

# A Comparison of Characteristics of Kevorkian Euthanasia Cases and Physician-Assisted Suicides in Oregon

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**Purpose:** The sociodemographic and clinical characteristics of Kevorkian euthanasia cases were compared with Oregon physician-assisted suicide (PAS) cases and U.S. mortality data. **Design and Methods:** Two hundred variables were coded from medical examiner reports on all 69 Kevorkian euthanasia cases who died and were autopsied by the Oakland County Medical Examiner. Data on the 43 Oregon PAS cases in the first two years and U.S. mortality data were obtained from published sources. **Results:** Only 25% of patients euthanized by Kevorkian were terminally ill as compared to 100% of Oregon PAS cases. PAS cases were significantly more likely to have cancer (72%) than euthanasia cases (29%). Women and those who were divorced or had never married were significantly more likely to seek euthanasia than would have been predicted by national mortality statistics. **Implications:** Gender and marital status appeared to influence decisions to seek an assisted death, and research on the role of these factors in end-of-life decision making is merited.

**Key Words:** Death and dying, End-of-life decision making, Physician-assisted suicide, Euthanasia

Euthanasia and physician-assisted suicide (PAS) continue to be controversial issues. Attitude surveys of physicians as well as patient and community populations have confirmed the diverse perceptions and beliefs about the acceptability and morality of PAS and euthanasia (Bachman et al., 1996; Blendon, Sza-

lay, & Knox, 1992; Breitbart, Rosenfeld, & Passik, 1996; Brown, Henteleff, Barakat, & Rowe, 1986; Chochinov et al., 1995; Cohen, Fihn, Boyko, Jonsen, & Wood, 1994; Duberstein, Conwell, Cox, Podgorski, Glazer, & Caine, 1995; Emanuel, Fairclough, Daniels, & Clarridge, 1995; Fried, Stein, O'Sullivan, Brock, & Novack, 1993; Ganzini, Johnston, McFarland, Tolle, & Lee, 1998; Lee et al., 1996; Seidlitz, Duberstein, Cox, & Conwell, 1995; Shapiro, Derse, Gottlieb, Schiedermayer, & Olson, 1994). There are many complex concerns, ranging from the individual's ethical right to choose when to die to the appropriateness and availability of safeguards to protect vulnerable populations.

Empirical data about the circumstances and characteristics of patients who successfully sought PAS and euthanasia as well as physician practices in these situations have been difficult to ascertain in the United States due to the illegal status of these acts in all states except Oregon. Oregon legalized PAS in 1997, allowing terminally ill patients who meet certain criteria to receive lethal prescriptions from physicians for the purpose of ending their lives. Euthanasia, or assisting the suicide of another person through other means, such as a lethal injection, is illegal in all 50 states. Although sometimes used interchangeably, the terms euthanasia and PAS describe distinctly different types of assisted deaths. As legally defined in Oregon, PAS refers to a death caused by ingesting a lethal dose of medication obtained by prescription from a physician for the purpose of ending one's life. In contrast, euthanasia refers to deaths that occur as a result of more direct intervention.

At least three major U.S. studies that relied upon voluntary physician reports have begun to identify the characteristics of patients who wanted to die as well as physicians who responded to their requests (Back, Wallace, Starks, & Pearlman, 1996; Emanuel et al., 1999; Meier et al., 1998).

Back and associates (1996) sent questionnaires to 1,453 primary care and subspecialty physicians; of the 828 responding physicians, 12% reported explicit requests to help patients die. Subsequent interviews led to 207 case descriptions of patients who

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were given a lethal prescription or lethal injection. More than half of these patients were men over age 65 who had been under the care of their physicians for more than a year. Most were expected to live less than 6 months, which is the standard medical definition for terminal illness, and 73% were diagnosed with either cancer or HIV/AIDS. Patients who requested lethal injections rather than lethal prescriptions were in severe pain or physical discomfort, dependent on others for personal care, or confined to bed. Emanuel and colleagues (1999) surveyed 355 oncologists, of whom 56 reported participating in PAS. Of the 38 case descriptions provided, more than half were women, all were expected to live less than 6 months, and 97% could not perform self-care or had unremitting pain despite narcotic analgesia.

Finally, Meier and associates (1998) mailed questionnaires to 3,102 physicians in 10 specialties; of the 1,902 who returned questionnaires, a total of 81 cases of assisted death were identified. Of the 38 patients given a lethal prescription, almost all were men expected to live less than 6 months. More than half were in severe pain, 70% had cancer as a primary diagnosis, and 19% were depressed. Of the 43 patients who received a lethal injection, more than half were men and nearly all were expected to live less than 6 months; 23% had cancer and 16% had AIDS.

Results from the first 2 years of experience with legalized PAS in Oregon have provided a limited sociodemographic profile of these patients (Chin, Hedberg, Higginson, & Fleming, 1999; Sullivan, Hedberg, & Fleming, 2000). Of 43 patients who died after ingesting a lethal dose of medication obtained with a legal prescription, half were men, cancer was the predominant diagnosis, and all had been certified as terminally ill and free from depression or other factors that would compromise decision making.

The purpose of this study was to identify and clarify the characteristics of another known group who sought assistance in ending their lives: persons whose deaths were assisted illegally by Dr. Jack Kevorkian in Oakland County, Michigan. The deaths assisted by Kevorkian were classified as euthanasia, as these men and women died either from carbon monoxide poisoning or from the intravenous administration of lethal drugs; Kevorkian's last patient died from a lethal injection. Thus, throughout this study, euthanasia refers to deaths caused by the direct intervention of others, specifically deaths assisted by Jack Kevorkian. PAS refers to deaths in which physicians prescribed lethal doses of medication in keeping with legal statutes in Oregon.

Kevorkian's behavior in assisting patients' deaths is not comparable to the standards of U.S. physician practices, and the individuals euthanized lacked the protection of clinical safeguards such as those in place in Oregon. However, an analysis of the Kevorkian cases is valuable to identify persons who are vulnerable to seeking euthanasia and physician assistance in dying. Unlike the previous U.S. studies relying on voluntary physician selection, recollection, and reporting, or the limited clinical descriptions of pa-

tients in Oregon, extensive data on the clinical and psychosocial characteristics of Kevorkian's patients are available from medical examiner investigative reports. Although many of these cases have been reviewed for legal and political purposes (Anstett et al., 1997), this is the first descriptive clinical analysis. A brief summary of the characteristics of the Kevorkian cases was reported in a letter to the editor of the *New England Journal of Medicine* (Roscoe, Malphurs, Dragovic, & Cohen, 2000).

PAS and euthanasia remain controversial issues, and it is not the intent of the authors or the purpose of this study to justify the inclusion of assistance in dying as an end-of-life choice, nor to vilify or canonize Jack Kevorkian. Rather, our goal is to identify and clarify the characteristics of persons for whom assisted death was the selected option in the hope of expanding our knowledge to improve end-of-life care. The specific aims of this study were: (1) to analyze the sociodemographic and clinical characteristics of Kevorkian euthanasia cases who died and were investigated in Oakland County, Michigan, from 1990 to 1998; (2) to compare the characteristics of the Kevorkian cases to patients who died in Oregon as a result of a lethal prescription; and (3) to examine risk factors for death by euthanasia relative to national mortality statistics for persons who died in the United States in 1997, the last year data were available.

## Methods

### Sample

Euthanasia cases were all 69 persons whose deaths were assisted by Jack Kevorkian in Oakland County, Michigan, between 1990 and 1998. Persons who died with Kevorkian's assistance but were autopsied outside Oakland County were excluded from the analysis to minimize reporting bias, because the uniform procedures and protocols used by the Oakland County medical examiner were not standardized across other medical examiner districts. Data on the 43 individuals who died in Oregon in 1998–1999 as a result of legal drug overdoses were obtained from published summary data based on physician reports as required by Oregon law (Chin et al., 1999; Sullivan et al., 2000). No post-mortem data are available for the Oregon cases, because autopsies are not required. U.S. mortality data were also obtained from published sources (Hoyert, Kochanek, & Murphy, 1999).

### Data Collection

Data on the Kevorkian euthanasia cases were abstracted and coded from medical examiner files, which included investigative reports, autopsy findings, toxicology results, death certificates, medical records, letters from physicians, police records, and, where available, court proceedings and transcripts of interviews with family members. The data coding and collection methodology was adapted from the U.S. Air Force autopsy protocol modified by Cohen and

associates to study suicide and homicide-suicide in older men and women (Cohen, Llorente, & Eisdorfer, 1998). A total of 203 variables in seven domains were coded: 10 variables describing data sources; 10 incident identification variables; 6 sociodemographic variables; 32 variables describing physical circumstances; 44 antecedent conditions; 25 drug categories from toxicology studies; and 76 other autopsy findings, including International Classification of Disease (ICD) codes. Two authors independently coded the information from each medical examiner file using a manual of operational definitions; they compared results, and in cases where a discrepancy existed, a consensus was determined.

### Data Analysis

Demographic characteristics, antecedent conditions, and autopsy findings of the 69 Kevorkian cases were analyzed using the Statistical Package for the Social Sciences (SPSS). Chi-square analyses using Fisher's Exact Test were conducted on categorical variables, and independent *t* tests were calculated for continuous variables. Bonferroni corrections were calculated

in the two domains (marital status and underlying disease) in which multiple comparisons were made.

Demographic characteristics of the Kevorkian euthanasia cases were compared to U.S. mortality statistics for 1997, the most recent year for which data are available (Hoyert et al., 1999). The rate of euthanasia per 100,000 deaths was calculated by race, sex, and marital status. Risk ratios were calculated, with White, Male, and Married used as reference categories. Confidence intervals (CIs) were calculated for each risk ratio, and *p* values were determined for each CI.

### Results

#### Description of Kevorkian Euthanasia Cases

The characteristics of the euthanasia cases are presented in Table 1. Forty-nine (72%) of the 69 Kevorkian euthanasia cases were women, and most were non-Hispanic Whites who lived at home at the time of death. Male and female euthanasia cases were similar except for marital status. Approximately one third of women (31%) and 40% of men were married when they died, but a significantly higher

Table 1. Characteristics of 69 Kevorkian Euthanasia Cases Who Died and Were Investigated by the Medical Examiner in Oakland County, Michigan, 1990-1998

	Women ( <i>n</i> = 49)	Men ( <i>n</i> = 20)	<i>p</i> Value
Demographic Data			
Mean age (yrs)	59.9 (±13.6)	54.8 (±18.9)	—
Range (yrs)	34–86	21–89	
Marital status			
Married	31%	40%	—
Divorced	43%	15%	$\chi^2 = 4.9, p = .03$
Widowed	16%	5%	—
Never married	10%	40%	$\chi^2 = 8.2, p = .004^a$
Antecedents			
Physical health problems	96%	95%	—
Decline in health status	76%	65%	—
Depressive symptoms	14%	10%	—
Pain	41%	20%	—
Fear of being a burden	4%	0%	—
Prior talk of suicide	31%	15%	—
Prior suicide attempts	8%	10%	—
Autopsy Results <sup>b</sup>			
Cancer (all types)	27%	35%	—
Neurological disease	37%	35%	—
Cardiovascular disease <sup>c</sup>	33%	35%	—
Chronic obstructive pulmonary disease	2%	10%	—
Emphysema	27%	35%	—
Terminally ill <sup>d</sup>	25%	25%	—
Toxicology Results			
Analgesics	41%	45%	—
Antidepressants	6%	5%	—
Benzodiazepenes	43%	45%	—

<sup>a</sup>Bonferroni correction to adjust for multiple marital status comparisons yielded *p* = .008 for individual comparisons to set the overall probability of committing a type 1 error at .05.

<sup>b</sup>In 7% of euthanasia cases (4 women and 1 man), medical examiners found no evidence of physical disease at autopsy. Autopsy and post-mortem toxicology results were available for all female cases and 19 of 20 male cases. Determination of terminal illness was available for all 69 cases.

<sup>c</sup>Includes moderate to severe atherosclerosis of arteries and/or aorta; fibrosis; calcification of mitral, aortic, or tricuspid valves; aneurysmal dilation; or recent infarction.

<sup>d</sup>Life expectancy of less than 6 months as determined by the medical examiner at autopsy.

percentage of women were divorced (43% of women compared to 15% of men). Men were significantly more likely to have never married (40% of men compared to 10% of women); the statistical significance of this finding was upheld after correcting for multiple comparisons.

A total of 96% of all euthanasia cases had a history of physical illness confirmed at autopsy, and the remaining 4% had a history of psychiatric problems. However, only 25% of all cases were determined to be terminally ill (i.e., expected to live less than 6 months) by the medical examiner at autopsy. A decline in health status (operationally defined as a recent event such as the onset of a new symptom, recommendation to have surgery or other invasive procedure, or metastasis of cancer) prior to the time of death was reported for 76% of the women and 65% of the men. In 5 (7%) of the 69 cases (4 women and 1 man) the medical examiner found no anatomical evidence of disease at autopsy. These individuals were reported to suffer from conditions such as chronic diffuse pain with no identifiable physical cause, fibromyalgia, chronic fatigue syndrome, and depression or other psychiatric problems as documented in medical records and investigative reports. Fewer than 15% of women and men were reported to have had clinically significant depressive symptoms at the time of death. Women were twice as likely as men to have talked about suicide prior to dying, but fewer than 10% of both men and women had attempted suicide in the past.

Approximately one third of men and women had a neurological disease confirmed at autopsy. Amyotrophic lateral sclerosis (ALS) was confirmed in 10 women and 2 men; multiple sclerosis (MS) was con-

firmed in 9 women and 5 men. Two individuals had Parkinson's disease, and two cases of dementia were confirmed at autopsy. Cancer diagnoses accounted for 27% of women and 35% of men. Lung, ovarian, and breast cancer comprised 85% of cancers in women; in men, cancers were evenly distributed across a range of primary sites. Only 4% of women and none of the men indicated that they wanted to die to avoid being a burden to their families.

Toxicology studies revealed that 42% of all cases were positive for analgesics at the time of death, and one third (34%) were cancer patients. Nearly half (43%) were positive for benzodiazepenes, and of these 27% had either ALS or MS, 20% had terminal cancer, and 10% were being treated for anxiety disorders. Only 6% of women and 5% of men were positive for antidepressants. Toxicity results were negative for alcohol, antibiotics, antihypertensive drugs or other cardiovascular drugs, diuretics, and hypoglycemic medications.

### Comparison of PAS and Euthanasia Cases

A total of 43 persons died by PAS in Oregon in 1998 (Chin et al., 1999) and 1999 (Sullivan et al., 2000). As shown in Table 2, their median age was 70 years and almost all were White. One third were married when they died, 30% were divorced, 26% were widowed, and 12% had never married. Most patients had cancer, with lung cancer being the most prevalent; the others had AIDS or end-stage heart or lung disease. All had been certified by at least two physicians as meeting the statutory definition for terminal illness (i.e., expected to live less than 6 months). The majority of patients (76%) were enrolled in hos-

Table 2. Comparison of the Characteristics of Oregon Physician-Assisted Suicide (PAS) Cases and Kevorkian Euthanasia Cases

	Oregon PAS Cases <sup>a</sup> ( <i>n</i> = 43)	Kevorkian Euthanasia Cases ( <i>n</i> = 69)	<i>p</i> Value
Median age (yrs)	70	58	—
% Female	44%	71%	$\chi^2 = 7.9, p = .004$
% Caucasian	98%	96%	—
Marital status			
Married	33%	33%	—
Divorced	30%	35%	—
Widowed	26%	13%	—
Never married	12%	19%	—
Residents of state where death occurred	100%	23%	—
Underlying illnesses <sup>b</sup>			
Cancer (all types)	72%	29%	$\chi^2 = 19.8, p < .001^c$
ALS	9%	17%	—
MS	0%	20%	—
HIV/AIDS	2%	0%	—
Terminally ill <sup>d</sup>	100%	25%	—
Depressive symptoms <sup>e</sup>	NA	13%	—
Enrolled in hospice	76%	1%	$\chi^2 = 67.2, p < .001$

<sup>a</sup>As reported in Sullivan, Hedberg, & Fleming (2000).

<sup>b</sup>ALS = amyotrophic lateral sclerosis; MS = multiple sclerosis; HIV/AIDS = acquired immune deficiency syndrome.

<sup>c</sup>Bonferroni correction to adjust for multiple underlying illness comparisons yielded  $p = .008$  for individual comparisons to set the overall probability of committing a type 1 error at .05.

<sup>d</sup>Life expectancy of less than 6 months.

<sup>e</sup>The Oregon Death with Dignity statute requires physicians to certify that the judgment of patients requesting lethal medications to end their lives is not impaired by mental disorders, including clinically significant depressive symptoms.



Table 3. Comparison of the Characteristics of 69 Kevorkian Oakland County Euthanasia Cases With U.S. All-Cause Mortality Data

Characteristic	U.S. Residents Who Died in 1997 ( <i>n</i> = 2,272,237) <sup>a</sup>	Case Patients ( <i>n</i> = 69)	Rate of Euthanasia (per 100,000 deaths)	Risk Ratio (95% CI) <sup>b</sup>	<i>p</i> Value
Race					
White	1,967,898	66	3.3	1.0 <sup>c</sup>	$\chi^2 = 4.6, p < .05$
Non-white	304,339	3	1.0	0.3 (0.1–0.9)	
Sex					
Male	1,130,050	20	1.8	1.0 <sup>c</sup>	$\chi^2 = 11.4, p < .001$
Female	1,142,187	49	4.3	2.4 (1.4–4.1)	
Marital Status at Death <sup>d</sup>					
Married	938,886	23	2.4	1.0 <sup>c</sup>	$\chi^2 = 30.9, p < .001$
Divorced	225,308	24	10.7	4.3 (2.5–7.7)	
Widowed	870,581	9	1.0	0.4 (0.2–0.9)	$\chi^2 = 4.5, p < .025$
Never married	228,711	13	5.7	2.3 (1.2–4.6)	$\chi^2 = 6.4, p < .01$

<sup>a</sup>Age 15 years and older. Hoyert, Kochanek, and Murphy (1999).<sup>b</sup>CI = confidence interval.<sup>c</sup>This was the reference category.<sup>d</sup>Mortality data on marital status were available for 2,263,486 U.S. residents.

pice at the time of death as compared to only 2 of the 69 Kevorkian cases. Oregon statute requires that individuals who request a lethal prescription be advised of alternatives to PAS, such as hospice.

The median age of the Kevorkian euthanasia cases was 12 years younger than the Oregon PAS cases, and they were significantly less likely to have cancer, a finding whose significance held after Bonferroni corrections for multiple comparisons of underlying illnesses (Table 2). More than one third of the euthanasia cases but only 9% of the Oregon cases had a neurological disorder (ALS or MS). Depressive disorders or depressive symptoms were reported in 13% of the euthanasia cases; Oregon statute requires that individuals seeking PAS be certified by a physician as having no clinically significant depressive symptoms that may influence decision making.

### *Risk Factors for Euthanasia and Legalized PAS*

It is impossible to draw a random sample of euthanasia cases from which to generalize, because providing such direct assistance in dying is both illegal and against physicians' ethical codes of conduct. Thus, in an attempt to estimate population parameters from the convenience sample of Kevorkian euthanasia cases, individuals who died with Kevorkian's assistance were compared with other U.S. residents who died in 1997, the last year for which data were available (Hoyert et al., 1999). Nationwide mortality statistics were used because although those individuals who died with Kevorkian's assistance all died in Michigan, less than a quarter (23%) were Michigan residents; they had lived in 24 different states.

Euthanasia cases differed by race, sex, and marital status from the U.S. population (see Table 3). Euthanasia cases were significantly more likely to be White, female, divorced or never married, and they were less likely to be widowed. The risk ratio for non-White as compared to White persons was 0.3 CI = 0.1–0.9,  $p < .05$ . The risk ratio for women as compared to men was 2.4 (CI = 1.4–4.1,  $p < .001$ ).

Compared to persons who were married, those who were divorced were 4.3 times more likely to choose euthanasia (CI = 2.5–7.7,  $p < .001$ ). Persons who had never married were 2.3 times more likely to choose euthanasia than married persons (CI = 1.2–4.6,  $p < .01$ ). Persons who were widowed at the time of death were less likely to choose euthanasia (relative risk [RR] = 0.4, CI = 0.2–0.9,  $p < .025$ ).

In the first year of legal assisted suicide in Oregon, those who were divorced or never married were more likely than married persons to choose PAS (divorced persons, RR = 6.8, CI = 1.3–37.2,  $p = .03$ ; never married, RR = 23.7, CI = 4.4–128.9,  $p < .001$ ). Persons who died from ingesting lethal prescriptions (PAS) did not differ by race or sex from Oregon residents who died from similar diseases, primarily cancer (Chin et al., 1999). Data from the second year of legal PAS revealed that only those with college educations were at increased risk for PAS relative to other Oregon residents (Sullivan et al., 2000).

### **Discussion**

The results of our analyses revealed: (1) the vulnerability of persons who were not terminally ill to seek Kevorkian for euthanasia, unchecked by clinical safeguards; (2) the high representation of women who chose euthanasia; and (3) the greater likelihood of persons who were divorced or never married to seek an assisted death, a pattern evident in both the Kevorkian euthanasia and first-year (1998) PAS cases.

### *Terminal Illness*

Discussions about PAS and euthanasia typically assume that patients are near death, yet only one quarter of persons who sought Kevorkian for euthanasia were terminally ill when they died. Nearly all of the Kevorkian euthanasia cases had serious physical illnesses that in some cases may have been compounded by depressive symptoms or other psychiatric illnesses. In addition, nearly three quarters had

experienced a recent decline in health status. The actual or perceived inability to cope with illness may also have impacted the decision to seek assistance in dying. When such patients run out of options for treatment, yet fall outside the usual 6 months of life requirement for hospice care, their desperation may lead them to consider an assisted death instead of other options, including palliative care and mental health services.

The vulnerability of Kevorkian's euthanasia cases is in stark contrast to the PAS cases in Oregon. The Oregon experience with an articulated standard for legalized PAS assures that terminally ill, competent individuals make the decision to obtain a lethal prescription after being informed of available alternatives such as palliative care and pain management. Only two of the Kevorkian cases were under the care of hospice at the time of death. Because the majority of Kevorkian's euthanasia cases had prognoses longer than 6 months, which would usually exclude them from hospice eligibility, it is even less likely that these patients received adequate information about palliative care as an alternative to assistance in dying. In particular, a sense of urgency about impending disability and narrowing future options may have motivated the patients with neurodegenerative diseases to seek help from Kevorkian before they were considered terminally ill by medical criteria (Ganzini et al., 1998).

Patients in Oregon who seek a lethal prescription have to be certified by two physicians as free from depressive symptoms or other conditions that might affect their ability to make health care decisions. Kevorkian's patients included individuals compromised by depressive symptoms, undertreated pain, and dementia. The small but troubling number of cases in which no anatomical evidence of disease was found at autopsy also highlights the significance of pain and psychiatric issues in the desire to die and the motivation to seek assistance in dying. The lack of anatomical evidence of disease may underestimate the suffering and desperation of these patients.

As legalizing PAS continues to be considered in state legislatures, we need to know more about the motivations and antecedent factors that precipitate a decision to die. Alternatives such as aggressive pain and symptom management and treatment for psychological distress need to be more widely available so that, if legal, PAS represents a choice, not the only alternative to suffering. While patients near death deserve better options for end-of-life care that include their preferences and values, opportunities are missed to address the needs of patients with longer prognoses (and sometimes fewer options) in our efforts to provide better care for the dying.

### *Gender*

The high representation of women among euthanasia cases is disturbing, given what is known about the Oregon PAS experience, U.S. mortality data, and the low suicide rate in women. Men and women were

almost equally represented in the Oregon cases, but women were 2.5 times more likely to seek Kevorkian for euthanasia than men. The factors that made women, particularly older women, more vulnerable to euthanasia are difficult to discern from the available data.

Differing experiences with medical care may influence the ways in which women approach medical decisions, including decisions to seek assistance in dying. Disparate treatment in cardiac care has been demonstrated, (Ayanian & Epstein, 1991; Giles, Anda, Casper, Escobedo, & Taylor, 1995; Schulman et al., 1999; Steingart, et al., 1991) as well as the greater risk for women to have inadequate pain control (Cleeland et al., 1994). Women are patients more often than men, have more contacts with physicians, and more frequently make decisions about when others should seek medical care (Benson & Marano, 1993; Horton, 1992; Thomas & Kelman, 1990). Recent research has begun to target the shortfall in knowledge about women's health, disability, and help-seeking behavior that may also be helpful for understanding gender differences in end-of-life decision making (Hu et al., 1997, 1999; Legato, 1998; Legato, Padus, & Slaughter, 1997; Michels et al., 1998; Rexrode et al., 1998; Willett et al., 1996).

The availability of a caregiver may also differentially affect the end-of-life decisions made by men and women. Women provide most of the care that is given to dying patients, although women who need care tend to receive less assistance from family members than men, and are more likely to have to pay for assistance even if married (Emanuel et al., 1999). Wives are only one third as likely as husbands to report their spouses as caregivers (Allen, Goldscheider, & Ciambone, 1999).

### *Marital Status*

Marital status was a significant risk factor for PAS cases in Oregon in the first year after the practice was legalized, as well as for Kevorkian euthanasia cases. Those who were divorced or had never been married were significantly more likely to seek an assisted death than those who were married. These results suggest the need to understand more about the family and psychosocial context of medical care decision making in general, and end-of-life decision making specifically. Medical decision making places considerable demands on patients and families to assess the risks and benefits of treatment as well as to make decisions that may result in the death of the patient. The decision-making process brings family dynamics such as guilt, conflict, ambiguity, and uncertainty to the surface, all of which must be dealt with in the clinical context as family members act as surrogate decision-makers or advisers to dying relatives.

Medical care decision making about end-stage or terminal illness may differ for patients who are alone. The primary vulnerability of women and certain groups of men (i.e., those who are alone and coping with the burden of serious illness) requires clinical attention and should be the focus of additional re-

search. The adequacy of psychosocial support networks should be considered in persons with long-standing chronic, end-stage, or terminal illnesses.

### Limitations

This study has several limitations. Interpretation of our results is limited by biases in the data sources that were collected for other purposes (i.e., law enforcement investigations in Oakland County, Michigan, and compliance with statutory regulations in Oregon). Autopsy data are an excellent source for detailed anatomical and toxicology information for the Kevorkian euthanasia cases, but they do not allow for an evaluation of other relevant factors, such as an evaluation of mental illness. Variables such as psychiatric status, family structure, and other psychosocial factors outside the autopsy examination had to be constructed from medical examiner records. As mentioned previously, autopsies are not required of individuals who die from legalized PAS in Oregon; published summary data based on mandatory physician reporting provided the data on these cases.

These infrequent and often concealed deaths due to PAS and euthanasia yield a small sample of cases that limits our ability to generalize. Both the Kevorkian euthanasia cases and the Oregon PAS cases may not be representative of the majority of individuals who may want assistance in ending their lives. Further, the mortality comparisons used to estimate population parameters must be interpreted carefully. Although it would be more precise to select mortality statistics that matched the underlying diseases of the Kevorkian cases, the small samples that would result precluded this approach. However, the broader mortality comparisons did suggest some overall trends and demographic patterns that suggest risk factors in the population.

From available data sources, assisted death appears to be an end-of-life choice almost exclusively for White men and women. Studies of attitudes about preferences for end-of-life care tend to show that Whites are more likely to indicate that they would forego life-sustaining treatment and more favorably inclined to advance directives than African Americans (Caralis, Davis, Wright, & Marcial, 1993; Garrett, Harris, Norburn, Patrick, & Danis, 1993). The racial bias in the sample raises questions about end-of-life choices in minority populations that could not be addressed in this study.

The implications of our results for understanding end-of-life decisions are important despite the small numbers of persons available for study and the potential biases in the data sets from Michigan and Oregon. While efforts to improve end-of-life care have focused primarily on individuals who are in pain and suffering from depression near the point of death, the results of our analyses suggest that further improvements may be realized by including better care options for patients with longer prognoses who are struggling with the burdens of the chronic illnesses that will eventually cause their deaths. The descrip-

tive analysis of the Kevorkian euthanasia cases and the emerging data from Oregon on PAS also present an index of concern to researchers and clinicians about the possible vulnerability of women and those who are not married at the end of life. Continued research on the role of gender and marital status in end-of-life care is merited.

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