

Acute care practices relevant to quality end-of-life care: a survey of Pennsylvania hospitals

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ABSTRACT

Background Improving end-of-life care in the hospital is a national priority.

Purpose To explore the prevalence and reasons for implementation of hospital-wide and intensive care unit (ICU) practices relevant to quality care in key end-of-life care domains and to discern major structural determinants of practice implementation.

Design Cross-sectional mixed-mode survey of chief nursing officers of Pennsylvania acute care hospitals.

Results The response rate was 74% (129 of 174). The prevalence of hospital and ICU practices ranged from 95% for a hospital-wide formal code policy to 6% for regularly scheduled family meetings with an attending physician in the ICU. Most practices had less than 50% implementation; most were implemented primarily for quality improvement or to keep up with the standard of care. In a multivariable model including hospital structural characteristics, only hospital size independently predicted the presence of one or more hospital initiatives (ethics consult service, OR 6.13, adjusted $p=0.02$; private conference room in the ICU for family meetings, OR 4.54, adjusted $p<0.001$).

Conclusions There is low penetration of hospital practices relevant to quality end-of-life care in Pennsylvania acute care hospitals. Our results may serve to inform the development of future benchmark goals. It is critical to establish a strong evidence base for the practices most associated with improved end-of-life care outcomes and to develop quality measures for end-of-life care to complement existing hospital quality measures that primarily focus on life extension.

strategies or practices, and associated outcomes, to improve care within those domains^{7–18}; and possible process and outcome measures for end-of-life care quality improvement.^{19–21}

The purpose of this article is to explore the extent to which Pennsylvania hospitals have adopted various recommended hospital-wide and intensive care unit (ICU) practices relevant to quality end-of-life care. We also seek to identify (a) the reasons why hospitals implement certain practices and (b) hospital and other factors that may be associated with implementing them. This information can be used to inform the process of establishing benchmarks for end-of-life care best practices.

METHODS

Study design

As part of a study, funded by the National Institutes of Health, designed to understand the organisational determinants of variations in hospital end-of-life intensive care and life-sustaining treatment use, we conducted a cross-sectional mixed-mode survey (self-administered web-based followed by computer-assisted telephone interview for non-responders) of Pennsylvania acute care hospital policies, practices and procedures relevant to end-of-life treatment between June 2005 and May 2006. We asked chief nursing officers (CNO) about existing practices and reasons and timing for implementation. We included a letter endorsing the study signed by the Pennsylvania Secretaries of Health and Aging along with our request to participate in the study. We offered no payment for participation. We subsequently identified those practices from our survey that have been identified as indicators of quality end-of-life care in the hospital,^{6,7} summarised prevalence and reasons for implementation of those practices, and explored associations between hospital structural and market characteristics and practice implementation.

Survey development

The survey collected data about hospital-wide and ICU practices relevant to the use of life-sustaining treatments or palliative care for older patients with serious, life-limiting illnesses. We identified these practices through a structured review of the literature and semistructured interviews with informants from 14 Pennsylvania hospitals. We asked national experts in end-of-life care to review the survey instrument before field testing. We field tested the web-based survey with 10 Pennsylvania hospital CNOs and debriefed the six respondents by phone after survey completion. We revised the user interface and response options based on their feedback.

Given that 40% of patients in the USA still die in the acute care setting,¹ it is critical to define the hospital processes that lead to improved end-of-life care. This is especially important given the current momentum in hospital quality measurement and reporting, which focuses primarily on process measures associated with life extension (eg, Department of Health and Human Services "Hospital Compare"). A focus on measures related to life extension may create disincentives for appropriate treatment of patients for whom death is an expected or preferred outcome.²

Shortly after the Study to Understand Prognoses and Preferences for Outcomes and Risks of Treatment identified significant deficits in end-of-life pain management and a lack of alignment between patient preferences and provider knowledge of those preferences in US hospitals,³ the Institute of Medicine made improving end-of-life care across healthcare settings a priority area.⁴ Since then, several publications have delineated research priorities in end-of-life care;⁵ the key domains of end-of-life care⁶; recommended

Measures

For the current study, we identified those practices collected in our survey that overlapped with national consensus guidelines for high-quality hospital end-of-life care. Specifically, we ascertained the presence or absence of nine hospital and seven ICU practices at each hospital and, if present, the primary reason for implementing the practice (keeping up with the standard of care, cost reduction, quality improvement, physician demand, nurse demand, case management/social work demand, patient/family/community demand, legal/regulatory pressure, other or don't know). We obtained hospital structural and market characteristics during the study period—including number of beds, urban location, resident-to-bed ratio and the Herfindahl–Hirschman index of market share—from the Pennsylvania Health Care Cost Containment Council (PHC4) and Centers for Medicare and Medicaid Services administrative data.

Statistical analyses

To assess for potential non-response bias, we compared the observable characteristics of responder ($n=129$) to non-responder ($n=45$) hospitals using χ^2 and t tests as appropriate. We explored the independent associations between the major hospital structural and market characteristics (see above) and the presence or absence of the nine hospital and seven ICU practices (ie, 16 separate models) with multivariable logistic regression. We performed all analyses with STATA V.10.0.

Institutional review board approval

This study was approved by the University of Pittsburgh Institutional Review Board (Pittsburgh, Pennsylvania, USA) and deemed exempt from the requirement of written informed consent.

RESULTS

Sample characteristics

The CNOs of 129 of 174 (74%) acute care Pennsylvania hospitals completed the survey. The CNOs who responded to the survey had a mean of 15.8 (SD 11.3) total years of service and a mean of 6.3 (SD 5.5) years of service in their current management positions. Respondent hospitals included 50 (39%) hospitals with <100 beds, 60 (47%) with 101–300 beds, 13 (10%) with 301–500 beds and 6 (5%) with >500 beds (mean 241.5 (SD 185.4) beds). The ICU responsible for the preponderance of care for chronically ill elders was the medical ICU in 15 (12%) hospitals; combined medical/surgical, surgical or cardiothoracic surgery ICU in 73 (59%) hospitals; and the coronary care unit (CCU) or combined ICU/CCU in 36 (29%) hospitals.

Respondent hospitals ($n=129$) were not significantly different from non-respondent hospitals ($n=45$) in bed size ($p=0.783$); teaching status ($p=0.131$); resident-to-bed ratio ($p=0.131$); compliance with the Department of Health and Human Services “Hospital Compare” 10 core measures of quality of care processes for acute myocardial infarction, congestive heart failure and pneumonia ($p=0.979$); or urban location ($p=0.137$). However, non-respondent hospitals were in higher-competition counties: non-respondent hospitals had a mean Herfindahl–Hirschman index of 0.337 (more competitive), compared with 0.445 (less competitive) among respondent hospitals ($p=0.028$) (table 1).

Hospital practices

The prevalence of hospital practices relevant to end-of-life care, as reported by CNOs, among respondent hospitals are reported

in table 2. For each practice, the table includes its relevant National Consensus Project for Quality Palliative Care (NCP) statement end-of-life care domain and whether it is a National Quality Forum (NQF) Preferred Practice. We found that one-third (36%) of hospitals had a palliative care consult service, where half (49%) of these permitted anyone, including family, to call the consult. Two-thirds (68%) of the palliative care programmes were multidisciplinary, including at least one physician; one-fifth (21%) were individual non-physician services; and one-tenth (11%) were individual physician services. One-third (31%) of hospitals had designated palliative care beds or “flex” beds (ie, inpatient beds that can be reclassified as palliative care beds for imminently dying patients; in our sample, 80% had flex rather than designated palliative care beds); and half (49%) of the hospitals offered a bereavement programme. Most (82%) hospitals had an ethics consult service, with the most common reasons for consultation being to address futility (62%) and conflict between parties (24%).

The majority (95%) of hospitals had a formal code policy or form for code status documentation—most (78%) specifying three or more levels (full code, partial do not resuscitate (DNR) order and DNR), and only one-fifth (22%) specifying two levels (full code or DNR). However, only half (53%) of hospital emergency departments complied with all out-of-hospital DNR or Physician Orders for Life Sustaining Treatment (POLST) orders, including verbal orders. Of those hospitals that did not comply with this, half (46%) required these orders to be in writing, one-third (31%) had no policy, and one-fifth (18%) only allowed DNR orders written by a physician within the hospital.

Of the nine hospital practices, three were primarily implemented to keep up with the standard of care (requirement of code status discussion, formal code policy or code status documentation, and emergency department compliance with out-of-hospital DNR or POLST orders). Three initiatives were primarily implemented to improve quality of care (palliative care consults, educational programmes on end-of-life care to doctors, and designated or flex palliative care beds). Hospital bereavement programmes were established primarily in response to patient/family/community demand. Many hospitals also indicated that patient/family/community demand was an important driver behind the implementation of palliative care consult services and palliative care beds (see supplementary table 4).

Table 1 Characteristics of Pennsylvania hospitals, by response to survey

	Responders (n=129)	Non-responders (n=45)	p Value
	Mean (SD)	Mean (SD)	
Beds, n	241.5 (185.4)	250.5 (201.0)	0.783
House staff-to-bed ratio	0.079 (0.167)	0.132 (0.209)	0.131
Teaching status*			0.131
No teaching, %	62	46	
Minor teaching, %	27	36	
Major teaching, %	11	18	
Hospital quality score †, compliance %	85.6 (8.3)	85.6 (7.3)	0.979
Urban location, %	14.7	24.4	0.137
Herfindahl–Hirschman index ‡	0.445 (0.317)	0.337 (0.263)	0.028

*No teaching: house staff-to-bed ratio=0; minor teaching: house staff-to-bed ratio >0 but <0.25; major teaching: house staff-to-bed ratio >0.25.

†Mean compliance with the 10 core measures of process quality for acute myocardial infarction, congestive heart failure and pneumonia (US Department of Health and Human Services “Hospital Compare” measures).

‡Measure of hospital competition in respective county (ranging from 0 to 1; a higher number implies less competition; 1 represents a county with only 1 hospital).

Table 2 Prevalence of hospital-wide practices among 129 Pennsylvania hospitals

	NCP* end-of-life care domain	NQF† preferred practice	Level of evidence‡	Proportion with practice
Hospital practice				n (%)
Formal code policy or form for cardiopulmonary arrest	Structure/processes	Yes	C	122 (95)
Clinical ethics consult service	Ethical/legal aspects	Yes	A	106 (82)
Educational programme on palliative and end-of-life care to nurses	Structure/processes	Yes	B	97 (75)
Educational programme on palliative and end-of-life care to doctors	Structure/processes	Yes	B	79 (61)
Emergency department complies with out-of-hospital do-not-resuscitate orders	Structure/processes	Yes	C	69 (54)
Bereavement programme	Psychological aspects	Yes	C	63 (49)
Required code status discussion on admission	Structure/processes	Yes	C	55 (43)
Palliative care consult service	Multiple domains	Yes	B	47 (36)
Designated or "flex" palliative care beds	Structure/processes	No	C	40 (31)

*NCP: National Consensus Project's clinical practice guidelines for quality palliative care.

†NQF: National Quality Forum's national framework and preferred practices for palliative and hospice care quality.

‡Estimated from an informal survey of national experts in end-of-life care; A, randomised clinical trial; B, observational study; C, expert recommendation.

ICU practices

The prevalence of ICU practices relevant to end-of-life care, as reported by CNOs, among respondent hospitals is reported in table 3. For those with multiple ICUs, we asked for practices in the main ICU, identified as the ICU that "takes care of most of your adult non-CCU medical patients".

Of the seven ICU practices, one was implemented primarily for quality improvement (daily multidisciplinary rounds) and three were implemented primarily to keep up with the standard of care (private conference room for family meetings, standard protocol for nurses to assess/chart symptoms and clinical protocol for withdrawing/withholding life-sustaining treatment). Patient/family/community demand was the primary motivator for regularly scheduled meetings with an attending

physician and pastoral care representative visits, and was an important motivator for availability of a private conference room for family meetings (see supplementary table 5).

Structural determinants of hospital and ICU practices

In multivariable modelling of each hospital and ICU practice—including hospital size, teaching status, urban location and Herfindahl–Hirschman index as independent variables—the only hospital characteristic that was independently associated with the presence of one or more hospital practices was hospital size, which was associated with the presence of an ethics consult service (odds ratio (OR) 6.13, adjusted $p=0.016$, 95% CI 1.40 to 26.96) and a private conference room in the ICU for

Table 3 Prevalence of ICU practices among 129 Pennsylvania hospitals

	NCP* end-of-life care domain	NQF† preferred practice	Level of evidence	Proportion with practice
ICU programme, policy or practice				n (%)
Standard protocol for nurses to assess and chart patient symptoms	Structure/processes	Yes	C	105 (81)
Private conference room for family meetings	Structure/processes	No	C	75 (58)
Daily multidisciplinary rounds	Structure/processes	No	B	65 (50)
Clinical protocols for symptom management	Physical aspects and structure/processes	Yes	A	60 (47)
Clinical protocol for withdrawing/withholding life-sustaining treatments	Physical aspects and structure/processes	Yes	C	52 (40)
Pastoral care representative visits without being called	Spiritual/religious aspects	Yes	C	49 (38)
Regularly scheduled family meetings with attending physician	Structure/processes	Yes	A	8 (6)

ICU, intensive care unit.

*NCP: National Consensus Project's Clinical Practice Guidelines for Quality Palliative Care.

†NQF: National Quality Forum's National framework and preferred practices for palliative and hospice care quality

‡Estimated from an informal survey of national experts in end-of-life care; A, randomised clinical trial; B, observational study; C, expert recommendation.

family meetings (OR 4.54, adjusted $p < 0.001$, 95% CI 1.98 to 10.40).

DISCUSSION

As reported by hospital CNOs among 129 respondent acute care Pennsylvania hospitals, there is a low prevalence of several hospital and ICU practices relevant to provision of quality end-of-life care that is consistent with core recommendations of the National Consensus Project and National Quality Forum. More than half of the practices—including a hospital bereavement programme, requirement of code status discussion on admission, palliative care consult service, ICU clinical protocols for symptom management and a clinical protocol for withdrawing/withholding life-sustaining treatments—were implemented by less than 50% of the hospitals. The hospitals implemented end-of-life practices primarily to improve quality or to keep up with the standard of care. This suggests that many hospitals would change their practices if there were universal measurement and reporting efforts. Of note, among the measured hospital structural and market characteristics in our study, only hospital size was associated with a greater likelihood of implementation of only two initiatives (ethics consult service, private conference room in ICU for family meetings), suggesting few major systematic structural determinants of implementation.

Only one other empirical study has explored penetration of multiple organisational strategies believed to improve quality of end-of-life care; it focused on the ICU setting. Nelson *et al* conducted a nationally representative survey of ICU physician and nursing directors and found that less than half of ICUs had an available palliative care consult service, training of ICU clinicians in communication skills, regular family meetings with an attending physician, an end-of-life care quality monitoring process or a bereavement programme. Furthermore, they found that less than three-quarters had training for ICU clinicians in symptom management or a formal system for scaled assessment and charting of patients' symptoms.²² We also found that four of the seven ICU practices we examined (clinical protocols for symptom management, clinical protocols for withdrawing/withholding life-sustaining treatments, pastoral care visits and regularly scheduled family meetings with an attending physician) were in place in less than half of the hospitals. Both studies found fairly high prevalence of an ethics consult service (approximately 80%). Our study differed from the Nelson study in that we surveyed only Pennsylvania hospitals but studied hospital and ICU practices relevant to end-of-life care.

The prevalence of palliative care programmes (36%) in our study is similar to that reported nationally in the American Hospital Association Annual Survey. In 2006, at the end of our survey fielding, the American Hospital Association reported that 30% of hospitals had palliative care programmes. In 2008, the national presence of palliative care services was almost unchanged—31% of 4136 eligible hospitals reported this service.²³ The prevalence of ethics consult services (82%) in our study was also similar to that reported nationally by Fox *et al*, at 81% for general hospitals and 100% for hospitals with more than 400 beds.²⁴

The greater prevalence of ethics consult services, compared with palliative care services, in the USA is partly attributable to the Joint Commission on Accreditation of Healthcare Organizations' mandate for an established mechanism to address ethical conflicts within healthcare institutions.²⁵ Additionally, ethics consult services have been utilised for more than three decades.²⁴ Palliative care as a clinical consultation service, on the other hand, has only emerged in the USA in the past 10 years

and is therefore still heterogeneous in its content, delivery and adoption across institutions, although recent efforts within the palliative care community have sought to generate more uniform standards for defining a palliative care consultation⁶ and its various metrics (eg, operational, clinical, customer or financial).²⁶ There have also been recent efforts to establish more uniform standards for defining goals and competencies of healthcare ethics consultations within the USA,^{27, 28} suggesting a more widespread recognition of the need to improve end-of-life care in the acute care setting through more standardised approaches that reach across institutions.

The movement to improve end-of-life care in the acute care setting also crosses national boundaries and has been documented through recently published studies from other countries. For example, in Japan, Hong Kong and South Korea, several studies address measurement of quality of end-of-life care specifically in the cancer population,^{29–32} whereas in Australia, New Zealand and several European countries, quality of end-of-life care has been assessed for patients with any disease condition, not just cancer.^{33–39} In Nova Scotia and Ontario, Canada, Grunfeld and colleagues have reported on several at least partially measurable quality indicators of end-of-life care—at the population level using administrative databases—pertaining to cancer patients. These quality indicators were also determined to be acceptable by relevant stakeholder groups, including cancer care professionals, patients, and surviving family members and care givers.⁴⁰ This is, to our knowledge, the furthest extent to date of research efforts to systematically measure, and therefore improve, quality of end-of-life care, albeit specific to the cancer population. Finally, the recent inception of a worldwide alliance in palliative and hospice care highlights the growing international concern for improving end-of-life care in general, but especially in the acute care setting where deficiencies in end-of-life care have been increasingly documented in the international research setting.⁴¹ It is important to note that the above-mentioned international studies mostly address measurement of, rather than organisational strategies for provision of, quality end-of-life care in the acute care setting.

Our study is subject to several limitations. First, because of survey distribution to only one administrator (CNO) at each hospital, the true prevalence of hospital and ICU practices cannot be assessed. However, we believe that the CNO is the single best informant of hospital practices, and we have no reason to believe that CNOs would knowingly misrepresent implementation of specific practices given the anonymity of the survey. Additionally, prevalence of palliative care and ethics consult services were similar to national data, suggesting external validity. As with all surveys, respondents may have differentially interpreted wording of specific survey items, thereby potentially leading to different assessments of implementation of specific practices. For example, given that Joint Commission on Accreditation of Healthcare Organization requires hospitals to establish whether admitted patients have an advance directive or living will, CNOs may have interpreted the (mandatory) ascertainment of this information as equivalent to a “code status discussion” on admission, explaining the unusually high rate for this practice (95%). Additionally, there is likely some greater recall bias in responses of CNOs regarding the reasons for implementation, given that, in actuality, the reasons were likely multifactorial. Finally, this study only included acute care Pennsylvania hospitals and thus cannot represent prevalence of practices in other states or regions. To our knowledge, none of the surveyed practices are specifically required by Pennsylvania state law.

Conclusion

Efforts to establish a strong evidence base for practices that improve end-of-life care in the acute care setting underscore the fact that the needs of dying patients are widely recognised but poorly met. Our study elucidates penetration of several practices, albeit in one US state, to inform future benchmark development; confirms that hospitals are, indeed, motivated to implement some of these practices in an effort to improve quality or keep up with standards of care; and does not suggest any consistent major structural determinants of programme implementation, although a larger size is clearly facilitative. More research still needs to be done to establish which practices yield improved end-of-life outcomes and at what costs. With a firm evidence base, these practices can be elevated to the same status as measures designed to decrease mortality. This would ultimately provide better balance between incentives for practices that emphasise life prolongation and those that ensure dying patients and their families receive optimal treatment.

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Competing interests None.

Ethics approval This study was conducted with the approval of the University of Pittsburgh.

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