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Association of Perceived Futile or Potentially Inappropriate Care With Burnout and Thoughts of Quitting Among Health-Care Providers

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Abstract

Background: Futile or potentially inappropriate care (futile/PIC) has been suggested as a factor contributing to clinician well-being; however, little is known about this association.

Objective: To determine whether futile/PIC provision is associated with measures of clinician well-being.

Design: Cross-sectional, self-administered, online questionnaire.

Setting: Two New York City Hospitals.

Participants: Attending physicians, residents, nurses, and physician assistants in the fields of internal medicine, surgery, neurology, or intensive care.

Exposure(s): Provision of perceived futile/PIC.

Measurements: Main outcomes included (1) clinician burnout, measured using the Physician Worklife Study screen; (2) clinician depression, measured using the Patient Health Questionnaire; and (3) intention to quit, measured using questions assessing thoughts of quitting and how seriously it is being considered.

Results: Of 1784 clinicians who received surveys, 349 participated. Across all clinicians, 91% reported that they either had or had possibly provided futile/PIC to a patient. Overall, 43.4% of clinicians screened positive for burnout syndrome, 7.8% screened positive for depression, and

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Authors' Notes

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35.5% reported thoughts of leaving their job as a result of futile/PIC. The amount of perceived futile/PIC provided was associated with burnout (odds ratio [OR] 3.8 [16–30 patients vs 1–2 patients]; 95% confidence interval [CI]: 1.1–12.8) and having thoughts of quitting (OR, 7.4 [16–30 patients vs 1–2 patients]; 95% CI:2.0–27), independent of depression, position, department, and the number of dying patients cared for.

Conclusions: A large majority of clinicians report providing futile/PIC, and such care is associated with measures of clinician well-being, including burnout and intention to quit.

Keywords

end-of-life care; clinician well-being; burnout; medical futility

Introduction

One in 5 Americans will receive intensive care at or near the end of life (EOL).[1] Although such care saves lives, it also has the potential to prolong the dying process and increase suffering of patients and families.[2] In many cases, the care provided at the EOL is not consistent with patients' values or goals.[1,3] Describing and defining care that is discordant with a given patient's goals of care or values, commonly referred to as futile care, has proven controversial.[4] The most broadly accepted definition, proposed by 5 major critical care societies, defines futile care as that which cannot accomplish the effect sought by the patient and "potentially inappropriate" as that which has at least some chance of accomplishing the desired effect.[5]

Although there has been limited research on futile or potentially inappropriate care (futile/PIC), the few studies conducted suggest that futile/PIC is a common occurrence. For example, in a survey of clinicians in California intensive care units (ICUs), 38% of respondents were able to identify patients receiving inappropriate care on the day they completed the survey.[6] Another study that prospectively looked at care provided in the ICU found that treatment was futile, or probably futile, 20% of the time.[7] Futile/PIC has been associated with significant financial costs,[7] decreased quality of patient care,[8] and clinician moral distress.[9,10] Burnout, one of the most damaging consequences of clinician moral distress,[11] has also been proposed as an outcome of providing futile/PIC[12]; however, no studies from the United States have demonstrated this association. Evidence for associations between burnout and futile/PIC is only supported by indirect associations and studies from international contexts.[13,14]

Burnout syndrome is associated with emotionally intense work demands and results in exhaustion, cynicism, and decreased work effectiveness.[15,16] Among health-care providers in the United States, the prevalence of burnout syndrome appears to have been increasing over the last decade,[17,18] with one third of nurses and over half of physicians reporting symptoms of burnout.[18–20] Burnout syndrome among health-care providers has emerged as an important area of study because it has been linked to quality-of-care outcomes including self-reported medical errors, increased patient mortality, clinician depression, and substantial financial costs to the health-care system.[12,15,21–25]

In this study, we sought to better understand the prevalence of futile/PIC provision and its association with prespecified primary measures of clinician well-being including burnout, depression, and thoughts of quitting.

Methods

Study Design

This study involved a cross-sectional, self-administered, online questionnaire sent to registered nurses (RN), physician assistants, nurse practitioners, attending physicians, and physician trainees (residents, interns, and fellows) conducted at the NewYork-Presbyterian Hospital (NYPH)/Weill Cornell Medicine (WCM) and NewYork-Presbyterian/Queens (NYPQ), from June to July 2017. NewYork-Presbyterian Hospital/WCM and NYPQ are large, urban academic medical centers in New York City, New York; NYPH/WCM is a referral center; and NYPQ is a community-based hospital. Inclusion criteria included clinical staff (1) who worked in the fields of internal medicine, surgery, neurology, or intensive care, (2) who were involved in the care of at least 5 hospital inpatients in the previous 6 months, and (3) who were employed at least part time for the last 6 months.

Study staff collaborated with departmental leaders to identify eligible clinical providers and held information sessions with potential participants to inform them of the study and its aims. In collaboration with the institutional review boards at NYPH/WCM and NYPQ, which both approved this study, significant efforts were made to protect participants due to the potentially sensitive nature of this study. This included securely collecting and managing responses in an anonymous REDcap database,[26] collecting minimal demographic information and combining responses from both hospitals. Clinicians were presented with potential risks of participating at the outset of the survey, and consent was implied if they continued the survey.

Measures

Futile care.—To measure the prevalence of clinician-perceived futile/PIC, we asked clinicians whether in the last 6 months, they had provided care they considered to be futile or potentially inappropriate (1 = no; 2 = possibly; 3 = yes) and for how many patients had provided such care (6-point ordered categorical variable). For analysis, the provision of futile/PIC in the last 6 months was recoded into a binary variable (0 = no; 1 = yes and possibly).

To understand the intensity of distress providers experience, we asked “If you have provided futile/PIC; how much distress did you experience?” (10-point scale; 1 = no distress, 10 = extreme distress).

Burnout.—To measure burnout, we used a single-item question initially developed for the physician work–life study,[27] which has been validated by demonstrating statistically significant associations with the Maslach Burnout Inventory and found to be predictive of the emotional exhaustion subscale, which is the core component of burnout.[28–30] Scores ≥3 were used as the burnout screening cutoff.[27]

Depression.—To measure depression, we used the 2 item Patient Health Questionnaire-2 (PHQ-2),[31] which consists of the first 2 questions of the PHQ-9 and is a well-validated and commonly used measure. Scores ≥3 were used as the depression screening cutoff.[31]

Intention to quit.—To measure the intention to leave ones' position, we used 2 items similar to existing, validated measures.[32] These included (1) "As a result of providing futile/PIC, have you had thoughts of leaving your current position?" (1 = no, 2 = somewhat, 3 = yes) and (2) "If you are considering leaving your position due to pressures around provision of futile/PIC, how seriously are you considering it?" (10-point scale; 1 = not very seriously, 10 = very seriously). For analysis, intention to yes and quit was recoded to a binary variable (0 = no; 1 = somewhat).

Statistical Analysis

Summary statistics were calculated to describe basic trends, and significance testing of associations between outcome and predictor variables was done with χ^2 and Fisher exact tests, as appropriate. The distributions of binary variables are described using Clopper-Pearson binomial 95% confidence limits, and tests of normality were performed using Shapiro-Wilk tests. Bivariable and multivariable logistic regression models were used to identify predictors of burnout and having thoughts of quitting. Statistical inferences were based on 2-sided tests with $P < .05$ considered statistically significant. Statistical analyses were conducted using STATA statistical software version 15.1 (STATAcorp; College Station, Texas).

Results

Respondent Characteristics

The survey was sent to 1784 clinicians, and 349 responded for a response rate of 19.6%. Sixteen respondents did not meet inclusion criteria and were dropped from analysis. Registered nurses comprised the largest group of respondents, and most respondents were from either a medical or an intensive care service (Table 1). The majority of providers (51.6%) cared for between 6 and 30 dying patients in the preceding 6 months, with 15.6% caring for over 31 dying patients (Table 1).

Prevalence of Futile or Potentially Inappropriate Care

Across all clinicians, 91.4% reported that they either had, or had possibly, provided futile/PIC to dying patients in the preceding 6 months, with 41.3% reporting that they had provided futile/PIC for at least 6 patients (Table 1).

Adjusting for department, physician trainees were significantly more likely than attending physicians to report providing futile/PIC (odds ratio [OR] 8.1; 95% confidence interval [CI]:1.6–40.8; $P = .01$). Clinicians working in intensive/critical care departments reported providing futile/PIC the most frequently (95%) and were adjusting for position; they were more likely to report providing such care than those working in surgical (OR, 7.0; CI: 1.3–37.6; $P = .02$) or neurological services (OR, 14.1; CI: 3.0–66; $P = .001$).

Burnout, Depression, and Desire to Quit

The distress clinicians reported as a result of futile/PIC (measured on a 10-point scale) was normally distributed (Shapiro-Wilk, $P = .43$) around a mean of 5.7 (standard deviation of 2.3), and there were no significant differences by department or position. The total proportion of clinicians who screened positive for depression was 7.8%, and there were no significant differences across position or department.

Overall, 35.1% of providers reported that they had thoughts of leaving their job as a result of futile/PIC, and this was highest among RNs (47.3%; Table 2). Further, of RNs who reported thoughts of leaving their job, 68.9% rated the seriousness of these thoughts as a 5 or greater on a 10-point scale. In multivariable analysis, the odds of having thoughts of leaving ones' job significantly increased with the amount of futile/PIC clinicians reported providing. Compared to clinicians who reported providing futile/PIC for 1 to 2 patients, those who provided such care for 3 to 5 patients were 3.5 times more likely to have thoughts of quitting (CI: 1.6–7.8; $P = .002$), and those who reported providing futile/PIC for 16 to 30 patients were 7.4 times more likely to have thoughts of quitting (CI: 2.0–27; $P = .003$; Table 3).

Overall, 43.4% of providers screened positive for burnout syndrome (Table 2). Across all clinicians, the proportion who screen positive for burnout increases along with the reported number of futile/PIC cases provided, ranging from 19% (CI:6.3%−38.1%) among those reporting no cases of futile/PIC to 88% (CI: 47.3%−99.7%) among those providing such care for over 31 patients (Figure 1). In multivariable analysis, the amount of futile/PIC clinicians reported providing was associated with burnout, independent of position, department, depression, and the number of dying patients cared for. Compared to clinicians who reported providing futile/PIC for 1 to 2 patients, those who provided such care for 3 to 5 patients were 2.6 times (CI: 1.2–5.4; $P = .01$) more likely to have burn out, and those who provided such care for 16 to 30 patients were 3.8 times (CI: 1.1–12.8; $P = .031$) more likely to have burn out (Table 3).

Discussion

In this study, we found that a large majority of clinicians (91.4%) reported either providing or possibly providing futile/PIC. In addition, we found that the amount of such care provided is significantly associated with clinician burnout and with having thoughts of leaving one's job, independent of other factors including position, department, depression, and the number of dying patients for whom they cared. To the best of our knowledge, this is the first study to show the association of futile/PIC with provider burnout in a US context.

The proportion of clinicians in this study who reported providing futile/PIC is consistent with what has been reported elsewhere. We found that 89.7% of clinicians reported providing futile/PIC, and this was highest among physician trainees (95.3%). These results are similar to a Canadian study of intensive care providers who found that 95% of nurses and 87% of physicians believed that futile care had been provided in their ICUs within the last year.[33] Other studies have also found that physician trainees report significant distress associated with issues surrounding futile/PIC, and in 1 study, 70% reported providing care against their conscience at the EOL.[10,34] These morally distressing experiences during the

most formative years of training can lead to diminished professional identity and demoralization.[11]

In this study, the proportion of clinicians who screened positive for burnout was also similar to what has been reported elsewhere. We found that 43.4% of all providers screened positive for burnout. When controlling for position, department, and the number of dying patients cared for, only depression and provision of perceived futile/PIC were associated with burnout. One large study of US physicians found that 54% were experiencing professional burnout, and some studies have suggested that this number may be as high as 71%.[12,18] Several studies have found that providers in intensive/critical care are more likely to experience burnout.[12] While intensive/critical care was associated with greater burnout in bivariable analysis, this effect was not seen in multivariable analysis, suggesting that high rates of burnout in ICUs may at least in part be explained by the greater provision of futile/PIC in ICUs.

Burnout syndrome among health-care providers has been associated with a multitude of negative outcomes for clinicians, patients, and even hospital systems.[12] In recognition of this, there has been a growing literature aimed at identifying the causes of burnout and proposing solutions. Although a 2016 review by the official critical care societies collaborative identified PIC as a major cause of burnout,[12] there have been few interventions that focus on futile/PIC. Most burnout interventions have focused on individual factors, such as mindfulness exercises, or organizational factors, such as decreasing workload.[35,36] The results of our study suggest that interventions focused on reducing rates, and perceptions of futile/PIC may be an important means of reducing burnout and clinician turnover.

Evidence continues to build that clinician well-being, the fourth component of the “quadruple aim” to improve health-care quality, is critical to the health of both patients and health-care systems.[37] A recently published charter on clinician well-being states that effective patient care requires the well-being of all members of the health-care team. The charter concludes that health-care organizations need to not only identify factors associated with well-being but also leverage these factors to help design effective interventions.[37] Although futile/PIC is often suggested as a cause of burnout and decreased well-being,[12] it is seldom mentioned as an opportunity for interventions aimed at decreasing burnout. Most academic discussions on improving the organizational factors that affect well-being focus on factors that detract from satisfying, supportive, and caring relationships with patients such as burdensome electronic health records, increased administrative burdens, and workload.[16,38] Futile/PIC is an understudied barrier to satisfying and caring relationships with patients, and our results suggest that clinician well-being interventions should include those aimed at decreasing perceptions of futile/PIC.

There are several limitations to this study that may affect interpretation of our results. First, because the study was performed in hospitals in New York City, it may not be generalizable to additional contexts. To make our results more generalizable, we selected 2 hospitals that operate in very different contexts with demographically different populations: one, a tertiary referral center in Manhattan, and the other, a community hospital in Queens, one of the most

ethnically diverse counties in the United States. We believe that this will make our results applicable to a larger proportion of hospitals in the United States.

Another limitation of this study was the low response rate, which introduces the risk of nonresponse bias. We have several reasons to believe that the population sampled reflects the general population at both hospitals. First, the frequencies of burnout, depression, thoughts of quitting, and provision of perceived futile/PIC observed in our study are similar to those that have been published elsewhere.[12,18] Second, the scale of how much distress clinicians perceive from futile/PIC care was normally distributed around a mean similar to what has been published elsewhere,[6] suggesting that there was no obvious bias among participants regarding perceptions of futile/PIC. Finally, Web-based surveys of clinicians often have response rates lower than 20%;[39] moreover, responding and nonresponding health-care providers have been repeatedly shown to have similar characteristics.[40]

There are several steps that further research on this subject could take to improve understanding of the role that futile/PIC plays in clinician well-being. First, although a definition of futile/PIC was given to participants, there was likely a variety of interpretations (eg, care that was too aggressive, or care that was not aggressive enough), which may have varying effects on clinician well-being. Similarly, using a dichotomized measure of futile/PIC over a 6-month period, it is difficult to determine the degree to which clinicians found specific instances of care to be either futile or potentially inappropriate or when a specific experience occurred. Events that occurred months prior may have a lower impact on well-being and those that are ongoing may play a larger role, despite their evolving and unresolved nature. Focus group analyses of a subgroup of participants could provide insight into the abovementioned questions as well as expert adjudication of specific instances determined by clinicians to be futile/PIC.

Second, to protect participants, extensive demographic information was not collected, and some groups were aggregated for the analysis (eg, physician trainees), which may introduce bias. Future studies could investigate other variables that may influence clinician perceptions of futile/PIC including clinician sex, years in practice, marital status, and/or religious beliefs. Finally, clinician well-being is a complicated outcome with many contributing factors, and future studies would benefit from a more detailed assessment of the role that these specific factors play in clinician well-being. For example, the quality of a clinicians' communication skills may work to both decrease experiences with futile/PIC and may also improve clinician well-being.

Conclusion

Futile/PIC has been proposed as an important contributor to burnout syndrome among health-care providers, but this has not been demonstrated among US clinicians. Our results suggest that provision of futile/PIC care is common and causes significant distress among providers. We also show that having thoughts of quitting and burnout are associated with the amount of provider perceived futile/PIC. Future research is needed to address how to protect clinicians from the negative consequences of exposure to providing futile/PIC.

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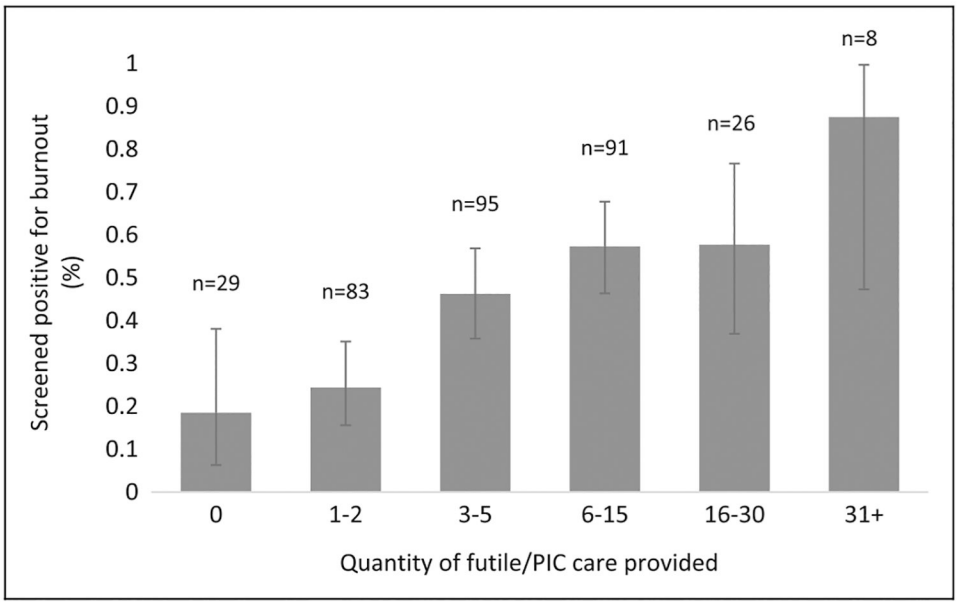

Figure 1.

Proportion of providers who screen positive for burnout over the amount of futile or potentially inappropriate care clinicians reported providing in the last 6 months. Uncertainty defined using Clopper-Pearson binomial 95% confidence limits.

Table 1.

Respondent Characteristics.

	N	Percentage[a]
Position		
Attending	67	20.1
Registered nurse	135	40.5
NP/PA	52	15.6
Intern/resident/fellow	72	21.6
Department		
Intensive care/critical care	119	35.7
Medical service	133	39.9
Surgical service	29	8.7
Neurological service	19	5.7
Medical surgical unit	16	4.8
Number of dying patients cared for in last 6 months		
0	12	3.6
1–5	96	28.8
6–30	172	51.6
31–51	30	9.0
51–74	12	3.6
75+	10	3.0
Provision of futile or potentially inappropriate care to dying patients in the last 6 months		
Yes	252	75.7
No	29	8.7
Possibly	52	15.6
If yes or possibly above, number of patients provided such care		
1–2	83	27.4
3–5	95	31.4
6–15	91	30.0
16–30	26	8.6
31+	8	2.7
Number of patients for which the provision of futile or potentially inappropriate care was observed		
0	21	6.3
1–2	82	24.3
3–5	73	21.9
6–15	87	26.1
16–30	44	13.2
31+	26	7.8
Total	333	-

Abbreviations: NP, nurse practitioners; PA, physician assistants.

[a]Percentages calculated included missing values. Seven respondents declined to enter position, 17 declined to enter department, 1 declined to enter number of dying patients cared for, 1 declined to enter quantity of futile/PIC provided, and 1 declined to enter quantity of futile/PIC observed.

Table 2.

Measures of Wellness Including Depression, Burnout, Thoughts of Leaving Ones Job, and Perceptions of Futile/PIC by Position, Department, and the Amount of Perceived Futile/PIC Provided.

	Provided Futile/PIC		Screened Positive for Depression		Screened Positive for Burnout		Reported Thoughts of Leaving Job	
	N (%)	p^a	N (%)	p^a	N (%)	p^a	N (%)	p^a
Quantity of futile/PIC care provided								
1–2			4 (4.9)	.53	20 (24.1)	<.001	15 (18.1)	<.001
3–5			9 (10.0)		43 (46.2)		41 (44.1)	
6–15			9 (10.0)		51 (57.3)		37 (41.1)	
16–30			2 (7.7)		15 (57.7)		15 (57.7)	
31+			1 (14.3)		7 (87.5)		7 (87.5)	
Position								
Attending physician	57 (85.1)	.09	3 (4.8)	.46	17 (25.4)	<.003	14 (20.9)	<.001
Registered nurse	126 (93.3)		12 (9.4)		64 (48.8)		62 (47.3)	
NP/PA	46 (88.5)		2 (3.9)		20 (39.2)		24 (46.1)	
Physician trainee	69 (95.8)		7 (9.9)		38 (53.5)		14 (19.7)	
Department								
Intensive/critical care	114(95.8)	.01	9 (7.8)	.88	56 (47.5)	.61	55 (47.0)	.003
Medical service	123 (92.5)		10(7.6)		52 (39.7)		38 (29.0)	
Surgical service	25 (86.2)		1 (4.0)		13 (48.1)		5(17.9)	
Neurological service	14(73.7)		2 (10.5)		9 (47.4)		5 (26.3)	
Total[b]	298 (91)		25(8)		142 (43)		115 (35)	

Abbreviations: NP, nurse practitioners; PA, physician assistants; PIC, potentially inappropriate care.

[a] significance testing performed with χ^2 or Fisher Exact, as appropriate.

[b] Six participants chose to not respond to the burnout measure, 12 chose to not respond to the depression measure and 5 chose to not respond to the “thoughts of quitting” measure.

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Table 3.

Bivariable and Multivariable Models Describing the Association Between Provider Burnout and Thoughts of Quitting With Predictor Variables.

	Associations With Burnout						Associations With Thoughts of Quitting					
	Bivariable Models (Unadjusted Estimates)			Multivariable Model (Adjusted Estimates)			Bivariable Models (Unadjusted Estimates)			Multivariable Model (Adjusted Estimates)		
	Odds Ratio	95% CI	*P* Value	Odds Ratio	95% CI	*P* Value	Odds Ratio	95% CI	*P* Value	Odds Ratio	95% CI	*P* Value
Quantity of futile/PIC care provided												
1–2	REF			REF			REF			REF		
3–5	2.7	1.4–5.2	.003	2.6	1.2–5.4	.011	3.6	1.8–7.1	<.001	3.5	1.6–7.8	.002
6–15	4.2	2.2–8.1	<.001	3.8	1.6–8.9	.002	3.2	1.6–6.4	.001	3.4	1.4–8.3	.008
16–30	4.3	1.7–10.9	.002	3.8	1.1–12.8	.031	6.2	2.4–16.1	<.001	7.4	2.0–27	.003
31+	22.0	2.6–190	.005	10.7	0.83–137	.069	31.7	3.6–277	.002	41.3	2.9–596	.006
Position												
Attending physician	REF			REF			REF			REF		
Registered nurse	2.8	1.5–5.4	.002	2.0	0.69–5.7	.20	3.4	1.7–6.7	<.001	2.4	0.83–7.2	.11
NP/PA	1.9	0.86–4.2	.11	1.7	0.65–4.4	.28	3.2	1.4–7.2	.004	3.4	1.3–8.8	.01
Physician trainee	3.4	1.7–7.0	.001	2.3	0.95–5.6	.07	0.93	0.41–2.1	.86	0.64	0.24–1.7	.37
Department												
Intensive/critical care	REF			REF			REF			REF		
Medical service	0.73	0.44–1.2	.22	0.70	0.28–1.7	.43	0.46	0.27–0.78	.004	0.81	0.32–2.0	.65
Surgical service	1.0	0.45–2.4	.95	1.4	0.37–5.0	.64	0.25	0.09–0.69	.008	0.76	0.17–3.4	.72
Neurological service	1.0	0.38–2.6	.511	1.1	0.31–4.2	.84	0.40	0.14–1.2	.10	0.85	0.22–3.3	.82
Depression	11.4	3.34–39.0	<.001	9.5	2.7–34.1	.001	4.5	1.9–10.8	.001	5.1	1.8–13.9	.002
Quantity of dying patients cared for	1.5	1.2–2.0	.001	1.2	0.78–1.8	.43	1.3	1.1–1.7	.02	0.91	0.58–1.4	.67

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