

Variability in physicians' decisions on caring for chronically ill elderly patients: an international study

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Objectives: To determine what treatment decisions physicians will make when faced with an incompetent elderly patient with life-threatening gastrointestinal bleeding and to identify the factors that affect their decisions.

Design: Survey.

Setting: Family practice, medical and geriatrics rounds in academic medical centres and community hospitals in seven countries.

Participants: Physicians who regularly cared for incompetent elderly patients.

Outcome measure: A self-administered questionnaire containing three case vignettes. Each provided the same details on an incompetent elderly patient; however, one gave no information about the wishes of the patient and his family (no directive), the second provided a do-not-resuscitate (DNR) request, and the third included a detailed therapeutic and resuscitative effort chart (DTREC) requesting maximum therapeutic care without admission to the intensive care unit (ICU). The four treatment options were supportive care only, limited therapeutic care, maximum therapeutic care without admission to the ICU and maximum care with admission to the ICU.

Main results: Treatment decisions varied and were systematically related to age, level of training and country ($p < 0.001$). The older physicians and those in family medicine were less likely than the others to choose aggressive treatment options. Brazilian and US physicians were the most aggressive; Australian physicians were the most conservative. The DNR request resulted in a significant decrease in the number of physicians choosing aggressive options ($p < 0.001$). The DTREC resulted in a move toward more aggressive treatment, as outlined in the directive ($p < 0.001$). Overall, however, about 40% of the physicians chose a level of care different from what had been requested. Furthermore, over 10% would have tried cardiopulmonary resuscitation despite the DNR request.

Conclusion: Treatment of incompetent elderly patients with life-threatening illness varies widely within and between countries. Uniform standards should be developed on the basis of societal values and be communicated to physicians.

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Objectifs : Déterminer les décisions thérapeutiques que les médecins prendront face à un patient âgé incompétent souffrant d'hémorragie gastro-intestinale qui menace sa vie, et identifier les facteurs qui affectent leurs décisions.

Conception : Enquête.

Contexte : Services de pratique familiale, de médecine et de gériatrie de centres médicaux d'enseignement et d'hôpitaux communautaires dans sept pays.

Participants : Médecins qui traitent régulièrement des patients âgés incompétents.

Mesure des résultats : Questionnaire autoadministré contenant trois observations. Chacune fournit les mêmes détails sur un patient âgé incompétent. Toutefois, une ne contient aucun renseignement sur les désirs du patient et de sa famille (aucune directive), la deuxième demande de ne pas ranimer (NPR) et la troisième comprend un dossier détaillé des efforts de traitement et de réanimation (DDETR) dans lequel on demande des soins thérapeutiques maximum sans admission aux soins intensifs. Les quatre options thérapeutiques sont les suivantes : maintien des fonctions vitales seulement, soins thérapeutiques limités, soins thérapeutiques maximum sans admission aux soins intensifs et soins thérapeutiques maximum avec admission aux soins intensifs.

Principaux résultats : Les décisions thérapeutiques varient et sont systématiquement fonction de l'âge, du niveau de formation et du pays ($p < 0,001$). Les médecins âgés et les médecins de famille sont moins susceptibles que les autres de prendre des décisions thérapeutiques agressives. Les médecins brésiliens et américains sont les plus agressifs et les médecins australiens les plus conservateurs. La directive NPR a entraîné une baisse importante du nombre de médecins qui ont pris des décisions agressives ($p < 0,001$). Le DDETR a entraîné l'adoption de mesures thérapeutiques agressives décrites dans la directive ($p < 0,001$). Au total, toutefois, environ 40 % des médecins ont choisi un niveau de soins différent de celui demandé. En outre, plus de 10 % auraient essayé une réanimation cardio-pulmonaire malgré la directive NPR.

Conclusion : Le traitement des patients âgés incompétents souffrant de maladies qui mettent leur vie en danger varie considérablement à l'intérieur d'un même pays et entre les pays. Il faudrait établir des normes uniformes basées sur les valeurs de la société et les communiquer aux médecins.

Few topics in medicine are more complicated, controversial and emotionally charged than the treatment of acute, life-threatening illness in chronically ill elderly patients. In deciding on an appropriate level of treatment physicians must consider the wishes of the patient and his or her family,^{1,2} the patient's prognosis, age and quality of life,^{3,4} the legal implications of giving or withholding care, the institution's policy, the cost and availability of health care resources^{5,6} and the prevailing cultural and social norms.^{7,8}

Many elderly patients fear that the overzealous application of life-saving procedures will prolong their suffering or compromise their dignity. These concerns have led to the development of living wills and other directives. Such documents advise physicians what level of treatment the person wants in the event of cardiac arrest or acute, life-threatening illness.^{9,10} However, little is known about how physicians will respond to such directives or about the consistency between physicians in Canada and elsewhere.

The need for criteria to assist in the treatment and resuscitation of chronically ill or dying elderly patients is evident.¹¹ Information on physician attitudes and practices will be crucial to the development and implementation of these criteria. We therefore asked the following questions: What deci-

sions would physicians make when confronted with a critically ill, demented elderly man? To what extent do physicians vary, both in Canada and elsewhere, in their decisions? What effect do two different directives (a do-not-resuscitate [DNR] request and a detailed therapeutic and resuscitative effort chart [DTREC]) have on physician decisions?

Methods

Case vignettes

We prepared a questionnaire containing three case vignettes and asked physicians what treatment options they would choose in each case. Each vignette presented the same basic situation as follows.

An 82-year-old man with gastrointestinal bleeding is brought to the emergency department at 2 am accompanied by a nurse's aide. At the nursing home where he lived he had vomited a large amount of blood, and he had passed a large melanic stool earlier that night. He appears pale, stuporous and diaphoretic and understands simple commands but cannot answer simple questions coherently. His pulse rate is 120 beats/min and his blood pressure 70/40 mm Hg. Three years previously he had been found to have Alzheimer's disease by a neurologist.

The nurse's aide describes the man as active and occasionally displaying agitated behaviour. He needs help washing and dressing, and he wanders about during the day. He has difficulty remembering names and occasionally does not recognize his daughter. He has urinary incontinence all the time and fecal incontinence occasionally.

Three different paragraphs were added to the end of the vignette. The first indicated that there was no information about the patient's wishes (no directive). It was worded as follows.

The patient's daughter, who is his only living relative, is away on holidays. His family physician is at a conference, and the locum is unable to give you any further information.

In the second variation the final paragraph described a DNR request, a photocopy of which, written by the family physician on a doctor's order sheet in the nursing home and cosigned by the daughter, was enclosed with the questionnaire. The paragraph read as follows.

A note from the family physician indicates that 3 weeks previously the daughter had requested that in the event of cardiac arrest no attempt be made to resuscitate the patient.

In the third variation the final paragraph indicated that a completed DTREC was available.

The family physician has spoken to the daughter, the primary care physician in the nursing home and other concerned health professionals. They have documented the wishes of the patient and his daughter in the event of cardiac arrest or acute, life-threatening illness. The purpose of the discussions and documentation is to provide guidance to physicians who are not familiar with the patient or his wishes regarding treatment.

The family physician, the patient and the daughter had each chosen the maximum therapeutic effort (MAX), as described in Table 1. The definitions of the levels of care provided in the DTREC were identical to those described in Table 1. The signatures of both the patient (or next of kin) and the family physician were included to maximize the likelihood of another physician complying with the wishes expressed in the DTREC. Also, it was stated that in the event of cardiac arrest no cardiopulmonary resuscitation (CPR) be attempted.

Each questionnaire contained the three vignettes in one of six possible orders. Physicians were asked to choose one of four treatment options and to indicate whether they would attempt CPR in the event of cardiac arrest. The four treatment options are shown in detail in Table 1. In brief, they were (a) supportive care only, (b) limited therapeutic effort including intravenous therapy but excluding invasive procedures or transfer to an intensive care unit (ICU) (LIM), (c) maximum therapeutic effort short of admission to ICU (MAX) and (d) maximum therapeutic effort including admission to ICU (MICU).

The questionnaire was prepared in English and then translated into Portuguese for the survey in Brazil. It was rewritten to avoid confusion over terminology in the different countries. For example, "resident" was used in the United States and Canada, but "house officer" or "registrar" was used in Wales and Scotland. A request for the respondents to supply a small amount of demographic information was included with each questionnaire.

Table 1: Options given to physicians in the event of treating an incompetent elderly patient with acute, life-threatening gastrointestinal bleeding

Option	Description
Supportive measures only (SUPP)	Measures that enhance comfort or minimize pain (e.g., use of morphine) Intravenous therapy only if it improves comfort No radiography, blood tests or use of antibiotics
Limited therapeutic effort (LIM)	Intravenous therapy may be appropriate Radiography and blood tests may be in order Trial of appropriate drugs may be done Antibiotics should be used sparingly No invasive procedures Do not transfer to intensive care unit (ICU)
Maximum therapeutic effort (MAX)	Do not transfer to ICU No mechanical ventilation except for surgery Emergency surgery if necessary Transfer to acute care hospital if necessary for evaluation
Maximum therapeutic effort with intensive care (MICU)	Transfer to ICU Mechanical ventilation if necessary Insert central venous catheter Transfer to acute care hospital without hesitation if necessary

Physician sample

From March 1987 to April 1989 we surveyed physicians attending family practice, medical and geriatric rounds in academic medical centres in Australia, Brazil, Canada, Scotland, Sweden, the United States and Wales. The questionnaire was mailed to the physicians in Australia and distributed at the start of hospital rounds in the remaining countries. Participants were restricted to those likely to be caring for the type of patient depicted in the vignette. Thus, pediatricians and obstetricians were excluded. Medical students were also excluded. Physicians were surveyed in various settings, including teaching hospitals, community hospitals and family practice rounds.

The physicians were asked to complete and return the questionnaire before rounds started. They were told that the survey was part of an international study to examine the effects of two different directives on their decision-making.

Statistical analysis

The distribution of physician characteristics across the countries was examined with the use of χ^2 tests of association.

Stepwise regression analysis was done to determine the factors that influenced decision-making. The variables examined were age, sex, number of years in practice, level of training and country. Because each physician was asked to choose a treatment option for all three vignettes one regression equation was constructed for each option. The dependent variable in these equations, the treatment decision, was clearly ordinal, progressing from less to

more aggressive treatment. For the analysis we assumed an interval scale for the four possible outcomes. In addition, to ensure the validity of the conclusions we conducted a simple χ^2 analysis of the relation between each of the predictor variables and outcome, ignoring the ordinal nature of the dependent variable. Because the results were essentially identical, only those of the former analysis will be reported.

To determine the impact of the wishes of the patient and his daughter on the physicians' decision-making we used a χ^2 test for marginal homogeneity in paired comparisons to detect statistically significant differences in the distribution of responses between the three vignettes.

Results

A total of 897 physicians participated in the survey. The distribution by country was as follows: Australia 108, Brazil 101, Canada 271, Scotland 89, Sweden 104, the United States 124 and Wales 100. The characteristics of the participants are shown in Table 2. The distribution of the characteristics by country differed for age, sex, number of years in practice and level of training ($p < 0.00001$). Overall, 74% of the respondents were men, 66% were less than 40 years of age, 81% had been practising for 20 years or less, 25% were family physicians, 33% were specialists, and 28% were interns or residents.

The order of the vignettes did not affect the physicians' decision-making ($\chi^2 = 1.68$, 5 degrees of freedom; $p = 0.89$). The choice of treatment options differed considerably: in all of the countries except Brazil each of the four options was chosen by at least

Table 2: Characteristics of physicians who participated by country

Characteristic	Country; % of physicians						
	Australia (n = 108)	Brazil (n = 101)	Canada (n = 271)	Scotland (n = 89)	Sweden (n = 104)	United States (n = 124)	Wales (n = 100)
Age, yr							
< 40	48	87	69	80	56	49	84
≥ 40	52	13	31	20	54	51	16
Sex							
Male	89	65	69	69	70	86	70
Female	11	35	31	31	30	14	30
No. of years in practice							
≤ 10	25	83	49	70	64	46	71
11-20	46	10	23	16	27	23	22
21-30	14	5	15	10	6	12	5
≥ 31	15	2	14	4	2	19	2
Level of training							
Intern or resident	9	66	18	42	35	19	31
Family physician	50	0	28	27	7	39	15
Specialist	41	34	21	27	55	41	31
Other	0	0	32	4	4	1	23

one physician (Table 3). The factors that independently affected the decisions in all three vignettes were age, level of training and country ($p < 0.001$). Less vigorous treatment was chosen more often by the older physicians than by the younger ones. Family physicians were more likely than specialists to choose the more conservative treatment options; interns and residents chose the more aggressive options most often.

In the vignette in which no directive was available the Brazilian and US physicians were the most aggressive: MICU was chosen by 39% and 32% respectively, whereas supportive care was chosen by 0% and 3% (Table 3). The Australian physicians were the most conservative in that 21% chose supportive care. They, along with the Scottish and Welsh physicians, were more conservative than the physicians in the other countries in that fewer than 10% chose MICU. A similar pattern of responses across the countries was seen for the other two vignettes.

Overall the middle two treatment options (LIM and MAX) were the most popular when there was no directive, although the proportion of those who chose the extreme options was substantial (8% chose supportive treatment only and 18% MICU) (Table 4). The DNR request resulted in a statistically significant decrease in the number of physicians choosing aggressive management ($p < 0.001$). The DTREC MAX directive changed the patterns of responses more dramatically than the DNR request, in the direction of more aggressive treatment ($p < 0.001$ compared with each of the other two vignettes). Although fewer than 35% chose the MAX option in the other two vignettes, 61% chose it when this was the expressed in the DTREC. However, a substantial proportion of the physicians were willing to choose treatment that was not in accordance with the DTREC: 9% stated that they would have placed the patient in the ICU, and 4% reported that they would have chosen supportive care only.

When the physicians were asked if they would attempt CPR in the event of cardiac arrest 42% answered Yes with no directive, 10% with the DNR request and 12% with the DTREC.

Discussion

Our study is limited because the physicians were selected on the basis of their availability for questionnaire administration and because the selection depended on the circumstances of the investigators in each country. Apparent differences between the countries may have been due to different strategies for enrolling physicians, or the opinions of the physicians might have been different had we recruited a random sample of physicians who cared for in-hospital patients with dementia. However, to enrol over 100 physicians each investigator had to survey an assortment of physicians at a variety of hospital rounds to ensure heterogeneity.

A second limitation of the study was that the physicians were not observed in actual practice but, rather, asked what they would do. The extent to which physicians would behave in the way they reported is open to question.

Despite these limitations the results provide important information. Presented with the same patient the physicians made strikingly different decisions regarding the appropriate level of care. We identified four factors that influenced their decision-

Table 4: Treatment options chosen by type of directive and results of statistical analysis

Option	Type of directive;* no. (and %) of physicians		
	No directive	DNR request	DTREC
SUPP	73 (8)	117 (13)	38 (4)
LIM	371 (42)	405 (46)	230 (26)
MAX	286 (32)	289 (32)	536 (61)†
MICU	161 (18)	77 (9)	81 (9)
Total	891 (100)	888 (100)	885 (100)
		χ^2 value‡	p value
No directive + DNR		119.7	< 0.0001
No directive + DTREC		211.5	< 0.0001
DNR + DTREC		246.9	< 0.0001

*DNR = do not resuscitate; DTREC = detailed therapeutic and resuscitative effort chart.

†Level of care requested in DTREC by the patient and his family.

‡In each case there were 3 degrees of freedom.

Table 3: Distribution of treatment options chosen with no directive from the patient or his family

Option	Country; no. (and %) of physicians						
	Australia (n = 108)	Brazil (n = 101)	Canada* (n = 266)	Scotland (n = 89)	Sweden (n = 104)	United States* (n = 123)	Wales (n = 100)
SUPP	23 (21)	—	20 (8)	8 (9)	9 (9)	4 (3)	9 (9)
LIM	48 (44)	35 (35)	102 (38)	54 (61)	48 (46)	41 (33)	43 (43)
MAX	31 (29)	27 (27)	92 (34)	26 (29)	29 (28)	38 (31)	43 (43)
MICU	6 (6)	39 (39)	52 (20)	1 (1)	18 (17)	40 (32)	5 (5)

*Relevant data were missing from some of the questionnaires.

making. Age, correlating highly with number of years in practice, was associated with less aggressive therapy. Family physicians were more likely than specialists to choose more conservative therapy. Although the reasons for these differences are speculative they suggest the impact of experience and training on physician values.

Decisions were also influenced by country. This may not reflect the impact of the cultural milieu of the nation as a whole, because, for example, the patterns of response among the US physicians were much closer to those of the Brazilian physicians than to those of the Australians. Perhaps the environment in which the physicians trained and the practice patterns of their peers and role models were a stronger influence.

Although the wishes of the patient and his daughter represented a fourth factor that strongly influenced the decisions an appreciable proportion of the physicians ignored them. This was true even when the wishes were expressed in an explicit written directive. Overall about 40% of the physicians provided a level of care different from what had been requested. In six of the seven countries more than 10% chose treatment options that differed significantly from the wishes.

Our results are consistent with those of previous studies, which reported conflicting attitudes among health care personnel toward the care of critically ill elderly patients with dementia.^{2,12-15} The findings of Pearlman, Inui and Carter² differed from ours in that residents in their study were more willing than attending physicians or those in private practice to withhold mechanical ventilation. Their vignette, however, involved a competent patient, the issue having been as much one of assessment of the likelihood of survival with adequate quality of life as it was one of ethics. Furthermore, the differences were small, and the confidence intervals overlapped. Others have reported findings consistent with ours: physicians experienced in dealing with dying patients are usually more willing than those with less experience to omit life-prolonging measures.^{16,17}

Decisions on the level of treatment will have a profound effect on the longevity and dignity of the incompetent elderly patient, the stress placed on the family and the resources expended in the health care system. It seems that when left to the individual physician these decisions can differ greatly (and thus will be haphazard and, to an extent, arbitrary) and may at times contravene the explicit wishes of the patient and family. This suggests a major deficiency in the extent to which we have developed a societal

consensus on how the incompetent elderly should be treated and on who should make the treatment decisions. Alternatively, if there is a societal consensus it has not been communicated to physicians, in whose hands these decisions currently rest. Our findings suggest that these problems are common to a number of countries. They highlight the importance of addressing the profound, underlying ethical issues and of instituting mechanisms whereby the results of deliberations are translated into consistent clinical practice.

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