

# Does Reframing Do Not Resuscitate to Beneficial Care Only Increase Acceptance of No-CPR Orders?



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**BACKGROUND:** The terminology of a do not resuscitate (DNR) order can be confusing and controversial for patients at the end of life. We examined whether changing the name to beneficial care only (BCO) would increase patient acceptance.

**RESEARCH QUESTION:** Would individuals be more willing to forgo full code (FC) status and accept a no-CPR order if the order title was BCO?

**STUDY DESIGN AND METHODS:** We conducted a cross-sectional survey of 599 adults residing in the United States, presenting participants with a hypothetical scenario of a terminal patient. One-half were given a choice between FC and DNR status, and one-half were given a choice between FC and BCO status. The 20-item survey included multiple-choice responses and one free-response question.

**RESULTS:** In our nationally representative survey of US participants who were 50% female and 26% non-White (99% response rate, 599 of 600), there was no difference in participant preference for BCO or DNR overall ( $P = .7616$ ) and across participant sociodemographic characteristics. Although themes of participant reasons for choosing against CPR were similar for both DNR and BCO preferences, including harms imposed by CPR, lack of quality of life, trust in the medical team, and avoidance of suffering, two additional themes appeared only for BCO responses, including CPR would be useless and the patient would continue to receive beneficial care.

**INTERPRETATION:** We found no statistically significant difference in preference between BCO and DNR orders for a terminally ill patient. These findings suggest changing the terminology of DNR to BCO may not lead to changes in decisions to forgo CPR. The additional themes identified with the use of BCO support the concept that BCO terminology conveys to the recipient that all beneficial care will continue to be provided to the patient.

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**KEY WORDS:** allow natural death; beneficial care; CPR; do not resuscitate; end-of-life; palliative care

**ABBREVIATIONS:** AND = allow natural death; BCO = beneficial care only; DNR = do not resuscitate; FC = full code

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## Take-home Points

**Study Question:** Whether individuals will be more willing to forgo full code status and accept a no-CPR order if the order title was beneficial care only (BCO) rather than do not resuscitate (DNR), and what are the reasons why individuals chose one order over the other?

**Results:** In our nationally representative survey of US participants who were 50% female and 26% non-White (99% response rate, 599 of 600), there was no difference in participant preference for BCO or DNR overall ( $P = .7616$ ) and across participant sociodemographic characteristics, and although themes of participant reasons for choosing against CPR were similar for both DNR and BCO preferences, including harms imposed by CPR, lack of quality of life, trust in the medical team, and avoidance of suffering, two additional themes appeared only for BCO responses: (1) CPR would be useless, and (2) the patient would continue to receive beneficial care.

**Interpretation:** Although this study found no difference in preference for BCO vs DNR orders for critically ill patients overall and across diverse participant sociodemographic characteristics, the qualitative results indicate that the BCO terminology, although not increasing the uptake of no-CPR orders, did convey to the recipient the positive right that all beneficial care would continue to be provided to the patient and that further study on the utilization of framing strategies to focus the language used in the goals of care conversation to take into consideration the patient's education, experience, and intentions (ie, internal representations) is warranted.

Do not resuscitate (DNR) orders commonly elicit negative reactions from patients and their families, especially when the medical provider is initiating the conversation about implementing its use.<sup>1</sup> At the heart of this conflict are the competing rights of the parties and the public's misconception about the effectiveness of CPR.<sup>2,3</sup> Because CPR is performed by default in most hospitals unless a DNR order is explicitly requested or consented to by the patient or surrogate,<sup>2</sup> patients feel

they have a positive right to this intervention—they are entitled to CPR.<sup>3</sup> The physician, on the other hand, is professionally and ethically obligated not to subject patients to interventions where the harms of the intervention greatly outweigh the potential benefits.<sup>2-4</sup> This imparts to the practitioner a conflicting negative right to refuse to administer CPR on patients whose hearts stop and are in the process of dying.<sup>3</sup> Arguably, both the patient's family and the physician want what is in the best interests of the patient, so how do we resolve this disconnect in understanding?

Previous studies used framing strategies to investigate whether patients would be more receptive to foregoing CPR in terminal cases if the order was titled allow natural death (AND).<sup>5-8</sup> The results of these studies are, however, mixed. Three studies concluded there was a statistical preference for AND over DNR,<sup>5-7</sup> whereas a fourth study involving terminally ill patients with cancer found no significant difference in participant preference between DNR or AND if full code (FC) remained an option.<sup>8</sup> Additionally, DNR and AND remain controversial in the clinical setting, with several studies finding patients and families, and some medical professionals, interpreting the orders as eliminating the possibility of receiving other full treatment options short of an arrest.<sup>9-13</sup>

This study examines whether individuals will more likely forgo FC status and accept a no-CPR order if the order is titled beneficial care only (BCO). We hypothesize that participants would be more amenable to a no-CPR order if the title used descriptive terminology that communicates to the patient the positive right to continued beneficial, compassionate care while avoiding the term "death," which could be triggering to individuals who have not accepted the terminality of their condition, or the negative terminology "do not" which may imply the discontinuation of all beneficial care. The aim of our study was (1) to assess the difference between BCO vs DNR acceptance using a representative sample based on 2021 US census data, (2) to assess whether participant preferences for BCO or DNR status differed by sociodemographic characteristics, and (3) to identify themes associated with choices to pursue BCO vs DNR status.

## Study Design and Methods

This cross-sectional study was administered to 599 participants using the Prolific platform in August 2023.<sup>14</sup>

Prolific, an online platform for academic research, was chosen due to its participants' high level of engagement<sup>15</sup> and its careful selection and verification procedures of its

members. Prolific uses prescreening questions regarding age, sex, and race/ethnicity to create a representative sample mirroring the 2021 US Census Bureau data. Prolific stratifies age using five brackets (18-24, 25-34, 35-44, 45-54, and  $\geq 55$  years of age), sex into male and female, and ethnicity (simplified) into five categories (White, mixed, Asian, Black, and other).<sup>16</sup> This survey further stratified race/ethnicity by the following nine categories: White, Hispanic, Black, Asian, American Indian/Alaska Native, Middle Eastern/North African, Native Hawaiian/Pacific Islander, other, and prefer not to answer. The "other" category for race/ethnicity includes all participants who did not self-identify with one of the listed race/ethnicity categories. Participants were required to be (1) at least 18 years of age, (2) located in the United States, (3) English-speaking, and (4) a registered Prolific user. All participants signed an informed consent protocol. At the completion of the survey, participants received a base payment of \$3.00. Approval of the study was obtained from the institutional review board of DePaul University.

### Survey Design and Validation

The study consisted of two identical questionnaires. One questionnaire used the terminology DNR, and the other questionnaire used BCO to indicate that CPR would not be administered. The 20-item survey included multiple-choice responses and one free-response question (e-Appendix 1). We created the survey following a literature review of previous DNR vs AND studies. A new study was needed because no previous survey existed to test BCO. The survey was designed by a health law expert (J. L. C.) and a palliative medicine clinician (G. M. P.) using survey design best practices. The survey provided a formal definition of CPR, including its known harms,<sup>17</sup> and definitions of an FC order, a

DNR order, and a BCO order (depending on the questionnaire) to limit subjectivity regarding how these terms are defined (e-Appendixes 1, 2). The order in which terms were listed first alternated (eg, BCO vs FC, vice versa) to minimize default bias. Two questions were posed to evaluate the participant's understanding of CPR efficacy and willingness to follow medical advice. The surveys were piloted by an expert in assessment and survey task design and 10 individuals of various education levels, age groups, religious affiliations, and socioeconomic backgrounds to ensure comprehension and quality of the questions. Survey revisions were made throughout the piloting phase to enhance clarity, readability, and accuracy.

### Statistical Analysis

We determined the number of participants needed per each of the two questionnaires based on the number needed to identify a change in preference for BCO vs DNR. Assuming 80% power and a type 1 error of 5%, we determined that 273 patients for each of the two questionnaires were needed to detect a 10% absolute increase in the proportion of participants choosing BCO vs DNR if the preference for DNR is similar to past studies.<sup>5</sup> We increased this number to 300 participants per study arm due to Prolific requirements that a representative sample required at least 300 participants per survey. We analyzed categorical data descriptively using quantity and percent, and qualitative responses using thematic analysis. We used Fisher exact test or  $\chi^2$  test as appropriate to compare the data. Statistical analyses were completed with GraphPad Prism version 10.0 (GraphPad Software) and R Core Team (2019) (R Foundation for Statistical Computing).  $P \leq .05$  was determined to be statistically significant.

## Results

### Participant Demographics

Of the 600 surveys administered, 599 were completed equating to a 99.8% response rate. A total of 299 participants completed the BCO questionnaire and 300 completed the DNR questionnaire. Most participants were female (50.1%) and White (73.5%). For the combined category of race/ethnicity, Black was the next highest percentage of participants (12.9%) followed by Asian (6.3%) and Hispanic (5%). Participants identifying as some form of Christianity were the highest (41.5%), followed by those with no religious affiliation (33.2%) and those who

described themselves as spiritual but not religious (15.7%). Most participants were between 55 and 64 (20.4%) and 35 and 44 years of age (17.9%) and had yearly earnings between \$25,000 and \$75,000 (44.9%). A total of 51.7% of the participants had a Bachelor's degree or higher (Table 1).

### Participant Knowledge of CPR Efficacy

Only 10.5% of participants correctly knew the likelihood of patient survival to hospital discharge after an in-hospital cardiac arrest was between 10% and 20%.<sup>2,4,10,18-20</sup> Over 72% of participants thought CPR is effective > 50% of the time, with 33% believing CPR is effective 70% to 80% of the time (Table 2).

**TABLE 1 ] Demographic Characteristics of Participants**

Characteristic	BCO Group (n = 299)	DNR Group (n = 300)	Total (N = 599)	P Value
<b>Age range, y</b>				<b>.9003</b>
18-24	36 (12.1)	29 (9.7)	65 (10.9)	
25-34	57 (19.1)	65 (21.7)	122 (20.4)	
35-44	51 (17.1)	56 (18.7)	107 (17.9)	
45-54	50 (8.3)	43 (14.3)	93 (15.5)	
55-64	60 (20.1)	62 (20.7)	122 (20.4)	
65-74	39 (13.0)	37 (12.3)	76 (12.7)	
75+ (%)	6 (2.0)	7 (2.3)	13 (2.2)	
<b>Sex</b>				<b>.4228</b>
Male	145 (48.5)	144 (48.0)	289 (48.2)	
Female	147 (29.2)	153 (51.0)	300 (50.1)	
Other	6 (2.0)	3 (1.0)	9 (1.5)	
Prefer not to say	1 (0.3)	0 (0)	1 (0.0)	
<b>Religious affiliation</b>				<b>.1492</b>
Buddhism	1 (0.3)	5 (1.7)	6 (1.0)	
Roman Catholic	29 (9.7)	36 (12.0)	65 (10.9)	
Protestantism	46 (15.4)	55 (18.3)	101 (16.9)	
Evangelicalism	14 (4.7)	7 (2.3)	21 (3.5)	
Other form of Christianity	39 (13.0)	22 (7.3)	61 (10.2)	
Hinduism	1 (0.3)	1 (0.3)	2 (0.3)	
Islam	4 (1.3)	5 (1.7)	9 (1.5)	
Judaism	8 (2.7)	7 (2.3)	15 (2.5)	
Sikh	0 (0)	0 (0)	0 (0)	
Spiritual but not religious	51 (17.1)	43 (14.3)	94 (15.7)	
Other	10 (3.3)	16 (5.3)	26 (4.3)	
None	96 (32.1)	103 (34.3)	199 (33.2)	
<b>Race/ethnicity</b>				<b>.9984</b>
White	220 (73.6)	220 (73.3)	440 (73.5)	
Hispanic	15 (5.0)	15 (5.0)	30 (5.0)	
Black	39 (13.0)	38 (12.7)	77 (12.9)	
Asian	18 (6.0)	20 (6.7)	38 (6.3)	
American Indian/Alaska Native	1 (0.3)	1 (0.3)	2 (0.3)	
Middle Eastern/North African	0 (0)	2 (0.7)	2 (0.3)	
Native Hawaiian/Pacific Islander	0 (0)	0 (0)	0 (0)	
Other <sup>a</sup>	4 (1.3)	3 (1.0)	7 (1.2)	
Prefer not to answer	1 (0.3)	0 (0)	1 (0.2)	
<b>Income</b>				<b>.7585</b>
< \$25,000	57 (19.1)	46 (15.3)	103 (17.2)	
\$25,000-\$49,999	63 (21.1)	70 (23.3)	133 (22.2)	
\$50,000-\$74,999	66 (22.1)	70 (23.3)	136 (22.7)	
\$75,000-\$99,999	39 (13.0)	44 (14.7)	83 (13.9)	
\$100,000-\$149,999	45 (15.1)	38 (12.7)	83 (13.9)	
≥ \$150,000	21 (7.0)	30 (10.0)	51 (8.5)	
Prefer not to say	8 (2.7)	1 (0.3)	9 (1.5)	

(Continued)

**TABLE 1 ] (Continued)**

Characteristic	BCO Group (n = 299)	DNR Group (n = 300)	Total (N = 599)	P Value
Education level				.6042
Some high school or less	4 (1.3)	3 (1.0)	7 (1.2)	
High school diploma or GED	39 (13.0)	39 (13.0)	78 (13.0)	
Some college, but no degree	72 (24.1)	68 (22.7)	140 (23.4)	
Associate or technical degree	37 (12.4)	25 (8.3)	62 (10.4)	
Bachelor's degree	94 (31.4)	105 (35.0)	199 (33.2)	
Graduate or professional degree	52 (17.4)	59 (19.7)	111 (18.5)	

Values are No. (%) or as otherwise indicated. BCO = beneficial care only; DNR = do not resuscitate; GED = general educational development test. <sup>a</sup>The "other" category for race/ethnicity includes all participants who did not self-identify with one of the listed race/ethnicity categories.

### Participants' Trust in Medical Professional Recommendations

Only 15.4% of the participants responded that they always follow medical advice. Most participants responded that they follow medical advice most of the time (70.8%), with the remaining approximately 14% choosing about one-half the time or less (Table 3). In response to the qualitative question asking why the participant chose DNR/BCO or FC for the general vignette, several participants stated they would never follow the medical advice of a physician who recommended withholding CPR, with a common theme for participants who chose FC status in either questionnaire group being "doctors could be wrong" (Table 4).

### Participant Preference for BCO or DNR

Overall, the general vignette, which asked participants to choose between DNR/BCO or FC for a patient with a terminal illness who was not likely to live > 6 months, who was already receiving maximum life support care, and for whom the medical team was certain CPR would not reverse death showed no difference in participant preference for BCO or DNR with 80% of participants in the BCO questionnaire choosing BCO and 79% of participants in the DNR questionnaire choosing DNR ( $P = .7616$ ). The general vignette also showed no difference when broken down by sex, socioeconomic

status, age, and education (Table 5). By race, there was also no difference between BCO and DNR. However, within race, there was a lower rate of Black participants choosing BCO (67% vs 83%,  $P = .0258$ ) and DNR (66% vs 81%,  $P = .0494$ ) than White participants and a lower rate of Hispanic participants choosing BCO (60% vs 83%,  $P = .0364$ ) than White participants (Table 5).

### Common Themes Associated With Choices

The themes most often seen in response to the qualitative question asking why participants chose DNR/BCO or FC status in either questionnaire for the general vignette are depicted in Table 4. Two additional themes appeared in BCO responses that did not appear in DNR responses: (1) that CPR would be useless in this situation and (2) the patient would continue to receive beneficial care. Examples of these themes from participant responses include the following: (1) "If CPR will not save the patient, then what is the point of doing CPR? However, I still want to do something and that is why I chose Beneficial Care Only Order," (2) "It sounds like a terminal illness so Beneficial Care only seem like the right course of action to take," (3) "I believe it is important to comfort the person even though they know there [sic] fate," and (4) "Because the patient will continue to receive all the necessary care needed regardless of CPR."

**TABLE 2 ] Participants' Knowledge About CPR Effectiveness for In-Hospital Cardiac Arrest**

Survival Rate to Hospital Discharge	BCO Group (n = 299)	DNR Group (n = 300)	Total (N = 599)	P Value
10%-20%	33 (11.0)	30 (10.0)	63 (10.5)	...
30%-40%	51 (17.1)	51 (17.0)	102 (17.0)	...
50%-60%	111 (37.1)	123 (41.0)	234 (39.1)	.7618
70%-80%	104 (34.9)	95 (31.7)	199 (33.2)	...

Values are No. (%) or as otherwise indicated. BCO = beneficial care only; DNR = do not resuscitate.

**TABLE 3 ]** Participants' Willingness to Follow Medical Advice

Willingness to Follow Medical Advice	BCO Group (n = 299)	DNR Group (n = 300)	Total (N = 599)	P Value
Always	50 (16.7)	42 (14.0)	92 (15.4)	...
Most of the time	207 (69.2)	217 (72.3)	424 (70.8)	...
About one-half of the time	21 (7.0)	21 (7.0)	42 (7.0)	...
Sometimes	21 (7.0)	17 (5.7)	38 (6.3)	.7930
Never	0 (0)	2 (0.7)	2 (0.3)	...

Values are No. (%) or as otherwise indicated. BCO = beneficial care only; DNR = do not resuscitate.

## Discussion

In our survey of 599 adults with representation based on 2021 US Census Bureau data regarding sex, age, and ethnicity, we found no statistical difference in the preference for BCO vs DNR orders overall and across racial, ethnic, and socioeconomic participant characteristics. When analyzing the themes associated with the participants' reasons for choosing DNR or BCO, we identified two themes for the BCO order that were not found for the DNR order. These included the following: (1) the participant's acknowledgment that

**TABLE 4 ]** Common Themes Associated With Choosing BCO or DNR Over FC for a Patient With a 6-mo Life Expectancy

Questionnaire	Participant Choice	Themes
BCO vs FC	BCO	<ul style="list-style-type: none"> <li>• Harm from CPR</li> <li>• Lack of quality of life</li> <li>• Trust medical team</li> <li>• Avoid prolonged suffering</li> <li>• Terminal illness</li> <li>• <b>CPR useless</b></li> <li>• <b>Beneficial care appropriate</b></li> </ul>
	FC	<ul style="list-style-type: none"> <li>• Still time to live</li> <li>• Miracle/chance/hope</li> <li>• Doctor could be wrong</li> <li>• Fear of regret</li> <li>• No downside to CPR</li> <li>• Patient should decide</li> </ul>
DNR vs FC	DNR	<ul style="list-style-type: none"> <li>• Harm from CPR</li> <li>• Lack of quality of life</li> <li>• Trust medical team</li> <li>• Avoid prolonged suffering</li> <li>• Terminal illness</li> </ul>
	FC	<ul style="list-style-type: none"> <li>• Still time to live</li> <li>• Miracle/chance/hope</li> <li>• Doctor could be wrong</li> <li>• Fear of regret</li> <li>• No downside to CPR</li> <li>• Patient should decide</li> </ul>

BCO = beneficial care only; DNR = do not resuscitate; FC = full code. Items in boldface indicate themes unique to BCO questionnaire that were not present in the DNR questionnaire responses.

CPR would be useless and (2) the participant's preference for an order that would allow the patient to continue to receive beneficial care.

This study adds to the literature by building on past reframing studies using the terminology AND to evaluate whether BCO may be better than DNR in increasing patient acceptance of a no-CPR order. Furthermore, the qualitative information obtained from this study supports the conclusion that BCO may be better than the DNR and AND at initiating end-of-life communications with patients because it successfully messages to the recipient that the patient will continue to receive all necessary care.

Reframing strategy is a powerful tool to change one's mindset by restating a negative word or thought and making it more positive. Research has shown that for reframing to be effective, the individual must be receptive to the proposed frame (here, the renaming of the order).<sup>21</sup> Whether an individual is receptive to reframing depends on the message being consistent with the individual's knowledge, experience, and intentions, also known as their internal representations.<sup>21</sup> Within the context of reframing DNR orders, the previous studies that found a preference for AND used participants whose internal representations were more receptive to the reframed language. The Venneman et al,<sup>5</sup> Barnato and Arnold,<sup>6</sup> and Fan et al<sup>7</sup> studies involved highly educated participants, with the Barnato and Arnold study having 81% college-educated participants,<sup>6</sup> the Venneman et al<sup>5</sup> study having 66% college-educated participants with the remaining 34% of participants actively in college at the time, and the Fan et al<sup>7</sup> having 65% college-educated participants.<sup>7</sup> Furthermore, the Venneman et al<sup>5</sup> and Barnato and Arnold<sup>6</sup> studies were conducted on participants who were either nurses, nursing students, or individuals who self-identified as surrogate decision-makers for a spouse or parent,<sup>5,6</sup> presumably individuals who had experience with end-of-life issues (Table 6).



**TABLE 5 ] Percentage Choosing BCO or DNR Over FC for a Patient With 6-mo Life Expectancy Broken Down by Demographic**

Category	Characteristic	BCO Group (n = 299),% BCO Over FC	DNR Group (n = 300),% DNR Over FC
Sex	Male	79	76
	Female	80	81
Race/ethnicity	White	83	81
	Black	67	66
	Hispanic	60	80
	Asian	78	80
	American Indian/Alaska Native	100	100
	Middle Eastern/North African	0	50
	Native Hawaiian/Pacific Islander	0	0
	Other <sup>a</sup>	75	100
	Prefer not to answer	100	0
Age range, y	18-24	75	76
	25-34	77	80
	35-44	76	79
	45-54	78	79
	55-64	83	79
	65-74	87	81
	≥ 75	83	86
Education	Some high school	50	67
	High school/GED	77	82
	Some college/no degree	81	71
	Associate or technical degree	81	100
	BA or BS	78	78
	Graduate or prof. degree	85	81
Religion	Roman Catholic	76	67
	Protestant	78	82
	Christianity (other)	85	68
	Evangelical	57	71
	Jewish	88	100
	Buddhist	0	100
	Islamic	75	40
	Spiritual but not religious	84	88
	None	81	82
Income	< \$25,000	75	85
	\$25,000-\$49,999	75	74
	\$50,000-\$74,999	82	83
	\$75,000-\$99,999	77	75
	\$100,000-\$149,999	82	68
	≥ \$150,000	90	97

BA = bachelor of arts; BCO = beneficial care only; BS = bachelor of science; DNR = do not resuscitate; FC = full code; GED = general educational development test; prof. = professional.

<sup>a</sup>The "other" category for race/ethnicity includes all participants who did not self-identify with one of the listed race/ethnicity categories.

**TABLE 6 ]** Comparison of Study Characteristics

Study	Type	Results	No. of Participants	Population Characteristics	Demographics
Venneman et al <sup>5</sup> (2008)	Questionnaires (DNR or AND) Vignette 0%-100% scale	Significance found in nursing students and patients with no health care background	687	Nurses, nursing students, general college students	> 66% CE, 34% CS ≥ 18 YO (70% < 40 YO) 83% female 75% White, 5% Black, 11% Hispanic, 4% Asian
Barnato and Arnold <sup>6</sup> (2013)	Simulation experiment - physician framing conversations Vignette	Significance found when framing AND as an alternative to CPR	373	Self-identified surrogate decision-makers (spouse/parent)	81% CE ≥ 35 YO (mean, 50 YO) 64% female 76% White, 11% Black, 9% Asian
Miljkovic et al <sup>8</sup> (2015)	Physician interview (DNR or AND) Vignettes	No significance found between DNR and AND	93	Advanced cancer diagnosis with < 1 y to live	28% CE ≥ 18 YO (mean, 62 YO) 68% female 59% White
Fan et al <sup>7</sup> (2018)	Questionnaire Vignette 0-10 scale	Significance was found when the title was AND vs DNR	524	Taiwanese healthy adults Community and family medicine clinic	65% CE > 20 YO (mean, 39 YO) 60% female Taiwanese ethnicity
Our study (2024)	Questionnaires (DNR vs FC/BCO vs FC) Vignettes	No significance found between DNR and BCO	599	Prolific representative sample 2021 US Census	52% CE ≥ 18 YO (mean, 44 YO) 50% female 74% White, 13% Black, 5% Hispanic, 6% Asian

AND = allow natural death; BCO = beneficial care only; CE = college educated; CS = college student; DNR = do not resuscitate; FC = full code; YO = years old.



The null finding of the Miljkovic et al<sup>8</sup> study is a good example of how patient selection can negatively impact reframing. The Miljkovic et al<sup>8</sup> study was conducted using patients with terminal cancer whose oncologist identified they had < 1 year to live. When the study participants were asked if they had a terminal diagnosis, however, only 42% responded yes.<sup>8</sup> Study participants were then presented with the option of FC and DNR or FC and AND.<sup>8</sup> Ross<sup>22</sup> noted in her landmark study on terminal patients that many terminal patients intentionally avoid using the words death or dying when talking about their health status, and that perceptive therapists avoid using these terms when answering the questions and concerns of these patients. If we apply Ross's findings<sup>22</sup> to the null results of the Miljkovic et al<sup>8</sup> study, we begin to understand the limits of reframing. If most study participants do not believe they are dying, they would not be receptive to an order entitled allow natural death because it conflicts with their intentions for their well-being.

Although the BCO terminology in this study avoids using the term death, using a patient population that is generalized to the US Census left the study vulnerable to many reframing limitations. As is consistent with prior studies on the public's knowledge of CPR effectiveness,<sup>2,3,23-26</sup> the participants of this study severely overestimated the success of CPR on hospitalized patients, with 39% of participants believing CPR is effective 50% to 60% of the time and 33% believing CPR is effective 70% to 80% of the time. This illustrates a weakness in the knowledge base of the participants. If most participants believe CPR is highly successful, it will go against their internal representations to accept an order prohibiting its use regardless of the title used.

Furthermore, research has shown individuals must believe in the credibility of the source of the information for reframing to be effective.<sup>27</sup> Here, only 15.4% of the participants responded they always follow their physician's recommendations. This illustrates a second potential weakness in reframing for the general population due to the lack of complete reliance on the credibility of the medical professional's recommendations.

Overall, although changing the title of the DNR order to AND (or BCO) may be effective for some populations of individuals, it does not appear to be translatable to the general population. Therefore, in terms of the empirical research on the success of reframing on no-CPR orders, the characteristics of the study participants are

important indicators that may explain the inconsistencies in the study findings. Because reframing depends on the recipient's knowledge, experience, and perception of source credibility,<sup>21,27</sup> simply changing the name of an order from DNR to AND or BCO does not appear to be the best strategy to increase no-CPR orders in end-of-life care.

There is significant evidence, however, that the language of DNR and AND orders is problematic in the clinical setting.<sup>9-13</sup> Several studies on the implementation of DNR and AND orders have found inconsistency in the orders' application, with some medical professionals interpreting the orders as eliminating the possibility of receiving other full treatment options short of an arrest.<sup>9-13</sup> Batten et al<sup>28</sup> found significant variability in code status terminology among hospitals, which they concluded may contribute to the variability in end-of-life care. Over a decade of attempts at finding the right title for a no-CPR order has generally proven ineffective, or at least inconsistent, at improving end-of-life care.<sup>9-13,28</sup> These data may signal a need to shift the focus of reframing to the conversation between clinicians and patients surrounding end-of-life medical care rather than the renaming of the code status order.

Therefore, although BCO did not elicit a statistically significant result in increasing the acceptance of a no-CPR order, the additional themes identified with the use of BCO support that the BCO terminology conveys the positive right that all beneficial care will continue to be provided to the patient. This was evidenced by the respondents' qualitative responses illustrating their understanding that (1) CPR would not be effective, (2) the patient was suffering from a terminal illness that CPR would not cure, and (3) that under a BCO order, the patient would "continue to receive all the necessary care needed regardless of CPR." It is important to note that participants who chose DNR in the other questionnaire did not mention the beneficial care the patient would continue to receive.

Therefore, if the objective of changing the name of the DNR order is to improve the willingness of the parties to communicate about end-of-life care and message to the recipient that all beneficial treatments will continue to be provided to the patient, then a title change seems appropriate, and BCO may be a better option than DNR or AND. If, however, the objective is to increase patient acceptance of a no-CPR order alone, simply changing the name of the order does not appear to produce the desired effect. Instead, emphasis should be placed on improving

(1) the general public's understanding of the effectiveness of CPR by clarifying misconceptions and providing actual data on outcomes for various health conditions,<sup>23,29-31</sup> (2) the patient's trust in the physician's recommendations by allocating more time to physician-patient communications at the end of life,<sup>22</sup> and (3) how information related to CPR efficacy for a particular patient is communicated taking into account the patient's current knowledge, experience, and intentions toward life-prolonging measures and death.<sup>21,29-31</sup>

### Limitations

Although we attempted to use a participant population reflective of 2021 US Census Bureau data, the final participant pool was underrepresented by Hispanic participants and overrepresented by college-educated participants. The low participation of Hispanic individuals could be due to the requirement that survey participants be English-speaking and the Prolific ethnicity prescreening answer only specifying other rather than Hispanic specifically. Additionally, although we surveyed a participant population with diversity in race, sex, and socioeconomic status, our study is limited in that all participants needed access to the internet to complete the questionnaire, reducing the generalizability of our results to US adults with low or no access to the internet who may be more likely to be older adults, low income, and so forth. Finally, there may be bias in who responded to the survey. For example, participants interested in this area may be more likely to complete the survey than participants who feel uncomfortable with topics addressing death. Although we used clinical

vignettes to describe realistic patient situations and end-of-life decision-making, these cases were hypothetical. Participants' responses to questionnaires about these end-of-life decisions may be different than their choices if they needed to make these decisions in real life on behalf of a patient.

### Interpretation

Although this study found no difference in preference for BCO vs DNR orders for critically ill patients overall and across diverse participant sociodemographic characteristics, the qualitative results indicate that the BCO terminology, although not increasing the uptake of no-CPR orders, did convey to the recipient the positive right that all beneficial care would continue to be provided to the patient. These findings illustrate that changing the terminology of DNR to BCO alone without additional interventions may not lead to changes in decisions to forgo CPR and that further study on the utilization of framing strategies to focus the language used in the goals of care conversation to take into consideration the patient's education, experience, and intentions (ie, internal representations) is warranted.

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