Special Article

WHAT ARE THE POTENTIAL COST SAVINGS FROM LEGALIZING PHYSICIAN-ASSISTED SUICIDE?

EZEKIEL J. EMANUEL, M.D., PH.D., AND MARGARET P. BATTIN, PH.D.

IN the *Washington* v. *Glucksberg* and *Vacco* v. *Quill* decisions rejecting a constitutional right to physician-assisted suicide, the Supreme Court allowed each state to decide whether to legalize the intervention.[1] In state legislatures rather than courtrooms, factual claims about the probable extent and implications of permitting physician-assisted suicide assume a preeminent role in the debate about legalization.[2] Particularly sensitive in these discussions will be the issue of the potential cost savings from legalizing physician-assisted suicide, and how the savings might influence decision making by health care institutions, physicians, families, and terminally ill patients.[3-6]

Although we do not agree with each other about the ethics or optimal social policy regarding physician-assisted suicide and euthanasia, we do agree that the claims of cost savings distort the debate. Within the limits of available data, we offer an assessment of the potential cost savings from legalizing physician-assisted suicide, demonstrating that the savings can be predicted to be very small — less than 0.1 percent of both total health care spending in the United States and an individual managed-care plan's budget.

SPECULATING ABOUT COST SAVINGS FROM PHYSICIAN-ASSISTED SUICIDE

There is a widespread perception that the United States spends an excessive amount on high-technology health care for dying patients.[7-20] Many commentators note that 27 to 30 percent of the Medicare budget is spent on the 5 percent of Medicare patients who die each year.[21] They also note that the expenditures increase exponentially as death approaches, so that the last month of life accounts for 30 to 40 percent of the medical care expenditures in the last year of life. To many, savings from reduced use of expensive technological interventions at the end of life are both necessary and desirable.[11,12,18,19]

Many have linked the effort to reduce the high cost of death with the legalization of physician-assisted suicide. One commentator observed: "Managed care and managed death [through physician-assisted suicide] are less expensive than fee-for-service care and extended survival. Less expensive is better."[22] Some of the amicus curiae briefs submitted to the Supreme Court expressed the same logic: "Decreasing availability and increasing expense in health care and the uncertain impact of managed care may intensify pressure to choose physician-assisted suicide"[23] and "the cost effectiveness of hastened death is as undeniable as gravity. The earlier a patient dies, the less costly is his or her care."[24] Indeed, the Supreme Court noted the potential for cost-saving motives to influence the legalization and use of physician-assisted suicide, speculating that "if physician-assisted suicide were permitted, many might resort to it to spare their families the substantial financial burden of end-of-life health care costs."[1]

FACTORS DETERMINING SAVINGS FROM PHYSICIAN-ASSISTED SUICIDE

Computing the likely cost savings from legalizing physician-assisted suicide is based on three factors: (1) the number of patients who might commit suicide with the assistance of a physician if it is legalized; (2) the proportion of medical costs that might be saved by the use of physician-assisted suicide, which is related to the amount of time that a patient's life might be shortened; and (3) the total cost of medical care for patients who die.

Each of these factors is uncertain. Although available data indicate that physicians in the United States currently provide euthanasia and assistance with suicide to some patients,[25,26] it is impossible to determine how many additional Americans would die as a result of physician-assisted suicide if it were legalized. The savings from legalization would depend on the additional number of physician-assisted suicides beyond the current number. Since predictions about any patient's precise date of death are inherently uncertain, it is impossible to determine how much life would be forgone. Finally, only limited data are available on the costs of care near the end of life in

From the Center for Outcomes and Policy Research, Division of Cancer Epidemiology and Control, Dana–Farber Cancer Institute, and the Division of Medical Ethics, Harvard Medical School, Boston (E.J.E.); and the Department of Philosophy, University of Utah, and the Division of Medical Ethics, Department of Internal Medicine, University of Utah School of Medicine, Salt Lake City (M.P.B.). Address reprint requests to Dr. Emanuel at the Center for Outcomes and Policy Research, Division of Cancer Epidemiology and Control, Dana–Farber Cancer Institute, 44 Binney St., Boston, MA 02115.

the United States.[15,16,21] However, by combining data on physician-assisted suicide and euthanasia in the Netherlands, where these interventions are openly performed[27,28] and have been studied,[29-31] and available U.S. data on costs at the end of life, we can estimate the cost savings that would be realized in the United States if physician-assisted suicide were legalized. Although such an estimate is very crude, sensitivity analysis can minimize the effect of the uncertainty by providing the range of savings under reasonable conditions.

THE NUMBER OF PATIENTS WHO MIGHT CHOOSE PHYSICIAN-ASSISTED SUICIDE

In the Netherlands, approximately 3100 cases of euthanasia and 550 cases of physician-assisted suicide occur annually, representing 2.3 percent and 0.4 percent, respectively, of all deaths.[31] (There are an additional 1000 cases [0.7 percent] in which euthanasia is performed without the patients' explicit, current consent.[31] Such cases are neither sanctioned in the Netherlands nor permitted by the current proposals for legalization of physician-assisted suicide in the United States.) About 80 percent of deaths by physician-assisted suicide or euthanasia in the Netherlands involve patients with cancer, representing 6 percent of all deaths from cancer.[30,31] Extrapolating the Dutch rates to the United States suggests that approximately 62,000 Americans (2.7 percent of the 2.3 million who die in the United States each year) might choose physician-assisted suicide if it were legalized and carried out with the explicit, current consent of the patients. Patients with cancer are also likely to be the primary users of physician-assisted suicide in the United States.[25,26]

PROPORTION OF LIFE SHORTENED BY PHYSICIAN-ASSISTED SUICIDE

Although predicting the exact date on which an individual patient will die is impossible, physicians are fairly accurate in predicting the time of death on a population basis, especially for patients who die of cancer.[16,32] Dutch physicians estimate that 17 percent of patients receiving euthanasia or a physician's assistance with suicide at the patients' explicit request had their lives shortened by less than one day, 42 percent by one day to one week, 32 percent by more than one week to four weeks, and 9 percent by more than one month.[30,31] Thus, more than 90 percent of Dutch patients who died as a result of physician-assisted suicide or euthanasia at their own explicit request had their lives shortened by 4 weeks or less, with an average life reduction of less than 3.3 weeks.

THE COSTS OF MEDICAL CARE FOR DYING PATIENTS

Determining the costs of medical care at the end of life and how much would be saved by legalizing physician-assisted suicide is made difficult by several problems with the available data. It is speculative to assume that patients who might commit physician-assisted suicide would consume resources at a rate similar to that of patients who do not; such patients may be considerably different from average decedents in terms of health status, psychology, and sociodemographic characteristics, using more (or fewer) health care resources at the end of life.[25] Also, the best data available in the United States on the cost of medical care at the end of life come from Medicare, which provides mainly acute care for the elderly and disabled.[33,34] Studies have come to various conclusions about whether these Medicare data can be extrapolated to decedents under 65 years old.[35-38] According to recent Medicare data, for a beneficiary who dies of cancer after receiving conventional care, $30,397 (in 1995 dollars) is spent on medical care in the last year of life.[39,40] Fully 33 percent of the last year's costs ($10,118 in 1995 dollars) are spent in the last month of life, and 48 percent ($14,507 in 1995 dollars) in the last two months of life. (The available data do not define costs in any smaller increments of time.)

ESTIMATED COST SAVINGS FROM LEGALIZING PHYSICIAN-ASSISTED SUICIDE

Assuming that (1) 2.7 percent of patients who die each year (62,000 Americans) would choose physician-assisted suicide, (2) these patients would forgo an average of four weeks of life, and (3) the medical costs in the last month of life for each patient who dies are $10,118 (in 1995 dollars), we estimate that legalizing physician-assisted suicide and euthanasia would save approximately $627 million in 1995 dollars (Table 1). This amount is less than 0.07 percent of total U.S. health care expenditures.

OVERESTIMATION AND UNDERESTIMATION OF COST SAVINGS

This calculation may produce a considerable overestimate of savings. In six ways, the calculation is biased to inflate the savings. First, we assumed that U.S. physicians would fulfill their patients' requests at the same rate that Dutch physicians do. Yet in the Netherlands 53 percent of physicians have provided assistance with suicide or administered euthanasia, and just 4 percent state that they would neither do so nor refer a patient to another physician who would.[29,31] In contrast, surveys of American physicians suggest that a substantial majority would refuse to provide assistance with suicide, even if it were legalized.[25,26,41,42] Unless legalization greatly altered physicians' practices, having fewer American physicians willing to assist in suicide would probably mean that fewer American patients would receive such assistance.

Second, we estimated the average amount of life

TABLE 1. ESTIMATED COST SAVINGS FROM THE USE OF PHYSICIAN-ASSISTED SUICIDE BY PATIENTS WITH CANCER WHO RECEIVE CONVENTIONAL CARE (IN 1995 DOLLARS).

PERCENT (NO.) WHO WOULD USE PHYSICIAN-ASSISTED SUICIDE	END-OF-LIFE HEALTH CARE COSTS			
	AVERAGE MEDICARE COSTS — PART A AND PART B		TWICE THE AVERAGE MEDICARE COSTS — PART A AND PART B	
	In Last Mo of Life ($10,118)	*In Last 2 Mo of Life ($14,507)*	*In Last Mo of Life ($20,236)*	*In Last 2 Mo of Life ($29,014)*
	dollars			
2.7 (62,000)	627 million*	899 million	1.25 billion	1.80 billion
3.4 (78,000)†	789 million	1.13 billion	1.58 billion	2.26 billion
5.0 (115,000)	1.16 billion	1.67 billion	2.33 billion	3.34 billion
7.0 (161,000)‡	1.63 billion	2.34 billion	3.26 billion	4.67 billion

*This amount represents the most reasonable estimate of cost savings.

†This percentage is the proportion of all cases of euthanasia and physician-assisted suicide in the Netherlands, including the cases of euthanasia in which patients did not provide current consent. The number extrapolates the Dutch percentage to the U.S. population.

‡This percentage is the proportion of all dying patients who make inquiries about or request euthanasia or physician-assisted suicide in the Netherlands. Approximately one third of such inquiries and requests are answered or honored. The number extrapolates the Dutch percentage to the U.S. population.

forgone by patients who die as a result of physician-assisted suicide at four weeks, which may be too high. The average time forgone by Dutch patients who receive euthanasia with their consent is less than 3.3 weeks, with 59 percent forgoing 1 week of life or less. Clearly, the more life forgone, the greater the projected savings. In addition, Dutch physicians estimated that 8 percent of the patients who died as a result of physician-assisted suicide or euthanasia would have lived longer than six months[29,30]; such patients are not "terminally ill," as defined by Oregon's law governing physician-assisted suicide and most American proposals for legalization, and thus would not be permitted to receive a physician's assistance with suicide in the United States.

Third, we calculated the savings by using the costs of care for patients with cancer and generalized these costs to all patients who might choose physician-assisted suicide. Yet because of the intensity of their care, patients with cancer have some of the highest costs at the end of life.[33,34] Patients with other diseases, such as multiple sclerosis or amyotrophic lateral sclerosis, who might choose physician-assisted suicide are likely to have lower overall medical costs and thus are likely to represent less money saved.

Fourth, when calculating the costs at the end of life, we used the costs for patients receiving conventional care for their cancers. The medical expenditures for patients who receive hospice care during the last two months of life are substantially lower than those for patients receiving conventional care ($9,548 vs. $14,507 in 1995 dollars), suggesting that the savings from physician-assisted suicide would be less for patients receiving hospice care.[31,40-42]

Fifth, recent surveys indicate that some terminally ill patients in the United States have died as a result of physician-assisted suicide or euthanasia, although it is impossible to determine precisely how many.[25,26,43] The cost savings realized from these cases in which death was hastened are already accounted for in the health care system and are double-counted in our calculation.

Finally, we have not included the additional costs that legalizing physician-assisted suicide would entail. Proposals for legalization include the requirement that a second physician confirm that the patient is terminally ill and understands the implications of requesting a physician's assistance with suicide. Some proposals would mandate a psychiatric evaluation of patients making such a request. Others, such as Oregon's Death with Dignity Act (Measure 16), require referral of patients for counseling if they might have depression or another psychiatric disorder. Measure 16 also requires the state to assemble statistics on the use of physician-assisted suicide. There is likely to be litigation, such as investigations and prosecutions of physicians who violate the safeguards. All these activities would increase the medical and legal costs, thereby reducing the net savings from physician-assisted suicide.

Conversely, several considerations suggest that these calculations may underestimate the potential savings from physician-assisted suicide. Our use of Medicare costs at the end of life might have caused us to underestimate the total health care costs and therefore the potential savings. According to some, the average Medicare costs for care at the end of life do not accurately reflect the costs for all dying patients, especially for patients in tertiary care facilities. Also, Medicare Part A and Part B do not cover all health care costs; indeed, substantial costs, predominantly nursing home costs, are not included.[34,40] However, in the Netherlands, euthanasia and physician-assisted suicide are quite rare among patients in nursing homes — just 2 percent of all cases — suggesting that the absence of nursing home costs from these calculations does not produce a large underestimate.[30,31]

In addition, in the United States, family members provide substantial care for dying patients, adding to the overall costs of care at the end of life.[44] Because there are no studies that accurately quantify the financial costs of family care for dying patients, such costs are not usually computed in the assessments of health care costs at the end of life.[40] By ending patients' lives earlier, physician-assisted suicide would reduce the costs associated with family care. There is currently no way to quantify these savings.

To acknowledge the uncertainty in these estimates, Tables 1 and 2 present analyses of the savings in various circumstances, varying the proportion of the population that might choose physician-assisted suicide, the amount of life forgone, and the expenditures for medical care at the end of life. The lower bound of savings assumes that 2.7 percent of dying Americans (62,000) might choose physician-assisted suicide, forgoing four weeks of life and using hospice care at the end of life. These assumptions produce a savings of $336 million (Table 2). Conversely, the most inflated assumptions are that 7.0 percent of dying Americans (161,000) might choose physician-assisted suicide, forgoing an average of eight weeks of life at twice the average Medicare expenditures ($29,014). These assumptions produce savings of $4.67 billion.

MANAGED-CARE PLANS AND COST SAVINGS FROM PHYSICIAN-ASSISTED SUICIDE

Although the total national savings from the legalization of physician-assisted suicide might be small, there is concern that price competition might still tempt managed-care plans to encourage the practice. Several of the amicus briefs submitted to the Supreme Court raised this specter: "It is certainly plausible and perhaps even likely that budget-minded health care organization managers and their physician-employees would press their dying patients toward exercising [a right to receive a physician's assistance with suicide]" and "agonized and depressed patients would elect to have their deaths facilitated since their relievable suffering went unalleviated because of their health providers' financial imperatives."[23,24] In the abstract this claim seems implausible, since one of the principal ways managed-care plans save money is by enrolling healthier members, including healthier Medicare beneficiaries, who are less likely to be terminally ill. Nevertheless, it may correspond to the motives of some managed-care executives and certainly seems to express public suspicions. How much would managed-care plans save by encouraging the use of physician-assisted suicide?

One large managed-care plan currently enrolls approximately 1.7 million adults and has an annual budget of almost $4.5 billion. In 1995, approximately 13,000 of the enrolled adults died, including 3800 who died of cancer. Over the last six months of life, the mean cost for patients enrolled in this managed-care plan who died of breast cancer was $21,329 (in 1995 dollars), with about $9,500 spent in the last month of life.[45] Assuming that 2.7 percent of the patients who died would have chosen physician-assisted suicide (351 patients), forgoing an average of four weeks of life at an average savings of $9,500, the managed-care plan's expenditures would have been reduced by $3.3 million, or less than 0.08 percent of its total budget. For other managed-care plans that tend to have higher proportions of young, healthy patients with lower death rates, the absolute and relative savings are likely to be even smaller.

FAMILIES AND COST SAVINGS FROM PHYSICIAN-ASSISTED SUICIDE

Although the cost savings to the United States and most managed-care plans are likely to be small, it is important to recognize that the savings to specific terminally ill patients and their families could be substantial. For many patients and their families, especially but not exclusively those without health insurance, the costs of terminal care may result in large out-of-pocket expenses.[44] Nevertheless, as compared with the average American, the terminally ill are less likely to be uninsured, since more than two thirds of decedents are Medicare beneficiaries over 65 years of age. The poorest dying patients are likely to be Medicaid beneficiaries. Extrapolating from the Medicare data, one can calculate that a typical uninsured patient, by dying one month earlier by means of physician-assisted suicide, might save his or her family $10,000 in health care costs, having already spent as much as $20,000 in that year. Some patients using intensive medical services may incur considerably higher health care costs. If uninsured nonhospice patients with cancer were to choose physician-assisted suicide six months before their natural deaths — the earliest point permitted under current proposals — the average savings for the family could be $20,000. Although the overall national savings from legalizing

TABLE 2. ESTIMATED COST SAVINGS FROM THE USE OF PHYSICIAN-ASSISTED SUICIDE BY PATIENTS WITH CANCER WHO RECEIVE HOSPICE CARE (IN 1995 DOLLARS).

PERCENT (NO.) WHO WOULD USE PHYSICIAN-ASSISTED SUICIDE	END-OF-LIFE HEALTH CARE COSTS			
	AVERAGE MEDICARE COSTS — PART A AND PART B		TWICE THE AVERAGE MEDICARE COSTS — PART A AND PART B	
	In Last Mo of Life ($5,413)	*In Last 2 Mo of Life ($9,548)*	*In Last Mo of Life ($10,826)*	*In Last 2 Mo of Life ($19,096)*
	dollars			
2.7 (62,000)	336 million	592 million	671 million	1.18 billion
3.4 (78,000)*	422 million	745 million	844 million	1.49 billion
5.0 (115,000)	622 million	1.10 billion	1.24 billion	2.20 billion
7.0 (161,000)†	871 million	1.54 billion	1.76 billion	3.07 billion

*This percentage is the proportion of all cases of euthanasia and physician-assisted suicide in the Netherlands, including the cases of euthanasia in which patients did not provide current consent. The number extrapolates the Dutch percentage to the U.S. population.

†This percentage is the proportion of all dying patients who make inquiries about or request euthanasia or physician-assisted suicide in the Netherlands. Approximately one third of such inquiries and requests are answered or honored. The number extrapolates the Dutch percentage to the U.S. population.

physician-assisted suicide might be small, for many families — especially those of uninsured patients — the savings could be substantial. What savings level, if any, would motivate families to pressure patients into requesting a physician's assistance with suicide is a matter of speculation but one that cannot be ignored.

WHY ARE THE COST SAVINGS FROM PHYSICIAN-ASSISTED SUICIDE SO LOW?

The estimated cost savings from permitting physician-assisted suicide are lower than many people expect. One reason for this disparity is the frequent overestimation of how much is spent on medical care at the end of life. One commentator claimed that "some 70 to 90% of our health care dollar is spent on the last few months of life."[17] Others have suggested that the costs of care for dying patients account for almost 30 percent of all health care expenditures.[10] In fact, each year about 10 percent of expenditures for medical care involves patients who die.[40] The less spent on patients who die, the smaller the cost savings from physician-assisted suicide.

Another reason may be that people overestimate the number of Americans who die each year. Less than 1 percent of Americans die each year. Of these, many would be unable or ineligible to request a physician's assistance with suicide, even if it were legalized: newborns with serious birth defects, minors, victims of trauma, persons who die suddenly from myocardial infarctions or strokes, and patients with dementia. More important, if Americans were to choose physician-assisted suicide at the same rate as the Dutch choose euthanasia, only 0.027 percent of Americans might choose physician-assisted suicide if it were legalized. Put another way, more than 99.97 percent of Americans would continue to receive the usual health care at the usual cost. Because physician-assisted suicide would not affect the health care provided to the vast majority of Americans, it would not substantially reduce overall health care costs.

Finally, physician-assisted suicide is not an option most people would be likely to choose much before their "natural deaths." As the Dutch data demonstrate, the average amount of life forgone by all patients electing euthanasia or physician-assisted suicide is less than four weeks.[30,31] Although the care given in the last four weeks of life accounts for a considerable proportion of health care costs, it still represents only 33 percent of all medical expenditures during the last year of life and an even smaller fraction of lifetime health care expenditures.[39,40] Considering the small fraction of Americans who would choose physician-assisted suicide, the small fraction of life they would forgo, and the small fraction of total health care expenditures associated with their care, the savings that would result from the legalization of physician-assisted suicide represent a very small fraction of total health care expenditures.

CONCLUSIONS

Drawing on data from the Netherlands on the use of euthanasia and physician-assisted suicide and on available U.S. data on costs at the end of life, this analysis explores the degree to which the legalization of physician-assisted suicide might reduce health care costs. The most reasonable estimate is a savings of $627 million, less than 0.07 percent of total health care expenditures. What is true on a national scale is also likely to be reflected in the potential savings for individual managed-care plans. Physician-assisted suicide is not likely to save substantial amounts of money in absolute or relative terms, either for particular institutions or for the nation as a whole.

We are indebted to Dr. Paul van der Maas, Dr. Miles Brown, Dr. Jane Weeks, David Guberman, Dr. Jay Jacobson, Dr. Jeff Botkin, Dr. David Green, Dr. Leslie Francis, Evelyn Kasworm, and Jan Van-Riper for helpful ideas and criticisms of the manuscript.

REFERENCES

1. Washington v. Glucksberg, 117 Supreme Ct. 2258 (1997).
2. Emanuel EJ. The future of euthanasia: from rights talk to informed public policy. Minn Law Rev 1998;82:983-1014.
3. Teno J, Lynn J. Voluntary active euthanasia: the individual case and public policy. J Am Geriatr Soc 1991;39:827-30.
4. Singer PA, Siegler M. Euthanasia — a critique. N Engl J Med 1990; 322:1881-3.
5. Kass LR. Neither for love nor money: why doctors must not kill. Public Interest 1989;Winter:25-46.
6. Sulmasy DP. Managed care and managed death. Arch Intern Med 1995; 155:133-6.
7. Leaf A. Medicine and the aged. N Engl J Med 1977;297:887-90.
8. Schroeder SA, Showstack JA, Schwartz J. Survival of adult high-cost patients: report of a follow-up study from nine acute care hospitals. JAMA 1981;245:1446-9.
9. Fries JF, Koop CE, Beadle CE, et al. Reducing health care costs by reducing the need and demand for medical services. N Engl J Med 1993; 329:321-5.
10. Singer PA, Lowy FH. Rationing, patient preferences, and cost of care at the end of life. Arch Intern Med 1992;152:478-80.
11. Lundberg GD. American health care system management objectives: the aura of inevitability becomes incarnate. JAMA 1993;269:2554-5.
12. Schneiderman LJ, Jecker N. Futility in practice. Arch Intern Med 1993;153:437-41.
13. Murphy DJ, Finucane TE. New do-not-resuscitate policies: a first step in cost control. Arch Intern Med 1993;153:1641-8.
14. Ginzberg E. The high costs of dying. Inquiry 1980;17:293-5.
15. Bayer R, Callahan D, Fletcher J, et al. The care of the terminally ill: morality and economics. N Engl J Med 1983;309:1490-4.
16. Scitovsky AA. "The high cost of dying": what do the data show? Milbank Q 1984;62:591-608.
17. Godec MS. Your final 30 days — free. Washington Post. May 2, 1993: C3.
18. Peterson PG. Will America grow up before it grows old? How the coming Social Security crisis threatens you, your family, and your country. New York: Random House, 1996:176.
19. d'Oronzio JC. Good ethics, good health economic. New York Times. June 8, 1993:A25.
20. Frye A. Final savings, living wills. Washington Post. January 2, 1994: C3.
21. Lubitz JD, Riley GF. Trends in Medicare payments in the last year of life. N Engl J Med 1993;328:1092-6.
22. La Puma J. Managed care and managed death. Arch Intern Med 1995; 155:1553.
23. The American Geriatric Society. Brief to the Supreme Court: brief for amicus curiae.
24. International Anti-euthanasia Task Force. Brief to the Supreme Court: brief for amicus curiae.
25. 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.
26. 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.
27. de Wachter MAM. Active euthanasia in the Netherlands. JAMA 1989; 262:3316-9.
28. A dozen caveats concerning the discussion of euthanasia in the Netherlands. In: Battin MP. The least worst death: essays in bioethics on the end of life. New York: Oxford University Press, 1994:130-44.
29. Van Der Maas PJ, Van Delden JJM, Pijnenborg L, Looman CWN. Euthanasia and other medical decisions concerning the end of life. Lancet 1991;338:669-74.
30. van der Maas PJ, van Delden JJM, Pijnenborg L. Euthanasia and other medical decisions concerning the end of life. Health Policy 1992;22:1-262.
31. van der Maas PJ, van der Wal G, Haverkate I, et al. Euthanasia, physician-assisted suicide, and other medical practices involving the end of life in the Netherlands, 1990–1995. N Engl J Med 1996;335:1699-705.
32. Knaus WA, Harrell FE Jr, Lynn J, et al. The SUPPORT prognostic model: objective estimates of survival for seriously ill hospitalized adults: Study to Understand Prognoses and Preferences for Outcomes and Risks of Treatment. Ann Intern Med 1995;122:191-203.
33. Riley GF, Lubitz JD. Longitudinal patterns of Medicare use by cause of death. Health Care Financ Rev 1989;11(2):1-12.
34. Riley G, Lubitz J, Prihoda R, Rabey E. The use and costs of Medicare services by cause of death. Inquiry 1987;24:233-44.
35. Scitovsky AA. Medical care in the last twelve months of life: the relation between age, functional status, and medical care expenditures. Milbank Q 1988;66:640-60.
36. Long SH, Gibbs JO, Crozier JP, Cooper DI Jr, Newman JF Jr, Larsen AM. Medical expenditures of terminal cancer patients during the last year of life. Inquiry 1984;21:315-27.
37. Spector WD, Mor V. Utilization and charges for terminal cancer patients in Rhode Island. Inquiry 1984;21:328-37.
38. Taplin SH, Barlow W, Urban N, et al. Stage, age, comorbidity, and direct costs of colon, prostate, and breast cancer care. J Natl Cancer Inst 1995;87:417-26.
39. National Hospice Organization. An analysis of the cost savings of the Medicare hospice benefit. Miami: Lewin-VHI, 1995. (National Hospice Organization item code no. 712901.)
40. Emanuel EJ. Cost savings at the end of life: what do the data show? JAMA 1996;275:1907-14.
41. Bachman JG, Alcser KH, Doukas DJ, Lichtenstein RL, Corning AD, Brody H. Attitudes of Michigan physicians and the public toward legalizing physician-assisted suicide and voluntary euthanasia. N Engl J Med 1996; 334:303-9.
42. 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.
43. Fried TR, Stein MD, O'Sullivan PS, Brock DW, Novack DH. Limits of patient autonomy: physician attitudes and practices regarding life-sustaining treatments and euthanasia. Arch Intern Med 1993;153:722-8.
44. Covinsky KE, Goldman L, Cook EF, et al. The impact of serious illness on patients' families. JAMA 1994;272:1839-44.
45. Fireman BH, Quesenberry CP, Somkin CP, et al. Cost of care for cancer in a health maintenance organization. Health Care Financ Rev 1997; 18(4):51-76.