

Audit of Do-Not-Resuscitate Order Status of Patients in a Homecare and In-Patient Palliative Care Service.

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Do-Not-Resuscitate (DNR) orders vary in prevalence among palliative care services. Some hospice programs require patients to have completed DNR forms prior to service admission. It was our intent to investigate the rates of DNR orders in a multi-tiered, multi-service palliative care program and to compare these rates with ideals and goals of staff. We performed an audit, blinded to patient caregiver, of charts for patients on homecare and in-patient services. We then constructed a questionnaire to investigate staff perceptions and goals for DNR status of patients in their care. After reviewing 87 charts, we determined the prevalence of DNR status to be 48%. From the completed questionnaires, staff estimated (mean [95% CI]) that 72% [58, 86] of patients under their care had DNR orders. Also, staff felt that 96% [90, 101] of patients under their care should have DNR orders in place. There was therefore discrepancy between the prevalence, perceived prevalence, and desired prevalence of DNR orders in this palliative care service. Following this investigation, the lead author chaired an open forum with staff to address these discrepancies. Staff felt a new method of tracking DNR status as well as a more structured timeline to address DNR status with patients on service is warranted. A follow-up study to evaluate improvements spawned from this audit would indeed be interesting.

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Introduction

It is well known that resuscitation rates from out-of-hospital cardiac arrest are dismal¹. Intuitively, one might expect that cardiac arrests in-hospital to be more successful; however, they too have discouraging rates². Many variables influence resuscitation outcomes, one is the presence and stage of co-morbid disease^{3,6}. Immediate and long-term survival for patients with advanced cancer suffering cardiac arrest are exceedingly rare^{3,4,7}.

Cardiopulmonary resuscitation was originally targeted for those suffering sudden, acute, cardiac arrest and those in acute respiratory emergencies⁸. There is longstanding debate over resorting to the current default of performing CPR and resuscitative measure on all patients⁹. Hospice palliative care is aimed at relief of suffering and improving the quality of life for persons who are living with or dying from advanced illness or are bereaved¹⁰. Some palliative care programs, as well as many hospice programs, require patients to have Do-Not-Resuscitate (DNR) orders established prior to accepting patients¹¹. Others have no such policies, and may welcome the opportunity to address the multiple psychosocial issues often encountered in addressing DNR status. These have been categorized as either intrapersonal (emotions of the caregiver in making DNR decisions) or interpersonal (interactions between individuals involved in consenting to a DNR status)¹². Interpersonal conflict may occur between family members, patients, and staff. Advocacy, negotiation, mediation, and sensitivity to patients' and families' needs are essential components of the process of establishing DNR status. However, these components may not always be met¹³.

Audit has been shown to be effective in the implementation of DNR policies in various hospital settings^{14,15}. It was our goal to determine the current prevalence of DNR orders in our palliative care patient population and to evaluate it through staff perceptions and expectations.

Methods

We performed a blinded audit of a multi-tier palliative care service in Halifax, Nova Scotia. This service included homecare, a 10-bed inpatient unit, and in-hospital consultation branches. The serviceable area had a population of approximately 350 000. An audit was performed on the home-

care and inpatient arms of this service. The staff included visiting nurses and social workers as well as physicians.

We performed data collection on Wednesday, January 23rd and Wednesday, January 30th, 2002. No patients with a chart were excluded from analysis. Although staff were aware that the investigators were interested in DNR orders in the setting of palliative care, they were not informed of the study design or the date of the chart review.

Patient demographic information and DNR status were determined by chart review and recorded in spreadsheet format. Patient Care and documentation on the homecare service were managed by one of five homecare nurses. Investigators were blinded to the lead nurse of each patient. Furthermore, in-patient charts were reviewed for patients in the unit on the data collection days, but the investigators did not know the physician under whom they were admitted.

A questionnaire was compiled by the investigators and distributed to palliative care staff including nurses, social workers, and physicians. Investigators were blinded to the distribution and collection of the forms. A predetermined deadline of two weeks for the return of questionnaires was established. No questionnaires were excluded from analysis.

Staff convened to review the results of the audit and to suggest and assess possible improvements to the current system. The meeting was of a lecture and open forum style, chaired by the lead author.

Fisher's exact test was used to compare DNR prevalence categorised by primary diagnosis. Student's t-test was used to determine differences in duration of illness and time on service for those with and without DNR orders. ANOVA was used to determine differences in prevalence, staff estimates of prevalence, and staff desired prevalence of DNR orders.

Results

A total of 87 patient charts were reviewed. Of patients, 42% were reported to be male and 58% were female. The mean age [95% CI] of patients was 69 years [66, 71]. The average number of days [95% CI] from initial consult with the palliative team to date of review was 256 days [188, 324]. The primary diagnosis in 91% of our patient population was neoplastic. Parkinson's disease, congestive heart failure, chronic obstructive lung disease, systemic lupus erythema-

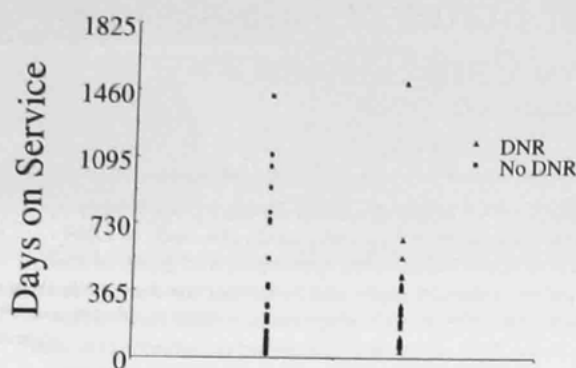


Figure 1. Distribution of days on palliative care service for those with and without DNR orders.

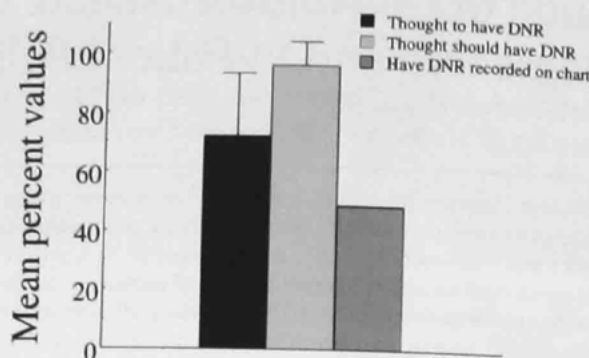


Figure 2. Mean (+SD) percent values of questionnaire and audit results are plotted versus staff estimates of patients under their care with DNR orders and staff estimates of patients that should have DNR orders.

tosus, and human immunodeficiency virus were charted as primary diagnoses in the remaining 9%. There was no significant difference in prevalence of DNR orders between those patients with a primary diagnosis of neoplasia versus other diseases ($p=0.59$).

On review of the charts, it was determined that 42 of the 87, or 48% of patients, had an established DNR order. Furthermore, 9 (10%) indicated that the topic had been preliminarily discussed and 3 (3%) clearly showed that full resuscitation measures were to be undertaken.

The average time on service [95% CI] prior to establishment of DNR status was 123 days [-21, 267]. There was no significant difference ($p=0.25$) in duration of disease between those with DNR orders and those without. Moreover, there was no significant difference ($p=0.84$) in duration on service between those with DNR orders and those without (Figure 1).

In total, 15 questionnaires were distributed; nine (60%) were returned. Staff reported an average [95% CI] of 1.9 visits [1.4, 2.4] prior to addressing DNR status. Their estimate of the number of patients under care with DNR orders in place was 72% [58, 86]. When asked what percentage of patients under care should have DNR orders in place, staff replied 96% [90, 101] (Figure 2). Staff's estimates of current prevalence and desired prevalence were significantly different from our audit results [$F = 29.86, p < 0.0001$].

Staff convened to examine audit and questionnaire results. It was decided that increased efforts by all staff, but in particular by physicians, would be made to address DNR status closer to date of admission to the service.

Discussion

It was our intent to examine the current status of DNR orders in our palliative care patient population and to compare this with staff's views on prevalence and barriers to implementation. We found that the current rate of DNR orders was below staff estimates and preference.

The timing and frequency of DNR orders, not exclusive to palliative care services, are dependent on several factors and subject to several barriers. Hakim et al.¹³ found that timing and frequency were strongly associated with patient preference and short-term prognoses; however, nearly 50% of those patients wishing to withhold resuscitation and many of those whose probability of surviving for 2 months was less than 5% did not have an established DNR order. Lack of communication and misunderstandings between staff, family and patients were cited as major barriers to DNR implementa-

tion. Furthermore, it was discovered that physicians relied heavily on age as a factor in deciding whether to provide intense medical treatment.

When staff reviewed the audit and questionnaire results, it was clear that changes needed to be made. Either staff expectations for prevalence of DNR orders was too high or barriers for implementation needed to be reduced. The authors acknowledge the possible bias of staff for desiring a high rate of DNR orders.

Barriers including those from the patient, family, staff and system were discussed. Responses identified patients' poor interpretation of non-indicated medical procedures and lack of understanding of illness, familial shielding and overprotection, conflicting patient and family wishes, lack of communication with and delayed discussion of status in acutely ill patients, religious beliefs, and societal portrayal of the "medically omnipotent" specialist as barriers for DNR implementation. As a result of our discussions, all staff present was keen to increase the prevalence of DNR orders in their patient population. Physician staff agreed to attempt DNR status discussions earlier following admission to in-hospital unit and on homecare service. A follow-up audit should be performed to determine whether this change occurs and its influence on DNR prevalence.

The barrier of timing in the establishment of DNR orders is underscored by the work of Moskowitz et al.¹⁶ They followed 9000 patients suffering life-threatening illness in five US hospitals. They found that 79 percent of patients had a DNR order at the time of death, but that nearly half of these patients had the DNR established within two days of dying, hindering the efforts to make the patient's last few days as comfortable as possible. Moreover, researchers attempted to educate physicians and intervene with a multi-step program over a two-year period and surprisingly found no improvement in timing of DNR order, agreement on status decisions, patient morbidity, or resources used.

Our study had several limitations. We did not audit beyond the charts to determine DNR status. The charts did not allow in-depth analyses of the subject. Information such as initiator of conversation, depth of discussion, hesitation and barriers were often not identified in the charts. These limitations have been previously identified elsewhere.¹⁷ A few cases had reported whether the patient or the surrogates were involved in the DNR decisions, but this was not standardized. More substantial forms may improve communication and future work in this arena. Further investigation might involve interviewing patients and oral case reports from staff despite the fact that this would preclude blinding. Lapse in

time between audit and questionnaire could have allowed for a change in acuity of illness in our patient population. With only a 60% return of surveys, it is possible that the results have a bias by profession. It is important to address whether or not the results of this study can be applied to other patient care settings. This audit was performed on a small group of patients in only one hospital department. Patients on this service had advanced co-morbid illness for which resuscitation rates are disappointing^{3,7}. The intent of this study was not to validate DNR order decisions and staff expectations. We hoped to assist in narrowing the gap between staff's self-determined goals and outcomes.

In conclusion, prevalence of DNR orders was below staff estimates and expectations. Barriers to implementation of DNR orders are numerous and need to be addressed by individual staff members and the palliative care service as a whole.

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About the Author

Christopher Lightfoot is currently in second year Medicine at Dalhousie University. He completed an undergraduate degree in Mathematics at Bishop's University and trained as a Paramedic at the Center for Emergency Medicine of Western Pennsylvania and University of Pittsburgh Medical Centre before commencing medical school. His prior research experience in VF waveform analysis coupled with cardiac arrest exposure on the streets of Pittsburgh spurred his interest in DNR.

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