

## Special Article

A NATIONAL SURVEY OF PHYSICIAN-ASSISTED SUICIDE AND EUTHANASIA  
IN THE UNITED STATESDIANE E. MEIER, M.D., CAROL-ANN EMMONS, PH.D., SYLVAN WALLENSTEIN, PH.D., TIMOTHY QUILL, M.D.,  
R. SEAN MORRISON, M.D., AND CHRISTINE K. CASSEL, M.D.**ABSTRACT**

**Background** Although there have been many studies of physician-assisted suicide and euthanasia in the United States, national data are lacking.

**Methods** In 1996, we mailed questionnaires to a stratified probability sample of 3102 physicians in the 10 specialties in which doctors are most likely to receive requests from patients for assistance with suicide or euthanasia. We weighted the results to obtain nationally representative data.

**Results** We received 1902 completed questionnaires (response rate, 61 percent). Eleven percent of the physicians said that under current legal constraints, there were circumstances in which they would be willing to hasten a patient's death by prescribing medication, and 7 percent said that they would provide a lethal injection; 36 percent and 24 percent, respectively, said that they would do so if it were legal. Since entering practice, 18.3 percent of the physicians (unweighted number, 320) reported having received a request from a patient for assistance with suicide and 11.1 percent (unweighted number, 196) had received a request for a lethal injection. Sixteen percent of the physicians receiving such requests (unweighted number, 42), or 3.3 percent of the entire sample, reported that they had written at least one prescription to be used to hasten death, and 4.7 percent (unweighted number, 59), said that they had administered at least one lethal injection.

**Conclusions** A substantial proportion of physicians in the United States in the specialties surveyed report that they receive requests for physician-assisted suicide and euthanasia, and about 6 percent have complied with such requests at least once. (N Engl J Med 1998;338:1193-201.)

©1998, Massachusetts Medical Society.

**T**HERE are strong arguments for and against easing the legal constraints on physician-assisted suicide and euthanasia in the United States. Public-opinion polls suggest that a majority of people favor legalization.<sup>1</sup> Currently proposed regulatory guidelines<sup>2-5</sup> may bear little relation to the range of clinical circumstances in which physicians care for patients who are near the end of life. Decisions about legislation and proposed safe-

guards should be responsive to the experiences of patients and doctors. We surveyed a representative sample of U.S. physicians with a high likelihood of caring for dying patients, in order to assess the prevalence of requests for assistance with suicide or euthanasia and of compliance with such requests.

**METHODS**

The survey was self-administered, anonymous, and conducted by mail. We drew a stratified probability sample of physicians from the American Medical Association's June 1996 master file of all physicians practicing in the United States. The sample included only doctors of medicine who were less than 65 years old or had graduated from medical school after 1960, if age was unknown. Physicians with office and hospital practices and those in the public and private sectors were included. The group of physicians from whom the sample was drawn represents approximately 40 percent of all practicing U.S. physicians under the age of 65 years. The sample was drawn from 10 specialties, selected on the basis of previous surveys<sup>6,7</sup> as those in which physicians are likely to receive requests from patients for assistance in hastening death. Physicians were eligible if they had at least one of the specialty codes as their primary, secondary, or tertiary specialty. A sample of 3102 physicians was selected. Specialists thought to be most likely to receive requests were oversampled.

For each specialty, the initial sample size, population size, sampling rate, and number of respondents are shown in Table 1. The numbers of respondents are based on the specialties reported on the completed questionnaires. Since the questionnaires were anonymous, there was no way to link this information to the original sample and the specialty codes from the master file. The number of respondents reporting family or general practice or other as their primary specialty was larger than the number initially selected in these specialties. The sample of respondents was weighted to account for these differences.

**Questionnaire**

The closed-ended questionnaire (available from the authors on request) was developed with the use of focus groups and cognitive interviewing<sup>8</sup> of physicians, some of whom had identified themselves as having received requests from patients for assistance in hastening death. The questionnaire was subsequently validated with the use of a "seeded sample" design in which physicians

From the Departments of Geriatrics and Adult Development (D.E.M., R.S.M., C.K.C.) and Biomathematical Sciences (S.W.), Mount Sinai School of Medicine, New York; the National Opinion Research Center, University of Chicago, Chicago (C.-A.E.); and the University of Rochester, Rochester, N.Y. (T.Q.). Address reprint requests to Dr. Meier at Box 1070, Mount Sinai School of Medicine, New York, NY 10029.

**TABLE 1.** SAMPLE SIZE, SAMPLING RATE, AND RESPONSE RATE ACCORDING TO SPECIALTY.

SPECIALTY	INITIAL	TOTAL	SAMPLING	RESPONDENTS	RESPONSE
	SAMPLE	POPULATION	RATE		RATE*
	no.			no.	%
Family or general practice	192	52,448	0.004	197	103
Cardiology	197	4,603	0.043	110	56
Geriatrics	389	512	0.760	174	45
Infectious disease	393	919	0.428	175	45
Nephrology	383	936	0.409	190	50
Neurology	397	6,347	0.063	239	60
Hematology–oncology	387	3,764	0.103	275	71
Pulmonary disease	386	2,307	0.167	246	64
Internal medicine	191	80,378	0.002	96	50
Other†	187	1,700	0.110	200	107
Total	3102	153,914		1902	61

\*Because of differences between self-reported specialty and selected specialty, some response rates are more than 100 percent.

†Other specialties included critical care medicine, critical care surgery, gynecology, and pain medicine. This category also included physicians who did not report a specialty.

known or thought to have engaged in physician-assisted suicide or euthanasia through their communication with one of the investigators were anonymously included. Two controls for each of these physicians were identified from the American Medical Association's master file on the basis of age, region of the country, city size, and specialty. The validation procedure showed that 20 of the 24 case physicians reported having engaged in either physician-assisted suicide or active euthanasia, as compared with 2 of 30 control physicians.

Assisted suicide was defined as "the practice of providing a competent patient with a prescription for medication for the patient to use with the primary intention of ending his or her own life." Active euthanasia was defined as "the practice of injecting a patient with a lethal dose of medication with the primary intention of ending the patient's life." Respondents were asked, "Was there an explicit request for assistance in dying, or was the request somewhat indirect?" "Explicit" and "indirect" were not further defined.

We mailed the questionnaire in August 1996. The cover letter explained that there were no codes that could be used to link a completed questionnaire to a particular respondent. This statement was reinforced by a detailed pledge of anonymity from the investigators, printed on the cover of the questionnaire. We instructed the recipients to return the enclosed reply postcard, which contained the respondent's identification number, separately from the completed questionnaire, in order to prevent telephone calls reminding the respondent to return the questionnaire. A \$2 bill was enclosed as an incentive. Four weeks after the initial mailing, a second questionnaire, including a sharpened pencil, was mailed to physicians who had not returned the reply postcard. Four weeks after the second mailing, physicians who had not returned a postcard were telephoned to remind them to do so. Two weeks later, a second call was made, if necessary.

We received 1627 completed questionnaires (response rate, 52 percent). A third questionnaire was then sent to the 761 physicians who had not returned a postcard. This mailing included a \$50 check made payable to the physician and a letter of endorsement from the American College of Physicians. There were 275 completed responses to the third mailing.

The study was reviewed and approved by the institutional review board of the Mount Sinai School of Medicine.

### Sample Weights

The data from the completed questionnaires were weighted to account for the differences in selection probabilities among strata. The final weights reflected adjustments for differences between self-reported specialty and selected specialty, nonresponses, and differences in age and sex between physicians who completed the questionnaire and the overall population of licensed U.S. physicians. Unless otherwise stated, all results reported are weighted data.

### Statistical Analysis

Multiple logistic-regression analysis<sup>9</sup> was performed to determine the relation between the characteristics of the physicians and their views and actions with respect to assistance in hastening death. First, we performed a single-variable analysis in which the specialty was compared with each predictor variable. All predictor variables for which P values were 0.15 or less in the single-variable analysis were examined jointly in the next step of model building. Variables that were no longer of even borderline significance ( $P > 0.10$ ) when the other variables were entered were eliminated from the model. Religious affiliation and specialty were forced into all models — religion in order to control for the effect of religious affiliation on frequency of prayer, and specialty because it was the stratification variable.

## RESULTS

### Characteristics of the Physicians

Of the 3102 physicians originally mailed a questionnaire, 81 were ineligible: 75 were not actively practicing medicine, and 6 were older than 65 years. We received 1951 questionnaires from eligible respondents, including some that were blank. There were 1902 completed questionnaires (response rate, 61 percent). The respondents to the third mailing, which included a financial incentive, did not differ significantly from the respondents to the initial mailing, in terms of demographic characteristics or re-

sponses to questions about participation in assisted suicide or lethal injection. Respondents and nonrespondents were similar with respect to age, sex, and region of the country, although there were some differences in the distribution of specialties ( $P = 0.001$  by the chi-square test), with a larger proportion of respondents who were infectious-disease specialists (16 percent, vs. 10 percent of the nonrespondents) and a smaller proportion who were general internists (9 percent vs. 15 percent). Table 2 shows the demographic and professional characteristics of the respondents.

**Willingness to Provide Assistance**

Eleven percent of the physicians (95 percent confidence interval, 9 to 12 percent) reported that under current legal constraints, there are circumstances in which they would prescribe a medication for a competent patient to use with the primary intention of ending his or her life; 36 percent (95 percent confidence interval, 34 to 38 percent) said they would prescribe a medication if it were legal to do so. Seven percent of the respondents (95 percent confidence interval, 4 to 10 percent) said that under current legal constraints, there are circumstances in which they would administer a lethal injection to a competent patient; 24 percent (95 percent confidence interval, 23 to 26 percent) said they would do so if the practice were legal.

**Requests for Assistance**

Of the respondents, 18.3 percent (unweighted number, 320) reported having received a request from a patient for medication to use with the primary intention of ending the patient's life (Table 3), with a median of three such requests since the physician entered practice. Fewer physicians (11.1 percent; unweighted number, 196) reported having received a request for a lethal injection, with a median of four such requests since the physician entered practice.

**Compliance with Requests for Assistance**

Only the 320 physicians who reported having received a request from a patient for a prescription for a lethal dose of medication were asked if they had ever written such a prescription. Sixteen percent of these respondents (unweighted number, 42), or 3.3 percent of the entire sample, reported that they had written a prescription for a lethal dose of medication, with a median of 2 such prescriptions (range, 1 to 25) since they entered practice; 59 percent of the patients used the prescriptions to end their lives.

All the respondents were asked whether they had ever given a patient a lethal injection (Table 3); 4.7 percent (unweighted number, 59) reported that they had done so, with a median of 2 instances (range, 1 to 150) in which they had administered lethal injections since entering practice.

**TABLE 2. CHARACTERISTICS OF THE 1902 U.S. PHYSICIANS WHO RESPONDED TO THE SURVEY.\***

CHARACTERISTIC	WEIGHTED VALUE	UNWEIGHTED VALUE
Age — % of respondents		
<45 yr	48	54
45–65 yr	49	43
Sex — % of respondents		
Male	77	76
Female	20	21
Percent of work time spent in direct patient care — % of respondents		
<76	17	24
76–100	83	76
Death of a patient in past 12 mo — % of respondents		
Yes	92	91
No	5	6
No. of patients who have died in past 12 mo		
Median (interquartile range)	10 (4–20)	14 (5–29)
Range	0–280	0–280
Patients with an estimated life expectancy of less than 6 mo — % of respondents		
None	8	9
<25%	85	71
≥25%	6	18
Region of practice — % of respondents		
Northeast	25	27
North Central	22	22
South	32	31
West	22	20
Religion — % of respondents		
Catholic	26	23
Other Christian	34	32
Jewish	14	17
Moslem	2	2
None	12	13
Other	9	9
Frequency of prayer — % of respondents		
Never	16	18
Less than weekly	20	24
Weekly	26	24
Daily	33	30

\*Weighted values reflect estimated national rates in the surveyed specialties and unweighted values are the raw response rates. Some percentages do not add to 100 because of missing data.

**Most Recent Request Honored**

The 81 respondents (weighted proportion, 6.4 percent) who reported having acceded to at least one request for assistance with suicide or a lethal injection were asked to describe the most recent case (Table 4). Forty-seven percent of these respondents wrote a prescription for the purpose of hastening death, and 53 percent administered a lethal injection. The perceived reasons for the request were discomfort other than pain (reported by 79 percent of the respondents), loss of dignity (53 percent), fear of uncontrollable symptoms (52 percent), actual pain (50 percent), loss of meaning in their lives (47 percent), being a burden (34 percent), and dependency (30 percent). The reasons given for acceding to the request were severe discomfort other than pain (re-

**TABLE 3.** REQUESTS FOR PHYSICIAN-ASSISTED SUICIDE OR EUTHANASIA AND COMPLIANCE WITH REQUESTS.\*

QUESTION	RESPONSE
<b>Has any patient requested from you a prescription for medication to use with the primary intention of ending his or her own life? — % responding yes</b>	18.3 (16.6–20.0)
Approximately how many patients have requested such a prescription from you?	
Since entering practice	
Median	3
Range	1–100
During the past 12 mo	
Median	1
Range	0–8
<b>Has any patient ever requested that you inject him or her with a lethal dose of a medication? — % responding yes</b>	11.1 (9.7–12.5)
Approximately how many patients have requested that you inject a lethal dose of medication?	
Since entering practice	
Median	4
Range	1–50
During the past 12 mo†	
Median	0
Range	0–6
<b>Have you ever written a prescription for medication for a patient to use with the primary intention of ending his or her own life? — % responding yes</b>	3.3 (2.5–4.1)
For approximately how many patients have you written such a prescription?	
Since entering practice	
Median	2
Range	1–25
During the past 12 mo‡	
Median	0
Range	0–3
<b>Have you ever given a patient a lethal injection? — % responding yes</b>	4.7 (3.7–5.6)
To how many patients have you given a lethal injection?	
Since entering practice	
Median	2
Range	1–150
During the past 12 mo§	
Median	0
Range	0–15

\*Percentages are weighted. Medians and ranges are based on the responses of physicians who reported having received or acceded to at least one request since entering practice. Numbers in parentheses are 95 percent confidence intervals.

†Among physicians receiving at least one request for a lethal injection in the previous year, the median number of patients making such a request was 1, and the range was 1 to 6.

‡Among physicians who wrote at least one prescription for a lethal dose of medication during the previous year, the median number of patients who were given such a prescription was 1, and the range was 1 to 3.

§Among physicians who administered at least one lethal injection during the previous year, the median number of patients who were given a lethal injection was 4, and the range was 1 to 15.

ported by 78 percent of the respondents), the untreatability of the symptoms (72 percent), a life expectancy of less than six months (69 percent), and severe pain (29 percent).

Seventy-one percent of the physicians describing the most recent request for assistance in hastening death initially responded to the request by prescribing more analgesics (reported by 68 percent of the respondents), using less aggressive life-prolonging therapy (30 percent), discussing the request with colleagues (27 percent), prescribing antidepressants (25 percent), trying to dissuade the patient (22 per-

cent), requesting a second opinion (18 percent), or obtaining a psychiatric consultation (2 percent).

The medications prescribed in lethal doses were opioids (in 75 percent of cases) and barbiturates (in 25 percent). The medications used for lethal injection were opioids (in 83 percent of cases) and potassium chloride (in 17 percent).

Of the 38 physicians who reported their most recent experience with a lethal injection, 43 percent administered it themselves, and 57 percent asked someone else to do so (a nurse in 57 percent of cases and another physician in 32 percent) or ordered an

**TABLE 4.** CHARACTERISTICS OF 81 PATIENTS WHO RECEIVED A PRESCRIPTION FOR A LETHAL DOSE OF MEDICATION OR A LETHAL INJECTION.\*

CHARACTERISTIC	PRESCRIPTION		CHARACTERISTIC	INJECTION	
	weighted percent			weighted percent	
Person who made request††			Patient hospitalized at time of request	5§	99
Patient	95	39	Family members or friends closely involved	83	95
Family member or partner	5	54	Request reflected patient's wishes‡	100	100
Not specified	0	7	Length of time physician had known patient		
Request explicit	75	21	<1 wk	0	8
Request somewhat indirect	25	79	1–4 wk	0	4
Patient's clinical status‡			2–11 mo	12	26
Experiencing severe discomfort	75	73	≥12 mo	88	62
Dependent on others for personal care	68	55	Request repeated‡	51	53
Bedridden 50% or more of the time	57	55	Immediate assistance requested	33	94
Experiencing severe pain	54	24	Second opinion obtained by physician‡	<1	32
Depressed	19	39	Patient's primary diagnosis		
Confused 50% or more of the time	5	7	Cancer	70	23
None of the above	2	15	Neurologic disease	6	17
Patient's sex			Acquired immunodeficiency syndrome	6	16
Male	97	57	Other¶	18	44
Female	3	43	Someone else present at patient's death	98	65
Patient's age‡			Physician tried to dissuade patient from hastening death	34	11
<18 yr	<1	<1	Physician's comfort with role in assisting patient		
19–45 yr	28	17	Very comfortable	58	83
46–75 yr	43	38	Somewhat comfortable	24	5
>75 yr	29	45	Somewhat uncomfortable	18	6
Patient's education			Very uncomfortable	<1	6
<12 yr	<1	17	Physician's willingness to comply with future requests of the same type		
12–15 yr	29	60	Would definitely comply	39	28
≥16 yr	64	21	Would probably comply	42	60
Don't know or don't remember	7	2	Unsure	18	5
Life expectancy‡			Would probably not comply	1	1
<24 hr	<1	59	Would definitely not comply	0	6
1–6 days	26	37			
1–3 wk	22	2			
1–5 mo	50	2			
6–12 mo	1	0			
>12 mo	1	1			

\*The Oregon Death with Dignity Act specifies criteria for complying with requests from patients for assistance with suicide. The patient must be an adult with a terminal illness and a life expectancy of less than six months. The request must be made by the patient and must be voluntary. Procedural guidelines require that the initial request be repeated after 15 days, with an opportunity to rescind it, and that the physician obtain a second opinion, with a psychiatric evaluation if the disorder is causing impaired judgment.<sup>10</sup> We did not query physicians about all these criteria and could not determine whether all were met.

†If someone other than the patient made the request, we did not ask whether the patient later made the same request.

‡This involves one of the criteria specified in the Oregon Death with Dignity Act.

§Ninety percent of lethal prescriptions were given to patients who were at home, and 5 percent were given to patients in nursing homes.

¶Other diagnoses included end-stage heart or lung disease and multiorgan-system failure.

increase in the dose of an intravenous sedative or analgesic already being administered (in 11 percent of cases).

**Characteristics of Patients Receiving Assistance**

Although 95 percent of the requests for a prescription were made by the patients themselves, 54 percent of the requests for a lethal injection were made by a family member or partner (Table 4). Requests for a lethal injection were characterized as indirect rather than explicit in 79 percent of cases. Five percent of the patients who received prescriptions and 7 percent of those who received lethal injections were described as “confused 50% or more of the time,” but we did not ask whether the patient was

unable to communicate at the time of the decision to hasten death. Ninety-eight percent of the patients receiving a prescription were estimated to have less than six months to live, and 48 percent were estimated to have less than four weeks; 95 percent were not hospitalized at the time of the request. Ninety-six percent of the patients receiving a lethal injection were estimated to have less than a week to live, and 59 percent were estimated to have less than 24 hours; virtually all the patients died in the hospital. Most patients receiving either type of assistance had family or friends who were closely involved at the time of the request (83 percent of those receiving a prescription and 95 percent of those receiving a lethal injection). In every case of assisted suicide or

**TABLE 5. VARIABLES PREDICTING WILLINGNESS TO PROVIDE ASSISTANCE, REQUESTS FOR ASSISTANCE, AND COMPLIANCE WITH REQUESTS.\***

VARIABLE	PRESCRIPTION			INJECTION		
	NO. OF RESPONDENTS	P VALUE	ODDS RATIO	NO. OF RESPONDENTS	P VALUE	ODDS RATIO
Would provide assistance if it were legal to do so	747			502		
Religion		<0.001			<0.001	
Catholic			0.5			0.6
Other Christian			0.8			0.8
Jewish			1.6			1.7
None			1.3			1.2
Other†‡			1.0			1.0
Prayer		<0.001			<0.001	
Daily			0.3			0.3
Weekly			0.5			0.4
Less than weekly			0.7			0.6
Never‡			1.0			1.0
No. of patients seen/wk					0.056	
<50						0.7
50-100‡						1.0
>100						1.1
Have received request	319			195		
Specialty		<0.001			<0.001	
Region		<0.001			0.07	
West			1.8			1.5
North central			0.8			1.0
South			1.2			0.9
Northeast‡			1.0			1.0
Prayer		0.001			0.04	
Daily			0.4			0.7
Weekly			0.6			0.8
Less than weekly			0.4			0.5
Never‡			1.0			1.0
No. of patients seen/wk		0.02				
<50			0.7			
50-100‡			1.0			
>100			1.1			
Religion					0.04	
Catholic						2.1
Other Christian						2.1
Jewish						2.6
None						1.0
Other†‡						1.3
Age					0.04	
<45 yr‡						1.0
≥45 yr						1.4
Have complied with request	42			59		
Region		0.06			0.05	
West			2.2			3.0
North central			0.6			1.6
South			1.1			1.7
Northeast‡			1.0			1.0
No. of patients seen/wk		0.01				
<50			0.5			
50-100‡			1.0			
>100			0.2			
Religion					0.01	
Catholic						0.6
Other Christian						1.3
Jewish						2.7
None						2.2
Other†‡						1.0
Sex		0.03				
Male			5.0			
Female‡			1.0			
Prayer		0.05				
Daily			0.3			
Weekly			0.2			
Less than weekly			0.4			
Never‡			1.0			

\*A multiple logistic-regression analysis was performed, with religious affiliation and specialty forced into all models. Variables with P values of less than 0.10 are reported.

†Because of small numbers, this category includes Moslem and other religions, as well as missing responses.

‡This was the reference category.

euthanasia, the physician believed that the request reflected the patient's wishes. The proportions of patients receiving a prescription who would have met the specific clinical and procedural criteria of the Oregon Death with Dignity Act<sup>10</sup> are shown in Table 4.

**Predictors of Willingness to Provide Assistance and Provision of Assistance**

Religious affiliation (Table 5) was associated with having given a lethal injection, as well as with the willingness to prescribe a lethal dose of medication or give a lethal injection. Catholic physicians were least likely and Jewish physicians or those with no religious affiliation were most likely to be willing to provide assistance or to have actually done so. Physicians who prayed less frequently were more willing to provide assistance or to have done so than physicians who prayed more frequently, except that frequency of prayer was not associated with lethal injection. The frequency of requests for a prescription was significantly associated with geographic region, with physicians in the West most likely to have received such requests. Doctors 45 years of age or older were more willing to give a lethal injection under current legal constraints (data not shown) and were more likely to have received such requests than younger doctors. Men were significantly more likely

than women to have written a prescription for a lethal dose of medication.

Specialty was a significant predictor of both willingness to provide assistance under current law (data not shown) and the receipt of at least one request for assistance (Table 5). Pulmonologists, geriatricians, and general internists were most likely to be willing to give either a prescription for a lethal dose of medication or a lethal injection. Geriatricians and oncologists were more likely to have received requests for a prescription, whereas pulmonologists were more likely to have received requests for a lethal injection (Table 6).

**DISCUSSION**

We found that requests for assisted suicide or euthanasia are frequently made to physicians who practice in specialties in which they are likely to care for dying patients and that the decision to honor such a request is not rare in the United States. The prevalence of ever having acceded to a request for a prescription for a lethal dose of medication was 3.3 percent in our sample as compared with 7 percent in Oregon<sup>7</sup> in 1995, 13.5 percent among New England oncologists<sup>11</sup> in 1994, and 18 percent among Michigan oncologists<sup>12</sup> in 1993. The prevalence of ever having provided a lethal injection was 4.7 percent in our study, as compared with 4 percent in

**TABLE 6.** WILLINGNESS TO PROVIDE ASSISTANCE, REQUESTS FOR ASSISTANCE, AND COMPLIANCE WITH REQUESTS, ACCORDING TO SPECIALTY.

VARIABLE	SPECIALTY										
	ALL RESPONDENTS	FAMILY PRACTICE	CARDIOLOGY	GERIATRICS	INFECTIOUS DISEASE	NEPHROLOGY	NEUROLOGY	HEMATOLOGY-ONCOLOGY	PULMONARY DISEASE	INTERNAL MEDICINE	OTHER
	percentage of respondents*										
Would write prescription for a lethal dose of medication if it were legal to do so	36	39	49	40	43	32	46	44	40	33	44
Would write prescription under current legal constraints	11	10	9	13	11	4	11	8	15	11	9
Have received request for assistance with suicide	18	15	12	26	21	9	9	25	18	21	12
Have written prescription for a lethal dose of medication	3.3	2	1	1	4	0	1	3	5	4	2
Would give lethal injection if it were legal to do so	24	28	28	25	31	21	32	27	31	23	28
Would give lethal injection under current legal constraints	7	7	2	4	5	3	7	2	9	8	5
Have received a request for a lethal injection	11	8	9	14	11	7	5	13	19	13	6
Have given a lethal injection	4.7	4	2	2	4	2	3	2	6	6	3

\*Unweighted (raw) percentages are given for each specialty, with weighted percentages for all respondents.

Michigan<sup>12</sup> and 1.8 percent among oncologists in New England.<sup>11</sup>

Our study showed that several factors were associated with physicians' participation in hastening death, including region of practice, religion, and specialty. Repeated ballot measures and the attendant debate over the legalization of physician-assisted death in California, Oregon, and Washington may have led to a higher frequency of requests received by physicians in those states and may have influenced their willingness to honor the requests.<sup>7,10</sup> Whereas our study suggests that Jewish physicians are more likely to be willing to provide assistance than other physicians, two prior studies<sup>13,14</sup> have shown that Jewish (as well as Catholic) physicians are less willing than others to withdraw life support. Also, unlike prior surveys,<sup>6,7,11,12</sup> in which oncologists were the specialists most likely to receive requests for assistance with dying and most willing to provide such assistance, in our survey, other specialists were most likely to receive such requests and most willing to honor them.

We surveyed a national probability sample of physicians in a wide variety of specialties. Prior surveys have been limited to specialists who care for high-risk patients, such as oncologists<sup>11,12</sup> and specialists in the acquired immunodeficiency syndrome,<sup>15</sup> or to states where there has been considerable publicity associated with ballot measures (Washington and Oregon)<sup>6,7,16</sup> or Dr. Jack Kevorkian's repeated provision of assistance to patients (Michigan).<sup>12,17</sup> In addition, we assessed the validity of the survey instrument in eliciting honest answers about controversial and illegal acts by pilot testing in a group of physicians known to have participated in physician-assisted suicide or euthanasia.

Our results are limited to physicians in the selected specialties. To the extent that physicians in these specialties are more likely to receive requests for assistance with suicide or euthanasia, the prevalence estimates are higher than those for all practicing physicians. Conversely, to the extent that the respondents were reluctant to report illegal actions, we may have underestimated the actual frequency of physician-assisted death. Although the response rate in our study was more than 60 percent and was similar to that in other recent studies,<sup>6,7,11,12,15</sup> it is possible that the nonrespondents and the respondents differed.<sup>18</sup> Finally, although lethal injection was carefully defined as injection of a lethal dose "with the primary intention of ending the patient's life," some respondents may have confused this action with terminal sedation (i.e., the use of analgesic or sedative agents to induce unconsciousness and relieve suffering).

What are the implications of these data for the current debate over the legalization of physician-assisted death? First, a substantial number of physicians in the United States have received one or more

requests for assistance with suicide or euthanasia. Educational efforts are needed to prepare physicians to explore the meaning of such a request<sup>19</sup> and to assess the patient's mental state and the adequacy of palliative care before responding to it. Second, legalization could lead to a large increase in the willingness of physicians to participate in the hastening of death and perhaps to an increase in its prevalence. Third, the majority of patients who request assistance with suicide appear to satisfy many of the criteria currently proposed as regulatory safeguards for this practice.<sup>2,3,10,20</sup>

Our findings with respect to lethal injection point to a different pattern of decision making. The finding that 54 percent of patients receiving a lethal injection did not make the request themselves suggests that physicians and family members felt compelled to intervene with a decision to hasten death. The majority of these patients had less than 24 hours to live, were experiencing severe discomfort or pain, and were in the relatively public setting of the hospital, with family members who were closely involved at the time of death. Sedation may have been used appropriately for refractory symptoms in the last hours of life, but in the absence of detailed descriptions of the circumstances surrounding these requests and actions, cautious interpretation is warranted. Although the fact that respondents reported these cases as examples of lethal injection suggests that their primary intention was to hasten death, the use of sedation for refractory symptoms in patients near death may have led some physicians to report actions intended to relieve suffering that were also intended to hasten death.<sup>21</sup>

Additional research on the circumstances in which doctors honor requests to hasten death should evaluate the possibility that better access to palliative care might obviate some of these requests<sup>22,23</sup> as well as clarify the practical implications of establishing regulatory guidelines. We evaluated physicians' practices during a time when medical education in palliative care was largely unavailable and such care was sporadically delivered.<sup>23</sup> The prevalence of requests for assistance in hastening death and of compliance with such requests may differ in communities where palliative care is easily accessible.

Supported by grants from the Greenwall Foundation, the National Institute for Nursing Research (1RO3NR03109), and the Gerbode Foundation. Drs. Meier and Morrison are Faculty Scholars of the Open Society Institute's Project on Death in America. Dr. Morrison is a Brookdale National Fellow.

The views expressed in this article do not necessarily reflect those of the University of Rochester or its Department of Medicine.

*We are indebted to Jeri Mulrow for her work on sample design, selection, and weighting; and to Robert N. Butler, M.D., Joann Lynn, M.D., Kathleen Foley, M.D., Susan D. Block, M.D., and the Faculty Scholars of the Open Society Institute's Project on Death in America for their review and comments.*

## REFERENCES

1. Meier DE. Doctors' attitudes and experiences with physician-assisted death: a review of the literature. In: Humber JM, Almeder RF, Kasting GA, eds. *Physician-assisted death*. Totowa, N.J.: Humana Press, 1993.
2. Miller FG, Quill TE, Brody H, Fletcher JC, Gostin LO, Meier DE. Regulating physician-assisted death. *N Engl J Med* 1994;331:119-23.
3. Quill TE, Cassel CK, Meier DE. Care of the hopelessly ill: proposed clinical criteria for physician-assisted suicide. *N Engl J Med* 1992;327:1380-4.
4. Hendin H, Rutenfrans C, Zyllicz Z. Physician-assisted suicide and euthanasia in the Netherlands: lessons from the Dutch. *JAMA* 1997;277:1720-2.
5. Ganzini L, Lee MA. Psychiatry and assisted suicide in the United States. *N Engl J Med* 1997;336:1824-6.
6. Back AL, Wallace JI, Starks HE, Pearlman RA. Physician-assisted suicide and euthanasia in Washington State: patient requests and physician responses. *JAMA* 1996;275:919-25.
7. Lee MA, Nelson HD, Tilden VP, Ganzini L, Schmidt TA, Tolle SW. Legalizing assisted suicide — views of physicians in Oregon. *N Engl J Med* 1996;334:310-5.
8. Jobe JB, Mingay DJ. Cognitive research improves questionnaires. *Am J Public Health* 1989;79:1053-5.
9. Hosmer DW Jr, Lemeshow S. *Applied logistic regression*. New York: John Wiley, 1989.
10. Oregon Death with Dignity Act, Or. Laws ch. 3 (initiative measure no. 16), 1995.
11. Emanuel EJ, Fairclough DL, Daniels ER, Clarridge BR. Euthanasia and physician-assisted suicide: attitudes and experiences of oncology patients, oncologists, and the public. *Lancet* 1996;347:1805-10.
12. Doukas DJ, Waterhouse D, Gorenflo DW, Seid J. Attitudes and behaviors on physician-assisted death: a study of Michigan oncologists. *J Clin Oncol* 1995;13:1055-61.
13. Christakis NA, Asch DA. Physician characteristics associated with decisions to withdraw life support. *Am J Public Health* 1995;85:367-72.
14. Crane D. *The sanctity of social life: physicians' treatment of critically ill patients*. New Brunswick, N.J.: Transaction Press, 1977.
15. Slome LR, Mitchell TE, Charlebois E, Benevedes JM, Abrams DI. Physician-assisted suicide and patients with human immunodeficiency virus disease. *N Engl J Med* 1997;336:417-21.
16. Carson R. Washington's I-119. *Hastings Cent Rep* 1992;22(2):7-9.
17. Taylor H. Doctor-assisted suicide: support for Dr. Kevorkian remains strong and 2-to-1 majority approves Oregon-style assisted suicide bill. New York: Louis Harris, 1995.
18. Asch DA, Jedrzewski MK, Christakis NA. Response rates to mail surveys published in medical journals. *J Clin Epidemiol* 1997;50:1129-36.
19. Quill TE. Doctor, I want to die: will you help me? *JAMA* 1993;270:870-3.
20. Ryan CJ, Kaye M. Euthanasia in Australia — the Northern Territory Rights of the Terminally Ill Act. *N Engl J Med* 1996;334:326-8.
21. Quill TE. The ambiguity of clinical intentions. *N Engl J Med* 1993;329:1039-40.
22. McKeogh M. Physician-assisted suicide and patients with HIV disease. *N Engl J Med* 1997;337:56.
23. Meier DE, Morrison RS, Cassel CK. Improving palliative care. *Ann Intern Med* 1997;127:225-30.