

# Outcomes of elderly patients categorised as “do not resuscitate”

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**In this clinical audit, we compared the guidelines on cardiopulmonary resuscitation in our hospital with those from the Royal College of Physicians (London). Forty-six of 72 cases designated as “do not resuscitate” at The Prince of Wales Hospital and transferred to Shatin Hospital were re-categorised to receive active resuscitation. Documentation and the reasons for the “do not resuscitate” order were not made in fewer than 7% of patients. The decision was made with patients/carers in 61% of patients designated “do not resuscitate” at Shatin Hospital. Of these 72 patients, 68% were eventually discharged and only 16% died in the subsequent nine months. Among those discharged, functional levels were not worse compared with their premorbid state. Hence, our policy has not led to undue prolongation of life and disability with poor quality of life. We recommend more training in patient communication skills and studies on attitudes towards the decision not to resuscitate.**

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*Key words: Aged; Resuscitation orders; Disabled; Quality of life*

## Introduction

Few hospitals in Hong Kong have defined guidelines for resuscitation. The policy is of great importance to a geriatric department, where the overall resuscitation success rate is disappointing. Studies on the resuscitation of patients aged 64 years and older demonstrate an initial response rate of 15% to 27%,<sup>1,3</sup> but survival to discharge is only 3.4% to 3.8%.<sup>1,4</sup> More importantly, of those patients discharged, more than 30% show a decline in functional status, becoming housebound when they previously had not been so.<sup>5</sup>

The Royal College of Physicians (RCP) in London has published guidelines on the “do not resuscitate” (DNR) order.<sup>6</sup> At the Prince of Wales Hospital (PWH), physicians have developed the “no crash call” (NCC) order indicating active management until arrest. At Shatin Hospital (SH), where patients are admitted clinically or transferred from PWH, geriatricians have defined a policy of active resuscitation/do not

resuscitate. By default, all patients who do not have any standing DNR order will receive active care and active resuscitation. For those patients assessed to be in imminent danger of death and considered “not for resuscitation”, a categorical DNR order is defined according to the following system: (category 1) active management until arrest and if arrest, no resuscitation; (category 2) supportive care only and no resuscitation. A yellow card is issued to category 1 patients and a red card to category 2 patients. All medical staff who join the Medical and Geriatric Unit, SH, are given a manual with this categorical DNR system included.

The DNR guidelines (Table 1) from the RCP and SH were compared. Although the policy at SH includes a categorical order, there are no specific guidelines on how to place patients into either the yellow or red category once the decision of DNR has been made. This study was designed to audit this policy, and to analyse outcomes of patients from PWH categorised as NCC.

## Materials and methods

This retrospective survey examined all patients aged more than 60 years given an NCC order in their referral form at the time of transfer from PWH during the period 1 December 1993 to 31 March 1994.

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Baseline demographic data, conditions leading to the indexed admission, and other underlying diagnoses were collected. Information on premorbid functional state before admission to PWH and after discharge from SH were noted. All records were reviewed for any documentation of DNR order and reasons for the order. For patients being discharged, their outcomes were traced for PWH admission until 31 December 1994. Descriptive data was given for the duration of

## Results

There were 90 patients designated NCC from all patients consulted for transfer to SH and 72 of these were transferred to SH. The reasons for patients not being transferred were recorded (Table 2). Of the 18 patients not admitted to SH, 11 were rejected by SH, three were referred for hospice care, seven were recommended for further work up before transfer, and

**Table 1. Comparison of two guidelines for resuscitation**

	RCP, London <sup>*</sup>	Shatin Hospital
Decision by senior staff	Yes	nm <sup>‡</sup>
Decision by junior staff in case of emergency—endorsed by senior staff later	Yes	Yes
Respect decision made by patient	Yes	Yes
Respect decision made by carer if patient unable to consent	Yes	Yes
Consideration of premorbid functional level	nm	Yes
Consideration of prognosis (medical and quality of life)	nm	Yes
Age itself is not a contraindication against resuscitation	nm	Yes
Categorical DNR <sup>‡</sup> order	Yes	Yes
Reasons for DNR documented	Yes	Yes
Regular review of DNR order	Yes	nm

<sup>\*</sup> Source: R Coll Physicians Lond. J R Coll Physicians Lond 1993.<sup>6</sup>  
<sup>‡</sup> nm not mentioned  
<sup>‡</sup> DNR do not resuscitate

**Table 2. Total number of consultations from Prince of Wales Hospital designated “no crash call”**

Transferred to Shatin Hospital	72
Died before transfer	5
Patient discharged before transfer	2
Rejected by Shatin Hospital	11
Referred for hospice care	(3)
Need for further work up	(7)
Suitable for discharge	(1)
<b>Total</b>	<b>90</b>

stay and mortality. Chi-square test with Epistat program was used to compare the functional outcomes of patients at discharge.

one was discharged, as rehabilitation was not needed. Five patients died and two were discharged before transfer. Of the 72 patients designated NCC at PWH and subsequently transferred to SH, 46 were re-categorised to receive active management, while 16 were given yellow cards and 10 were given red cards after review. There were 39 men and 35 women, with a mean age of 75.7 years (range, 60-99 years).

The total number of medical problems varied from one to eight in individual cases, with a mean number of diagnoses of three. Twenty-nine patients had an infection (predominantly chest,  $n = 21$ ) as the major active problem, followed by chronic obstructive pulmonary disease ( $n = 20$ ), and cerebrovascular accident ( $n = 16$ ). Reasons for the decision not to resuscitate were documented in all records. For 61% (18/26) of patients where no resuscitation was ordered, the decision was made together with the patient and/

or relatives (Table 3). Patient outcomes and duration of stay of the indexed admission are shown in Table 4a. Altogether, 68% (49/72) of patients were discharged either directly from SH or after transferring back to PWH. Twenty patients died from their original illness and three were transferred to Fanling Hospital with unknown outcomes. The average duration of stay was longest (mean, 61 days; range, 3-210 days) for patients in the yellow card category. The active care group stayed less (mean, 19.2 days; range, 1-60 days) and the supportive care group had the shortest duration of stay (mean, 15.1 days; range, 6-45 days).

Among those discharged (Table 4b), the readmission rate was 1-1.3 per patient discharged in the three different groups. Sixteen per cent (8/49) died within the nine-month follow up period from 31 March 1994

be caused differences in DNR policy between the two hospitals, and/or may be due to an over-estimation of the fragility of elderly patients by physicians. Like most other hospitals in Hong Kong, PWH does not have clear-cut departmental guidelines on DNR policy. At SH, we have definite guidelines. All medical staff joining the Medical and Geriatric Unit are given a staff manual that includes guidelines on DNR policy. Among the patients designated NCC at PWH, 61% (44/72) were discharged from SH directly and only 23% (10/44) died within the months of follow up. The readmission rate was only 1.2 times per patient discharged over this period.

The overall 61% survival rate was acceptable in those elderly patients who were in imminent danger of death and designated DNR. This observation

**Table 3. The status of documentation on the "do not resuscitate" decision and the frequency of discussion with the patient/carer**

	Yellow category* (n = 16)	Red category† (n = 10)
Reason for decision		
Poor premorbid state	6	3
Poor prognosis	7	3
Poor premorbid state and prognosis	1	4
Not documented	2	0
Discussion with patient/carer	11	7

\* Yellow category 1: active management until arrest, if arrest—no resuscitation  
† Red category 2: supportive care only, no resuscitation

to 31 December 1994. Patient functional outcomes in terms of mobility, eating, dressing, and personal care before admission to PWH were compared with their functional outcomes following discharge from SH (Fig 1). The differences did not reach statistical significance. For all patients discharged from SH, we compared their functional outcomes on admission with those found on discharge. There was a trend for less dependence in all of the dimensions studied. However, the results did not reach statistical significance (Fig 2).

## Discussion

Of the 72 patients who were designated NCC at PWH, 46 were re-categorised as active care after transfer to SH. Only 26 patients were assessed as not to be resuscitated if arrest occurred. This difference might

supports the view that geriatricians may be better at assessing the prognosis of elderly patients. Hence, it is not surprising that geriatricians are more likely than physicians to make a positive resuscitation decision in the elderly.<sup>7</sup> Admittedly, this is an audit review and missing data was unavoidable. The outcomes of the eight patients who were transferred to a long-stay hospital within a year of discharge from SH/PWH are unknown. Thus, the outcomes (mortality and disability) and the total duration of hospital stay could not be established.

There are some differences between the RCP recommendation on DNR orders and the version developed by geriatricians at SH. In particular, age is not a contraindication against DNR. This statement is in line with the guidelines set by the British Geriatric

**Table 4a. Outcomes of all patients after admission to Shatin Hospital**

	Active care* (n = 37)	Yellow category† (n = 10)	Red category‡ (n = 2)
Outcome of patients from Shatin Hospital for the indexed medical illness			
Died	5	5	8
Discharged	35	7	2
Transferred	6	4	0
Duration of stay (mean, days)	19.2	61	15.1
* Active care: active intervention provided to patient, including active resuscitation if necessary			
† Yellow category 1: active management until arrest, if arrest—no resuscitation			
‡ Red category 2: supportive care only, no resuscitation			

Society.<sup>8</sup> Our guidelines did not include endorsement of the decision by senior staff and the need for regular review. These items were subsequently included after this audit. The SH guidelines include the premorbid functional level, prognosis (control of disease and probable outcome), and the expected quality of life if the patient survives, as factors for consideration. The dimensions set in the guidelines are similar to those suggested by Fox et al.<sup>9</sup> However, the SH guidelines cannot be quantified, and it remains a semi-qualitative decision whether to issue a yellow or red card even if the decision is DNR. This problem was not unique to SH. These difficulties have been addressed by Fox et al.,<sup>9</sup> and researchers have been trying to develop assessment tools or a scoring system in this area.<sup>5,10,11</sup> However, because of the potential cultural differences about the meaning of “quality of life” and ethical issues, scoring systems developed overseas might not be applicable locally, and we may need to develop our own tools.

Of the 72 patients transferred to SH, 46 were reassessed for active care by default. Five patients subsequently died. No categorical DNR decision was found in the records of those who died. All had an unwitnessed cardiac arrest and resuscitation was not performed. This finding might suggest poor adherence to the guidelines. Alternatively, it might be that the patients had been reviewed and deemed not for resuscitation, yet there was no documentation in the notes. The estimated number of case notes lacking documentation was less than 7% (5/72). This rate was much lower than the quoted 38% to 73% in overseas studies.<sup>10,12-14</sup> The study group from the RCP was aware of this deficiency and thus the guidelines also recommend that “A categorical DNR order should be recorded in

the patient’s note<sup>6</sup> ...”. Documentation of DNR in case notes may present problems for medical staff, with the implementation of the Personal Data (Privacy) Ordinance in Hong Kong in 1996. This issue needs to be discussed and addressed by the Hong Kong College of Physicians and the Hong Kong Hospital Authority.

The guidelines require that the DNR decision be discussed with the patient and/or carers. The guideline is in line with the Patients’ Charter put forward by the Hong Kong Hospital Authority.<sup>15</sup> In our survey, of the 26 patients for whom the DNR decision was documented, discussion with the patient or carer was documented in only 18 case notes. It might be that the patient was unconscious or lived alone or in an institution so that such discussion could not be initiated. All of the decisions were made with the carers.

Some believe that the elderly do not want to discuss the issue. Studies from the UK and the USA<sup>16,17</sup> have shown that this belief might not be true. In a study performed by Stolman et al.,<sup>16</sup> almost two-thirds of patients wished the decision to be shared between medical staff and the family, and only 10% felt that the doctor alone should make the decision. In another UK study,<sup>17</sup> 80% of patients felt that elderly patients should be encouraged to express their views on the subject on admission. A survey at SH shows that 58.8% of patients would like to be involved in the decision-making process (E Hui, unpublished data). Based on these data, efforts should be made to discuss the matter with patients.

We divided the DNR order into categories of active management, active management until arrest (if

arrest occurs, no resuscitation), and supportive care only with no resuscitation. The assumption was that some patients might have good premorbid functional levels, yet it might be difficult to predict their prognosis. A typical example is a patient with a cerebrovascular accident—attempts to predict recovery are far from satisfactory. Patients with chest infection complicating underlying chronic obstructive pulmonary disease are another example. In this group, active management was worthwhile, with constant review in order to re-categorise as necessary. This has important financial implications.

The average length of stay for patients with a yellow card was 61 days, yet the mortality rate was approximately 31%. In comparison, the length of stay in the active and red card groups were 19.2 and 15.1 days, respectively, with corresponding mortalities of 11% and 80%. If one could manage to predict the outcome with a reasonable specificity and sensitivity, it would be possible to decide when to choose active management or to opt for supportive care only. Different groups are developing predictors of outcomes of cardiopulmonary resuscitation, trying to decide when this is futile.<sup>5,10</sup> It might be worthwhile to develop scientific predictors of outcomes, so that resources can be appropriately used. This has been proposed by some investigators.<sup>11</sup> It is important that the DNR decision be reviewed constantly.

In terms of functional levels, there was no decline in the dimensions studied, for patients discharged from SH compared with their premorbid state (Fig 2). The trend showed an improvement when compared with their status on admission, although the Chi square value

did not reach statistical significance (Fig 1). This contrasted with a previous study when elderly patients discharged from an acute setting had increased functional disability after discharge.<sup>18</sup> These findings support the view that geriatricians at SH had appropriately selected patients for active care, without undue prolongation of life in the very frail elderly. It also supports the role of active rehabilitation in the elderly after acute medical insults.

In this clinical audit, we reviewed our guidelines on DNR and compared them with the recommendations of the RCP. The outcomes of patients in different DNR groups were examined. The audit also revealed that we have difficulty discussing DNR with patients. Further training in patient communication skills is necessary. For those patients re-categorised for active care, the mortality rate was approximately 10%, which is similar to the average mortality at our hospital. The functional levels of patients discharged were comparable with their premorbid levels. It was reassuring to know that we had not merely been prolonging life. Further studies on attitudes of the elderly towards DNR should be performed.

## References

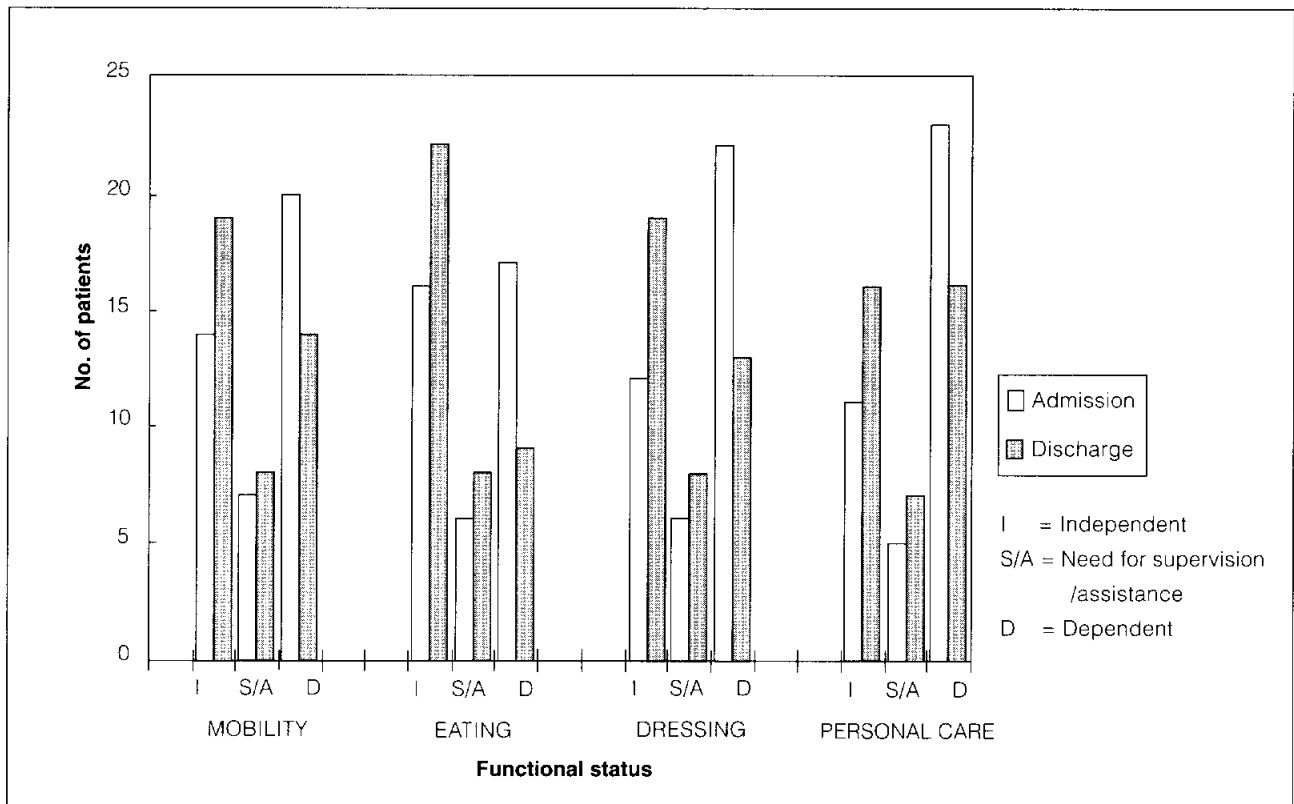
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**Table 4b. Outcomes of patients who were discharged after the indexed illness**

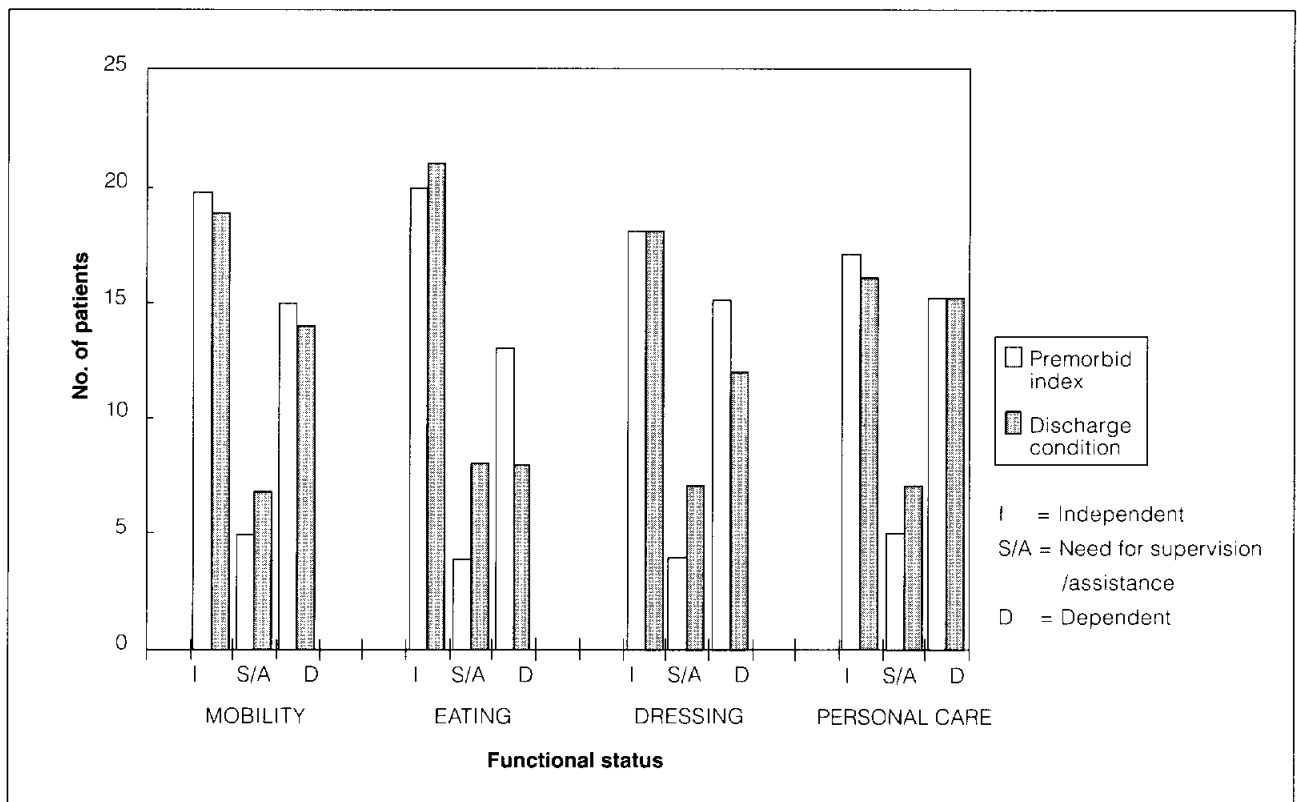
	Previous resuscitation status		
	Active care* (n = 37)	Yellow category <sup>†</sup> (n = 10)	Red category <sup>‡</sup> (n = 2)
No. of readmissions to Prince of Wales Hospital (per patient discharged) until 31 December 1994	1.2 (0-5)	1.3 (0-3)	1 (0-2)
No. of patients transferred to Fanling Hospital (outcomes unknown) until 31 December 1994	4	0	1
Subsequent death at Prince of Wales Hospital up to 31 December 1994	6	2	0

\* Active care: active intervention provided to patient, including active resuscitation if necessary  
<sup>†</sup> Yellow category 1: active management until arrest, if arrest—no resuscitation  
<sup>‡</sup> Red category 2: supportive care only, no resuscitation

**Fig 1. A comparison of the functional status of patients on admission and discharge from the Shatin Hospital**



**Fig 2. A comparison of the functional status of patients on discharge from the Shatin Hospital—premorbid state vs condition at discharge**



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