

CPR or DNR?

End-of-life decision making on a family practice teaching ward

Betty Calam, MD, MCLSC, CCFP Rodney Andrew, MB, BS, CCFP

abstract

OBJECTIVE To determine the proportion of patients on a family practice ward who had "code status" orders and end-of-life discussions documented on their charts in the first week of admission. To examine the correlation between a tool predicting the likelihood of benefit from cardiopulmonary resuscitation (CPR) and actual end-of-life decisions made by family physicians and their patients.

DESIGN Cross-sectional descriptive study using a retrospective chart review.

SETTING A 14-bed teaching ward where family physicians admit and manage their own patients in an urban tertiary care teaching hospital.

PARTICIPANTS Patients admitted to the ward for 7 or more days between December 1, 1995, and August 31, 1996.

MAIN OUTCOME MEASURES Frequency of documented "do not resuscitate" (DNR) or "full code" orders and documented end-of-life discussions. Prognosis-after-resuscitation (PAR) score.

RESULTS In the 103 charts reviewed, code status orders were entered within 7 days for 60 patients (58%); 31 were DNR, and 29 were full code. Discussion of code status was documented in 25% of charts. The PAR score for 40% of patients was higher than 5, indicating they were unlikely to survive to discharge from hospital should they require CPR. There was a significant association between PAR scores done retrospectively and actual code status decisions made by attending family physicians ($P < .005$).

CONCLUSIONS End-of-life discussions and decisions were not fully documented in patients' charts, even though patients were being cared for in hospital by their family physicians. A PAR score obtained during the first week of admission could assist physicians in discussing end-of-life orders with their patients.

résumé

OBJECTIF Déterminer la proportion de patients dans un service de pratique familiale dont les discussions sur les directives préalables concernant la réanimation et les interventions de fin de vie étaient documentées dans leur dossier dès la première semaine de leur hospitalisation. Examiner la corrélation entre un instrument permettant de prévoir les avantages éventuels de la réanimation cardio-respiratoire (RCR) et les décisions réelles au terme de la vie prises par les médecins de famille et leurs patients.

CONCEPTION Une étude descriptive transversale fondée sur un examen rétrospectif des dossiers.

CONTEXTE Une unité d'enseignement de 14 lits dans laquelle les médecins de famille font admettre et traitent leurs propres patients dans un hôpital d'enseignement de soins tertiaires en milieu urbain.

PARTICIPANTS Les patients admis au service pour une période de sept jours ou plus entre le 1^{er} décembre 1995 et le 31 août 1996.

PRINCIPALES MESURES DES RÉSULTATS La fréquence des ordonnances consignées «de ne pas réanimer» (DNR), de celles demandant les mesures complètes et des discussions documentées sur les décisions en fin de vie. La cote du pronostic après réanimation (PAR).

RÉSULTATS Dans les 103 dossiers examinés, les ordonnances relatives aux interventions en fin de vie étaient consignées dans les sept jours de l'admission dans le cas de 60 patients (58%); l'ordonnance de 31 patients était DNR et un «code» complet pour 29 d'entre eux. La discussion de l'ordonnance à suivre était documentée dans 25% des dossiers. Pour 40% des patients, la cote du PAR était de plus de 5, indiquant qu'il était peu probable qu'ils survivent après leur congé de l'hôpital dans l'éventualité où il leur faudrait une RCR. Le rapport était significatif entre les cotes du PAR établies en rétrospective et les décisions réelles prises par les médecins de famille traitants quant aux décisions concernant l'ordonnance ($p < .005$).

CONCLUSIONS Les discussions et les décisions sur les interventions en fin de vie n'étaient pas entièrement documentées dans les dossiers des patients, même si les patients étaient traités à l'hôpital par leur médecin de famille. Une cote de PAR obtenue durant la première semaine de l'hospitalisation pourrait aider les médecins dans la discussion avec leurs patients des ordonnances entourant le terme de la vie.

This article has been peer reviewed.

Cet article a fait l'objet d'une évaluation externe.

Can Fam Physician 2000;46:340-346.

Issues surrounding end-of-life decisions continue to be widely debated in the medical and lay press.¹⁻⁷ The latest Canadian Medical Association statement on resuscitative interventions (December 1995) attempts to clarify the issues for caregivers in Canada.⁸ This guideline and others widely used in hospitals across Canada, however, have not been tested in law.⁹

It is hardly surprising, therefore, that writing "do not resuscitate" (DNR) orders continues to be shrouded in confusion and inconsistency. Many physicians find making these decisions personally difficult and avoid discussion with their patients or put off decision making until patients are incompetent.¹⁰ An estimated 75% of patients who have written DNR orders are incompetent at the time the order is written, but only 10% of them were cognitively impaired at time of admission.¹¹

Patients themselves clearly indicate that they want to be involved in discussions and decisions about resuscitation.^{12,13} Physicians worry about attempting to resuscitate patients when the situation is clearly futile.^{1,14,15} Patients express concern that if they have written DNR orders, they will receive a lower standard of care, particularly if they have incurable illnesses.¹⁰ We are not aware of any studies that have looked at dilemmas relating to "code status" (resuscitation orders) when family physicians have to make decisions with their own patients under their direct care in hospitals.

Family physicians affiliated with St Paul's Hospital, a tertiary referral hospital in downtown Vancouver, BC, can admit their patients to a family practice teaching ward. Most patients admitted are adult general medical patients falling into two main categories: elderly people with multiple medical diagnoses and often with dependent functional status, and patients with advanced acquired immunodeficiency syndrome. Code status was one of the most common issues raised by both nurses and family practice residents on the ward. Both groups expressed uneasiness when decisions were not made or were unclear.

Although some patients arrived on the ward with advance directives, our impression was that code status remained uncertain for many patients, at least for the first week after admission. Understandably, residents were frustrated with the uncertainties

Dr Calam is Medical Director of the Family Practice Ward at St Paul's Hospital Site in Vancouver, BC.

Dr Andrew is the Director of the Family Practice Residency Program at the St Paul's Hospital Site of the University of British Columbia.

surrounding code status decisions and the difficult position in which they might be placed if a patient required cardiopulmonary resuscitation (CPR).

This study aimed to investigate the following during patients' first week of admission: what proportion of patients on the family practice ward had clear code status orders on their charts; what proportion of patients' charts documented discussion of code status; whether the prognosis-after-resuscitation (PAR) score^{16,17} predictive of benefit from CPR correlated with actual decisions made by family physicians and their patients; and whether reviewers' estimate of benefit from CPR correlated with PAR scores.

METHODS

Setting

St Paul's family practice teaching ward opened in June 1994 with 14 beds. At the time of the study, 90 family physicians had privileges to admit their patients and access to a full range of consultation services. Admission criteria indicate that patients should not require invasive monitoring techniques, such as central lines or cardiac monitors. First-year family practice residents help care for most of the more than 300 admissions each year and work closely with attending family physicians.

The ward medical director, who is a family physician, oversees medical care and supervises resident teaching on the ward. Although residents have seldom had previous relationships with patients or their families, they work closely with attending family physicians who have. Each resident has a 4-week rotation on the ward and, as one learning objective, must demonstrate patient-centred interviewing techniques¹⁸ that elicit patients' concerns about their problems, including end-of-life issues.¹⁹ The DNR policy at St Paul's Hospital at the time of this study stated that, when physicians write DNR orders, they must document that they have discussed these orders with patients or proxies.²⁰

All patients admitted under their family physicians' care to the ward from December 1, 1995, to August 31, 1996, were eligible for this study. Only patients who stayed in hospital 7 days or more were included. Patients were excluded if they had been transferred to the ward from other areas of the hospital and code status decisions had been made elsewhere. A total of 103 patients' charts met the inclusion criteria.

Design

This cross-sectional descriptive study used a retrospective chart review. Two reviewers abstracted

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information and tabulated it using Microsoft Excel. Admitting family physicians' sex, age, and academic qualifications were recorded. Basic demographics of patients were recorded, as were outcomes of stay (ie, death, discharge, transfer) and whether CPR had been performed. Patients were grouped into broad clinical categories based on the diagnostic codes assigned after discharge.

Reviewers sought to estimate the cognitive function of each patient for most of the first week of admission using data from medical admission, progress, and consultation notes and nurses' documents. Terms such as delirium, dementia, and cognitive impairment, and scores lower than 24/30 on standardized mini-mental status examinations²¹ were considered evidence of impaired cognition.

Each patient's code status was recorded, ie, full code or DNR, within the first 7 days of admission. If orders were not recorded in patients' charts, "default" full code was assumed, meaning that the patient would receive CPR if needed. Evidence was sought in order sheets, admission history, and progress notes of discussion of code status and preferences with patients or relatives.

The two reviewers, both family physicians experienced in community and hospital medicine, made clinical judgments about prognosis based on admission criteria and progress notes in the first week as to patients' chances of surviving CPR. This was called the "Gestalt" chance of benefit from CPR. The judgment indicated whether the reviewer thought a patient had a less than 5% chance of responding to CPR and surviving to discharge (low benefit) or a more than 5% chance (fair benefit). This was based on literature on prearrest predictors of survival suggesting that benefit from CPR ranges from 25% for in-hospital, witnessed myocardial infarction to 0% for metastatic cancer. One study of elderly patients undergoing CPR in hospital showed that 9% survived to be discharged.²² Another study looking at a group of Veterans showed that, overall, approximately 10% survived to discharge after CPR, but none older than 70 lived to be discharged.²³

Apart from the reviewers' estimate of chances of survival, each patient's chart was subsequently analyzed using a PAR score.^{16,17} The PAR score, developed by O'Keefe and Ebell, attempts to objectify the likelihood of survival to discharge from hospital after CPR. It incorporates information on age, clinical status on admission, and functional status (**Table 1**¹⁷). Because our patients were less likely to survive compared with average adult inpatients, we chose a PAR

Table 1. Prognosis after resuscitation (PAR) score

CLINICAL CHARACTERISTIC	SCORE
Metastatic cancer	10
Sepsis	5
Dependent functional status	5
Nonmetastatic cancer	3
Pneumonia	3
Creatinine > 130 µmol/L	3
Age > 70 years	2
Acute myocardial infarction (admission diagnosis)	-2

Adapted from O'Keefe and Ebell¹⁷

Table 2. Major diagnostic categories on discharge

CLINICAL CLASSIFICATION	NO.
AIDS-related illness	37
Musculoskeletal	16
Cardiac or cerebrovascular	11
Eating disorder	8
Respiratory	8
Dementia	5
Palliative care	4
Miscellaneous	14
TOTAL	103

Table 3. Code status compared with cognitive function

CODE STATUS AT 7 DAYS	COGNITIVE FUNCTION FOR MOST OF FIRST WEEK OF ADMISSION		TOTAL N (%)
	INTACT N (%)	IMPAIRED N (%)	
Do not resuscitate	17/31 (55)	14/31 (45)	31/103 (30)
Full code	29/29 (100)	0/29 (0)	29/103 (28)
Default full code	38/43 (88)	5/43 (12)	43/103 (42)
TOTAL	84/103 (82)	19/103 (18)	103 (100)

Table 4. Patient's code status at 7 days in relation to documentation of discussion of code status

CODE STATUS AT 7 DAYS	DOCUMENTED DISCUSSION OF CODE STATUS IN CHART WITHIN 7 DAYS		TOTAL N (%)
	YES N (%)	NO N (%)	
Do not resuscitate	16/31 (52)	15/31 (48)	31/103 (30)
Full code	7/29 (24)	22/29 (76)	29/103 (28)
Default full code	3/43 (7)	40/43 (93)	43/103 (42)
TOTAL	26/103 (25)	77/103 (75)	103 (100)

Table 5. Prognosis compared with code status at day 7

CODE STATUS AT 7 DAYS	CHANCE OF BENEFIT FROM CPR BY PAR SCORE		TOTAL N (%)
	LOW (>5) N (%)	FAIR (<5) N (%)	
Do not resuscitate	21/31 (68)	10/31 (32)	31/103 (30)
Full code	9/29 (31)	20/29 (69)	29/103 (28)
Default full code	11/43 (26)	32/43 (74)	43/103 (42)
TOTAL	41/103 (40)	62/103 (60)	103 (100)

Table 6. Reviewers' retrospective estimate of benefit from CPR compared with PAR score

REVIEWERS' ESTIMATE OF BENEFIT FROM CPR	CHANCE OF BENEFIT FROM CPR BY PAR SCORE		TOTAL N (%)
	LOW (PAR > 5) N (%)	FAIR (PAR ≤ 5) N (%)	
Low	38/57 (67)	19/57 (33)	57/103 (55)
Fair	3/46 (7)	43/46 (93)	46/103 (45)
TOTAL	41/103 (40)	62/103 (60)	103 (100)

score of > 5 to correspond with low likelihood of survival to discharge after CPR.

Inter-rater reliability was assessed by reviewing 10 charts at random. The sample size of 103 charts ensured that sampling variability for estimating proportions was within ± 10%.

RESULTS

During the study period, 47 of the eligible 90 family physicians admitted patients to the ward. All physicians were on active medical staff except two locums.

Of the 47 physicians, 29 had Certification in Family Medicine (CCFP). Seven physicians were identified as frequently admitting AIDS patients.

A total of 103 patients' charts were reviewed: 56 men and 47 women. Ages ranged from 20 to 96 years; 47 patients (45%) were older than 60, and the others were evenly distributed between 20 and 60. **Table 2** shows patients' major diagnostic categories on discharge. Fourteen patients were known to have cancer, and 37 had AIDS-defining illnesses.

Of the 103 patients, 60 (58%) had code status orders entered in their charts within the first 7 days, 31 as DNR and 29 as full code. No documentation of code status appeared in 43 charts (42%); they were classified as "default full code."

On chart review, 84 (82%) patients were judged cognitively intact for most of the first week of admission. The one patient who was cognitively intact on admission and became impaired during the first week did not have end-of-life orders specified and was thus considered default full code. **Table 3** compares code status with cognitive function. Patients who were cognitively impaired were significantly more likely to have DNR orders than those who were cognitively intact (χ^2 22.59, $P < .0001$). Only 55% of patients with DNR orders were cognitively intact compared with 93% of full code or default full code patients.

Evidence of discussion of code status was documented in only 26 (25%) charts, 16 for DNR and 10 for full code (**Table 4**). Discussion was twice as likely to be documented when the order was DNR (χ^2 19.04, $P < .0001$). Although 77 charts had no documentation in the first week, code status orders appeared on a further five charts between day 8 and discharge, a 30% documentation rate overall.

The PAR score's association with actual decisions made by attending physicians is shown in **Table 5**. The PAR score for 40% of patients was higher than 5, indicating they were unlikely to survive to discharge after CPR. There was a significant association between PAR scores and actual decisions made by attending family physicians (χ^2 14.66, $P < .0007$). Two thirds of DNR decisions were made with patients with low likelihood of benefit from CPR on the PAR index; conversely, two thirds of patients with full code or default decisions had a fair chance of benefit from CPR on the PAR index.

There was 78.6% agreement between reviewers' Gestalt evaluation of patients having fair or low chance of benefit from CPR and PAR scores (**Table 6**). A Cohen's K of 0.58, which adjusts for chance agreement, indicates this is fair to good agreement.

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Table 7. Inter-rater reliability

VARIABLE	% AGREEMENT
Basic demographics	95
Clinical classification	100
Cognitive function	95
Gestalt prognostic classification	100
Code status orders at 1 week	100
Evidence of discussion documented	100
Chance of benefit from CPR (PAR score ≤ 5 or > 5)	100

In the 103 charts reviewed, there were 11 deaths: eight had DNR orders written within the first 7 days; two were documented as full code initially, but were changed to DNR on day 10 and day 15. One patient was classified as default full code but had a DNR order written on day 8. Of the patients who died, 10 scored higher than 5 on the PAR, indicating a low likelihood of benefit from CPR. One elderly patient scored 5 on the PAR, indicating fair chance of benefit, but requested a DNR order the day after admission. She developed complications from pneumonia and died on day 10. Therefore, during the study period, all 11 patients who died had DNR orders, and no attempts at CPR were made.

Inter-rater reliability assessments for 10 of 103 charts chosen randomly are shown in **Table 7**. Reported percentages are computed from the number of charts where both reviewers gave the same rating for each variable.

DISCUSSION

This chart review showed that only 58% of patients admitted to a family practice ward had specific code status orders written in the first week of admission and that, overall, only 25% of charts contained documentation that end-of-life issues had been discussed with patients or their relatives. Although their wishes were unknown to the ward team, 42% of patients classified as default full code at the end of the first week would have received CPR in the event of cardiac arrest, and at least a quarter of them were considered unlikely to benefit from CPR according to the PAR index.

The hospital requires that physicians writing DNR orders document discussion about these orders in

patients' charts, yet 16/31 (52%) of the charts reviewed had no such documentation. We do not know how this compares to documentation on other wards where attending physicians are specialists. Most patients were cognitively intact during the first week of hospitalization, suggesting physicians could have communicated directly with them about their wishes. During the first week, 38/84 (45%) charts still had no code status orders.

It is noteworthy that all 11 patients who died had DNR orders written at some point after admission. Although DNR orders were not always written in a timely fashion, as the ward team would have preferred, attending family physicians did write DNR orders before patients died and thereby prevented inappropriate resuscitation attempts. Clearly, decisions are being made as patients' conditions change.

Despite the fact that most patients in this study would have been well known to their family physicians and discussion of end-of-life issues could have taken place elsewhere (ie, home or office), some physicians still seem reluctant to discuss these issues with some patients, or at least to document these discussions when patients enter hospital. As a result, the ward team that works alongside the family physicians can be left in doubt as to the status of end-of-life discussions between physicians and patients.

Reasons for the seeming reluctance of physicians to address code status itself could include that the patient is not ill enough to require discussion of code status; discomfort with approaching patients with difficult choices, especially if they are very ill; hope that patients' conditions will improve enough that discussion need not take place; concern about level of care in the presence of DNR orders; or difficulties physicians themselves have in confronting their own mortality. This area is likely fraught with feelings on the part of physicians, patients, and relatives. Qualitative exploration of these issues could be an important step toward understanding the factors involved in end-of-life decision making.

The PAR scores were reassuring to the reviewers in that a significant correlation was seen between PAR scores applied retrospectively and actual decisions made by family physicians. The PAR scores also correlated well with the reviewers' Gestalt evaluation of patients' likelihood of benefit from CPR. A PAR index done in the first week of admission could assist physicians in discussing resuscitation orders with their patients. Physicians and residents could use the PAR index as a fairly easy and objective way of assessing whether patients are likely to survive to discharge after CPR.

Key points

- On a family practice teaching ward in a downtown Vancouver hospital, 58% of patients had specific code status orders in their charts during the first week after admission.
- A prognosis-after-resuscitation (PAR) score higher than 5 correlated well with physicians' decisions to write DNR orders.
- All patients who died (11/103) had DNR orders in their charts before they died, eight written during the first week of admission and three subsequently.
- The predictive value of the PAR score correlated well with two family physician reviewers' "Gestalt" evaluation.
- The PAR tool appears to be useful for predicting which patients should be offered DNR orders.

Points de repère

- Dans une unité d'enseignement en pratique familiale d'un hôpital du centre-ville de Vancouver, des ordonnances spécifiques préalables sur les interventions en fin de vie étaient documentées dans le dossier de 58% des patients.
- Un pronostic après la réanimation (PAR) de plus de 5 correspondait bien avec les décisions des médecins de consigner des ordonnances de ne pas réanimer (DNR).
- Tous les patients décédés (11/103) avaient des ordonnances de DNR consignées dans leur dossier avant leur décès, dont huit dans la première semaine d'hospitalisation et trois subséquemment.
- Il y avait une étroite corrélation entre la valeur prédictive de la cote du PAR et l'évaluation « Gestalt » de deux médecins de famille qui faisaient l'analyse.
- L'instrument que représente le PAR semble utile pour identifier les patients à qui il faudrait offrir de consigner des ordonnances de DNR.

Limitations

One of the limitations of this study is that it might not be generalizable to other hospitals with a different patient mix, without a residency training program, or where family physicians are not the attending physicians. Also, the PAR index should not be used as the sole criterion for code status decisions. Patients with similar PAR scores are by no means clinically similar.

For instance, a patient with limited metastatic breast cancer could have a much better prognosis than a frail elderly person with widely disseminated carcinoma. The PAR score for metastatic disease in both these scenarios would suggest a low chance of survival to discharge after CPR. The PAR index also does not enumerate some of the more intangible considerations that experienced clinicians would take into account in decision making, such as intimate knowledge of patients and their wishes. Crucial to the ultimate decision about resuscitation is physicians' ability both to assess the medical aspects of the illness and also to truly hear what patients are saying about end-of-life wishes.

Conclusions

The results confirm our impression that end-of-life issues were not being addressed fully when patients were admitted to the family practice teaching ward. We think that, given the severity of illnesses that warrant admission to hospital, all patients would benefit if code status issues were clarified, discussed, and documented in their charts on admission or soon after. Code status should be reviewed as patients' situations evolve. A PAR index obtained during the first week of admission could give physicians some prognostic information to add to discussions of end-of-life issues with their patients. A qualitative study of physicians' and patients' experiences surrounding establishing code status to assist decision making and to guide educational initiatives for family practice residents would be useful.

Hospital policy aimed at assuring patient-centred inquiry about end-of-life issues, interdisciplinary communication about decisions, and high-quality supportive care to patients with DNR orders, can assist patients, their families, and their physicians in dealing with hospitalization. St Paul's Hospital's decision to appoint a task force, which includes physicians, social workers, nurses, patient care managers, ethicists, and patients' representatives, to develop and implement an updated DNR policy is appropriate and timely and should help clarify decisions in this important area of patient care. ✦

Acknowledgment

This project was supported by seed funding from the British Columbia College of Family Physicians. We thank the University of British Columbia Department of Family Practice Writer's Group for support and suggestions about the paper, Dr David Kuhl for his helpful editing, and Dr Jonathan Berkowitz for statistical consultation.

Research

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Correspondence to: Dr Betty Calam, Department of Family and Community Medicine, Room 9005, Ward 9A, St Paul's Hospital, 1081 Burrard St, Vancouver, BC V6Z 1Y6; telephone (604) 806-8462; fax (604) 806-8556; e-mail bcalam@stpaulshosp.bc.ca

References

1. Senn JS. Writing "No CPR" orders: must resuscitation always be offered? *Can Med Assoc J* 1994;151(8):1125-8.
2. Buckman R, Senn JS. Eligibility for CPR: is every death a cardiac arrest? *Can Med Assoc J* 1989;140:1068-9.
3. Murphy DJ, Burrows D, Santilli S, Kemp AW, Tenner S, Kreling B, et al. Influence of the probability of survival on patients regarding cardiopulmonary resuscitation. *N Engl J Med* 1994;330:545-9.
4. Younger SJ. Who defines futility? *JAMA* 1988;260:2094-5.
5. Canadian Medical Association. CMA policy summary. Resuscitation of the terminally ill. *Can Med Assoc J* 1987;136(Suppl):424A.
6. Gordon M, Chung M. DNR policy and CPR practice in geriatric long-term institutional care. *Can Med Assoc J* 1991;145:209-12.
7. Matas R. Working in the valley of the shadow. *Globe & Mail* 1996 April 16. Section A, p. 2.
8. Canadian Medical Association. CMA policy summary: Joint Statement on Resuscitative Interventions (update 1995). *Can Med Assoc J* 1995;153(11 Suppl):1652 A,B,C.
9. Keyserlingk EW. Second generation advance directives: will reforming the law improve the profile? *Humane Med* 1993;9(1):57-63.
10. Morris BA, Van Niman SE, Perlin T, Lucic KS, Vieth J, Agricola K, et al. Health care professionals' accuracy in predicting patients' preferred code status. *J Fam Pract* 1995;40(1):41-4.
11. Ebell M. Practical guidelines for do-not-resuscitate orders. *Am Fam Physician* 1994;50(6):1293-9.
12. Morgan R, King D, Prajapati C, Rowe J. Views of elderly patients and their relatives on cardiopulmonary resuscitation. *BMJ* 1994;308:1677-812.
13. Hill ME, MacGwillan G, Forsytz M, Heath DA. Cardiopulmonary resuscitation: who makes the decision? *BMJ* 1994;308:1677-8.
14. Ginn D, Zitner D. Cardiopulmonary resuscitation: not for all terminally ill patients. *Can Fam Physician* 1995;41:649-57.
15. Ventres W, Nichter M, Reed R, Frankel R. Do-not-resuscitate discussions: a qualitative analysis. *Fam Pract Res J* 1992;12(2):157-69.
16. Ebell M. Pre-arrest predictors of survival following in-hospital cardiopulmonary resuscitation: a meta-analysis. *J Fam Pract* 1992;34(5):551-8.
17. O'Keeffe S, Ebell MH. Prediction of failure to survive following in-hospital cardiopulmonary resuscitation: comparison of two predictive instruments. *Resuscitation* 1994;28:21-5.
18. Weston WW, Brown JB, Stewart MA. Patient-centred interviewing. Part I. Understanding patients' experiences. *Can Fam Physician* 1989;35:147-51.
19. Stewart K. Discussing cardiopulmonary resuscitation with patients and relatives. *Postgrad Med J* 1995;71:585-9.
20. St Paul's Hospital. *Resuscitative intervention*. Document A.E. 4700. Vancouver, BC: St Paul's Hospital; 1994.
21. Molloy DW, Alemayehu E, Roberts R. Reliability of a standardized Mini-Mental State Examination compared with the traditional Mini-Mental State Examination. *Am J Psychiatry* 1991;148:102-5.
22. Varon J, Fromm RE. In-hospital resuscitation among the elderly; substantial survival to hospital discharge. *Am J Emerg Med* 1996;14:130-2.
23. Taffet GE, Teasdale TA, Luchi RJ. In-hospital cardiopulmonary resuscitation. *JAMA* 1998;280:2069-72.

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