

JOURNAL CLUB CRITIQUE

New obstacles to improving the quality of end-of-life care in ICU

Maxim V Bocharov^{1,2} and Jeremy M Kahn^{*1-3}

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Expanded abstract

Citation

Curtis JR, Nielsen EL, Treece PD, Downey L, Dotolo D, Shannon SE, Back AL, Rubenfeld GD, Engelberg RA: Effect of a quality-improvement intervention on end-of-life care in the intensive care unit: a randomized trial. *Am J Respir Crit Care Med* 2011 Feb 1;183(3):348-55. Epub 2010 Sep10.PMID:20833820

Background

Because of high mortality, end-of-life care is an important component of intensive care.

Methods

Objective: To evaluate the effectiveness of a quality-improvement intervention to improve intensive care unit (ICU) end-of-life care.

Design: Cluster-randomized trial of a multi-component educational intervention targeted at bedside ICU caregivers from 2004 to 2008.

Setting: 12 community hospitals in Washington State, United States.

Subjects: 2,318 patients dying in the ICU or within 30 hours of ICU discharge, as well as their families and the nurses participating in their care.

Intervention: The intervention targeted clinicians with five components: clinician education, local champions, academic detailing, clinician feedback of quality data, and system supports.

Outcomes: Quality of death and dying (QODD) and satisfaction surveys.

Results

The primary outcome, family-QODD, showed no change with the intervention ($P = 0.33$). There was also no

change in family satisfaction ($P = 0.66$) or nurse-QODD ($P = 0.81$). There was a non-significant increase in ICU days before death after the intervention (hazard ratio = 0.9; $P = 0.07$). Among patients undergoing withdrawal of mechanical ventilation, there was no change in time from admission to withdrawal (hazard ratio = 1.0; $P = 0.81$).

Conclusions

A multifaceted quality improvement intervention was associated with no improvement in quality of dying among ICU decedents, as well as no reduction in resource utilization prior to the withdrawal of life sustaining measures.

Commentary

The subject of end-of-life care in the intensive care unit (ICU) has been an area of increasing interest for the past two decades. Because of high mortality among patients with critical illness, end-of-life care is an important component of intensive care, and yet studies suggest the current quality of this care is often poor [1]. Ideally, high-quality end-of-life care would reflect each patient's values and wishes, promote compassionate communication and provide family-oriented care. And by avoiding care that is not in keeping with each patient's wishes, ideal end-of-life care would lead to reduction of non-beneficial care and avoidance of prolongation of dying, thus preventing patient suffering and allowing for more equitable use of scarce ICU resources.

The first major effort to improve the quality of care of high-risk patients at the end of life was SUPPORT – a large multicenter trial to determine if a specially trained nurse could facilitate physicians' knowledge of patients' resuscitation preferences and improve the quality of end-of-life care [2]. Physicians in the intervention group received estimates of the likelihood of 6-month survival for every day up to 6 months. In addition, a trained nurse made multiple contacts with the patient, family, physician and hospital staff to elicit treatment preferences, improve understanding of outcomes, encourage attention to pain control and facilitate advance care planning and patient-physician communication. Unfortunately, patients in the

*Correspondence: kahnjm@upmc.edu
602B Scaife Hall, 3550 Terrace Street, University of Pittsburgh, Pittsburgh, PA 15261, USA

Full list of author information is available at the end of the article

intervention arm in SUPPORT experienced no improvement in the five targeted outcomes: the incidence or timing of written do-not-resuscitate orders, physician's knowledge of their patient's preferences not to be resuscitated, the number of days spent receiving intensive treatment before death, and the level of reported pain. Nor did the intervention reduce the use of hospital resources. The relative failure of SUPPORT suggested that efforts to improve communication were by themselves insufficient to improve care, and that more targeted interventions directed at clinician behavior were needed.

The subject of study by Curtis and colleagues was to evaluate the effectiveness of just such an intervention [3]. In an un-blinded cluster-randomized trial (targeting clinicians and hospital, not individual patients or family members), the authors sought to test the effect of an interdisciplinary, multifaceted quality improvement intervention to improve ICU clinicians' ability to provide end-of-life care to critically ill patients and their families. Of 16 eligible hospitals in the greater Seattle, Washington area, 15 agreed to participate. Three hospitals were designated as pilot sites and 12 were randomized to receive either the intervention or control. The quality-improvement intervention was based on self-efficacy theory: changes in clinician performance are facilitated by increasing knowledge, enhancing attitudes, and modeling appropriate behaviors [4]. The five components of intervention included clinician education about palliative care in the ICU using variety of educational approaches (grand rounds, workshops, video presentations), identification and training of ICU clinician local champions for palliative care, academic detailing of nurse and physician ICU directors to address individual ICU-specific barriers to improving end-of-life care (environmental scan), feedback of individual ICU-specific quality data, including family satisfaction (audit and feedback), and implementation of system supports, such as palliative care order forms and get-to-know-me posters. The primary outcome measures included family member's rating of Quality of Dying and Death (QODD) assessed by questionnaire, nurse assessed QODD questionnaire, number of days in the ICU, and the time from ICU admission to withdrawal of mechanical ventilation, as well as key elements of palliative care (occurrence of a family conference within 72 hours of ICU admission, consultation with palliative care experts, involvement of a spiritual care provider, social worker, avoidance of cardiopulmonary resuscitation in the last hour of life, DNR orders in place at the time of death). Although the investigators successfully implemented each of the intervention's components in a way that was well received by clinicians, the intervention had no measurable effect family satisfaction or family and nurse ratings of the quality of dying. Time from admission to withdrawal of

life support was unchanged and ICU length of stay was also unchanged.

Strengths of the study were that the investigators made a concerted, sophisticated effort to promote state-of-the-art end-of-life care, and that clinicians highly rated the educational and training components of the intervention. The fact that the intervention was so powerful, however, makes the results of this study somewhat frustrating, as it suggests that any educational intervention is unlikely to improve outcomes. Limitations of the study were that it was confined to one region of the United States, and that the outcome measures may not be sensitive enough to capture meaningful changes in end-of-life quality. There are many factors related to family experiences in the ICU, and it is possible that the clinician's skill in the dying process provides little signal amidst all the noise. It is also possible that a larger sample might be needed to definitively exclude an important but smaller improvement in quality of dying.

Recommendation

Based on the results of this study, targeted quality improvement efforts to improve end-of-life care at the ICU level are premature. Instead, research efforts should be focused on interventions that target clinicians earlier in their training or interventions with more direct interaction with patients that can be customized to patient needs. In the meantime, intensivists should not use this study as a reason to avoid paying attention to the needs of dying patients and their families, as this and other studies still indicate that high-quality end-of-life care is valued by caregivers and families alike [5].

Competing interests

The authors declare that they have no competing interests.

Author details

¹The Clinical Research, Investigation, and Systems Modeling of Acute Illness (CRISMA) Center, University of Pittsburgh, Pittsburgh, PA. ²Department of Critical Care Medicine, University of Pittsburgh School of Medicine, Pittsburgh, PA. ³Department of Health Policy and Management, University of Pittsburgh Graduate School of Public Health, Pittsburgh, PA.

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References

1. Stapleton RD, Engelberg RA, Wenrich MD, Goss CH, Curtis JR: Clinician statements and family satisfaction with family conferences in the intensive care unit. *Crit Care Med* 2006, **34**:1679-1685.
2. A controlled trial to improve care for seriously ill hospitalized patients. The study to understand prognoses and preferences for outcomes and risks of treatments (SUPPORT). The SUPPORT Principal Investigators. *JAMA* 1995, **274**:1591-1598.
3. Curtis JR, Nielsen EL, Treece PD, Downey L, Doto D, Shannon SE, Back AL, Rubenfeld GD, Engelberg RA: Effect of a quality-improvement intervention on end-of-life care in the intensive care unit: a randomized trial. *Am J Respir Crit Care Med* 2011, **183**:348-355.
4. Cabana MD, Rand CS, Powe NR, Wu AW, Wilson MH, Abboud PA, Rubin HR: Why don't physicians follow clinical practice guidelines? A framework for improvement. *JAMA* 1999, **282**:1458-1465.
5. Lautrette A, Darmon M, Megarbane B, Joly LM, Chevret S, Adrie C, Barnoud D,

Bleichner G, Bruel C, Choukroun G, Curtis JR, Fieux F, Galliot R, Garrouste-Org, Georges H, Goldgran-Toledano D, Jourdain M, Loubert G, Reignier J, Saidi F, Souweine B, Vincent F, Barnes NK, Pochard F, Schlemmer B, Azoulay E: **A communication strategy and brochure for relatives of patients dying in the ICU.** *N Engl J Med* 2007, **356**:469-478.

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