, and milestones for determining if the treatment was effective. An attending physician or fellow conducts the family meetings, and representatives from both the intensivist service and the primary surgical service are present.

Before the algorithm was presented to all members of the SICU health care team, we garnered feedback from all parties with a stake in the process (stakeholders). The algorithm was developed and discussed at biweekly meetings of the SICU supportive care team. This opportunity was used to discuss the feasibility of the algorithm with all representatives from the health care team. The algorithm was presented to the SICU medical director and the surgeons from the acute care and emergency
Figure 1 Algorithm for providing supportive care to patients in the surgical intensive care unit and their families: A, bundle for within 24 hours of admission; B, bundle for within 72 hours of admission; C, bundle for within 96 hours of admission.

Abbreviations: APACHE, Acute Physiology and Chronic Health Evaluation; PACU, postanesthesia care unit; SICU, surgical intensive care unit.

CLINICAL TRIGGERS:
- Increased/sustained lactate levels (≥3.0 mmol/L × 24 hours)
- Multiple intravenous vasoactive drugs (more than 2)
- Cardiac arrest
- Continuous renal replacement therapy (if not previously dependent on hemodialysis)
- Extracorporeal membrane oxygenation
- Multiple blood products required (6 units in 24 hours)
- Severe sepsis or septic shock
- Traumatic injuries that would affect predicted mortality or quality of life
- Psychological triggers (eg, anger, frustration, confrontational behavior, agitation, emotional lability)
- APACHE predicted mortality >40%

Patient admitted to SICU

Outside hospital or internal?

Transferred in from outside hospital

Does the patient have
• Power of attorney or spokesperson
  AND
• Advance directives?

No

Direct/Operating room/PACU admission

Yes

Provide patient and/or family with information for and obtain:
• Power of attorney or spokesperson
  AND
• Advance directives

Provide patient and/or family with:
Introduction to a critical care attending/fellow or resident
Patient family resource folder
Introduction to SICU video
General pain education
Brief overview of Relationship-Based Care Model (primary coordinating nurse role)
  AND
Check for clinical triggers

Observe any clinical triggers?

Yes

No

Expedite 72-hour and 96-hour bundles

Proceed normally with 72-hour and 96-hour bundles

Continued
CLINICAL TRIGGERS:
– Increased/sustained lactate levels (≥3.0 mmol/L × 24 hours)
– Multiple intravenous vasoactive drugs (more than 2)
– Cardiac arrest
– Continuous renal replacement therapy (if not previously dependent on hemodialysis)
– Extracorporeal membrane oxygenation
– Multiple blood products required (6 units in 24 hours)
– Severe sepsis or septic shock
– Traumatic injuries that would affect predicted mortality or quality of life
– Psychological triggers (eg, anger, frustration, confrontational behavior, agitation, emotional lability)
– APACHE predicted mortality >40%

Figure 1 Continued

Discontinue protocol

Is the patient anticipated to transfer out of the SICU within 12 hours?

Yes

1. Follow up on information in patient/family resource folder and on on-demand video question and answer session
2. Reassess pain regimen and treatment with patient/family
3. Reaffirm role of primary coordinating nurse with patient/family

Refer to checklist
Has the patient/family been contacted by
• Social work representative?
• Patient advocacy representative?
• Pastoral care representative?
• Palliative care representative?

No

Page any representative who has not visited the patient/family within 72 to 96 hours of admission.

Yes

Observe any clinical triggers?

No

Proceed to 96-hour admission bundle

Yes

Expedite 96-hour admission bundle

Patient still in SICU 72 hours after admission?

No

Yes

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services surgical team. We asked for feedback on content, format, clarity, and feasibility. They provided additional data for clinical triggers (lactate >3 mmol/L; divide by 0.111 to convert to mg/dL) and approved the implementation of the algorithm.

Once we received support from all stakeholders and before the algorithm was implemented, formal training sessions for all members of the SICU health care team were held for a month. Historically SICU physicians and nurses did not receive any formal education on how to
**Table 1** Evidence in support of the algorithm for providing supportive care to families of patients in the surgical intensive care unit (ICU)

<table>
<thead>
<tr>
<th>Guidelines in algorithm</th>
<th>Evidence in support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processes are organized into bundles</td>
<td>“Transformation of the ICU” used bundles to group processes on the basis of best practices that individually improve care and are applied together for a fuller assessment in a clinical area. The measures were stratified by length-of-stay triggers at days 1, 3, and 5.12</td>
</tr>
</tbody>
</table>
| **24-Hour bundle** Day 1 should include identification of appropriate decision maker, advance directive status, and cardiopulmonary resuscitation status, along with provision of an information leaflet.12 Identify power of attorney/spokesperson The presence or absence of a surrogate decision maker should be documented in the first 24 hours.13 Advance directives documented The presence or absence of advance directives should be documented in the first 24 hours.13 Introduction to member of intensivist team Communication between a physician and family member should be documented within 24 hours of admission.13 Provide patient/family resource folder Family members are provided with ample information in a variety of formats on emotional needs in the ICU and methods appropriate to comfort and assist in care.1 Family support is provided by the availability of a multidisciplinary team including social workers, clergy, nurses, physicians, and pastoral support.1 Educating families on how the ICU works with respect to visiting hours and when rounds occur reduces friction.1 Family members who were given an information leaflet on ICU day 1 had better comprehension and satisfaction than did family members who did not receive an informational booklet.14 Show on-demand surgical ICU video Printed information improves family members' comprehension.5 Primary coordinating nurse assignment There should be a policy that allows for continuity of nursing care for patients with multiday stays in the ICU for patients and family members.13 **72- to 96-Hour bundle** ICU day 3 bundle should include social work and spiritual support.12 Reassess pain management and treatment Pain that is assessed as greater than 3 on a 10-point scale should be treated, with reassessment after treatment.13 Affirm primary coordinating nurse assignment Nursing and physician staff assigned to each patient are as consistent as possible.1 Social work representative introduction Psychosocial support should be offered within the first 72 hours of admission.13 Patient advocate introduction Palliative care nurse introduction Palliative care consultations can improve family members’ satisfaction.15 Pastoral care introduction Spiritual support should be offered within the first 72 hours of admission.13 Family satisfaction with ICU care is higher if the spiritual care needs of family members are assessed and if spiritual care is provided by a spiritual care provider such as a hospital chaplain.14-16 Critical care clinicians should not attempt to provide spiritual care, but should routinely assess patients’ and their family members’ desire for spiritual care and refer them to spiritual care providers.14 96-Hour bundle ICU day 5 bundle should include interdisciplinary family meetings.12 Arrange family conference Formal scheduled family meetings involving multiple disciplines are an effective approach to talking with patients’ families and encouraging dialogue about care.14-20 Interdisciplinary family conference should occur within 72 hours of admission; documentation should include what was discussed.12,22,23 ICU family conferences within 72 hours have been associated with reduced number of days in the ICU for patients who die and with higher ratings of the quality of dying among family members.20,23 The use of structured family conferences conducted by the usual ICU team improves patient- and family-centered outcomes, including emotional distress, processes of communication, and the frequency and timing of major treatments.11 A preconference helps to get consensus on the prognosis and on what treatments are indicated.14 Required participants for the family meeting include the following: at least the attending physician (either primary or ICU), other disciplines which may include nurse, social worker, pastoral care representative, and the patient (or family).13
communicate information effectively to families of a critically ill patient or how to involve them in shared decision making. Strong evidence indicates that good communication skills are needed for shared decision making to be effective and that training should be a standard component of education and widely available for all ICU caregivers. Therefore, the physician member of our team provided education sessions on effective communication skills for all ICU physicians (mandatory for all ICU fellows), nurses, and support staff. The 1-hour presentation included an evidence-based approach to (1) the identification and discussion of barriers to effective communication; (2) minimizing those barriers; (3) strategies for optimal communication among patients, patients’ families, and clinicians; and (4) how to structure a family meeting.

The nurse educator provided an in-service training session about the algorithm for all residents and fellows at the start of their SICU rotation. All nurses in the SICU received 1-on-1 education about the algorithm. They were asked to sign off that they understood and would comply with and commit to the algorithm. We asked for volunteers to serve as nurse champions to monitor progress, ensure compliance with the protocol, and reeducate as needed.

Planning the Study of the Intervention

After completion of the education sessions, we implemented the SICU Supportive Care Algorithm, using an uncontrolled pre-post (before and after) design and process improvement methods to evaluate the effects of the algorithm on family satisfaction scores. The family satisfaction scores were compared from before to after the algorithm was implemented. We implemented the algorithm only for family members of patients admitted to the SICU on the acute care and emergency surgery service because this service admits the largest number of patients to our SICU.

We used a checklist to monitor adherence to the interventions in the algorithm (Table 2). A nurse champion audited each checklist on a daily basis so that discrepancies and omissions were identified and corrected in a timely manner. We kept a log to evaluate the pertinent details of the family meetings, including what clinical triggers were present to initiate the meetings and the outcomes of the meetings.

Raw scores from the ICU Family Satisfaction survey were compared before and after implementation of the SICU Supportive Care Algorithm by using independent t tests. To compare the proportion of families who rated each of the 3 criteria as excellent before and after implementation of the algorithm, we used a 2-sample z test between proportions. Alpha was set at 0.05. Descriptive statistics were used to summarize the family meeting data.

Results

ICU Family Satisfaction Surveys were received from 41 family members of SICU patients during a 3-month period immediately preceding implementation of the algorithm. After the algorithm was implemented, 72 SICU family members received the algorithm and 48 (67%) returned their surveys in a 6-month period. Family members, identified as the spokesperson, completed the surveys.

<table>
<thead>
<tr>
<th>Table 2 Supportive care algorithm checklist</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>24-Hour bundle</strong></td>
</tr>
<tr>
<td>☐ ☐ Spokesperson identified and documented</td>
</tr>
<tr>
<td>☐ ☐ Power of attorney in medical record (if applicable)</td>
</tr>
<tr>
<td>☐ ☐ Advance directives and/or living will in medical record. Is code status addressed?</td>
</tr>
<tr>
<td>☐ ☐ Introduction of critical care physician</td>
</tr>
<tr>
<td>☐ ☐ Give patient/family resource folder</td>
</tr>
<tr>
<td>☐ ☐ Show on-demand SICU video</td>
</tr>
<tr>
<td>☐ ☐ Educate about pain management</td>
</tr>
<tr>
<td>☐ ☐ Review relationship-based care model</td>
</tr>
<tr>
<td>☐ ☐ Assign primary coordinating nurse</td>
</tr>
<tr>
<td>☐ ☐ Assess for triggers 1-12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>72- to 96-Hour bundle</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ ☐ Q&amp;A session about resource folder/video</td>
</tr>
<tr>
<td>☐ ☐ Reassess pain management plan and treatment</td>
</tr>
<tr>
<td>☐ ☐ Affirm primary coordinating nurse assignment</td>
</tr>
<tr>
<td>☐ ☐ Patient/family has been contacted by social work representative</td>
</tr>
<tr>
<td>☐ ☐ Patient/family has been contacted by patient advocate</td>
</tr>
<tr>
<td>☐ ☐ Patient/family has been contacted by pastoral care</td>
</tr>
<tr>
<td>☐ ☐ Patient/family has been contacted by palliative care</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>96-Hour bundle</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ ☐ Patient/family received care journal</td>
</tr>
<tr>
<td>☐ ☐ Plans have been initiated for a family meeting</td>
</tr>
<tr>
<td>☐ ☐ Resuscitation orders in medical records (if applicable)</td>
</tr>
</tbody>
</table>

Abbreviations: N/A, not applicable; SICU, surgical intensive care unit.
Family Satisfaction

Raw scores on the 3 satisfaction criteria were higher after implementation of the algorithm (Table 3). Family members’ perception of how well the nurses, doctors, and other staff worked together as a team showed the most improvement (3.38 vs 3.73, $P = .046$). As shown in Figure 2, family satisfaction scores of excellent did not reach the benchmark of 90% of families indicating a score of 4. However, statistically significant improvements were noted for how often they were able to participate in decision making (before algorithm, 45%; after algorithm, 68%; $z = -2.62, P = .009$) and for how well the nurses, doctors, and other staff worked together as a team (before algorithm, 64%; after algorithm, 83%; $z = -2.097, P = .04$). Improvements were noted, although they were not statistically significant, in how often families thought that they were given support during their family member’s stay (before algorithm, 60%; after algorithm, 75%; $z = -1.485, P = .14$).

Family Meetings

Family members of 72 patients received communication according to the algorithm in the 6-month implementation period. More than half of the patients ($n = 40$) had clinical triggers that prompted a family meeting (Figure 3). The most common clinical trigger for a family meeting before the ICU stay had reached 96 hours was a score on the Acute Physiology and Chronic Health Evaluation (APACHE) indicating predicted mortality greater than 40%. Although the majority of the family meetings did not prompt a change in level of care ($n = 16$), 13 meetings (42%) resulted in decisions about treatment limitation.

### Table 3  Average raw scores (before algorithm, $n = 41$; after algorithm, $n = 48$)

<table>
<thead>
<tr>
<th>Question</th>
<th>Before algorithm</th>
<th>After algorithm</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>How often were you able to share in decisions regarding your family member’s care on a regular basis?</td>
<td>2.97</td>
<td>3.41</td>
<td>.07</td>
</tr>
<tr>
<td>How would you rate how well the nurses, doctors, and other staff worked together as a team?</td>
<td>3.38</td>
<td>3.73</td>
<td>.046</td>
</tr>
<tr>
<td>How often was support and encouragement given to you during your family member’s stay in the unit?</td>
<td>3.38</td>
<td>3.52</td>
<td>.47</td>
</tr>
</tbody>
</table>

*Raw score of 4 represents the highest satisfaction.

* $P < .05.$

### Figure 2  Comparison of percentages of excellent scores on family satisfaction before and after implementation of the algorithm.
Discussion

In this performance improvement initiative, we demonstrated that an evidence-based structured communication algorithm may be one approach to improve ICU family members’ satisfaction with participation in decision making and their perception of how well nurses, doctors, and other staff work together as a team. The clinical triggers in the algorithm were useful in identifying families who needed a family meeting earlier in the patient’s ICU course. Slightly less than half of these family meetings resulted in decisions related to treatment limitation.

Although family satisfaction is an important aspect of quality, typically survey response rates are low. Others who have used the same survey reported response rates of 56% to 68%. Our ICU Family Satisfaction Survey response rate was 67%.

As noted by others, practical difficulties were encountered in arranging formal family meetings. The social worker or palliative care nurse who coordinated the planning of the meetings often found that it took days to schedule the meeting because of the conflicting schedules of patients’ family members and surgeons. Multiple phone calls were often needed to establish a mutually acceptable meeting schedule. A “window of time” was often required for the meeting to occur. For example, “We are trying to schedule a family meeting between 4 PM and 6 PM on Thursday afternoon”; rather than “We are trying to schedule a family meeting at 5 PM on Thursday, can you be there?” As others have reported, we also saw considerable variation in the response of family members to the invitation for a meeting, and almost a quarter of the family members even saw such a meeting as unnecessary. Many thought that they did not need a meeting because they were already satisfied with the communication.

The clinical triggers, especially a high APACHE score, turned out to be quite useful in prompting early proactive

**Figure 3** Impact of the supportive care algorithm on the initiation of family conferences.
family meetings. Others have reported that the APACHE scores can provide members of the health care team and patients’ families with predictive information about the likelihood of death, and with that information, goals of care can be identified and decision making about treatment is enhanced. Lilly and colleagues also used triggers to initiate a proactive process in which a formal family meeting was held within 72 hours of admission. Triggers in their study included the attending physician’s opinion on those patients who are at risk of having an ICU stay longer than 5 days, mortality risk greater than 25%, or a significant decline in functional status. Our algorithm is different in that we used more objective clinical data as triggers. Campbell and Guzman used the clinical triggers of global ischemia after cardiopulmonary resuscitation or multisystem organ failure for more than 3 days to initiate palliative care consultations. It is likely that different populations of ICU patients require different sets of clinical triggers. Although not stated explicitly in our algorithm, we did organize family meetings for families who requested one at any time, regardless of length of time in the ICU.

We did not evaluate the impact of this algorithm on ICU patients’ length of stay. Some evidence indicates that the use of regular structured meetings reduces ICU length of stay among patients with the highest acuity scores. Ahrens and colleagues evaluated the effects of a communication team (physicians and a clinical nurse specialist) versus usual care on length of stay and costs for patients near the end of life in the ICU. They reported that patients whose family members received intensive communication strategies had significantly shorter stays in the ICU and lower costs. However, more recent studies have shown intensive communication algorithms, including regular structured family meetings for long-stay ICU patients, did not affect ICU patients’ length of stay. Additional research is needed to evaluate the impact of a structured multidisciplinary communication protocol on ICU length of stay.

We believe that the success of our algorithm was related to a strong team of champions who endorsed and enforced the intervention. Previous process improvement initiatives have clearly demonstrated the importance of strong local champions for the success of the interventions. The nurse champions in our project identified the need for reeducation, particularly during the first 3 months of implementation of the algorithm. This training information was easily relayed through huddles, staff meetings, and 1-on-1 sessions. The physician champion garnered support for the algorithm from the intensivists and surgeons and provided them with evidence-based education sessions on effective communication. The palliative care nurse and social worker champions persevered through the difficulties in scheduling family meetings. The chaplain and patient advocate champions were key in meeting special requests and providing additional support so that family members could concentrate on decision making for their loved ones.

Although we did not measure staff satisfaction with a standardized instrument, anecdotal reports from the ICU nurses indicated that they saw the benefits of the algorithm on ICU families. They could use the algorithm to advocate for their patients and families and obtain the support needed. Our results are consistent with existing publications stating that early structured initiatives with ICU family members may be the most important element of successful communication between providers and patients’ family members.

### Limitations

The generalizability of our results is limited by the project evaluation design, the small convenience sample, and the single site for data collection. We evaluated this evidence-based communication algorithm by using process improvement methods. Although the research design and methods could have been more robust, it was not tenable because we were testing the implementation of known effective interventions of communication with critically ill patients and families. Our protocol was an evaluation of these known communication strategies that were organized into bundles incorporated into an algorithm. This design is a weak demonstration of change and further studies are warranted.
The SICU culture of this setting may have influenced the results of this project. Others have noted that the characteristics of the patients and the unit culture can influence the effectiveness of communication interventions. Several multidisciplinary initiatives are in place on this unit that are associated with increased unit-level collaboration and improved outcomes including integrated patient records, a joint practice committee, joint ICU leadership, and scheduled interdisciplinary meetings and in-service training sessions. This algorithm may require adaption to the needs, resources, clinicians, and culture of a specific ICU. As noted by Gay and colleagues, each ICU has its own “ecosystem,” and the environments of different ICUs can be vastly different even within a single institution.

Conclusions
This project extends the evidence base for interventions centered on early structured multidisciplinary communication with the goal of shared decision making. An evidence-based structured communication algorithm may be one approach to improving ICU families’ satisfaction with their participation in decision making and their perception of how well the multidisciplinary team works together.

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Financial Disclosures
None reported.

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References

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**CNE Test**  
Test ID C1353: Improving Family Satisfaction and Participation in Decision Making in an Intensive Care Unit

**Learning objectives:**  
1. List the questions that guided this performance improvement initiative.  
2. Describe the implementation steps to develop the communication algorithm.  
3. Discuss components of the 24-, 72-, and 96-hour care bundles.

1. Which of the following is one of the most important family needs, and the strongest predictor of satisfaction with care?  
   a. Consistent caregivers  
   b. Consistent communication  
   c. Excellent bedside manner  
   d. Shared goals

2. A review of the evidence supported which of the following conclusions to form the basis of the algorithm?  
   a. Communication should occur at specific points in the intensive care unit (ICU) course.  
   b. Family-centered care requires shared decision making.  
   c. Reactive protocols were found to improve communication.  
   d. The key to shared decision making is communication from the provider.

3. The first bundle of communication processes should occur within how many hours of the patient’s admission to the surgical ICU?  
   a. 4  
   b. 8  
   c. 12  
   d. 24

4. Which of the following outcome measures showed the most improvement in the ICU Family Satisfaction Survey?  
   a. Family’s participation in decision making  
   b. Family’s perception of support  
   c. Increase in family meetings  
   d. Staff worked together as a team

5. The generalizability of the results was limited by what factor?  
   a. Data collection on multiple units  
   b. Large convenience sample  
   c. Project evaluation design  
   d. Staff satisfaction was not measured

6. Which of the following is true regarding the 72-hour care conference?  
   a. Conferences determined what treatments would be indicated  
   b. Conferences were associated with a reduced number of ICU days for patients who died  
   c. There was no difference in patient or family-centered outcomes  
   d. The nurse was required to participate in family meetings

7. The 72- and 96-hour care bundles were expedited by which of the following clinical triggers?  
   a. APACHE predicted mortality greater than 25%  
   b. Apathy or depression  
   c. Need for peritoneal dialysis  
   d. Sepsis or septic shock

8. Which of the following is a question that guided the performance improvement initiative?  
   a. Does criteria to guide use of supportive services improve satisfaction?  
   b. How helpful is the patient advocate role in promoting communication?  
   c. How often can family members share in decision making?  
   d. How well does the physician coordinate the health care team?

9. Which of the following is the team’s first step when planning their intervention?  
   a. Critically appraise the research  
   b. Determine the study design  
   c. Obtain institutional review board approval  
   d. Select a survey tool

10. What was the most common clinical trigger for a family meeting before the ICU stay had reached 96 hours?  
    a. APACHE score greater than 40%  
    b. Extracorporeal membrane oxygenation  
    c. Multiple vasoactive intravenous drugs  
    d. Severe sepsis or septic shock

11. A patient has been in the surgical ICU for 72 hours and will not be transferred within the next 12 hours. He displays anger and frustration as he recovers from his cardiac arrest. The SICU Supportive Care Algorithm suggests what course of action?  
    a. Contact the family to calm the patient  
    b. Contact the patient advocate representative  
    c. Expend the 96-hour admission bundle  
    d. Obtain an order for a sedative

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**Program evaluation**

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<tr>
<th>Objective</th>
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**Test answers:** Mark only one box for your answer to each question. You may photocopy this form.

1. a  2. a  3. a  4. a  5. a  6. a  7. a  8. a  9. a  10. a  11. a

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