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# EUTHANASIA, PHYSICIAN-ASSISTED SUICIDE, AND OTHER MEDICAL PRACTICES INVOLVING THE END OF LIFE IN THE NETHERLANDS, 1990–1995

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## ABSTRACT

*Background* In 1991 a new procedure for reporting physician-assisted deaths was introduced in the Netherlands that led to a tripling in the number of reported cases. In 1995, as part of an evaluation of this procedure, a nationwide study of euthanasia and other medical practices concerning the end of life was begun that was identical to a study conducted in 1990.

*Methods* We conducted two studies, the first involving interviews with 405 physicians (general practitioners, nursing home physicians, and clinical specialists) and the second involving questionnaires mailed to the physicians attending 6060 deaths that were identified from death certificates. The response rates were 89 percent and 77 percent, respectively.

*Results* Among the deaths studied, 2.3 percent of those in the interview study and 2.4 percent of those in the death-certificate study were estimated to have resulted from euthanasia, and 0.4 percent and 0.2 percent, respectively, resulted from physician-assisted suicide. In 0.7 percent of cases, life was ended without the explicit, concurrent request of the patient. Pain and symptoms were alleviated with doses of opioids that may have shortened life in 14.7 to 19.1 percent of cases, and decisions to withhold or withdraw life-prolonging treatment were made in 20.2 percent. Euthanasia seems to have increased in incidence since 1990, and the ending of life without the patient's explicit request seems to have decreased slightly. For each type of medical decision except those in which life-prolonging treatment was withheld or withdrawn, cancer was the most frequently reported diagnosis.

*Conclusions* Since the notification procedure was introduced, end-of-life decision making in the Netherlands has changed only slightly, in an anticipated direction. Close monitoring of such decisions is possible, and we found no signs of an unacceptable increase in the number of decisions or of less careful decision making. (N Engl J Med 1996;335:1699-705.)



IN the Netherlands, euthanasia and physician-assisted suicide have been practiced with increasing openness, although technically they remain illegal. In 1990–1991 a nationwide study of euthanasia and other medical practices related to the ending of life was conducted, commissioned by a governmental committee chaired by Professor Jan Remmelink, the attorney general of the Dutch Supreme Court.[1,2] The study attracted a great deal of attention, partly because it gave the first complete overview of medical decisions concerning the end of life in a single country.

At about the same time, a new procedure for reporting cases of euthanasia and physician-assisted suicide was introduced.[3,4] Probably as a result, the number of reported cases of euthanasia increased, from 486 in 1990 to 1466 in 1995. In 1995–1996 we conducted a second nationwide study, almost identical to the first, in an evaluation of the new procedure that was commissioned by the ministers of health and justice. The purpose of the 1995 study was to make reliable estimates of the incidence of euthanasia and other medical practices pertaining to the end of life; to describe the patients, physicians, and circumstances involved; and to evaluate changes in these practices between 1990 and 1995. We conducted two separate studies, one based on interviews with a stratified sample of 405 physicians and the other based on responses to mailed questionnaires about a sample of 6060 deaths.

## METHODS

### The Interview Study

We interviewed a stratified random sample of 405 physicians that included 124 general practitioners, 74 nursing home physicians, and 207 physicians in five specialties (cardiology, surgery, internal medicine, pulmonology, and neurology). Such physicians attend 87 percent of all deaths in the Netherlands occurring in hospitals (where about 40 percent of deaths occur) and almost all

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deaths outside the hospital. To be selected for the study, the physicians interviewed had to have been practicing in their registered specialties since January 1, 1994, and to have worked at the same institution since then. So that the desired number of 410 interviews could be conducted, 559 physicians were sampled. Eighty-three did not meet the criteria for selection, and 21 others had chronic illnesses or could not be located. Fifty physicians (11 percent of those who met the selection criteria) declined to take part in the study.

The interviews were conducted from November 1995 through February 1996 by about 30 experienced physicians. All the interviewers were trained intensively for the study. The questionnaire used to guide the interview ran to about 120 pages, and the interviews lasted 2½ hours on average.

To extrapolate our findings to all deaths in the Netherlands, we calculated weights based on the proportions of physicians of the various types who were represented in the sample. Our estimates of incidence were corrected for the 13 percent of in-hospital deaths that were attended by clinicians in specialties other than the five sampled, on the assumption that among these remaining deaths the various types of medical decisions related to the end of life were as frequent as in the deaths studied.

### The Death-Certificate Study

The causes of death for all inhabitants of the Netherlands are reported to Statistics Netherlands. Patients are not mentioned by name on the cause-of-death forms, but the names of the reporting physicians are given. The medical officer in charge of the cause-of-death statistics selected a stratified sample containing the deaths occurring from August 1 through December 1, 1995. The forms for all 43,000 deaths in this period were examined by two physicians and assigned to one of five strata, denoted 0 through 4. When the cause of death was one in which it was clear that no medical decision about the end of life could have been made (for example, a car accident resulting in an instant death), the death was assigned to stratum 0. These cases were retained in the sample, but no questionnaires were sent to the physicians, because no further information was needed in order to determine that no medical decisions about the end of life had been involved. When the likelihood was deemed high that there had been a medical decision that may have hastened death, the death was assigned to stratum 4.

The final sample contained half the cases in stratum 4, 25 percent of the cases in stratum 3, 12.5 percent of those in stratum 2, and 8.3 percent of those in strata 1 and 0 each. A procedure was devised to ensure that the physicians and the deceased persons would remain completely anonymous. All Dutch physicians received a letter explaining the purpose of the study and how anonymity would be guaranteed. Of the 6060 questionnaires mailed, 77 percent were returned. Nearly all were completed carefully, and many contained information in addition to that requested.

The study questionnaire contained 24 items. In classifying the responses in terms of the types of end-of-life medical decisions made, we studied how the respondents answered four questions. What did the physician do (or not do)? What was his or her intention in doing so? Was the physician's decision made at the request of the patient or after discussion with the patient? And was the patient competent (that is, able to assess the situation and make a decision about it adequately)?

Euthanasia was defined as the administration of drugs with the explicit intention of ending the patient's life, at the patient's explicit request. Physician-assisted suicide was defined as the prescription or supplying of drugs with the explicit intention of enabling the patient to end his or her own life (the administration of lethal drugs by both the patient and the physician was considered to be euthanasia). The ending of life without an explicit request was defined as the administration of drugs with the explicit intention of ending the patient's life without a concurrent, explicit request by the patient. The alleviation of pain and symptoms with opioids was defined as the administration of doses large enough that there was a probable life-shortening effect. A decision not to treat was defined as the withholding or withdrawal of potentially life-prolonging treatment.

In both studies the questionnaires used were almost identical to those used in the 1990 study. The study designs were identical, although the prospective part of the earlier study was not repeated. In the mailed questionnaires we avoided the terms euthanasia and physician-assisted suicide, because their connotations are too varied. Instead, we used wording that more closely described actual medical practice, permitting us to classify the answers in the categories defined here. In the interviews, terms such as euthanasia and physician-assisted suicide were used, since the interviewer would be able to discuss meanings and obtain more detailed information about the cases described. Thus, the two studies were designed to generate complementary information, with the interviews producing more detailed background information and the death-certificate study providing a strong quantitative framework. Ninety-five percent confidence intervals were calculated that took into account the stratification procedure and the probability of the various types of decisions in each stratum.[5]

## RESULTS

### Incidence Estimates

The two studies yielded similar estimates of incidence with regard to most of the practices studied (Table 1). There were 34,500 requests for euthanasia at a later time in the course of disease, a 37 percent increase from the 1990 number. There were 9700 explicit requests for euthanasia or physician-assisted suicide at a particular time, a 9 percent increase from 1990. In the interview study 2.3 percent of all deaths resulted from euthanasia, as compared with 2.4 percent in the death-certificate study. In 1990 the rates were 1.9 and 1.7 percent, respectively. Assisted suicide occurred in 0.4 percent of deaths in the interview study and 0.2 percent of deaths in the death-certificate study, as compared with 0.3 and 0.2 percent, respectively, in 1990. In both 1995 studies 0.7 percent of deaths involved ending the patient's life without the patient's explicit, concurrent request. In 1990, 0.8 percent of deaths in the death-certificate study occurred in this way.

The estimated incidence of the alleviation of pain and symptoms with a possible shortening of life differed in the two 1995 studies, probably because in the interviews the question was phrased somewhat more strictly. The death-certificate study offered the best basis for comparison with the earlier study, and it showed no significant change since then. Decisions to forgo treatment occurred in 20.2 percent of cases, as compared with 17.9 percent in 1990. Thus, for more than 42 percent of all deaths in the Netherlands, medical decisions concerning the end of life seem to have been made. In about 2.0 percent of all deaths — the same figure that was reported in 1990 — the physicians' intentions were either ambiguous or inconsistent with their practices: in 1.4 percent of cases, the respondents said that they had alleviated pain and symptoms with opioids, but with the explicit intention of ending the patient's life; and in

TABLE 1. ESTIMATED INCIDENCE OF MEDICAL DECISIONS RELATED TO THE END OF LIFE.*

| VARIABLE | INTERVIEW STUDY | | | | DEATH-CERTIFICATE STUDY | |
|---|---|---|---|---|---|---|
| | 1995 | | 1990 | | 1995 | 1990 |
| No. of requests for euthanasia or assisted suicide later in disease | 34,500 | (31,800–37,100) | 25,100 | (23,400–27,000) | ND | ND |
| No. of explicit requests for euthanasia or assisted suicide at a particular time | 9700 | (8800–10,600) | 8900 | (8200–9700) | ND | ND |
| End-of-life practices — % of deaths† | | | | | | |
| Euthanasia | 2.3 (1.9–2.7) | | 1.9 (1.6–2.2) | | 2.4 (2.1–2.6) | 1.7 (1.4–2.1) |
| Physician-assisted suicide | 0.4 (0.2–0.5) | | 0.3 (0.2–0.4) | | 0.2 (0.1–0.3) | 0.2 (0.1–0.3) |
| Ending of life without patient's explicit request | 0.7 (0.5–0.8) | | ND | | 0.7 (0.5–0.9) | 0.8 (0.6–1.1) |
| Opioids in large doses | 14.7 (13.5–15.7) | | 16.3 (15.3–17.4) | | 19.1 (18.1–20.1) | 18.8 (17.9–19.9) |
| Decision to forgo treatment | ND | | ND | | 20.2 (19.1–21.3) | 17.9 (17.0–18.9) |
| All of these | — | | — | | 42.6 (41.3–43.9) | 39.4 (38.1–40.7) |

*Numbers in parentheses are 95 percent confidence intervals. ND denotes not determined, because the study data did not permit these estimates to be calculated.

†Percentages are based on the total number of deaths in the Netherlands: 135,546 in 1995 and 128,786 in 1990.

0.6 percent, they said that they had ended the patient's life without the patient's explicit request but had only partly intended to do so.

### Euthanasia and Physician-Assisted Suicide

Of the physicians interviewed, 88 percent said they had received at least one request for euthanasia or physician-assisted suicide at a later time in the course of disease, whereas 77 percent had received at least one explicit request for a particular time. When asked if they had ever performed euthanasia or assisted in suicide, 53 percent confirmed that they had done so at some time, and 29 percent confirmed that they had done so in the preceding 24 months (Table 2). There were large differences among the three types of physicians. Among those who said they had never performed euthanasia or assisted in suicide, 35 percent said they could conceive of situations in which they would be prepared to do so. Among the remaining 12 percent, who could not conceive of such a situation, the majority said that they would be prepared to refer patients to a colleague if they requested euthanasia or assistance in suicide. These proportions are almost identical to those in the 1990 study.

Table 3 contains data obtained in the death-certificate study on the age, sex, and cause of death of the deceased persons and the type of physician involved. The percentage of all deaths in each category in which an end-of-life decision was made is shown. For instance, such a decision was made in 32 percent of all deaths of persons under the age of 50. These percentages do not differ greatly according to age or sex, but they do differ according to the cause of death: in 61 percent of all deaths from cancer, medical decisions about ending the patient's life were made, as compared with 20 percent of all deaths from cardiovascular disease. Patients who received euthanasia or assistance in suicide tended to be young. Euthanasia was more common among female patients than among male patients, a finding not consistent with the findings in the interview study and the 1990 study. This was one of the rare instances in which the results of the interview study and those of the death-certificate study differed. Euthanasia and assisted suicide predominantly involved patients with cancer (79 percent). In most cases a general practitioner was involved. (In the Netherlands, somewhat over 40 percent of all deaths occur at home.)

### Ending Life without the Explicit Request of the Patient

Among the physicians interviewed, 23 percent said that at some time they had ended a patient's life without his or her explicit request, and 32 percent said that they had never done so but that they could conceive of a situation in which they would, whereas 45 percent said that they had never done so and could not conceive of any situation in which they would. The corresponding figures in the 1990 study were 27 percent, 32 percent, and 41 percent, respectively.

The patients whose lives were ended without their explicit request also tended to be relatively young, and cancer was the predominant diagnosis (in the interview study, 60 percent of all cases involved cancer). In 57 percent of all cases, clinical specialists were involved. Table 4 shows some of the characteristics of the decisions made in these cases in the death-certificate study, the drugs administered, and the estimated interval by which the patient's life was shortened. In about half of all the cases, either the decision was discussed with the patient earlier in the illness or the patient had expressed a wish for euthanasia if suffering became unbearable. In the other cases the patient was incompetent. In 95 percent of

TABLE 2. PHYSICIANS' STATEMENTS IN THE 1995 INTERVIEW STUDY ABOUT THEIR PRACTICES AND ATTITUDES WITH REGARD TO EUTHANASIA AND ASSISTED SUICIDE.*

| STATED PRACTICE OR ATTITUDE | GENERAL PRACTITIONERS (N=124) | CLINICAL SPECIALISTS (N=207) | NURSING HOME PHYSICIANS (N=74) | ALL PHYSICIANS | |
|---|---|---|---|---|---|
| | | | | 1995 (N=405) | 1990 (N=405) |
| | | | percent | | |
| Performed euthanasia or assisted suicide | | | | | |
| Ever | 63 | 37 | 21 | 53 | 54 |
| During the previous 24 mo | 38 | 16 | 3 | 29 | 24 |
| Never performed it but would be willing to do so under certain conditions | 28 | 43 | 64 | 35 | 34 |
| Would never perform it but would refer patient seeking it to another physician | 7 | 15 | 10 | 9 | 8 |
| Would never perform it or refer patient | 2 | 4 | 5 | 3 | 4 |

*Totals in each row cannot be computed directly as the weighted averages of separate entries, because the percentages shown are based on weighted data.

cases, the decision was discussed with colleagues, nursing staff, or relatives (or usually some combination of the three). In 64 percent of all cases in which life had been ended without the patient's explicit request, morphine was the only drug administered, whereas in 18 percent neuromuscular relaxants were used in various combinations. In 33 percent of cases life was shortened by 24 hours at most, and in a further 58 percent it was shortened by at most one week. In the interview study the proportions were similar to those in the death-certificate study.

Further scrutiny of the case histories in the interview study showed that decisions to end life without the patient's request covered a wide range of situations, with a large group of patients having only a few hours or days to live, whereas a small number had a longer life expectancy but were evidently suffering greatly, with verbal contact no longer possible. The characteristics in Table 4 suggest that most of the cases in which life was ended without the patient's explicit request were more similar to cases involving the use of large doses of opioids than to cases of euthanasia. As compared with 1990, there was a small decrease in the proportion of these cases.

### Alleviation of Pain and Other Symptoms with Possible Life-Shortening Effects

Eighty-four percent of all respondents had at some time sought to alleviate a patient's pain and other symptoms by administering opioids in such doses that the patient's life might have been shortened (in 1990, 82 percent reported doing so). In 85 percent of all such cases in the death-certificate study, the physician said that he or she had no intention of hastening death, but had taken into account the probability or certainty that death would occur, whereas in the other 15 percent of cases the physician at least partly intended to hasten the patient's death. The age and sex distribution of the patients in these cases was similar to that of all persons dying in the Netherlands, but more than half the cases involved cancer. Decisions of this type are relatively frequent in nursing homes, where about 16 percent of all deaths in the Netherlands occur. In 64 percent of cases the physician estimated that the patient's life had been shortened by less than 24 hours, and in 16 percent it was shortened by less than one week (Table 4). In 43 percent of cases the decision to administer large doses of opioids was discussed with the patient and either an explicit request was made or, if the patient was incompetent, there was knowledge of a previous wish. In 86 percent of cases in which opioids were administered and there was no information about the patient's wishes, the patient was incompetent.

### Decision to Forgo Treatment

Among the decisions to withhold or withdraw life-prolonging treatment, 66 percent were made with the intention of hastening death (or rather, of not prolonging life); in making the remaining decisions, the physician took into account the probability or the certainty that death would be hastened. In 10 percent of cases the decision involved artificial respiration; in 23 percent, tube feeding or artificial hydration; and in 2 percent, dialysis. The forgoing

TABLE 3. DEMOGRAPHIC AND MORTALITY VARIABLES AND DATA ON THE RESPONDING PHYSICIAN'S TYPE OF PRACTICE, ACCORDING TO THE USE OF END-OF-LIFE MEDICAL DECISIONS, IN THE DEATH-CERTIFICATE STUDY.

| VARIABLE | DEATHS STUDIED | | END-OF-LIFE DECISIONS IN 1995 | | | | | ALL END-OF-LIFE DECISIONS | | ALL DEATHS IN THE NETHERLANDS, 1995* |
|---|---|---|---|---|---|---|---|---|---|---|
| | NO. | PERCENT FOLLOWING END-OF-LIFE DECISION† | EUTHANASIA (N=257) | ASSISTED SUICIDE (N=25) | ENDING OF LIFE WITHOUT EXPLICIT REQUEST (N=64) | ALLEVIATION OF PAIN WITH OPIOIDS IN LARGE DOSES (N=1161) | DECISION TO FORGO TREATMENT (N=1097) | 1995 (N=2604) | 1990 (N=2361) | (N=135,675) |
| | | | | | | percent‡ | | | | |
| Patient's age (yr) | | | | | | | | | | |
| 0–49 | 661 | 32 | 9 | 17 | 18 | 7 | 4 | 6 | 7 | 8 |
| 50–64 | 652 | 45 | 28 | 21 | 16 | 16 | 10 | 14 | 14 | 12 |
| 65–79 | 1792 | 40 | 43 | 27 | 31 | 38 | 31 | 34 | 36 | 36 |
| ≥80 | 2041 | 46 | 19 | 35 | 36 | 40 | 55 | 46 | 43 | 44 |
| Patient's sex | | | | | | | | | | |
| Male | 2611 | 39 | 43 | 61 | 49 | 50 | 42 | 46 | 48 | 50 |
| Female | 2535 | 47 | 57 | 39 | 51 | 50 | 58 | 54 | 52 | 50 |
| Cause of death | | | | | | | | | | |
| Cancer | 2119 | 61 | 80 | 78 | 40 | 54 | 24 | 41 | 44 | 27 |
| Cardiovascular disease | 910 | 20 | 3 | 0 | 5 | 12 | 16 | 13 | 16 | 29 |
| Disease of nervous system | 466 | 50 | 4 | 6 | 22 | 7 | 18 | 13 | 13 | 11 |
| Other | 1651 | 44 | 13 | 16 | 33 | 26 | 42 | 33 | 27 | 33 |
| Type of physician | | | | | | | | | | |
| General practitioner | 2493 | 34 | 70 | 97 | 30 | 41 | 23 | 34 | 35 | — |
| Clinical specialist | 1560 | 45 | 27 | 0 | 57 | 31 | 42 | 37 | 40 | — |
| Nursing home physician | 929 | 64 | 2 | 3 | 14 | 26 | 32 | 27 | 24 | — |
| Other or unknown | 164 | 26 | 0 | 0 | 0 | 2 | 3 | 2 | 0 | — |

*Provisional figures for 1995 are shown.

†Percentages shown in this column are percentages of the number of cases studied.

‡Percentages shown in these columns are percentages of the group. Because of rounding, percentages for each variable do not all total 100.

of other treatments (such as medication, surgery, or admission to the hospital for diagnostic purposes) generally affected survival less directly. The amount of time by which life was shortened was less than 24 hours in 42 percent of cases, less than one week in 28 percent, and over one month in 8 percent. Decisions to forgo treatment differed from the other practices studied. The patients tended to be older and were more often female, and the distribution of the diseases involved more or less followed the pattern of the causes of all deaths in the Netherlands (Table 3). Decisions to forgo treatment were made relatively often by nursing home physicians.

## DISCUSSION

We believe this study presents a reliable overview of medical decisions about the end of life in the Netherlands, one that includes developments since 1990. In almost all relevant respects, the interviews and the mailed questionnaires yielded similar results. Participation rates were high. Only 11 percent of physicians declined to be interviewed, mainly for lack of time, and in the death-certificate study the response rate was 77 percent. All physicians in the Netherlands received a letter signed by the president of the Royal Dutch Medical Association and the Chief Inspector for Health Care, explaining the importance of the study and urging them to cooperate if they were invited to participate. The data collected could not be used in legal prosecution.

In the reports of the 1990 study, we foresaw an increased incidence of euthanasia and the other practices examined, for several reasons — increased mortality rates as a consequence of the aging of the population, an increase in the proportion of deaths from cancer as a consequence of a decrease in deaths from ischemic heart disease, the increasing availability of life-prolonging techniques, and possibly, generational and cultural changes in patients' attitudes. At the same time, we thought it likely that the incidence of decisions to end life without an explicit request by the patient would decrease, because of the growing openness with which end-of-life decisions are discussed with patients.[1,2,6]

A coherent picture emerges from the present study that confirms these expectations. Between 1990 and 1995 there were 37 percent more requests for physician-assisted death at a later time in the course of a patient's disease and 9 percent more explicit requests at a particular time, whereas the total number

TABLE 4. CHARACTERISTICS OF VARIOUS TYPES OF MEDICAL DECISIONS RELATED TO THE END OF LIFE IN THE DEATH-CERTIFICATE STUDY.

| CHARACTERISTIC | EUTHANASIA AND ASSISTED SUICIDE (N=282) | ENDING OF LIFE WITHOUT EXPLICIT REQUEST (N=64) | ALLEVIATION OF PAIN WITH OPIOIDS IN LARGE DOSES (N=1161) | DECISION TO FORGO TREATMENT (N=1097) | ENDING OF LIFE WITHOUT EXPLICIT REQUEST, 1990 STUDY (N=45) |
|---|---|---|---|---|---|
| | | | percent | | |
| Previous discussion of the practice | | | | | |
| Discussed, explicit request made by patient | 100 | — | 19 | 20 | — |
| No explicit request, but discussed or wish stated | — | 52 | 24 | 25 | 60 |
| Not discussed, no previous wish | — | 48 | 42 | 51 | 40 |
| Unknown | — | — | 15 | 5 | — |
| Competence | | | | | |
| Yes | 97 | 21 | 37 | 26 | 37 |
| No | 3 | 79 | 47 | 67 | 54 |
| Unknown | 0 | 0 | 17 | 7 | 9 |
| Decision discussed with others* | | | | | |
| Colleagues | 83 | 59 | 31 | 52 | 69 |
| Nursing staff | 33 | 65 | 30 | 47 | 64 |
| Relatives or others | 70 | 70 | 50 | 68 | 84 |
| No one | 4 | 5 | 16 | 5 | 2 |
| Unknown | 2 | 0 | 19 | 7 | 2 |
| Drugs administered | | | | | |
| Morphine only | 25 | 64 | 73 | — | 44† |
| Morphine and other drugs (but not neuromuscular relaxants) | 14 | 17 | 11 | — | 18† |
| Neuromuscular relaxants (any combination) | 46 | 18 | 0 | — | 19† |
| Other | 12 | 0 | 2 | — | 19† |
| Unknown | 2 | 0 | 15 | — | 0† |
| Amount of time by which life was shortened | | | | | |
| <24 hr | 17 | 33 | 64 | 42 | 39 |
| 1 day to 1 wk | 42 | 58 | 16 | 28 | 46 |
| >1 wk to 1 mo | 32 | 3 | 3 | 15 | 6 |
| >1 mo | 9 | 6 | 1 | 8 | 8 |
| Unknown | 0 | 0 | 15 | 7 | 0 |

*More than one answer is possible.

†Data are from the 1990 interview study; these questions were not asked in the 1990 death-certificate study.

of deaths increased by somewhat over 5 percent. The incidence of euthanasia increased from 1.7 percent to 2.4 percent in the death-certificate study, and from 1.9 percent to 2.3 percent in the interview study. Although variability due to sampling cannot be ruled out as an explanation, the fact that in both substudies almost identical increases were found makes an artifact very unlikely. It may be surprising that the rate of physician-assisted suicide remained constant and low, given the general tendency toward patient autonomy. It must be kept in mind, however, that in the Netherlands the physician's responsibility in physician-assisted suicide is considered to be no different from that in euthanasia.

The frequency of cases in which life was ended without an explicit request by the patient has decreased somewhat since 1990. Here too, chance fluctuation cannot be ruled out as an explanation, but the decrease was found in both studies (the 1990 interview study did not permit sufficiently reliable estimates of this variable, but the number of cases then was certainly higher than in the 1995 study). The proportion of deaths in which opioids were administered with possible life-shortening effects remained constant from 1990 to 1995, and the proportion in which life-prolonging treatment was withheld or withdrawn increased somewhat. However, there was a shift in intentions. The proportion of cases in which opioids were administered partly to hasten death dropped from 20 percent to 15 percent. It is very likely that a number of cases counted in this category in 1990 would now be considered cases of euthanasia. In the cases in which life-prolonging treatment was forgone there was also a shift toward a more explicit intention to hasten death.

Data from other countries on physicians' opinions about euthanasia and physician-assisted suicide and their actual use of these procedures are scarce. In a sample of U.S. oncologists, Emanuel et al. found that 57 percent had received a request for euthanasia or assisted death at some time, and that 14 percent had actually engaged in those practices.[7] In a sample of general practitioners and hospital consultants in the United Kingdom studied by Ward and Tate, these proportions were 45 percent and 14 percent, respectively.[8] Among physicians in South Australia

studied by Stevens and Hassan, the proportions were 33 percent and 19 percent,[9] and among Danish physicians studied by Folker et al. they were 30 percent and 5 percent.[10] Lee et al. found that 21 percent of Oregon physicians had received a request for physician-assisted suicide in the past year and that 7 percent had written at least one lethal prescription at a patient's request.[11] In Washington State 12 percent of physicians had received requests for physician-assisted suicide and 4 percent had received a request for euthanasia during the preceding year.[12] In both cases 24 percent of requests were granted. Although the comparability of the studies is limited, these figures are consistently lower than those we found.

### Safe Ground or Slippery Slope?

A major issue in the debate about euthanasia is whether some form of acceptance of euthanasia or assisted suicide when it is explicitly requested by a greatly suffering, terminally ill, competent patient is the first step on a slippery slope that will lead to an unintended and undesirable increase in the number of cases of less careful end-of-life decision making and to the gradual social acceptance of euthanasia performed for morally unacceptable reasons. Obviously, our data provide no conclusive evidence in either direction. Five years may be too short a period in which to observe important cultural changes, and our results may be valid only in the context of Dutch culture and the Dutch health care system, in which virtually all of the population is insured for health care costs and economic motives have not yet entered the realm of end-of-life decision making. Nevertheless, in our view, these data do not support the idea that physicians in the Netherlands are moving down a slippery slope.

As in 1990, a large majority of Dutch physicians consider euthanasia an exceptional but accepted part of medical practice.[13] The number of requests for it has increased, but most of the requests are not granted. Physician-assisted death nowadays does not involve patients whose illnesses are less severe, as can be seen from our estimates of the amount of time by which life was shortened. Finally, there are no signs that the decision making has become less careful. Indeed, the increased frequency of consultation and better documentation of cases can be considered to indicate better decision making.[4,14] The large majority of Dutch physicians are prepared to invest substantial time in participating in studies of this type and to make information on this difficult area of their practices public. As a result, further developments in end-of-life decision making can be monitored closely.

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