## DNR ORDERS AND LENGTH OF STAY

■ *To the Editor:* I read with great interest the article, "The effect of do-not-resuscitate orders on length of stay," by Kanoti et al.[1] My interest in the article was twofold: I was personally involved in the development of the do-not-resuscitate (DNR) policy cited by the authors, and I am currently considering attempting to replicate this study at my own institution. From both perspectives, I have reservations about the authors' methods and conclusions.

First, the authors conclude "that a well-defined DNR policy can reduce length of stay." From an analytic perspective, their conclusion may be faulty. It is true that a new DNR policy was established in January 1988. However, two other "bioethics" policies having a potential effect on withdrawal of life-sustaining therapies were instituted on the same date, one on care of the hopelessly ill patient, and the other on brain death.[2,3]

In their chart-review study, Kanoti et al[1] imply that the DNR policy is the foundation of either implicit or explicit DNR orders. They define explicit DNR as "no resuscitation," "no code," "no CPR" or "DNR." They define implicit DNR orders as "withdraw ventilator," "withhold dialysis," "withhold antibiotics," "life-support removal" or a similar order. Since a policy on palliative care was instituted at exactly the same time (with all the prior committee work and education necessary for such implementation) as the DNR policy,[3] I find it difficult to ascribe a cause-and-effect relationship *solely* to the DNR policy at the exclusion of the palliative care or even the brain death policies. Is it not likely that those reading the palliative care policy could have made choices to withdraw or withhold other life-sustaining therapies (implicit DNR orders) on the basis of these other policies without regard to the DNR policy? Is it also not possible that the palliative care policy triggered the application of the DNR policy? I see no explicit mention of the other two policies in this study and would question the study's conclusion that the DNR policy was the only cause of DNR decisions and subsequent reduced length of stay.

Second, the authors chose the Medicare patient population as medically more homogeneous and therefore more comparable for their study. In so doing, though, they significantly decreased the relevance of their study since the numbers represent only approximately 14% of all deaths in 1987 and about 15% of all deaths in 1989. The authors report a significant decrease in length of stay for Medicare patients who stayed more than 15 days. However, these patients accounted for only 20 (2%) of 901 deaths in 1987 and 24 (2%) of 891 deaths in 1989. Further, the average length of stay for all Cleveland Clinic Foundation patients also declined over the same time period. While the authors acknowledge the small number of patients considered and have limited their study to a specific homogeneous patient population, they fail to acknowledge an overall reduction in length of stay due to other factors such as diagnosis-related groups and increases in outpatient services over the same time period.

Cleveland Clinic Foundation statistics show that overall patient length of stay has declined over the past 10 years. The average patient length of stay declined from 9.4 to 7.9 days between 1982 and 1992; for Medicare patients, it decreased from 11.0 to 8.8 days during the same time period, and for patients who died, it decreased from 18.8 to 15.7 days. These trends should have been at least mentioned, and perhaps even factored in, by the authors in their final analysis.

It is true that bioethics policies ought to contribute to more responsible and higher quality patient care, whether at the beginning or at the end of a patient's life. However, based on several considerations such as the simultaneous implementation of two other Ethics Committee-generated policies at exactly the same time, the extremely small patient sample size, and the overall decline in patient length of stay due to other factors, it is difficult to attribute the decrease in Medicare patients' length of stay *solely* to the DNR policy, and it is unlikely that the implicit DNR orders (withdrawal of treatment) were related *solely* to the DNR policy. It is more likely that they are related to the policy on care of the hopelessly ill patient. Certainly, any further studies must include other institutional influences or confounding factors, and on the possible implications of writing of such orders.

I believe, however, in the importance of such empirical studies regarding the activities of bioethics committees, departments, and consultants

since the field is still being defined. I also commend the Department of Bioethics and the Ethics Committee of The Cleveland Clinic Foundation for moving the field forward in empirical research.

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1. **Kanoti GA, Gombeski WR, Gulledge AD, Konrad D, Collins R, Medendorp SV.** The effect of do-not-resuscitate orders on length of stay. Cleve Clin J Med 1992; **59**:591-594.
2. **Orlowski JP.** Development of policies on brain death, care of the hopelessly ill, and do not resuscitate. Cleve Clin J Med 1990; **57**:25-29.
3. **Rogers LR, Orlowski JP, Meehan MJ, Vinicky JK.** Policy statements: do not resuscitate, care of the hopelessly ill, and brain death. Cleve Clin J Med 1990; **57**:29-34.

■ *In reply:* Dr. Vinicky's commentary on the effects of DNR orders on length of stay for Medicare patients at the Cleveland Clinic Foundation in the years 1987 and 1989 rightly indicates that the bioethics policies "Care of the hopelessly ill patient" (palliative care) and "Brain death" as well as the DNR policy could have influenced the length of stay and that all of these policies resulted from an extensive educational and policy formation efforts of the Cleveland Clinic Hospital Ethics Committee and the Department of Bioethics.

However, a careful reading of the article shows that the authors did not exclude these policies. The study did hypothesize that "...using these *policies* [DNR and other policies related to forgoing life support] to address end-of-life decision and questions of quality of care will influence the length of stay" [emphasis added]. The study did not intend to imply that the "Care of the hopelessly ill patient" and "Brain death" policies played no role in these decisions.

The practice of physicians at the Cleveland Clinic was and is to forgo life support either by writing explicit or implicit DNR orders (eg, by ordering palliative care or withholding life support therapies other than CPR). Thus, the data on decisions that could affect length of stay (implicit DNR orders written in the chart) were discoverable. In fact, rarely if ever did an order "care for the hopelessly ill patient" or a charting of "brain death" occur in the carts reviewed. However, in all the samples studied, explicit or implicit DNR orders were found. If an order is written to forgo life support (whether explicit or implicit DNR), it seems logical to assume that the DNR policy influenced or directed the decision since the DNR policy was and is the policy of the institution. There are no implications that the DNR *solely* influenced or was "foundational" to the decision.

Furthermore, the conclusion drawn by the study is "...implementing a DNR policy *can* significantly reduce length of stay" (emphasis added). This indicates possibility, not causality. The conclusion of the study does not indicate the DNR policy is the sole causal factor.

Dr. Vinicky's interpretation of some of the study's statistical data may have misled her analysis. It appears she did not recognize that a systemic sample of every fourth death was used as the sampling frame. For example, she noted that the Medicare population contributed only 14% and 15% of all deaths in 1987 and 1989, whereas it actually contributed 56% and 58% of all deaths. Likewise, her analysis of the number of patients who stayed longer than 15 days as 2% of all deaths in 1987 and 1989 does not take into account the 25% sample. The sample was 9% and 10% of all deaths for 1987 and 1988. Perhaps more importantly, Medicare patients who stayed longer than 15 days generated 80% and 85% of hospital days of the total Medicare populations in 1987 and 1989.

Finally, Dr. Vinicky's observation that the Medicare patients' length of stay declined an average of 0.22 days per year for the last 10 years places in sharp relief the significance of the results of our study. Our study showed an increase of 3.0 days for all Medicare patients who expired from 1987 to 1989 and a reduction of 21 days in length of stay for Medicare patients with a length of stay longer than 15 days who had an explicit DNR order.

The effect of bioethical consultation and policy formation on clinical practice has not been thoroughly studied. We invite more complex and comprehensive studies and are pleased that Dr. Vinicky intends to replicate (and we hope, expand) the study at her institution.

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