The 'Do Not Resuscitate' Order

A Profile of Its Changing Use

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• The "do not resuscitate" (DNR) order has wide-ranging ethical, legal, and economic implications. We reviewed the course of 244 patients who died during two three-month periods, in 1982 and 1986. We found that 68% of patients who died had a DNR order written, including 94% with malignancy and half of patients with cardiovascular disease. Most orders (61 %) were written within three days of death, with 64% written on medical-surgical floors and 34% in critical care units. Even among patients under the age of 60 years, 57% had a DNR order written by the time of death. Ninety-one percent of DNR orders were written by attending physicians, with accompanying explanatory note in 84%. Documentation showed only 14% of patients but 77% of families being consulted. In 1983 a new two-level DNR order system defined two levels of intensity: "all but cardiopulmonary resuscitation" and "comfort measures only." Equal numbers of patients received each order in the 1986 sample. No patient was transferred to the critical care units after a DNR order had been written. The prevalence of DNR orders written for patients dying of cardiovascular disease increased from 27% to 64% over the four years. We conclude, from study of deaths in this representative community hospital, that an explicit DNR order is now the rule rather than the exception, but decisions are made late and involve family far more than the patient.

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The dramatic intervention of cardiopulmonary resuscitation (CPR) initially came close to being declared an entitlement for all patients in case of cardiopulmonary arrest. It is now accepted that resuscitation is a form of medical therapy that has both indications and contraindications. The "do not resuscitate" (DNR) order is a legitimate option for those who are hopelessly ill or who fear that resuscitation would merely prolong the act of dying. [1-3]

The use and potential abuse of the order has wideranging ethical, legal, and economic implications. As a practical matter, a DNR order is essential for clear communication between health care professionals, but the order itself may affect the care that patients subsequently receive. Some hospitals have no official policy on DNR orders; some use only one DNR order; others have multilevel orders addressing the intensity of care that may be given to the DNR patient.[4-8] Soon, hospital accreditation will require an officialDNR policy.

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This study analyzes in-hospital deaths to define which patients received a DNR order, when and how the order was written, and who was consulted in the process. We examined apparent trends in DNR orders over a four-year period and the use of a two-tiered DNR order system, which was initiated between the two time periods of the study. This two-tiered system seeks to avoid automatic institution of comfort measures only for patients who have a DNR order. It recognizes the fact that vigorous therapeutic interventions may be appropriate for some patients, even if CPR is deemed futile or undesirable in case of cardiopulmonary arrest.

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PATIENTS AND METHODS

This study was performed at a 432-bed university-affiliated teaching community hospital where approximately 85% of the patients have health insurance and 15% are uninsured. All adult patient deaths that occurred during two three-month periods, January 1 to March 31, in 1982 and 1986, were reviewed. Charts were reviewed for the following variables: age; sex; service (medical or surgical); admission source; length of stay; diagnoses; resuscitation status; presence or absence of a note on the chart accompanying the DNR order; author of the DNR order (attending or resident physician); written justification for the DNR decision in the note; evidence of consultation with patient, family, conservator, or others; prior resuscitation; patient location when the order was written; and the subsequent details of the patient's course.

During 1982 the hospital DNR order policy did not specify different levels of care accompanying the order. However, in 1983 a new system of orders was adopted in which "all but CPR" indicated full therapy short of CPR, and "comfort measures only" indicated that only those measures were to be taken. Some patients had an "all but CPR" order subsequently changed to "comfort measures only." Data from 1986 were analyzed using these two levels of DNR orders.

Principal causes of death were classified by major organ systems, with malignancy and infection taking precedence over others, and malignancy taking precedence over infection. Thus, metastatic colon cancer with pneumonia would be classified as malignancy. Each patient was classified into a single diagnostic class, based on the best knowledge at the time of the DNR order or at death for those without a DNR order.

The X^2 test of association was used for ordinal data, and Student's *t* test was used for continuous data, with $P<.05$ on a two-tailed test considered significant.

RESULTS

Sixty-eight percent of the 244 patients who died had a written DNR order. Table 1 summarizes demographic data for patients who died with and without DNR orders. Significantly more women (78%) than men (60%) had a DNR order written *(X^2, $P<.05$).* The mean age of patients, the fraction coming from nursing homes, the proportion on medical vs surgical service, and the average length of stay did not differ significantly. The trend toward more use of DNR orders with increasing age was not statistically significant.

Ninety-four percent of patients with malignancy had a DNR order at the time of death, compared with half of patients with cardiovascular disease. There was a significant increase between the two periods for DNR orders on patients dying of cardiovascular disease, from 27% of patients in 1982 to 64% in 1986 *(P<.01).*

Documentation of the DNR decision-making process for the 1982 and 1986 periods combined is shown in Table 2. Ninety-one percent of patients in 1986 had an accompanying note written, representing significantly improved documentation from 75% in 1982 *(P<.OI).* Ninety-one percent of notes were written by the attending physician, with 85% documenting medical justification for the DNR order. Ninety-two percent of the notes specified who was consulted: the family, in 77%; the patient, in only 14%; and a friend or conservator, in 1 %.

Table 1.-Demographic and Diagnostic Categories of 244 Inpatient Deaths'

	No.(%)		
	Patients With DNR Order (68%)	Patients Without DNR (32%)	P
Sex			
M	60 (36)	40 (51)	<.05
F	106 (64)	38 (49)	
Mean age, y ± SD	73± 13.3	70± 16.1	NS
Admission source			
Nursing home	22 (13)	8 (10)	NS
Home	144 (87)	70 (90)	
Service			
Medical	142 (86)	64 (82)	<.05
Surgical	24 (14)	14 (18)	
Mean length of stay, d ± SD	14±15.0	7±8.2	NS
Age,y			
>80	54 (33)	21 (27)	NS
60-79	88 (53)	38 (50)	
<59	24 (14)	18 (23)	
Disease category			
Malignancy	50 (30)	3 (4)	<.001
Infection	29 (18)	10 (13)	NS
Cardiovascular system	33 (20)	34 (44)	<.001
Central nervous system	22 (13)	5 (6)	NS
Gastrointestinal system	22 (13)	8 (10)	NS
Respiratory system	4 (2)	6 (8)	NS
Other	6 (4)	12 (15)	<.01

'DNR indicates "do not resuscitate"; NS, not significant.

Table 2.-Profile of 'Do Not Resuscitate' Order Writing (n=166)

	No.(%)
Note written	139 (84)
Note lacking	27 (16)
Written by	
Attending physician	126 (91)
Resident physician	13 (9)
Justification	
Noted	118 (85)
Lacking	21 (15)
Consultation documented with	
Patient	20 (14)
Family	107 (77)
Friend/conservator	2 (1)
Not mentioned	10 (7)
Location when order written	
Floors	106 (64)
Intensive care unit	34 (20)
Coronary care unit	23 (14)
Emergency/recovery room	3 (2)
Day of stay when order written	
<1	48 (29)
2-3	28 (17)
4-5	22 (13)
6-10	21 (13)
11-20	26 (16)
21-80	21 (13)
Length of stay from order to death, d	
<2	65 (39)
2-3	37 (22)
4-5	25 (15)
6-10	14 (8)
11-20	16 (10)
21-80	9 (5)

Fourteen percent of the patients with a DNR order written had undergone previous CPR. This was more often the case when the DNR order was written in the critical care units (19/24) than on the medical-surgical floors (five of 24) *(P<.OOI).* No patient with a DNR order written was subsequently moved to the intensive or coronary care units, but 86% of the 57 unit patients with a DNR order remained in the critical care units until death. Only 29% of DNR orders were written within 24 hours of hospital admission. Seventy-six percent of patients died within five days of the DNR order.

Table 3 shows the two types of DNR orders in 1986: "all but CPR" and "comfort measures only." The two orders were used with similar frequency. Sixteen percent of patients initially had an "all but CPR" order written that was later converted to "comfort measures only." Seven of the 15 patients who were changed from "all but CPR" to "comfort measures only" had undergone prior CPR, and all of them were in critical care units. Sixty-nine percent of "all but CPR" orders were written on medical-surgical floors. Fifty-three percent of "comfort measures only" orders were written in critical care units. No patient designated "all but CPR" on the medical-surgical floors was ever moved to a critical care unit, although such a move was theoretically possible for these patients.

COMMENT

This study of 244 in-hospital deaths finds that DNR orders have become the rule prior to death rather than the exception. Sixty-eight percent of patients who died in this community teaching hospital had such an order at the time of death. Other studies report that 3% to 4% of all inpatients have a DNR order at some time during hospitalization[9•11] and that up to 70% of patients who die have a DNR order by the time of death.[9,]o.'2 The increase in use of the DNR order, and perhaps the persisting uncertainties about it, has been demonstrated by outcome studies reporting that anywhere from only 6% to fully 51 % of patients with DNR orders survive to discharge.[9•13]

The great majority (94%) of patients who died of malignancy had a DNR order at the time of death, compared with half of patients who died of cardiovascular disease. This no doubt reflects the fact that selected cardiac patients have the best prognosis with CPR14-16 and patients with cancer have the worst.[17] However, the use of DNR order writing is growing and changing. From 1982 to 1986 we found a significant increase (from 27% to 64%) in the writing of DNR orders for patients dying of cardiac disease. Even in intensive and cardiac care units we found that a third of the patients who died had a DNR order written. Of the patients who died with a DNR order, 14% had, in fact, survived a prior CPR. For some patients and families one attempt at CPR may be enough.

The DNR decision demands accurate documentation because of its sensitive ethical and legal implications. We found significant improvement in documentation compliance, with an increase from 75% in 1982 to 91 % in 1986. This reflects both educational efforts and increased awareness of medicolegal issues. Physicians and families may have become more comfortable with the DNR order. Justification was mentioned in 85% of the written notes,

Table 3.- Types of 'Do Not Resuscitate' Orders in 95 Inpatient Deaths in 1986*

	No.(%)		
	All But CPR (51%)	Comfort Measures Only	*P*
Location			
Floor	33 (69)	22 (47)	<.05
Units	15 (31)	25 (53)	
Disease category			
Cardiovascular system	13 (27)	10 (21)	NS
Central nervous system	2 (4)	11 (23)	<.01
Gastrointestinal system	8 (17)	5 (11)	NS
Respiratory system	2 (4)	1 (2)	NS
Malignancy	10 (21)	10 (21)	NS
Infection	12 (25)	7 (15)	NS
Other	1 (2)	3 (6)	NS

*CPR indicates cardiopulmonary resuscitation; NS, not significant. tFifteen patients (16%) initially had an "all but CPR" order written that was later changed to "comfort measures only," and they are included in this group.

considerably higher than the 58% found by Younger et al.[18] That 91 % of DNR notes were written by attending physicians and only 9% by house staff markedly differs from other reports that found it rare for attending physicians to be involved. 10.11

Surprisingly, only 14% of patients were mentioned as being consulted about the DNR decision, but this is similar to the 14% and 18% described in two other studies. 10.13 This is partially explained by the fact that the DNR decision appears to be made close to the time of death, when many patients have clouded mental status or are unconscious. 17

Several studies have shown a reduced intensity of care given after a DNR order.[8,9,13] This disturbs many who point out that the DNR order should only entail what it says, ie, to withhold CPR, but should not affect therapy otherwise. 19 Clinical consensus is moving toward allowing the "comfort measures only" order for the clearly terminal patient. [6] This is openly acknowledged in the system of orders used at the study hospital in 1986, with options for "all but CPR" or "comfort measures only." Half the patients fell into each group at the time of death, with 16% of the patients initially receiving full therapy short of CPR and later being converted to "comfort measures only." The use of multilevel DNR orders is still a recent and understudied practice. The "comfort measures only" order tends to be used more in the critical care units, and the "all but CPR" order more on the floors. No patient with an "all but CPR" order moved to a critical care unit, suggesting, as did another recent study,IO that a DNR order still implies more than it says. Physicians may sometimes be writing a DNR order while deciding to provide comfort measures only. Such ambiguity leaves open the possibility of misinterpretation, especially during emergencies. This sensitive issue needs the clarification of further clinical research and of ethical analysis.

Several studies have shown age to be an independent variable predictive of a DNR order,8.11.13.18 which some have interpreted as evidence that physicians see less value in the quality of life of older patients.[2o] The current study showed a trend toward more use of DNR orders for older patients: 72% of those whose death occurred over the age of 80 years had a DNR order written. However, even among patients whose death occurred under the age of 60 years, fully 57% had a DNR order. Regardless of age, the DNR order should reflect the prognosis of illness and the wishes of patient and family.

Seventy-four percent of the women in this study had a DNR order at the time of death, compared with 60% of the men *(P<.05)*, a pattern previously found by Lipton[9] but not by other investigators.[8,18] This trend appears to be a consequence of fewer cardiovascular deaths among women. However, it may also, in part, be a consequence of the fact that men generally die younger and are more often still married. The widow and remaining family may be more willing than the older couple to handle the difficult DNR decision.

Our study could not address the use of the DNR order in those who survive. Nonetheless, the data show evidence of changing utilization of DNR orders over only four years, an improvement in physicians' documentation, the value of a two-tiered DNR order system that is more specific as to intent, and the apparently limited nature of patient participation. Additional investigation of the varying use of DNR orders is needed to optimize the difficult balance between intensive medical intervention and humane medical restraint.

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