

# “The High Cost of Dying”: What Do the Data Show?

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IN RECENT YEARS, AS NATIONAL HEALTH CARE expenditures have risen from 5.3 percent of the gross national product (GNP) in 1960 to 7.5 percent in 1970 and to 10.5 percent in 1982, increasing concern has been expressed over what Eli Ginzberg (1980), the noted economist, has called “the high cost of dying.” Various studies of medical care expenditures show, it is argued, that we spend a “disproportionate” amount of our health care resources on patients who are terminally ill. Anecdotes about excessive use of expensive high-technology interventions on dying patients abound. In the current era of cost-containment, it is, therefore, not surprising that “the high cost of dying” has led some people to question whether resources are being “wasted” on the dying (especially if the latter are very elderly) and could (or should) be more productively allocated to other patients, or even to other socially desirable ends such as education or housing.

To be precise, most of these studies deal not with “the high cost of dying” of “terminal” patients but with medical care expenditures at the end of life, generally in the last year or six months of life. It is easy enough, of course, to designate a patient as terminal or as dying *retrospectively* but an entirely different matter to do so *prospectively*.

Despite the enormous advances of modern medicine in the past fifty years or so, medical prognosis is still highly uncertain. In fact, modern medicine, by vastly increasing the armamentarium at the physician's disposal, may well have increased the difficulty and uncertainty of medical prognosis compared to the days when the physician could do little more than give moral support to the sick. Today, predicting imminent death with any degree of certainty is difficult in the case of most patients, and predicting death twelve or six or even three months in advance well-nigh impossible. The main exceptions are cancer patients for whom a prognosis of death can be made with reasonable accuracy beyond a certain point in the course of their disease; and it is no accident that hospice programs serve primarily such patients.<sup>1</sup>

Because studies of medical care expenditures at the end of life are by necessity retrospective, they generally ignore the distinction between terminal illness when defined retrospectively and when defined prospectively and treat all such expenditures as though they were expenditures of clearly terminally ill patients. Thus, high medical care costs at the end of life become "the high cost of dying" and the source of concern over "wasting" scarce resources on the care of hopelessly ill patients. The policy implications of this interpretation of the data, though rarely stated explicitly, are clear: If we want to stem the rise in medical care costs, medical care expenditures at the end of life provide an excellent target for cost-containment efforts. In practice, since currently 67 percent of the persons who die in the United States in a given year are 65 years of age or older, this means concentrating such efforts on the elderly. Such a policy may be especially tempting at present considering the concern over the projected fiscal problems of the Medicare program.

In view of these serious—not to say alarming—policy issues raised by various studies, it is urgent to examine in some detail what they actually show and what is known and not known about medical expenditures at the end of life. How much is spent on patients who die compared to patients who survive? What kinds of medical services do patients in their last year or months of life use? Because hospital expenditures account for such a large part of total medical care expenditures (42 percent in 1982), questions arise regarding the use of

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<sup>1</sup> I wish to thank Mr. Steven Sieverts for having suggested this point.

hospital services. Has the use of the hospital as a place to die increased in recent years? Are the high costs at the end of life due largely to aggressive, intensive treatment, to "heroics"? In short, do the available data support the hypothesis that we are spending too much of our medical dollar on the dying and, therefore, suggest that one way of curbing rising medical care costs is to target cost-containment efforts on this group? This is the basic question which will be explored in this article.

## Studies of Costs at the End of Life

Studies of medical care expenditures at the end of life can be classified into two broad groups: (1) studies dealing specifically with expenditures of those who die, and (2) studies of high-cost or catastrophic illness in general which also provide some information on the share of these costs incurred by patients who do not survive.

One of the earliest in the first group is a 1961 study of hospital use in the last year of life (Sutton 1965). It showed that 48 percent of all deaths occurred in short-stay hospitals, and that 63 percent of all decedents used some hospital services in their last year of life; corresponding figures for decedents aged 65 years and over are 45 percent and 61 percent, respectively. This study does not have data on costs, nor on the use of hospital services by patients who did not die. Such data are provided by a somewhat later study, by Timmer and Kovar (1971), of expenses for hospital and institutional care during the last year of life of adults aged 25 and over who died in 1964 and 1965. They found (not surprisingly) not only that the proportion of adult decedents who received some care in hospitals and institutions in their last year of life was very much higher than that of the living population during a 12 month period (73 percent compared to 13 percent) but also that decedents were more than twice as likely to have bills of \$500 or more (!) for care in medical facilities than adults who had such care but did not die. Furthermore the median bill for such care was almost three times higher for decedents than for survivors (\$691 compared to \$259). In yet another study, Selma Mushkin (1974) estimated that in 1974 over 20 percent of all nonpsychiatric hospital and nursing home expenditures in nongovernment facilities were for the care of patients who died.

Several studies have examined the costs of care of cancer patients

who died. A study by Scotto and Chiazze (1976), based on the Third National Cancer Survey, found that in 1969 and 1970 hospital payments of cancer patients who died within 24 months were almost twice as high as those of cancer patients who did not die (\$3,317 compared to \$1,769). A study by Cancer Care (1973), conducted in 1971 and early 1972, found that total expenditures of patients who died of advanced cancer ranged from less than \$5,000 to more than \$50,000 per patient, with an average cost of \$21,718. More recently, a study of cancer costs in the last six months of life has been conducted by the Blue Cross and Blue Shield Association under contract with the Department of Health and Human Services. The unpublished final report on this study shows that medical expenditures of Blue Cross and Blue Shield enrollees under 65 years of age averaged just under \$16,000 (in 1980 dollars) per decedent in this terminal phase of life (Gibbs and Newman 1982).

Since the enactment of Medicare in 1965, several studies have examined Medicare reimbursements on behalf of beneficiaries who died. The earliest of these studies, by Piro and Lutins (1973), of Medicare beneficiaries who died in 1967 or 1968 showed that the 5 percent of Medicare beneficiaries who died in 1967 accounted for 22 percent of all Medicare reimbursements in that year. A more recent study, by McCall (1984), of Medicare beneficiaries in Colorado who died in 1978 found that average Medicare reimbursements for enrollees who died were six times the average reimbursements for enrollees who survived (\$6,000 compared to \$1,000). Yet another recent study, by Helbing (1983) of the Health Care Financing Administration (HCFA), showed that the 4.9 percent of Medicare enrollees who died in 1979 accounted for 21 percent of total Medicare reimbursements. Finally, a considerably more detailed study, conducted at HCFA by Lubitz and Prihoda (1984), has recently been published. They found that the 5.9 percent of Medicare beneficiaries who died in 1978 accounted for 27.9 percent of Medicare expenditures. It should be noted that in contrast to the 1967 study by Piro and Lutins and the 1979 study by Helbing, which included only Medicare reimbursements made for costs incurred in the calendar year in which the enrollee died (i.e., an average of six months' costs), both the study by McCall and that by Lubitz and Prihoda include reimbursements for costs incurred in the entire 12-month period preceding the enrollee's death.

These are the principal studies dealing specifically with medical

care costs of persons who died. In addition, there have been several studies of high-cost or catastrophic illness which show that a considerable portion of these costs is incurred by patients who die. For example, a study by Schroeder, Showstack, and Roberts (1979), which analyzed the experience of high-cost patients treated in a sample of San Francisco Bay Area hospitals in 1976, showed that 15 percent died while in the hospital. A follow-up study indicated that two years after discharge, at least 34 percent of the patients had died (Schroeder, Showstack, and Schwartz 1981).

Several studies of costs incurred in hospital special or intensive-care units also indicate a high use of resources by patients who do not survive hospitalization. Turnbull et al. (1979), analyzing data for the first 1,035 patients admitted to the critical-care unit of Memorial Cancer Center in 1971, noted that only 62 percent of these patients were discharged alive. A 1970 study by Civetta (1973) of patients treated in the surgical intensive-care unit at Massachusetts General Hospital led him to conclude that "the intensive care costs generated by prolonged utilization of this type of facility seem to be inversely related to the probability of patient survival." Three other studies are also based on data from Massachusetts General Hospital. Cullen et al. (1976), studying 226 consecutive critically ill, primarily postoperative patients admitted to an acute-care unit in 1972 and 1973, found that 21 percent of total charges were for blood and blood fractions; of this amount, 83 percent went to the 72 percent who did not survive. Thibault et al. (1980) found that of 2,693 consecutive admissions to a medical intensive-care unit between July 1977 and July 1979 "the 23 percent who required immediate intervention accounted for disproportionate shares of total charges (37 percent) and deaths during hospitalization (58 percent)." Finally, a study by Detsky et al. (1981) showed that the care of nonsurvivors treated in an intensive-care unit "involved a significantly higher mean expenditure than did the care of survivors ( $P < 0.01$ )."

What do these studies tell us about the costs of medical care at the end of life? The various studies of hospital use by decedents compared to survivors all show significantly higher levels of use and expenditures by the former than the latter. However, they are limited to hospital costs and hence do not give a full picture of total costs of care. The same is true of the studies of high-cost or catastrophic illness. In addition, most of these studies are based on treatment

practices in teaching hospitals, and it is doubtful to what extent these practices are found in community hospitals which do not have all the high-technology facilities of tertiary-care centers. Moreover, even the authors themselves generally hesitate to call the aggressive treatment they document inappropriate or wasteful but only suggest that it needs further study. Thus, these studies do not provide a basis for evaluating how much aggressive care of clearly terminal patients goes on in the country as a whole, much less how much this is costing the country.

The studies of the costs of treating patients who died of cancer are somewhat more informative. In contrast to the studies of high-cost illness, which generally deal only with hospital costs, the cancer studies provide data on practically *all* costs. However, they are limited to one specific disease and hence again provide only partial information, although Lubitz and Prihoda (1984, 123) found that the pattern of expenses in the last year of life of patients who died of cancer was virtually identical to that of all decedents.

This leaves the Medicare studies, which are the best source of information on costs at the end of life available to date, although they too have their limitations. For one thing, they provide data only for persons aged 65 years and over who are covered by Medicare. However, since this age group accounts for 67 percent of all deaths, and since most persons in this age group are covered by Medicare, these studies do provide information for a large part of the population.

A more serious shortcoming is the fact that the studies furnish data only for services covered by Medicare. The major omissions are expenses for nursing home care, which Medicare covers only to a very limited extent, and for outpatient drugs, which it does not cover at all. The omission of nursing home costs is especially serious. In 1978 (the last year for which national data by age groups are available) the 65-year and over group spent \$12.6 billion on nursing home care, which is 80.1 percent of total nursing home expenses and 25.6 percent of total personal health care expenses of the elderly; of this total, Medicare paid only 3.0 percent. The omission of drug expenses, though less important, is also not negligible. They amounted to \$3.2 billion in 1978, which is 21.4 percent of total drug expenses of all age groups and 6.5 percent of total personal health care expenses of the elderly (Fisher 1980).

Moreover, even for services covered by Medicare—hospital services

(covered by part A) and physician services (covered by part B)—the Medicare studies do not provide data on total expenses but only on Medicare reimbursements. Because of differences in deductibles and cost-sharing provisions under the two programs, Medicare disbursement data understate total expenses for physician services to a greater extent than expenses for hospital services. In 1978, for example, Medicare paid for 74.6 percent of total hospital expenses of the elderly but for only 55.6 percent of their expenditures for physician services (Fisher 1980).

These limitations must be kept in mind when evaluating the Medicare data on costs incurred by persons who died compared to those incurred by survivors. It is difficult to estimate which way the omission of nursing home and drug expenses and the understatement of total hospital and physician expenses because of deductibles and cost-sharing provisions bias the findings. On balance, these factors may make for a greater understatement of total expenses by survivors rather than decedents. But we really do not have adequate data, especially on nursing home expenses, to arrive at a definite conclusion at this time.

Of the four Medicare studies cited, the one by Lubitz and Prihoda (1984) is the most detailed and will, therefore, be summarized here. Moreover, while the absolute figures in the four studies differ, all show the same general trends and relationships between Medicare expenses of decedents compared to those of survivors. Because of limitations of space, only the authors' findings for the last year of life will be presented here, although they have data for the penultimate year as well. These mirror the findings for the last year, but the total figures and differences between the two groups are smaller.

In addition to their finding that the 5.9 percent of Medicare enrollees who died accounted for 27.9 percent of total Medicare disbursements, Lubitz and Prihoda found that:

- (1) 92 percent of decedents, compared to 58 percent of survivors, had some Medicare reimbursements;
- (2) 74 percent of decedents had one or more hospitalizations in the course of the year, compared to 20 percent of survivors;
- (3) total Medicare reimbursements averaged \$4,527 per enrollee for decedents and \$729 for survivors—i.e., they were 6.2 times higher for decedents;
- (4) reimbursements for hospital care averaged \$3,484 per enrollee

- for decedents (or 77 percent of total reimbursements), \$478 for survivors (or 66 percent of total reimbursements)—i.e., they were 7.3 times higher for decedents;
- (5) 32 percent of decedents had reimbursements of \$5,000 or more compared to only 4 percent of survivors;
  - (6) 30 percent of all expenses of decedents occurred in the last 30 days of life, 46 percent in the last 60 days, and 77 percent in the last six months of life;
  - (7) reimbursements per enrollee and per person receiving Medicare services decreased with increasing age for decedents but increased for survivors; as a result, the difference between the two groups decreased with increasing age: at age 67 to 69, decedents received 9.8 times the average reimbursement per enrollee as survivors whereas at age 85 and over their average reimbursement was only 3.7 times that of survivors. However, these figures would probably change considerably if nursing home expenses were included, which increase with increasing age. Total expenditures of both groups would be higher; expenses of decedents might not decrease with increasing age, but what would happen to the differential between the two groups is difficult to say for lack of adequate data.

## Hospital Use at the End of Life

Because hospital expenses account for such a large part of total Medicare reimbursements for persons in their last year of life, two questions posed at the beginning of this article are worth exploring briefly: (1) Has the use of the hospital as a place to die increased over the last decade or two, and (2) are the high costs at the end of life due largely to aggressive care, and has the relative intensity of hospital care of patients who die compared to those who survive increased?

### *The Hospital as a Place to Die*

Data on the number of deaths by place of death are surprisingly scarce. The main problem is one of definition since sometimes the data refer to short-stay hospitals only, sometimes to short-stay hospitals and long-term care institutions combined; moreover, to complicate matters still further, the definition of an institution is not always the same.



Because of the scarcity of data, all available data on hospital and institutional use in the last year of life have been assembled in table 1. As can be seen from the many blanks in the table, data on the subject are indeed few.

Entry 1 of the table presents a summary of data on the percentage of deaths occurring in short-stay hospitals. This percentage stood at 48 percent in 1961, was 45 percent and 44 percent, respectively, in 1965 and 1975, and amounted to 50 percent in 1980—not a dramatic rise over a 20-year period.

Entry 2 shows the percentage of decedents who had some care in short-stay hospitals in the last year of life. Here indeed we find an increase for decedents aged 65 and over (no recent data are available for the total population) from 61 percent in 1961 to 75 percent in 1976. However, the 61 percent figure for 1967 is not strictly comparable to the others because the data in this study refer to hospital use in the *calendar year* of death only, not in the 12 months preceding death. A rough estimate of the percentage of decedents with some use of short-stay hospitals in the full 12 months before death can be made on the basis of the finding by Lubitz and Prihoda (1984) that Medicare reimbursements in the last six months of life accounted for 77 percent of total Medicare reimbursements in the 12 months before death. Adjusting the 61 percent figure for the missing months of utilization (61 divided by 77 times 100) makes the figure for the full 12 months before death 79 percent. A similar result is obtained when McCall's Colorado data (1984) are used for making an adjustment for the full 12 months. She found that 79 percent of all inpatient hospital days of aged beneficiaries who died occurred in the last six months before death. Adjusting the Piro and Lutins figure accordingly makes their figure for the full 12 months 77 percent. Thus, the increase in the use of hospital care in the last year of life did not occur recently but around the mid- to late 1960s after the introduction of the Medicare and Medicaid programs.

For the sake of completeness, similar data for hospitals and institutions combined are shown in entries 3 and 4 of the table. Again, these data do not suggest significant changes in recent years. It is of interest to note that the study from which the data for 1948, 1958, and 1961 in entry 3 are taken also cites data for 1937, the earliest year for which this kind of information is available. At that time, 37 percent of all deaths occurred in hospitals and institutions. Thus, it appears

TABLE 1  
Use of Hospitals or Institutions in the Last Year of Life, 1948–1980

| Type of use   | 1948            | 1958            | 1961            | 1965            | 1967            | 1975            | 1976            | 1980            |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| (1) Percent who died in short-stay hospitals                            |                 |                 |                 |                 |                 |                 |                 |                 |
| All ages  | —               | —               | 48 <sup>a</sup> | 45 <sup>b</sup> | —               | 44 <sup>b</sup> | —               | 50 <sup>b</sup> |
| 65 and over   | —               | —               | 45 <sup>a</sup> | —               | —               | —               | 42 <sup>e</sup> | —               |
| (2) Percent with short-stay hospital use in last year of life           |                 |                 |                 |                 |                 |                 |                 |                 |
| All ages  | —               | —               | 63 <sup>a</sup> | 61 <sup>c</sup> | —               | —               | —               | —               |
| 65 and over   | —               | —               | 61 <sup>a</sup> | —               | 61 <sup>d</sup> | —               | 75 <sup>e</sup> | —               |
| (3) Percent who died in hospitals or institutions                       |                 |                 |                 |                 |                 |                 |                 |                 |
| All ages  | 50 <sup>a</sup> | 61 <sup>a</sup> | 61 <sup>a</sup> | —               | —               | —               | —               | 63 <sup>f</sup> |
| 65 and over   | —               | —               | 62 <sup>a</sup> | —               | —               | —               | —               | 63 <sup>f</sup> |
| (4) Percent with care in hospitals or institutions in last year of life |                 |                 |                 |                 |                 |                 |                 |                 |
| All ages  | —               | —               | 72 <sup>a</sup> | 73 <sup>c</sup> | —               | —               | —               | —               |
| 65 and over   | —               | —               | 74 <sup>a</sup> | 73 <sup>c</sup> | —               | —               | —               | —               |

Sources: <sup>a</sup> Sutton 1965. Data refer to "care received by deceased persons in the 12-month period before death in short-stay hospitals (places providing care which is usually of less than 30 days' duration) and in resident institutions (chronic disease hospitals, nursing homes, and other places providing nursing or personal care." Data come from the National Mortality Survey conducted in 1961.

<sup>b</sup> These figures are for deaths in short-stay hospitals as a percentage of all deaths. The number of deaths is based on data collected in the National Hospital Discharge Survey (personal communication from the National Center for Health Statistics, Hospital Care Statistics Branch), the total number of deaths is taken from *Statistical Abstract of the United States, 1981*.

<sup>c</sup> Timmer and Kovar 1971. Expenses for hospital and institutional care during the last year of life for adults who died in 1964 or 1965. Data are for adults aged 25 and older only. The definition of hospitals and institutions is the same as in (a) above. Data come from the National Mortality Survey for 1964 and 1965.

<sup>d</sup> Piro and Lutins 1973. Utilization and reimbursement under Medicare for persons who died in 1967 and 1968. It should be noted that these data refer only to hospital services received *in the calendar year of death*, not as all other figures in this table to services received *in the 12 months preceding death*.

<sup>e</sup> Lubitz and Prihoda 1984, 123. The use and costs of Medicare services in the last two years of life.

<sup>f</sup> Personal communication, National Center for Health Statistics, Division of Vital Statistics. The definition of institutions differs from that used in (a) and (b) above and includes only short-stay and long-term care hospitals but excludes nursing homes and other residential care facilities.

that the big shift to dying in hospitals and institutions occurred before or right after World War II rather than in more recent times.

To sum up, the available data do not show a dramatic rise in the last 20 years in the use of the hospital as a place to die. They do show, however, that hospital use in the last year of life has increased substantially over the last 20 years, especially between the early and late 1960s rather than more recently.

### *Intensity of Hospital Care in the Last Year of Life*

Data on the second question, regarding the intensity of hospital care of patients who die, are also scarce, although it is often assumed that the high medical-care costs at the end of life are due largely to aggressive and intensive treatment. The only study which addresses this question specifically is McCall's (1984) study of Colorado Medicare enrollees who died. She found that 67 percent of all inpatient charges incurred by decedents in their last year of life were incurred in the last quarter, while only 61 percent of their inpatient days in the last year occurred in the last quarter. She concludes that "the difference between the percent of charges and percent of inpatient days, 67 percent vs. 61 percent, indicates more intensive use of hospital services in the last days." This difference in the two percentages does not seem so very startling, considering that these patients were probably sicker just before death than in previous hospitalizations. Thus, her finding does not necessarily indicate especially intensive or aggressive care at the end of life.

McCall's study, however, provides some other information bearing on the question of the intensity of hospital care at the end of life. Both her study and the study by Lubitz and Prihoda found that only a relatively small number of decedents had very high medical expenses in the last year of life, the kind of expenses which would indicate the use of costly, high-technology hospital services. McCall's (1984, 339) data show that in 1978 only 5 percent of aged decedents had Medicare reimbursements over \$21,128, and only 1 percent had reimbursements over \$33,094. These figures are similar to those of Lubitz and Prihoda (1984, 122) for the same year, which show that only 3 percent of decedents had reimbursements of \$20,000 or more, and only 1 percent had reimbursements of \$30,000 or more. If reim-

bursements for this last group of about 5,000 beneficiaries had been eliminated completely (and nobody is likely to advocate withholding all treatment from such very sick patients), the savings of \$205 million would have amounted to 1.1 percent of total Medicare expenditures. (Total Medicare reimbursements for the study population in the Lubitz and Prihoda study amounted to \$18.3 billion in 1978.) Even if reimbursements for the approximately 24,000 decedents with payments of \$20,000 or more had been eliminated, Medicare savings would have been only \$644 million, or 3.5 percent of total Medicare expenditures.

Thus, the data do not support the assumption that a large proportion of medical-care costs at the end of life is due to the widespread use of "heroic" interventions on behalf of patients who die. Moreover, it should be noted that about 5,000 Medicare beneficiaries who did *not* die had Medicare reimbursements of \$30,000 or more, and about 25,000 beneficiaries had reimbursements of \$20,000 or more, amounting to \$652 million, or about 3.6 percent of total Medicare expenditures. In retrospect it is easy to regard these latter expenses as justified and to question the appropriateness of the expenditures for those who died. But it is likely that prospectively the distinction between those who would die and those who would live was not nearly so clearcut.

A comparison of data from two other Medicare studies—the 1967 study by Piro and Lutins and the 1979 study by Helbing—can shed some light on the question whether the relative intensity of hospital care of patients who die compared to those who survive has increased. The two studies used the same methodology in that the data on Medicare reimbursements for decedents include only payments made for services rendered in the calendar year of death, not in the entire 12-month period preceding death as does the study by Lubitz and Prihoda. Piro and Lutins (1973, 28) found that hospital insurance reimbursements per user of hospital services amounted to \$1,043.40 for decedents and to \$685.47 for survivors, or a ratio of 1.5. The corresponding figures from Helbing's study (1983, table 2) are \$4,632 and \$2,713, respectively, or a ratio of 1.7. Thus, there has been only a minor change in the relative intensity of hospital care of decedents compared to survivors.

Expressed in terms of expenditures *per enrollee* instead of *per user* of services, the data show much the same minor differences. The ratios of hospital insurance reimbursements per decedent and per survivor

are 5.8 for 1967, 6.0 for 1979 (Lubitz and Prihoda 1984, 128). (The ratios for all services are equally close—4.9 and 5.1, respectively, and for physician services they are 3.0 and 2.8, respectively, i.e., somewhat lower in 1979 than in 1967.)

This does not mean, of course, that there has been no increase in the intensity of hospital care over this period. But it appears that the increase in resources used in the hospital has been proportionately the same for patients who die and those who survive.

## Conclusion

To sum up, three principal conclusions can be drawn from the various studies of expenditures at the end of life:

- (1) Medical care costs at the end of life are indeed high. Even expenditure data which exclude many expenses—such as the Medicare data which exclude the costs of nursing home care and outpatient drugs—show that medical care in the last year or months of life costs a great deal.
- (2) The high cost of medical care at the end of life is not a recent development, something which only happened in the course of the last few years. Data for 1967 show much the same relationship between expenditures for sick people who died and expenditures for those who survived. In fact, even before the advent of Medicare, a 1961 study showed that hospital and other institutional expenses of sick adults who died were almost three times those of sick adults who did not die. The reason why the data on costs at the end of life raise so much concern at present while they went virtually unnoticed 15 or 20 years ago is probably that we are much more concerned about the costs of medical care in general now that they account for over 10 percent of the gross national product than in the days when they were about 6 percent.
- (3) Finally, and most important, the data available at present—and they are admittedly meager—do not support the frequently voiced or at least implied assumption that the high medical expenses at the end of life are due largely to aggressive, intensive treatment of patients who are moribund. For one thing, the data show that the number of decedents with very high medical

expenses which suggest the use of expensive, high-technology interventions is quite small. For another, we do not know how many of the patients who died were clearly terminal patients. As cited above, of the 49,000 Medicare beneficiaries with Medicare reimbursements of \$20,000 or more in 1978, slightly less than one-half (24,000) died; the rest survived. Given the uncertainty of medical prognosis, it is not at all clear that resources were "wasted" in treating those who died. What the data suggest, although they do not prove it, is that today, as in previous periods, most sick people who die are given the kind of medical care generally given the sick—and such care is expensive, especially for patients who are sicker than the average. Thus, the data from the studies conducted to date do not provide a basis for a policy of singling out one group of patients for cost-containment strategies.

This is not to deny the need for a variety of measures which might provide not only less costly care but also more appropriate and humane care at the end of life. Offering terminally ill patients hospice care as an alternative to conventional care is one example of care which is more suitable to the needs of such patients and may be less costly. Developing better criteria for more accurate and reliable medical prognosis is another example of an urgent need. It has also been suggested that much more attention has to be given to the special medical problems and needs of the aged which differ in important respects from those of younger people. An excellent discussion of this subject is presented by Leaf (1977, 888):

In our acute-care hospitals, where the elderly are brought frequently with advanced disease, they are too often subjected indiscriminately to the same management that might offer hope of benefiting a younger person with less extensive disease. When such procedures are applied to the fragile or debilitated elderly the morbidity, or even the mortality, may be high.

Among his recommendations are greater emphasis on the teaching of geriatric medicine in medical schools; more clinical trials and evaluations of diagnostic and therapeutic procedures as applied to the elderly; ethics committees in medical centers to help physicians, patients, and their families with difficult treatment decisions; additional care ar-

rangements which offer more alternatives than the present choice between the acute-care hospital and no care; and last but not least, education of both the public and the medical profession "to create more realistic expectations regarding what medicine today has to offer the elderly."

While all of these measures would result in more appropriate care of elderly patients, the extent to which they would reduce medical-care costs at the end of life is not clear. Hospice care for terminal cancer patients has not yet been proved conclusively to be less costly in all cases than conventional care. Similarly, home care may be more expensive than institutional care in cases where there are no family members available to help in the care of the patient. On balance, the various measures proposed by Leaf would probably result in some cost-saving, especially if both the medical profession and the public can learn to have more realistic expectations of what modern medicine can do. But this is true not just for the elderly but for persons of all ages. Real progress in cost-containment will only be achieved when efforts are directed at the overall cost of medical care. This will also avoid the very real danger of policies being formulated which would relegate very sick patients, and especially very sick elderly patients, to a "terminal" group before their time to die has come.

It is beyond the scope of this article to examine the ethical implications of the conclusions reached here. But it must at least be mentioned that if further studies bear out the tentative conclusion that the high medical-care costs at the end of life are due not so much to intensive treatment of clearly terminal patients but to ordinary medical care of very sick patients, this raises very much more complex and difficult ethical issues than have been discussed in the literature to date. The discussion of the ethical issues surrounding medical care of the dying has concentrated on criteria for determining appropriate forms of care for terminal patients, i.e., patients who are judged by competent physicians to be beyond the hope of cure and to be on an irreversible course toward imminent death (see, for example, President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research 1983; Jonsen, Siegler, and Winslade 1982; Bayer et al. 1983; and Wanzer et al. 1984). A consensus has gradually developed about the ethics of forgoing treatment for such patients for whom care is, in some real way, futile. But no such consensus exists for patients who, although very sick, might still be helped by various

diagnostic or therapeutic procedures and whose days might be prolonged. Thus, if we ask whether the costs of care for this group are excessive, we face new ethical problems of major proportions.<sup>2</sup>

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