Objective: To explore the relationship between general internists’ tendency to conserve medical resources and their willingness to participate in physician-assisted suicide (PAS).

Design and Participants: Survey of a random sample of general internists in 6 urban areas of the United States.

Measurements: We assessed the physicians’ use of medical resources by constructing a scale based on 6 hypothetical clinical scenarios in which respondents were given a choice between resource-intensive and resource-conserving options. We then presented a scenario of a competent terminally ill patient with breast cancer making stable and persistent requests for PAS.

Results: Sixty-seven (33%) of the 206 respondents indicated that they would participate in the suicide of the depicted patient. In a multivariate model, physicians who were more conservative with resources were 6.4 times more likely than their resource-intensive counterparts to prescribe the requested drugs ($P = .02$); minority physicians were less willing than whites to participate in PAS (odds ratio, 0.34; $P = .03$). Physicians’ number of years in practice, location, sex, reported percentage of fee-for-service patients, and self-reported strength and direction of financial incentives in the respondents’ practices were not associated with willingness to prescribe drugs for PAS.

Conclusions: Most general internists, especially minority physicians, are personally reluctant to participate in PAS. While the characteristics of their practices do not affect PAS, physicians who tend to practice resource-conserving medicine are significantly more likely than their resource-intensive counterparts to provide a lethal prescription at the request of a terminally ill patient.

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The moral, legal, and social issues surrounding the question of whether physicians should assist terminally ill patients with suicide have proved divisive for the profession and the American public. The US Supreme Court recently ruled that it is not unconstitutional for states to prohibit physician-assisted suicide (PAS). However, since the Supreme Court did not rule that states are required to prohibit PAS, the debate has effectively been shifted to the state governments. The state of Oregon has passed legislation legalizing the practice, and a recent referendum to repeal this law was defeated in November 1997. Many Americans support the legalization of PAS. The American Medical Association remains officially opposed to legalization, but several surveys have shown that a significant minority of physicians have actually engaged in this practice and many physicians would support legalization.

It has been suggested that pressures for cost-control have the potential for a deleterious effect on end-of-life decision making, and that legalization of PAS might be unwise because the presently intense pressure placed on health care professionals to control costs could result in undue influence on terminally ill patients to opt for PAS.

Several studies have surveyed physician attitudes and practices regarding PAS in the United States. To the best of our knowledge, only 1 study at a single institution asked physicians about the “importance of cost-benefit analysis” in decisions about PAS, but this study did not examine any linkage between resource-conserving attitudes and physician willingness to provide PAS.

To assess this relationship, we surveyed physicians from 6 major metropolitan areas in the United States.
METHODS

SURVEYS

Data were collected via a self-administered, mailed questionnaire. Surveys presented respondents with 7 medical scenarios as well as items collecting information about personal and practice characteristics. The first 6 scenarios depicted hypothetical patients who presented with symptoms commonly encountered by primary care physicians, including asthma, dysuria, headache, persistent cough, chest pain, and dementia. The seventh scenario presented a 72-year-old retired university professor with metastatic breast cancer refractory to further chemotherapy who requests PAS, and meets proposed guidelines for morally acceptable PAS.22

SCENARIO REGARDING PAS

A 72-year-old retired university professor with metastatic breast cancer, now refractory to further chemotherapy, is suffering from severe pain due to spinal metastases. Vigorous efforts at pain relief using oral narcotics, nonsteroidal anti-inflammatory drugs, tricyclic antidepressants, and an epidural pump have been only partially successful. The patient is a long-standing member of the Hemlock Society and has a living will. She has never married and has no family. She deplores the idea of hospice as an invasion of her privacy. A month ago, she asked for your help in arranging “death with dignity” through an overdose. You asked her to give the pain control methods a chance and that she see a psychiatrist. The psychiatrist found her competent. She now says that the very chronicity of the residual pain has become unbearable, and she is repeating her request for assistance in finding death with dignity, “before it’s too late.” The choices are as follows. (1) Explain that you understand how she feels, that you are grateful that she has been patient with your request that she tries other means first, and that you will now support her decision by giving her instructions and the prescription that she has requested. (2) Tell her that although you understand how she feels, you are morally opposed to assisted suicide, and offer her the opportunity to find another physician if she cannot accept this limitation on what you are prepared to do for her. (3) Other (please briefly explain).

The 6 primary care scenarios were designed to be toss-up situations in which 2 answer choices (one resource-conserving and the other resource-intensive) would both be considered medically appropriate. They were presented in sufficient clinical detail to allow a reasonable medical judgment. For example, in the dysuria scenario, an otherwise healthy, nonpregnant, 32-year-old woman with no allergies telephones the physician on call during the weekend reporting the new onset of a temperature of 38°C and flank pain following 3 days of dysuria. Choices were to prescribe oral antibiotics via the telephone or to refer the patient to the local emergency department for diagnosis and treatment. If respondents did not feel comfortable with the provided treatment options, they could indicate an “other” treatment option with a brief explanation. These other responses were then independently coded by 2 blinded researchers and discrepancies were reconciled after discussion. In coding other responses to the PAS scenario, any explicit indication that the physician would be willing to prescribe the requested medication (eg, “I would write the prescription but not encourage the patient to take it”) was coded as indicating willingness to prescribe the requested drugs. (The complete instrument is available on request from us).

To help offset framing effects, respondents were randomly assigned to 1 of 2 groups. Half were asked to choose the treatment they would recommend for the patient depicted in each scenario. The other half were asked to consider a caseload of 100 patients similar to the patient depicted by each scenario and to indicate the percentage of such patients for whom they would recommend each treatment option. The order of the first 6 scenarios was also randomly varied.

In addition to hypothetical scenarios, surveys collected information about respondents’ practice characteristics, such as self-estimated percentage of fee-for-service (FFS) patients and their perceptions of the strength and direction of the financial incentives in their personal medical practices.

The survey was pilot tested and revised to ensure clarity and variability in responses. Based on the pilot data, we calculated that a respondent pool of 200 physicians would be an adequate sample size for our regression analysis.

We used the official American Board of Medical Specialists directory to select randomly 550 general internist physicians, stratified by 6 large metropolitan areas in the United States: New York, NY, Philadelphia, Pa, Chicago, Ill, Los Angeles, Calif, Atlanta, Ga, and Washington.

STATISTICAL ANALYSIS

To assess the physicians’ orientation with respect to resource conservation, we first constructed a Resource Conservation Index (RCI). The answers of those respondents who were given a dichotomous choice between resource-intensive and resource-conserving options were scored as 0 or 1.0, respectively. The answers of those respondents given the caseload response option were dichotomized and scored as 0 if the respondent indicated that the resource-intensive option would be chosen in 50% or more cases and scored as 1.0 if the respondent indicated that the resource-intensive option would be chosen in 50% or more cases and scored as 0. The RCI is the unweighted mean response, on a scale of 0 to 1.0, with higher scores indicating a more resource-conserving response pattern. Using χ² analyses and multivariate logistic regression, we assessed the relationship between RCI and responses to the assisted suicide scenario.

In addition, we assessed the relationship between reported financial incentives and responses to the assisted suicide scenario using multivariate logistic regression and analysis of variance.

RESULTS

Of the original sample of 550 physicians, we failed to contact 60 because they had either moved or retired, leaving an effective sample size of 490. Following multiple mailings and telephone calls to nonresponders, we received 207 responses, all but 1 of which were complete, yielding a 42% rate of return of usable questionnaires. Twenty-four percent of scenario responses were other and required recoding as described in the “Methods” section. The agreement rate between the 2 recoders was 93%.
Table 1. Resource Conservation Index

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Resource Intensive Option</th>
<th>Resource-Conserving Option</th>
<th>Proportion Choosing Resource-Conserving Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dysuria, flank pain, and fever in a healthy 32-year-old woman</td>
<td>Emergency department evaluation</td>
<td>Prescribe oral antibiotics</td>
<td>0.48</td>
</tr>
<tr>
<td>36-year-old man with acute exacerbation of chronic asthma, green sputum, and peak flow, 100 L/min</td>
<td>Hospitalize and give intravenous steroids and antibiotics</td>
<td>Trial of oral steroids and antibiotics with outpatient follow-up</td>
<td>0.52</td>
</tr>
<tr>
<td>Chest pain in a 58-year-old woman smoker; stress test equivocal</td>
<td>Refer to cardiologist</td>
<td>Trial of aspirin and a β-blocker</td>
<td>0.14</td>
</tr>
<tr>
<td>80-year-old demented woman with urosepsis and medical indications for intensive care; family considering do-not-resuscitate order</td>
<td>Admit to intensive care unit</td>
<td>Admit to ward</td>
<td>0.50</td>
</tr>
<tr>
<td>46-year-old woman with 6 mo of headache, worried about brain tumor</td>
<td>Obtain computed tomographic scan of the head, including sinus views</td>
<td>Treat with muscle relaxants and a nonsteroidal anti-inflammatory drug</td>
<td>0.26</td>
</tr>
<tr>
<td>48-year-old woman smoker with 1 wk of cough producing yellow, blood-tinged sputum</td>
<td>Obtain chest x-ray film</td>
<td>Treat empirically with antibiotics and follow-up</td>
<td>0.59</td>
</tr>
<tr>
<td>Mean Resource Conservation Index</td>
<td></td>
<td></td>
<td>0.42</td>
</tr>
</tbody>
</table>

*Measured on a scale of 0 to 1, with 0 indicating resource intensive; 1, resource conserving. Ellipses indicate not applicable.

DEMOGRAPHICS

Responding physicians did not differ significantly in age or number of years in practice from nonresponders. Responders were more likely to practice medicine in a group practice environment (P < .01). Philadelphia had the highest response rate (59%) and Los Angeles the lowest (31%).

The mean age of the respondent pool was 47 years (range, 31-83 years). The respondent pool was 166 (81%) men and 171 (83%) white. Thirty-one (15%) respondents were from New York, 32 (16%) from Philadelphia, 41 (20%) from Chicago, 17 (8%) from Atlanta, 33 (16%) from Los Angeles, and 50 (25%) from Washington. Sixty (29%) respondents reported practicing in a solo private practice, 86 (42%) in a single-specialty group practice, 41 (20%) in a multispecialty group practice, and 19 (9%) in an other practice.

RESOURCE UTILIZATION

The response scores for the individual items on the RCI are shown in Table 1. As illustrated, there was substantial variability in the respondents’ choices, indicating a range of responses that might be considered appropriate care.

PRACTICE FINANCIAL CHARACTERISTICS

Respondents reported that, on average, 62% of their patients offer payment on an FFS basis. The percentage of patients paying on an FFS basis was significantly and positively correlated with the number of years that a physician had been in medical practice (r = 0.23; P = .001).

The respondents’ perceptions of the strength and direction of the financial incentives under which they practice indicated a slight tendency toward incentives to limit tests, treatments, and referrals, with 39% of respondents reporting strong or moderate incentives to limit tests, treatments, and referrals, 48% reporting neutral financial incentives, and 13% reporting that they practice under strong or moderate incentives to increase therapies. As expected, the percentage of patients paying on an FFS basis was significantly correlated with perceptions of incentives to increase tests, treatments, and referrals (r = 0.30; P = .001).

ASSISTED SUICIDE

Sixty-seven (33%) respondents indicated that they would participate in the suicide of the patient depicted in the seventh scenario. There was a tendency for a resource-conserving response on 4 of the 6 individual items to be associated with willingness to participate in PAS. The odds ratios for willingness to prescribe were 2.33, 1.33, 1.32, 1.45, 0.94, and 1.03 for the pyelonephritis, asthma, chest pain, dementia, headache, and cough scenarios, respectively. Only the pyelonephritis scenario was significantly associated with PAS as an individual item (P = .005). The mean RCI for physicians who would assist with suicide was 0.42, while it was 0.35 for those who would not (P = .03).

As shown in the Figure, there was a strong, linear relationship between the number of items on which the individual chose the resource-conserving options and the likelihood that he or she would be willing to participate in PAS. The χ² value for linear trend was 4.90 (P = .03).

In a multivariate logistic regression model (Table 2) controlling for respondent race, sex, response format (case load vs individual), and number of years in medical practice, physicians who tended to choose resource-conserving treatment strategies in the first 6 medical scenarios were 6.4 times more likely than their resource-intensive counterparts to prescribe the requested drugs (P = .02). In addition, minority physicians were less likely to prescribe the requested lethal dose than were whites (odds ratio, 0.34; P = .03). The physician’s sex (P = .94), number of years in medical practice (P = .93), and response format (P = .49) were not associated with willingness to prescribe. Adding self-reported percentage of
FFS and perceived financial incentives to the model increased the odds ratio for the RCI variable to 7.4 but did not increase the model's overall predictive power and so were excluded from the final model. Likewise, city and practice type were not significant in bivariate analyses and did not increase the predictive power of the model and were thus also excluded from the final model.

In a separate multiple logistic regression model, also controlling for physician sex, race, and number of years in medical practice, neither the reported percentage of patients paying on a FFS basis (P = .61) nor the physicians' perceptions of the strength and direction of financial incentives in medical practices (P = .22) were associated with willingness to prescribe. Compared with physicians in Philadelphia, physicians in New York (P = .61), Chicago (P = .62), Los Angeles (P = .73), Washington (P = .73), and Atlanta (P = .96) were neither more nor less likely to prescribe the medication.

<table>
<thead>
<tr>
<th>Physician Variable</th>
<th>Odds Ratio (95% Confidence Interval)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource Conservation Index</td>
<td>6.40 (1.36-30.0)</td>
<td>.02</td>
</tr>
<tr>
<td>Race</td>
<td>0.34 (0.13-0.88)</td>
<td>.03</td>
</tr>
<tr>
<td>Sex</td>
<td>1.02 (0.61-1.71)</td>
<td>.94</td>
</tr>
<tr>
<td>Response format</td>
<td>0.81 (0.44-1.49)</td>
<td>.49</td>
</tr>
<tr>
<td>Years in practice</td>
<td>1.00 (0.98-1.02)</td>
<td>.93</td>
</tr>
</tbody>
</table>

*Variables were defined as follows: the Resource Conservation Index was expressed as a continuous variable on a scale of 0 to 1.0, with low scores indicating resource-intensive responses and high scores, resource-conserving responses (see the “Methods” section in the text). Race was dichotomized as 0, white and 1.0, nonwhite minority; sex, 0, male and 1.0, female; response format, 0, individual and 1.0, caseload type (see the “Methods” section in the text). Years in practice was expressed as a continuous variable in years. Not significant in bivariate analysis and not included in model were age, practice type, self-reports of percentage of fee-for-service patients and financial incentives, and city.

Surveys have reported a marked division among American physicians regarding their support for PAS.7-13 In our survey of general internists, 33% indicated a willingness to write a lethal prescription for a competent, terminally ill patient suffering from pain not relieved by substantial analgesic interventions.

This study has identified a significant, strong, linear association between the tendency of general internists to choose resource-conserving treatment options and their willingness to assist a terminally ill patient with suicide, as assessed by their responses to hypothetical cases. This association is independent of physician sex, race, years in practice, or geographic location.

Our study is limited because it involved only a small number of physicians in a single specialty. However, it has the advantage of constituting a national sample of general internists—a group likely to be involved in the practice of PAS if it is legalized. Rural physicians were excluded, but both the cost-containment and PAS debates seem centered in the urban and suburban settings. While response bias cannot be completely excluded, respondents did not differ from nonrespondents in age or number of years in practice. Furthermore, even if the relationship we have shown were to hold only among those who responded, the fact that such a subpopulation can be identified is itself of interest.

The validity of the findings from this study might be questioned. However, we minimized bias in the recoding of other responses by blinding and by using 2 recoders. We used carefully pretested scenarios and questions, and relied on a scale of resource conservation rather than a single response. We found an association or a trend toward an association between PAS and resource-conserving responses on 4 of the 6 individual items on the scale. Moreover, the relationship between the number of resource-conserving options chosen and willingness to participate in PAS was linear. These facts strongly suggest that a definite underlying attitude was identified.

Neither the physicians’ reported percentage of FFS patients nor their perceptions of the strength and direction of the financial incentives in their practices correlated with the physicians’ willingness to prescribe lethal medication to the terminally ill patient depicted in the scenario. This might suggest that physicians’ attitudes regarding resource conservation and PAS are intrinsic characteristics of the physicians themselves and are not related to the financial environment of the practice. However, our data on the financial characteristics of the practice are based on unvalidated physician reports. In addition, the reported percentage of FFS (62%) was high in these practices, and only 39% reported fiscal incentives to limit costs.

We found that minority physicians showed less willingness than their white colleagues to prescribe lethal medication to a terminally ill patient. This corroborates the minority opposition to euthanasia that Blendon et al7 have reported in their surveys of the general public.

It would be a mistake to conclude automatically from this study that physicians view PAS as a cost-containment mechanism. Demonstrating an association between a resource-conserving practice style and willingness to participate in PAS does not establish a causal relationship. While it cannot be ruled out that PAS may be viewed by these physicians, explicitly or implicitly, as a means of conserving...
resources, other explanations are also plausible. It is possible, for instance, that some physicians are more resource intensive because they are averse to risk, and might therefore be less likely than their resource-conserving colleagues to participate in PAS. It is also possible that physicians who are more resource conserving might simply be more likely to view it as irrational to insist that patients who choose to end their lives should be prohibited from doing so when such acts will, in fact, conserve scarce medical resources. This view of rationality and justice, however, does not meet with universal approval.23,24

The association we report does not constitute proof that abuse of PAS will result from the legalization of this practice in a cost-constrained environment. Nonetheless, it suggests a sobering degree of caution in legalizing PAS in a medical care environment that is characterized by increasing pressure on physicians to control the cost of care. This information should be carefully considered and studied further as policymakers, lawyers, and judges debate whether PAS should be legalized.

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