

Effect of Palliative Care Curriculum on Serious Illness Conversation Preparedness

Caroline Cubbison¹, Ashish Rai², Coleen Reid³, Kevin McDonald³, Olesya Baker⁴, Camden Bay⁴, Salma Batool-Anwar⁵, and Elizabeth K. Stevenson⁶

¹Division of Internal Medicine and ³Division of Hospice and Palliative Medicine, North Shore Medical Center, Salem, Massachusetts; ²Division of Pulmonary and Critical Care, NYU Langone Hospital, Winthrop, New York; ⁴Center for Clinical Investigation and ⁵Division of Pulmonary and Critical Care, Brigham and Women's Hospital, Boston, Massachusetts; and ⁶Division of Pulmonary, Critical Care and Sleep Medicine, Beth Israel Deaconess Medical Center, Boston, Massachusetts

Background: A shortage of palliative care (PC) specialists underscores the necessity that all clinicians feel comfortable with serious illness conversations (SICs).

Objective: To assess the effect of an intensive PC curriculum with multiple teaching modalities on Internal Medicine residents' confidence with SICs and advance care planning documentation.

Methods: Twelve PC modules consisting of didactic lectures, role-playing, and online interactive modules were integrated as continuing education during academic year 2018–2019. Surveys were administered precurriculum and at 3 and 6 months postcurriculum to measure the primary outcome of increasing resident preparedness for SICs. A retrospective chart review was used to analyze secondary outcomes of advance care planning documentation for patients cared for by residents exposed to the curriculum versus residents from the previous year who received monthly didactic PC lectures.

Results: Postintervention surveys demonstrated statistically significant improvement in resident confidence. An increase in patient code status confirmation rates (odds ratio, 1.81; 95% confidence interval, 1.12–2.94; $P=0.02$) and a decrease in PC consultation

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Correspondence and requests for reprints should be addressed to Elizabeth K. Stevenson, M.D., M.S., 330 Brookline Ave., Boston, MA 02215. E-mail: lizbeth076@hotmail.com.

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(odds ratio, 0.56; 95% confidence interval, 0.33–0.97; $P=0.04$) was observed when compared with the previous year.

Conclusion: Among residents, the incorporation of an intensive PC curriculum that uses multiple teaching modalities improves confidence in SICs, which we believe is integral to the practice of goal-concordant patient care.

Keywords:

palliative care curriculum; serious illness conversation; code status documentation

Code status and serious illness conversations (SICs) have long been an integral part of Internal Medicine and have been shown to reduce the likelihood of patients receiving undesired intensive care (1). However, these conversations remain infrequent and poorly documented, even when patients are known to have a high probability of dying, both in inpatient and outpatient settings (2–4). Recent evidence demonstrates that SICs significantly improve anxiety and depression in terminally ill patients as well as in their survivors' perceptions of goal-concordant care (5, 6). However, opportunities for these discussions are frequently unidentified and therefore missed (7).

In teaching institutions, SICs often fall under the purview of resident physicians in training without direct supervision, thereby reducing the opportunities for observation and feedback by more seasoned physicians (8). A 2011 survey demonstrated that less than one-third of residents felt comfortable having SICs, and close to 90% of residents believed they would benefit from training in these discussions, with only approximately half having received formalized training (9). It is incumbent that all practitioners feel prepared to have these conversations, and although various interventions have been shown to significantly improve practitioner confidence with these dialogues,

subsequent effects on clinical practice and hospital outcomes have not been evaluated (10–16).

OBJECTIVE

The primary objective of this research was to assess the effect of an intensive palliative care (PC) curriculum that used a range of teaching methods (role-playing, online interactive modules, and didactic lectures) on the primary outcome of residents' confidence regarding SICs and the secondary outcomes of residents' practice involving advance care-planning documentation, PC consultation, and intensive care unit (ICU) transfer of patients. Prior to our intervention, the resident PC curriculum had consisted of one didactic lecture per month.

METHODS

A multidisciplinary team of PC physicians, critical care physicians, and internal medicine residents designed a 12-session curriculum. Each session was approximately 1 hour in length and was given during scheduled afternoon didactic time. Sessions were given every 1 or 2 weeks over a 4-month period. Session format was divided into role-playing, online interactive modules, and didactic lectures given by PC specialists (*see* data supplement for details). Role-playing divided residents into teams of two and required one

resident to act as a patient with a serious diagnosis and the other resident to utilize the SIC guide created by Ariadne Labs (reproduced with permission; *see* data supplement) (5, 17) to hold a goals-of-care conversation. Each resident had an opportunity to practice using the SIC guide. These sessions were observed and moderated by PC physicians, and direct feedback was given to residents at the end of each simulation. Residents were given access to interactive online modules sponsored by the Centers to Advance Palliative Care, which were reviewed as a collective group and addressed topics such as conducting a family meeting, identifying different types of pain, and how to conduct a goals-of-care conversation. Didactic lectures given by PC specialists focused on the importance of advance care planning documentation, including Health Care Proxy (HCP) and Medical Orders for Life-Sustaining Treatment (MOLST) forms, as well as the proper integration of these forms into the electronic medical record. Didactic sessions further covered general PC topics, such as pain and symptom management, responding to patients' and families' emotions, and general guidance on requesting formal PC or hospice care consults. All 22 of the Internal Medicine residents at a 268-bed community-based hospital in Massachusetts participated in our curriculum over 12 weeks from September 2018 through November 2018. There were 10 Postgraduate Year 1 (PGY-1), 6 PGY-2, and 6 PGY-3 residents. Participation was required as the modules took part during routinely scheduled noon conference didactic times. Because of our small community program size and limitations on scheduled didactic times, individualized lesson plans for each PGY were not possible despite variation in learner needs. Individual resident attendance to sessions was tracked

electronically when residents scanned a quick response code with their mobile devices.

Participating residents completed a pre- and postcurriculum Likert-scale survey that assessed their comfort levels with goals-of-care discussions, emotional patients and families, advance care planning documentation, and explaining life-sustaining treatments (Table 1). Residents were also asked to give feedback regarding the curriculum at the conclusion of the program.

To evaluate the effect of our intervention on resident practice, a retrospective chart review of patients under resident care was conducted for 3 months immediately after the intervention (December 2018 to February 2019). We repeated this assessment 6 months after the intervention was completed (May–July of 2019) to gauge whether any immediate perceived effect on resident practice from our initial evaluation would still be present once the residents were 6 months out from frequent PC educational sessions. A control group of patients under the care of residents during the prior year (December 2017 to February 2018) was selected to address possible bias attributed to progression of resident training. An *a priori* power calculation was done to inform chart review sample size for the control group.

A priori selected Likert scale questions were analyzed by using Wilcoxon rank-sum tests, with additional *post hoc* analysis applied to the remaining questions (Table 1). As survey respondents remained anonymous, matching individuals' pre- and postcurriculum answers was not possible; therefore, a paired analysis was not performed. The association between different binary retrospective chart review outcomes and the curriculum group used logistic regression. Odds ratios (ORs) were

Table 1. Pre- and postintervention Likert-scale survey questionnaire

Question Number		Precurriculum Mean Score	Postcurriculum Mean Score	P Value
1*	I feel comfortable discussing code status with a new (previously unknown) patient on admission when they are calm.	4.22	4.68	0.027
2	I feel comfortable discussing code status with a new (previously unknown) patient on admission when they are anxious.	3.36	4.22	0.002
3	I feel confident readdressing goals-of-care and code status with patients when their health situation changes.	3.95	4.22	0.016
4	I feel confident discussing goals-of-care with emotional patients.	3.36	3.90	0.060
5	I understand what a Health Care Proxy (HCP) form is.	4.00	4.72	0.001
6*	I feel comfortable filling out and filing a Health Care Proxy (HCP) form with a patient.	3.59	4.45	0.005
7	I understand what a MOLST form is.	3.72	4.68	0.002
8*	I feel comfortable filling out and filing a MOLST form with a patient.	3.36	4.40	0.002
9	I feel confident in my abilities to explain different life sustaining measures, like CPR, dialysis, feeding tubes, artificial hydration, and ventilation, to patients and their families.	4.00	4.36	0.090
10	I feel well prepared to deliver serious news, like a new diagnosis of cancer or life-threatening progression of CHF, to a patient.	3.27	4.22	0.008
11*	It is my responsibility to have the initial serious illness conversation with a patient.	4.13	4.31	0.038
12	I feel confident in my abilities to respond to patients' and families' emotions during advance care planning conversations.	3.77	4.04	0.034
13	I feel comfortable identifying which patients have needs for palliative care services.	3.77	4.13	0.022

Definition of abbreviations: CHF = congestive heart failure; CPR = cardiopulmonary resuscitation; MOLST = Medical Orders for Life Sustaining Treatment.
 *Questions were selected a priori for analysis.

Table 2. Secondary outcomes

Outcomes (n = 1,614)	Crude Odds Ratio (95% CI)	P Value	Adjusted Odds Ratio (95% CI)	P Value
Code status confirmation during hospital stay				
Prior academic year (n = 453)	Reference group	—	Reference group	—
Precurriculum (n = 245)	1.08 (0.64–1.83)	0.77	1.08 (0.64–1.84)	0.77
3 months postcurriculum (n = 424)	0.87 (0.57–1.33)	0.51	0.91 (0.59–1.39)	0.60
6 months postcurriculum (n = 494)	1.81 (1.12–2.94)	0.02	1.89 (1.16–3.07)	0.01
New MOLST form documented during hospital stay				
Prior academic year	Reference group	—	Reference group	—
Precurriculum	Too few events to estimate	NA	Too few events to estimate	NA
3 months postcurriculum	0.71 (0.12–4.28)	0.71	0.76 (0.13–4.59)	0.76
6 months postcurriculum	1.22 (0.28–5.50)	0.79	1.30 (0.29–5.91)	0.74
New HCP form documented during hospital stay				
Prior academic year	Reference group	—	Reference group	—
Precurriculum	Too few events to estimate	NA	Too few events to estimate	NA
3 months postcurriculum	1.48 (0.59–3.72)	0.4	1.59 (0.63–4.02)	0.32
6 months postcurriculum	1.98 (0.84–4.63)	0.12	2.21 (0.93–5.22)	0.07
Palliative care consult during hospital stay				
Prior academic year	Reference group	—	Reference group	—
Precurriculum	0.98 (0.55–1.75)	0.95	1.01 (0.55–1.85)	0.98
3 months postcurriculum	0.66 (0.39–1.14)	0.14	0.74 (0.42–1.30)	0.30
6 months postcurriculum	0.56 (0.33–0.97)	0.04	0.69 (0.39–1.21)	0.20
ICU transfer during hospital stay				
Prior academic year	Reference group	—	Reference group	—
Precurriculum	0.61 (0.34–1.10)	0.10	0.53 (0.28–1.01)	0.06
3 months postcurriculum	0.50 (0.30–0.83)	0.008	0.47 (0.27–0.83)	0.009
6 months postcurriculum	0.70 (0.45–1.10)	0.12	0.965 (0.58–1.60)	0.89

Definition of abbreviations: CI = confidence interval; HCP = Health Care Proxy; ICU = intensive care unit; MOLST = Medical Orders for Life Sustaining Treatment; NA = not applicable.

adjusted for patient age on admission, sex, and length of stay. All testing was two tailed, and *P* values less than 0.05 were considered statistically significant. Our intervention was reviewed and approved by our institutional review board before implementation.

RESULTS

Twenty-two residents (10 PGY-1, 6 PGY-2, and 6 PGY-3) who were predominantly male (15/22) and international medical graduates (16/22) attended a mean of 6 out of 12 sessions (50%). The median number of sessions attended was 6, with standard deviation of 2.8 among participants. Pre- and postcurriculum survey response rates were 100%. These demonstrated a statistically significant improvement in resident confidence for most areas, with the exception of resident perceived ability to respond to patient emotions and to explain different life-sustaining measures to patients and their families (*P* = 0.06 and 0.09, respectively) (Table 1). Additional feedback obtained from residents included requests to reduce the amount of online content and increase the amount of role-playing.

Despite residents signaling significant improvement in comfort levels with HCP and MOLST forms in their surveys (*P* = 0.005 and 0.002, respectively), documentation rates observed through chart review increased but did not reach statistical significance when compared with the prior academic year (OR, 1.48; 95% confidence interval [CI], 0.89–3.72; and OR, 0.71; 95% CI, 0.12–4.28 for HCP and MOLST, respectively). However, a statistically significant increase in code status confirmation rate was observed for admitted patients when assessed at 6 months postcurriculum (OR, 1.89; 95% CI, 1.16–3.07), and PC

consultation rate also decreased significantly at 6 months (OR, 0.56; 95% CI, 0.33–0.97). It is of interest that ICU transfer rates were significantly reduced at the 3-month mark (OR, 0.5; 95% CI, 0.30–0.83) when compared with resident service patients from the prior academic year; however, the results were not statistically significant at 6 months (OR, 0.7; 95% CI, 0.45–1.10) (Table 2).

Regarding patient demographics, baseline demographics for patients who underwent chart review as part of our intervention revealed similar ages but significant differences in length of stay and some comorbidity rates when compared with patients under resident care the previous academic year. However, these demographic variables were not consistently increasing or decreasing over time, suggesting that the composition of these patient populations was experiencing natural variation over time but not undergoing any systematic changes (*see* data supplement for patient demographics).

CONCLUSIONS

Our findings suggest that an intensive PC curriculum that includes both interactive and didactic teaching modalities and is given over several months improved Internal Medicine resident confidence around code status and goals-of-care discussions with inpatients. We also observed a decrease in PC consultation rates and an increase in patient code status documentation. However, we did not find significant associations between our curriculum intervention and changed rates of HCP and MOLST form documentation.

Neither PC consultation rate nor code status confirmation rate among our residents changed significantly 3 months

after our intervention, but we did see statistically significant changes at the 6-month mark. We believe our smaller sample size at the 3-month time point likely limited our power to detect smaller effects, which eventually were seen with the slightly larger sample at 6 months.

Regarding the decrease in PC consultation rate at 6 months postintervention, we hypothesize that as residents felt more confident in undertaking SICs, they felt less in need of PC specialist support. As prior research has demonstrated that up to 26% of acute care patients have PC needs (18, 19), an intervention such as ours could greatly ease the burden on a limited resource such as PC consulting physicians. However, we must be mindful of the possibility that interventions such as ours could instill a false confidence in our residents and that reduced PC consultation could also reflect patients not receiving services that could improve their care quality.

Regarding the increase in code status confirmation rate noted 6 months (but not 3 months) postintervention, we believe, as stated above, that our 3-month results may have been underpowered. It is also interesting to note that when compared with a 2016 survey of residents in New York state, our residents were already confirming code statuses at a high rate before our intervention, making a significant change with a small sample size less identifiable (20).

Interestingly, our ICU transfer rate initially was observed to decrease significantly at the 3-month time mark, similar to a 2019 study that did find goals-of-care discussions reduced inpatient ICU transfer rates (21). However, our 6-month data did not reach statistical significance but continued to demonstrate an overall decreased transfer rate that approximated

significance (OR, 0.7; 95% CI, 0.45–1.10). Perhaps with a larger sample size, we could observe statistical significance again.

HCP and MOLST form documentation did not increase significantly after our intervention. We believe barriers still exist for this to occur. Mainly, these documents exist in our institution in paper format only, and proper recording of these requires residents to photocopy completed forms and retain a copy, which is subsequently scanned and uploaded into the patient's electronic medical record at the time of patient discharge. This process can be cumbersome and discouraging for residents and offers opportunities for documentation mishaps. Some states, such as New York, have created electronic versions of the MOLST form, which can be edited easily through an online platform. We believe national adoption of electronically editable forms would improve the rate, accuracy, and ease of documentation (22).

Our attendance rate was 50%, which was lower than expected. One theory for this is our residents' rotating schedule, which decreased their availability for afternoon didactics. A recurring feedback point from residents was the desire to shorten the course length. As we observed statistically significant changes with only a mean of 50% course attendance, one could infer that further course condensation should not impact end resident confidence outcomes, which is reassuring. Previously, shorter educational interventions have also seen favorable outcomes and acceptance by residents (12–15).

Limitations to our study include the possible confounding of individual strengths of residents toward SICs. Each group of residents is unique in their personalities, and the yearly turnover of house staff makes the elimination of this

variable difficult. In addition, we did not provide a means of obtaining anonymous matched comparisons in resident responses before and after our intervention, so a paired analysis of pre- and postcurriculum answers was not performed. Other possible confounders include specific attending physician influences on our secondary outcomes, such as PC consultation orders. Regarding Likert-scale responses, *post hoc* analysis was performed for several questions in our survey, bringing to this data the same limitations that a retrospective analysis would. A final limitation lies in the differences observed in patient cohorts during chart review. There are significant differences in some comorbidities and lengths of stay across the study timeline, but these are not systematically different and did not exhibit a trend. Finally, it is possible that some patients appeared in multiple curriculum groups if they were readmitted during the same analysis period, for instance; this potential clustering was not accounted for in analysis.

Regarding cost and ease of implementation for our curriculum, residents had access to the Centers to Advance Palliative Care online platform and modules, which all physicians in our network have access to via a yearly hospital subscription. PC physicians

offered their time and expertise for lectures at no additional cost to our program. Indirect costs included time used to coordinate events, use of conference room space, and time commitments from lecturers. Morale among lecturers remained high, and organizers remained dedicated to continuing the program the following academic year.

Based on the feedback from our residents and the Likert-scale survey data they provided, we believe that an intensive PC curriculum that used several different modes of instruction improved our residents' confidence regarding SICs. Increased documentation of inpatient code status and decreased PC consultation were also observed. For future training sessions, we are planning to decrease the total number of training sessions in our curriculum and to tailor interventions aimed at increasing rates of goals-of-care discussions toward more realistic role-play sessions, such as with simulated patient actors, as well as emotional response training for residents.

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