



Unpacking Resident-Led Code Status Discussions: Results from a Mixed Methods Study

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BACKGROUND: The quality of code status discussions (CSDs) is suboptimal as physicians often fail to discuss patients' goals of care and resuscitation outcomes. We previously demonstrated that internal medicine residents randomized to a communication skills intervention scored higher than controls on a CSD checklist using a standardized patient. However, the impact of this training on CSD content is unknown.

OBJECTIVE: Compare CSD content between intervention and control residents.

DESIGN: We conducted qualitative analysis of simulated CSDs. Augmenting a priori codes with constant comparative analysis, we identified key themes associated with resident determination of code status. We dichotomized each theme as present or absent. We used chi-square tests to evaluate the association between training and presence of each theme.

PARTICIPANTS: Fifty-six residents rotating on the internal medicine service in July 2010 were randomized to intervention ($n=25$) or control ($n=31$).

INTERVENTION: Intervention residents completed CSD skills training (lectures, deliberate practice, and self-study). Six months later, all 56 residents completed a simulated CSD.

MAIN MEASURE: Comparison of key themes identified in CSDs among intervention and controls.

KEY RESULTS: Fifty-one transcripts were recorded and reviewed. Themes identified included: exploration of patient values/goals, framing code status as a patient decision, discussion of resuscitation outcomes and quality of life, and making a recommendation regarding code status. Intervention residents were more likely than controls to explore patient values/goals ($p=0.002$) and make a recommendation ($p<0.001$); and less likely to frame the decision as one solely to be made by the patient ($p=0.01$). Less than one-third of residents discussed resuscitation outcomes or quality of life.

CONCLUSION: Training positively influenced CSD content in key domains, including exploration of patient values/goals, making a recommendation regarding code status, and not framing code status as solely a

patient decision. However, despite the intervention, residents infrequently discussed resuscitation outcomes and quality of life.

KEY WORDS: code status; resuscitation; physician-patient communication; palliative care; medical education.

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BACKGROUND

Physicians discuss code status (i.e., preferences regarding cardiopulmonary resuscitation) with their patients to promote patient self-determination at the end of life. However, the quality of these discussions is often suboptimal, with physicians frequently omitting necessary information for patients to make informed decisions.¹ Multiple studies show that patients and family members display poor understanding about the key elements of resuscitation and overestimate the likelihood that a patient will survive to hospital discharge.²⁻⁵ Research links higher patient perception of the likelihood of survival following resuscitation to a preference for full code status.³ This finding suggests that the quality and content of information presented in a code status discussion (CSD) may affect CSD outcome [e.g., full code or do-not-resuscitate (DNR)].

CSDs are frequently performed by resident physicians in the inpatient setting. Several studies demonstrate that residents often lack the skills to conduct CSDs competently,^{1,6-8} and that these conversations occur in a scripted, depersonalized, and procedure-focused manner.⁹ Multiple institutions use communication skills training programs focusing on different aspects of end-of-life communication to teach physicians to conduct these sensitive discussions in an empathic, patient-centered way.¹⁰⁻¹⁷ In earlier work, we showed that internal medicine residents randomized to a multimodality communication skills training program performed better than controls in a standardized patient (SP) encounter.¹⁸ Using a CSD skills checklist, we also

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demonstrated that these residents retained their skills one year later.^{18,19}

Although earlier research at our institution showed that education improves resident CSD skills on a checklist,¹⁸ how this training affects the way in which residents determine code status is unknown. The objective of this study was to compare content of CSDs between intervention and control residents to gain insight into the effects of CSD education on resident skills in simulated CSDs.

METHODS

Study Design

This study was part of a prospective randomized controlled trial of a multimodality communication training program used to improve CSD skills at a single academic medical center.¹⁸ The study period was July 2010 to January 2011. Fifty-six post-graduate year (PGY)-1 residents rotating on the internal medicine inpatient service were eligible to participate. After providing written consent, participants were randomized to the intervention or control group (Fig. 1). Intervention group residents completed a multimodality CSD educational intervention including didactic content, deliberate skills practice and self-study (e.g., online modules and maintenance of a log). Didactic content included: defining advance care planning, reviewing a framework for CSDs, and responding to patient emotions. In November 2010, intervention residents received a 2-hour CSD skills “booster” session where they discussed themes from CSD logs, reviewed the CSD framework, and again observed a role play. All participants were given verbal and written instructions on carrying out a CSD as they would with an actual patient and then completed a 15-min CSD with a SP in January 2011. This study was approved by the Northwestern University Institutional Review Board.

Participants

The study sample included 33 of the 38 PGY-1 residents described in our earlier papers evaluating immediate and delayed CSD checklist skill performance in categorical internal medicine residents.^{18,19} All 38 internal medicine residents completed the discussion with the SP, but five discussions were not recorded. The current study sample also included ten anesthesiology, six neurology and two preliminary internal medicine residents who rotated on internal medicine during the study period.

Data Collection

Participants were allotted 15 minutes to conduct a CSD with a SP portraying a 45-year-old man hospitalized with a

small bowel obstruction secondary to metastatic colon cancer. Prior to the CSD, the experienced SP reviewed the following information about the patient: a) details regarding his illness, b) his understanding of his prognosis, c) concerns about and hopes for the future, d) previous advance care planning conversations, e) emotions to report and display, and f) standardized responses to specific resident questions regarding goals of care and perceived quality of life. The same SP was used for all of the discussions. CSDs were videotaped and converted to audio files for transcription purposes.

Study participants completed a survey on demographics, training program, and clinical experience with CSDs.¹⁸

Data Analysis

Digital audio-recordings were transcribed verbatim and participant identifiers were removed from transcripts to maintain confidentiality. The 51 transcripts were evenly divided between three coders (RS, NJ, and NP); each transcript was coded by two coders. Initial a priori codes were created based on a previously developed CSD skills checklist¹⁸ to ensure that clinically relevant domains were included in the coding process. Coders independently reviewed transcripts and used constant comparative analysis to identify additional codes and to group all codes into conceptual themes. Discrepancies were discussed and resolved by consensus. Coders assessed CSD outcome based on explicit and implicit resident statements during the CSD as: a) full code, b) DNR, or c) indeterminate.

The coding process was managed using MaxQDA qualitative analysis software (Berlin, Germany). We created a dichotomous measure (present/not present in the transcript) for each of the key themes identified from the qualitative analysis. Chi-square tests were used to evaluate the association between study group (intervention vs. control) and these dichotomous measures. T-tests were used to evaluate the association between resident number of prior CSDs, specialty, demographic characteristics, and study group. Cohen's kappa was calculated to assess inter-rater reliability for CSD outcome. Quantitative data was entered into a Microsoft Excel spreadsheet (Redmond, WA) and analyzed in Stata version 11.0 (College Station, TX).

RESULTS

Sample Characteristics

Table 1 displays sample characteristics by study group. All residents graduated from US medical schools. Final code status determination was full code for 12/20 (60 %) in the intervention group and 22/27 (81 %) in the control group.

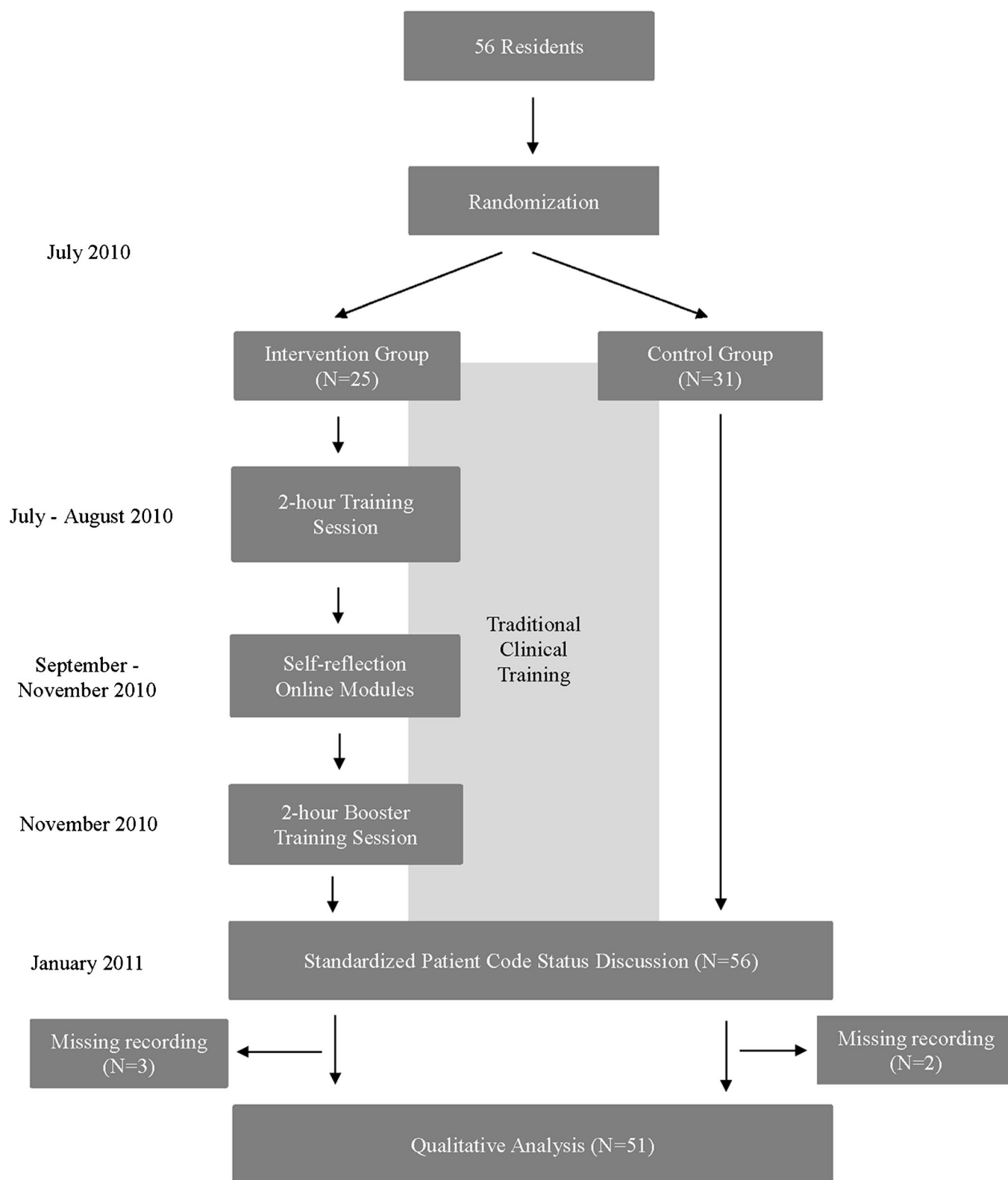


Figure 1. Study flow diagram.

Three intervention and one control resident did not complete a final code status determination within the allotted time. Inter-rater reliability for CSD determination

was excellent (Cohen's kappa=0.89). Discussion length ranged from 3.07 to 15 minutes with a median of 11.06 min (IQR 8.33–15.00).

Table 1. Resident Characteristics by Study Group

	Control (N=28)	Intervention (N=23)
Age (yrs) – mean (SD)	27.2 (2.8)	26.5 (1.2)
Sex (% Female)	46.4	65.2
Specialty (%)		
Internal medicine	57.1	73.9
Anesthesia	25.0	13.0
Other*	17.9	13.0
# Prior CSDs conducted (Mean, SD)	11.0 (12.2)	7.2 (4.5)

p values were not significant

*Other included six neurology and two preliminary medicine residents

Table 3. Occurrence of Key Code Status Discussion Themes by Study Group

Themes	Control (N=28), %	Intervention (N=23), %	<i>p</i> value*
Explored values and goals	35.7	78.3	0.002
Framed as solely a patient decision	57.1	21.7	0.01
Described resuscitation outcomes	32.1	34.8	0.84
Discussed quality of life	21.4	30.4	0.46
Made a recommendation	0	39.1	< 0.001

**p* values calculated using Pearson chi-square tests. Adjustment by gender and specialty did not alter the significance of these results

Thematic Domains

Several themes emerged that appeared to influence the way in which residents determined code status: a) exploration of patient values and goals; b) framing code status as solely a patient decision; c) describing resuscitation outcomes; d) discussing quality of life; and e) making a recommendation regarding code status (Table 2). The themes are described in more detail below, with representative quotes from study participants. Table 3 displays the frequency of the occurrence of these themes by study group.

Exploration of Patient Values and Goals

The first theme identified was whether or not residents explored the patient's values and goals. Significantly more

residents in the intervention group explored patient values and goals than those in the control group ($p=0.002$) (Table 3). Of these residents, only half in each group (nine intervention and five controls) explored values or goals *prior* to discussing resuscitation with the patient. Nine intervention and four control residents initiated the topic; the remainder explored values or goals in response to the SP commenting that he still had important things to do in life.

While intervention residents often began the CSD by assessing the patient's understanding of disease, discussing prognosis, and exploring the patient's values and goals before discussing resuscitation, many intervention residents neglected to use the information to transition from discussion of goals to discussion of resuscitation. In the following example, an intervention resident had explored the patient's goals and identified that the patient was looking forward to returning to work as a writer, seeing his dog, and getting some energy. Although information about values and goals was elicited, the resident did not integrate that information into the discussion of resuscitation:

DOCTOR: Wow, okay, sounds good. Have you been doing any writing while you've been here?

Patient: Not so much.

DOCTOR: I'm sure it's hard. I'm glad you're feeling better than you were when you first came in to the hospital. That's a good thing. I think that... You've seen a lot of different physicians since you've been here, so I just wanted to clarify a couple of things. One of them is in case of an emergency in the hospital have you talked to a doctor or even a family member about what you would want us to do in case of an emergency?

Patient: No.

DOCTOR: No, okay. So things like putting a tube down your throat to help you breathe, or antibiotics, things that would help prolong your life. Would you want us to do that while you were here? (Intervention)

The SP had been instructed to describe himself as a "fighter" if the opportunity arose; he expressed this view in

Table 2. Definition of Key Code Status Themes with Sample Quotations

Theme	Definition	Sample Quote
Explored values and goals	Resident asked the patient to talk about what is important to him, what he values, or what his goals are	"What makes you happy, what makes your clock tick when you're not acutely sick?"
Framed as solely a patient decision	Resident presented code status as a decision that only the patient could make	"I guess the decision's absolutely and entirely yours."
Described resuscitation outcomes	Resident discussed possible scenarios following resuscitation (i.e., intubation, admission to the ICU, discharge from the hospital)	"Few people would survive a resuscitation attempt and be able to leave the hospital."
Discussed quality of life	Explicit statement by the resident referencing "quality of life"	"Some of these things will definitely prolong your life, but the quality of your life may not be as great as you may want."
Made a recommendation	Resident gave a specific recommendation regarding code status to the patient	"My recommendation would be no, that you should not be what we call full code, you should be a do-not-resuscitate."

all but three of the discussions. Five residents explored what the SP meant by being a fighter (three intervention and two control residents); three of these discussions resulted in DNR determination. However, about half of the residents (four intervention and nine controls) appeared to perceive the SP's "fighter" statement as a preference for full code status:

"You're a fighter, okay. And that, that means that no matter how close it is to the end, or how bleak it looks, you'd want us to do everything in our power." (Control)

Framing Code Status as Solely A Patient Decision

A second emergent theme related to residents' framing of the code status decision. Control group residents often introduced code status as a question asked of all patients in the hospital about preferences for care in an emergency situation. These residents would ask the SP if he would want resuscitative efforts if his heart stopped rather than placing discussion of resuscitation in a larger context of goals of care for this patient with metastatic cancer, as illustrated by the following quote:

"You know, I know we're just meeting for the first time. But I just wanted to, to talk to you, because no one's talked to you yet about what you would want to happen to you in an emergency situation. If you were to stop breathing, or if your heart were to stop beating, would you want us to do everything we could to keep you, keep you going?" (Control)

Further, residents in the control group were more likely than those in the intervention group to frame the decision for code status as one that only the SP could make (57.1 % vs. 21.7 %, $p=0.01$). Numerous control residents described the decision for resuscitation using language such as "we want to know what you would like us to do" or "we want you to direct us in these situations," which placed the onus of decision making on the SP. In the following quote, prior to returning to a decision regarding code status, a control resident has just finished telling the patient that there is a 70 % chance an advanced cancer patient would not live to hospital discharge following a resuscitation attempt:

"However, we want to do what you want and if you would like us to do everything then we have to honor your wishes and do everything." (Control)

Several residents deferred any role in decision making even when asked by the SP for input:

"No. It's only a decision that you can make. And I could never tell you what to do because it's a decision you have to make for yourself." (Control)

In contrast, intervention residents were more likely to discuss code status in the context of shared decision making:

"I think what's most important is that we start talking about it . . . so that, you know, when the day comes, when things start to get worse, we can be prepared and that you can be comfortable with the decisions that we've made together." (Intervention)

Resuscitation Outcomes

Discussion of resuscitation outcomes emerged as a third theme. However, only one-third of residents in either group discussed clinical outcomes, and the groups were not significantly different in this regard ($p=0.84$). Control and intervention residents leading discussions with a DNR outcome mentioned resuscitation outcomes more frequently and used more explicit language than residents of full code discussions. In DNR discussions, the majority of residents discussed post-resuscitation outcomes in terms of the effect on the SP's baseline level of function, quality of life, and likelihood of discharge from the hospital, sometimes noting their perception that he would be unable to accomplish his goals even if he were successfully resuscitated:

"So then the question that you asked is, 'Well what would it be like, what does it mean to be kept alive after a cardiac arrest,' so a heart stop beating pounding on your chest type of event, and what I'm saying is in my experience those people are typically in an intensive care unit, rarely able to communicate with their family, certainly if they're ventilated, it's difficult to speak, I mean you can't speak." (Control)

In contrast, residents leading discussions with a full code outcome used vague language and focused more on the resuscitative effort itself than on outcomes:

"Sometimes that process can be pretty traumatic and it's not always 100 %, you know, it doesn't always work, but we would do all that in hopes of restarting your heart." (Control)

Most residents who discussed outcomes of resuscitation in the context of patient values and goals concluded that the patient would not desire prolonged ventilation. Within these interactions, determination of full code status versus DNR was often discussed in the context of whether the patient

would regain functional status and be able to accomplish his goals (i.e., complete his novel) following a resuscitation attempt:

"It sounds like, and this is just what I'm hearing correct me if I'm wrong, if there was a situation where you were acutely sick and we needed to resuscitate you, if we felt that we could do it but it might take some aggressive interventions like intubation, if we thought we could do it and get you out of it and back to that novel, it sounds like that would be something you'd want." (Intervention)

Quality of Life

A fourth theme identified was discussion of quality of life, which occurred in 21 % of control and 30 % of intervention discussions ($p=0.46$). Residents broaching the topic often did so in the context of discussion about resuscitation outcomes, as noted above, while making statements about the low likelihood that the SP would be able to maintain his current quality of life following a resuscitation attempt:

"If your heart were to stop, I think we would be causing you more suffering and more pain to make those last efforts and I don't think there would be enough benefit to warrant that suffering, and by that I mean I don't think that even if you were to survive those efforts that you would be in a position to really, you know, really be able to have any quality of life afterward." (Intervention)

Only one resident explored the SP's own perceptions of quality of life in the process of discussing resuscitation outcomes:

"Now, my question to you is what sort of, I guess, quality of life is acceptable to you to come, you know, if you were to go through such an event, if we were to resuscitate you, you know, what sort of quality of life afterwards would be something that you'd be willing to have?" (Intervention)

Making a Recommendation Regarding Code Status

The final theme identified was whether or not residents specifically made a recommendation regarding code status. Only residents in the intervention group vocalized a recommendation for code status (39.1 % vs. 0 % of controls, $p<0.001$), and all but one recommendation was

for DNR status. The majority of these residents framed their recommendation in terms of the patient's values and goals; six of the nine residents asked permission to make a recommendation:

"If it's okay with you could I make a recommendation? . . . I think just from what I've heard from you in terms of your goals and everything, you would prefer to be as functional and active as you can be. And I'm just afraid that if you were to go through all of the things that we would have to do to try to resuscitate you that you wouldn't get back to where you want to be. So, I think for, I mean, this might be a bit premature to say, but I think for you it might be more in line with what you want to go down the other pathway of saying, "please don't resuscitate me." But I'm not sure how does, when you hear that how does it feel?" (Intervention)

DISCUSSION

In this mixed-methods study, we identified emergent themes in discussions between residents and a SP, noting how these themes appeared to differ in CSDs between residents who received a CSD skills intervention and control residents. Specifically, we identified no difference between control and intervention residents in terms of the frequency of occurrence of discussion of resuscitation outcomes or quality of life; in both groups these topics arose infrequently. We also found that intervention residents were more likely than controls to explore patient values and goals, use shared decision making techniques, and make a specific recommendation for code status during their interaction with a SP.

It has been almost 20 years since Tulskey et al. described the sub-optimal quality of inpatient CSDs.¹ Since that time, numerous efforts have been made to improve the way in which physicians discuss end-of-life care preferences.^{10–17} Our current analysis reveals that many of the communication deficiencies found in CSDs 20 years ago, such as limited discussion about resuscitation outcomes, are still present in resident-led CSDs today. This is despite guidelines outlining the importance of including these topics when discussing code status.²⁰ However, based on our findings, we believe that a communication skills intervention can improve certain aspects of discussion content, such as exploration of patient values and goals and use of a shared decision making approach.

We found that discussions led by untrained residents typically did not include exploration of patient values and goals, description of likely outcomes of resuscitation, or discussion about quality of life. Rather, these residents appeared to assess the SP's preference in an impersonal way

using hypothetical scenarios, not providing any clinical context, and describing the decision as one that all patients were asked to make. These findings are consistent with prior studies where residents described using a scripted approach to CSDs that focused on the mechanics of resuscitation.⁹ While residents who received the intervention were much more likely to explore values and goals and to make a recommendation regarding code status, we observed that few described outcomes or explored quality of life issues. Only one resident actually explored the SP's own perception of an acceptable quality of life.

CSDs provide an important opportunity for shared decision making where responsibility for decisions is shared jointly by the treating physician and the patient (and/or family).^{21–23} As Curtis et al. suggest in their guidelines for conducting an intensive care unit (ICU) family meeting,²³ the shared decision making approach involves the physician assessing the patient's values, goals, and end-of-life preferences and then asking the patient if a recommendation would be helpful. In this way, the physician shares his/her opinion but the final code status decision is made jointly. However, we found that the majority of untrained residents employed an informed choice model²³ where they provided information to the patient, but then framed the decision as one that only the patient could make, echoing results of prior studies.⁹ This finding is particularly troubling given that residents asked the SP to make the decision, but often neglected to provide key pieces of information, such as resuscitation outcomes and likely effects on quality of life, which could have significant bearing on the final decision. Residents receiving our intervention were much less likely to use the informed choice model, suggesting that a communication skills training program can modify this type of suboptimal communication practice. Our finding that only intervention residents made a recommendation lends further support to the role of communication skills training in empowering residents to be more active participants in this critical discussion. However, this type of training must teach physicians to make recommendations for code status with patient permission, and to base the recommendation on the patient's values and goals and not on the physician's own preferences.

Some limitations of this study are worth noting. First, we analyzed resident-SP encounters and analysis of CSDs with patients may reveal differing findings. However, our findings are consistent with the results of previous studies evaluating CSD content in clinical encounters.^{1,9} While we attempted to mimic a clinical encounter by providing the SP a set of values and goals on which to base his responses, we did not give him an explicit code status preference to voice. Hence, the content of the CSD may have differed from a scenario in which the patient had a clear code status preference identified a priori. Use of a SP allowed us to directly compare resident performance with the "same" CSD, which would not be

possible using actual clinical encounters. Second, we determined CSD outcome based on coding of the transcripts rather than patient or resident self-report. The high inter-rater reliability we report suggests that any discordance between resident interpretation of code status and our coding is likely minimal. Third, the small sample size may limit our ability to find statistical differences between the intervention and control group on specific aspects of CSD content. Fourth, CSDs were limited to 15 minutes, which may have affected discussion content for some of the residents who had to complete their discussions prematurely. Lastly, we did not measure resident characteristics and values (e.g., attitudes toward death and dying) related to EOL care that may influence CSD content.

In conclusion, we found that the intervention appeared to have an effect on several aspects of CSD content. While a multimodality communication skills training program was able to improve resident performance on a skills checklist,¹⁸ additional training is still needed to help residents with the more complex task of discussing resuscitation in the context of the patient's clinical condition, values and goals, and likely outcomes. Use of a shared decision making framework in discussion of code status should be incorporated into resident communication skills training. Further study is required to translate CSD education into improved content of simulated and actual CSDs, and to explore the way in which personal values affect resident views of what the "right" CSD outcome is for a given patient. Future research should also evaluate the association between improved resident CSD communication skills and clinical outcomes.

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Conflict of Interest: The authors declare that they do not have a conflict of interest.

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