Special Article

Resuscitation and DNR: ethical aspects for anaesthetists

A. Joseph Layon MD FACP, Lynn Dirk BA

Autonomy is a central ethical principle of medical practice. The physician's autonomy is usually expressed in concert with the other, overriding, ethic of medical care: beneficence. The autonomy of patients, however, has had a growing influence on medical decision-making and can complicate the process. One area where this is especially true is the manner in which cardiopulmonary resuscitation is disallowed: the do-not-resuscitate (DNR) order. Cardiopulmonary resuscitation initially was a therapy automatically instituted in emergencies because it was life-saving. Data began to show, however, that this drastic measure was not always effective. Therefore, its use began to be limited through DNR orders, and policies about DNR orders have been developed to ensure it, in turn, is instituted properly. Besides being used when CPR is futile, the DNR order also serves as a formal means of accounting for a patient's autonomy. Data show, however, that patients are not routinely consulted on this issue even though they want to discuss it. In these cases, quality of life, a patient's subjective evaluation, serves as the basis of a DNR order and makes mandatory communication between physician and patient. Such communication, however, can be obstructed by social values about life and death and the urgent nature of medical care in these situations. To show how such communication ought to be incorporated into medical decision-making, one of the most difficult

situations is examined hypothetically: the patient who has a DNR order but who consents to undergo anaesthesia and surgery. In these cases, frequent communication between physician and patient about each therapy and its effect most often will resolve dilemmas.

Pour le médecin, la liberté est au centre de l'éthique médicale. La liberté du médecin s'exerce conjointement avec l'autre principe incontournable de l'éthique, la bienfaisance. Cependant, l'autonomie du patient a une influence de plus en plus grande sur les décisions médicales et peut en compliquer le mécanisme. Ceci est particulièrement vrai lorsqu'il s'agit de refuser la réanimation cardiorespiratoire ou de donner l'ordre de ne pas réanimer (NPR). Originellement, la réanimation était une thérapie instituée automatiquement en urgence parce qu'elle était salvatrice. Les données ont toutefois fini par montrer que cette mesure draconienne n'était pas toujours efficace. On a donc commencé à en limiter l'usage par des ordres de NPR, et les politiques concernant ces ordres ont été développées pour assurer le cheminement correct. En plus de son utilisation lorsque la réanimation est vaine, l'ordre de NPR sert aussi de moyen formel pour apprécier l'autonomie du malade. Les faits démontrent cependant que les malades ne sont pas systématiquement consultés sur ce sujet même s'ils manifestent le désir d'en discuter. Dans ces cas, l'évaluation subjective du malade par sa qualité de vie servira de principe à l'ordre de NPR et forcera la communication entre médecin et patient. De telles communications peuvent être freinées par les valeurs sociales qui concernent la vie et la mort et la nature urgente du besoin d'intervenir. Dans le but de démontrer que la communication devrait faire partie de la prise de décision médicale, l'hypothèse d'une des situations les plus difficiles est présentée: le patient sous ordonnance de NPR consentant à l'anesthésie et à la chirurgie. Dans ces cas, les discussions fréquentes entre le médecin et le patient sur chacun des traitements et ses effets fourniront la solution à ce dilemme.

Key words

ANAESTHESIA, COMPLICATIONS: arrest, cardiac;
ETHICS, HEART: cardiopulmonary resuscitation,
do-not-resuscitate orders;
PATIENTS: communication; quality of life.

From the Department of Anesthesiology and Medicine, College of Medicine, and Graduate Program in Mass Communication, College of Journalism and Communications, University of Florida, Gainesville, Florida.

Address correspondence to: Dr. A. Joseph Layon, Editorial Office, Department of Anesthesiology, University of Florida College of Medicine, PO Box 100254, Gainesville, FL 32610-0254.

Accepted for publication 7th October, 1994.

The anaesthetist's overriding purpose is to preserve the life of persons made insensate during surgical interventions. The task becomes more complicated when phy-

sician and patient have different purposes. For example, some patients do not want their lives – or more to the point, their deaths – prolonged unnecessarily, yet these patients may at some time require and be willing to undergo anaesthesia and surgery. Such a patient may not want to undergo cardiopulmonary resuscitation (CPR) but would nevertheless be willing to tolerate a surgical procedure¹ which increases the risk of cardiopulmonary arrest. Medical authority in such a situation is affected by the dynamics of medical ethics, which encompass four central principles. Two relate specifically to medical care: *beneficence*, or preserving life, and *nonmaleficence*, doing no harm.^{2,3} The other two, *social justice* and *autonomy*, guide all human relationships. By the principles of non-maleficence and social justice, a patient may, for example, have to accept the physician's judgement of medical futility and the subsequent decision not to treat. According to autonomy, which reflects "the dual rights of self-governance and individual uniqueness,"² a physician may have to accept the patient's judgment that a treatment may not improve, or may adversely affect, quality of life and hence the latter's decision not to accept the therapy, even if that results in the patient's death. Because the goal of preserving life can so easily overwhelm that of autonomy, we examine, in this article, autonomy in the physician-patient interaction and the growing influence of autonomy in one area of medicine: the do-not-resuscitate (DNR) order. We also explore the effects of the autonomy of patients on medical decision-making in hypothetical cases of patients who undergo anaesthesia and surgery with a DNR order in place, and the importance for continuing communication between physician and patient/surrogate in such situations.

The physician-patient interaction: mutual autonomy in theory

Autonomy complicates the physician-patient relationship by introducing a set of factors that continually vary with each patient – attitudes toward life and death as well as medical problems combine uniquely in each particular patient. In following the ethic of autonomy, physicians are guided not only by their own feelings and beliefs, but also by those of the patient. Thus, the physician-patient relationship can become not only medical, but personal. Indeed, in this context, physicians' and patients' preferences and choices may lie outside each other's experience and comprehension.² When autonomy predominates over beneficence and nonmaleficence, physician-patient interaction is not focused only on therapy but also encompasses the feelings and values of both individuals, knowledge of which is essential to the decision-making process. Depending on the particular patient – the unique problems and world view of each – how phy-

sicians *interpret* and order the principles of medical ethics, but not the principles themselves, will vary.

Because a patient's autonomy in decisions related to medical care may create ambiguity between physician and patient expectations, as with a patient who does not want to be resuscitated but is willing to undergo anaesthesia and surgery, communication is especially important. Before a physician can know what limits of treatment a patient considers acceptable, the patient must know and weigh not only the risks and benefits of an intervention per se, but also the possibility that complications of the intervention may result in the patient's spending time in the intensive care unit. The patient must also be able to weigh the multiple risks of the intervention against those of no intervention; both options might include possibilities of an altered quality of life, or even death. While physicians previously thought that keeping such information from patients protected them, it is now acknowledged that patients should have it.⁴ Perhaps because this principle is still relatively new to medicine, data show that this does not always occur in practice.^{5,6}

History of the DNR order: the seed of recognition of the patient's autonomy

Although the right of patient autonomy was articulated in 1914 and the phrase "informed consent" was coined in 1957,⁴ it was not until 1985 that open discussion of explicit policies to limit medical care began,⁷ in part as a result of data that began to accumulate on the outcome of CPR. Cardiopulmonary resuscitation originated as a means to treat sudden cardiac or respiratory arrest, usually in patients with acute illness under the care of an anaesthetist, cardiologist, neurologist, or surgeon.⁸ Discharge from the hospital (the definition of long-term survival) after CPR was initially reported to be about 70%,⁹ but this figure was reduced to 24% for all patients suffering cardiac or respiratory arrests.¹⁰ While the percentage of intraoperative or recovery room arrests was not reported in the first study,⁹ in the later one¹⁰ 64% of arrests occurred in operating and recovery rooms, and only 7% elsewhere. In 1988, a seven-month study encompassing medical, as opposed to surgical, patients reported that, in 71 patients, cardiac arrest was followed by CPR (70% from acute myocardial infarction or acute pulmonary oedema). While 29 (41%) were successfully resuscitated, only 13 (18%) were discharged from the hospital.⁷ In 1989, a retrospective study of 503 elderly patients reported that 17 of 259 (6.5%) patients who suffered in-hospital cardiac arrest survived to hospital discharge, while only two of 244 (0.8%) of those who suffered out-of-hospital cardiac arrest survived to discharge.¹¹ Of the total 19 who survived, five were transferred to rehabilitation hospitals and six to a nursing home or chronic-

care hospital; only eight returned home. Thus, the rate of long-term survival after CPR ranges from about 70% to <1%, the highest rate being reported three decades ago in a select group of patients and the lowest in elderly patients who underwent out-of-hospital resuscitation attempts.

Up to 38% of hospitalized patients with DNR orders on their charts do not suffer cardiorespiratory arrest and are discharged from the hospital.⁵ One study recently showed that the number of deaths preceded by CPR in similarly ill patients decreased significantly from 73% to 39% between 1981 and 1983 and between 1987 and 1988, likely because a stable medical staff and clear, objective criteria have made it possible to identify hopelessly ill patients and thus to avoid futile therapy. This strategy takes into account the wishes of patient or surrogate (patient/surrogate), as well as medical prognosis.¹² Regardless of any criticism of this retrospective study, the central issue – limiting care when all involved agree this is appropriate – is important.

Policies guiding the DNR order – formalizing the patient's autonomy

Because CPR is a measure that literally brings a person back to life, it is, unlike other therapies, automatically instituted by nurses or emergency medical technicians – unless the patient's medical chart specifically contains a DNR order. In order to prevent the inappropriate use of CPR, policies concerning DNR orders have been established by hospitals and groups such as the American Society of Anesthesiologists. Generally, a DNR order is placed on a patient's medical record as specific instructions signed by the attending physician that CPR should be withheld; also included are orders clearly designating the therapies that should not be discontinued. Do-not-resuscitate orders can apply to a specific therapy, such as CPR, even while other therapies are continued, as patients may continue to benefit from other interventions and may even improve such that the DNR status is no longer appropriate. Thus, these orders need reevaluation; in our surgical intensive care unit, DNR orders are reevaluated daily.

The most important aspect of the DNR order may be that it formalizes the influence of the patient's autonomy in medical care, even though the DNR order arose ostensibly out of the medical concern that a drastic therapy was not always effective. Thus, institution of the DNR order, although implying the patient's autonomy, has not always taken it into account and has actually circumvented it.

In one retrospective study reported in 1986,⁵ 389 of 521 (75%) patients who died without CPR had a DNR order on their charts. Written documentation that the pa-

tient was involved in this decision, however, was evident in only 86 of 389 (22%) of cases, the reason for this in most cases being that the patient was "incompetent." While appropriate documentation of DNR status in the medical record tended to increase from 50% to 82% between 1980 and 1983, patient input into this decision was considered inadequate. Indeed, according to the authors, discussion between physician and patient/surrogate of DNR status did not begin until approximately one week after admission, by which time a majority of patients had become incompetent. Others have documented this phenomenon as well.⁶

One prospective study suggests that patients want to take part in decision-making about their resuscitative status and their choices tend to remain stable over time.¹³ Assuming such DNR orders ought to represent an autonomous choice of a patient as well as a medical decision of the physician, how are we to ensure that the decision to place such an order on a patient's chart involves the patient?

DNR and quality of life: the patient's condition

Generally, patients who request a DNR order have an irreversible illness whose suffering will continue and likely increase until death ensues.¹⁴ The focus is as often on suffering, which the patient must identify, as on the imminence of death, which a physician identifies. Thus quality of life can be as strong a rationale for a DNR order as futility of therapy. Distinguishing between rationales for a DNR order may be the best approach to answering DNR-related questions,¹⁴ especially for determining whether a patient may want to be involved in the decision as well as for determining whether limited care means no care. Cardiopulmonary resuscitation is just one of many options that may or may not be chosen or agreed to by a critically ill patient.¹⁵ Patients may benefit medically from treatment options but may, nonetheless, reject them, based on quality of life.

Quality-of-life issues demand more of the physician-patient relationship – that physicians communicate more than their knowledge of pathophysiology and pharmacology and that patients communicate more than their symptoms. Social values about life and death make communication difficult. A medical journal report about a television documentary that showed the discussions about these decisions as they were taking place¹⁶ noted that the discussions varied widely in their nature and they were highly emotional, both for medical staff, who continue to struggle with the call of beneficence and non-maleficence, and for patients/surrogates, who must contend with their own personal struggles.

Even though patients may want to take part in the decision, they may hesitate to express openly a preference

for death or ambivalence about medical treatment because, after all, life in our society is considered sacrosanct, to the point that preservation of life is a state interest¹⁷ as well as a medical interest. This value permeates our thinking in subtle ways. For example, refusing treatment can be construed as "suicide ... ruin of one's interests or prospects through one's own actions, policies, etc."¹⁸ Physicians may hesitate to address the issue for the same reason or because of their different moral values.¹⁹ Further, physicians may not discern subtle signals from a hesitant patient simply because there is not enough time "to just talk."²⁰ This aspect of the problem was strikingly portrayed in a recent study of these decisions.²¹ The average time between first considering a DNR order for a patient and finally writing it on the patient's chart was approximately five days. For a medical decision, the efficacy of which usually depends on the speed with which a treatment is administered, this is indeed a "prolonged" period. For a person attempting to decide whether life is worth continuing, five days may seem to be too brief. The need for time to consider fully what could be called a "life-shaking" decision may make patients seem passive and unwilling to make such decisions to physicians.⁴

Anaesthesia and surgery with a DNR order: conditional treatment

The problems surrounding communication about DNR orders can become even more complex if, once a DNR order is established, the patient could benefit from anaesthesia and surgery. Nevertheless, until techniques such as decision analogues are more widely used,²² communication should enable most problems to be resolved. To illustrate how this may be achieved, we analyze a case that is synthesized from and encompasses experience with many different patients.

A patient may require one of any number of surgical interventions, depending on the pathophysiology that initially led to the DNR order, for example, exploratory laparotomy for lysis of adhesions in the face of a small bowel obstruction in a cancer patient, or tracheostomy, gastrostomy, and jejunostomy in a patient in a persistent vegetative state. Again, although DNR patients undergoing anaesthesia and surgery seem to place both surgeon and anaesthetist in a difficult position,²³⁻²⁸ the difficulty is only an apparent contradiction resulting from the different goals of beneficence, nonmaleficence, and autonomy, which in turn reflect whether the rationale for the DNR order is lack of medical benefit or quality of life. The principle of autonomy would imply that a patient with a DNR order should be able to undergo anaesthesia and surgery, yet not have CPR administered if a cardiopulmonary arrest occurs. For the physician, however, beneficence and nonmaleficence indicate that the physi-

cian should try to preserve the patient's life and thus should perform CPR if an intraoperative cardiopulmonary arrest occurred. The resolution of this apparent quandary lies within open and frequent communication with the patient/surrogate in order to understand clearly the rationale for the DNR order when it is not based on lack of medical benefit. For example, a DNR order may be based on the patient's perception of quality of life after CPR as opposed to quality of life before CPR, when the patient considers quality of life before CPR to be marginal. It is, after all, the patient¹⁴ who lives with the results of medical decisions.

Consider the possibilities in the case of a 50-yr-old man with widely metastatic adenocarcinoma of the colon. Mental status changes, resulting from the effects of both the tumour and tumour-related hypercalcaemia, have impaired airway reflexes but earlier the patient had refused tracheal intubation to prevent aspiration of oral secretions. Hence, the risk of pulmonary complications is increased. Additionally, pain requires morphine in quantities that further depress the patient's mental status. Before becoming incompetent and after several in-depth discussions, the physician and patient agreed that his chart would contain a DNR order and a note that endotracheal intubation would be excluded from his treatment options. The DNR order states that no CPR will be administered if the patient suffers cardiac or respiratory arrest and that already initiated therapies will be continued but no new ones will be added, except for analgesics as needed, and possibly palliative chemotherapy. In keeping with the patient's autonomous request that his dying not be delayed or interrupted indefinitely, neither CPR, vasopressors, nor fluid boluses to keep blood pressure elevated will be administered. Morphine sulphate *iv* will be administered to prevent, as much as possible, discomfort. Any consequent respiratory depression due to the morphine is accepted as less objectionable than pain. This plan is clearly in harmony with the ethical principles outlined above.

The patient then undergoes palliative chemotherapy and a complication occurs: sclerosis of peripheral veins, a problem that would normally lead to the alternative of central venous access. In this case, however, how should the physician proceed? The subclavian approach to the central vasculature is easiest for the physician but is associated with a 1% to 3% risk of pneumothorax.²⁹ Before attempting central access, the physician considers what is to be done if a pneumothorax occurs: e.g., should a chest tube be placed? Should events be allowed to unfold without further corrective intervention? Should 100% oxygen be given by nonbreathing mask in the hope the pneumothorax will resolve spontaneously? A pneumothorax after placing a central venous line by the in-

fraclavicular subclavian approach would qualify as an iatrogenic complication. It will not occur if the physician does not intervene. On the other hand, the central venous line would not have been necessary if the patient had not chosen to undergo chemotherapy. How is a complication like this handled? Arguably, because the rationale for the DNR order is centrally concerned with the quality of life, any life-threatening event falls under the DNR order and, thus, nothing need be done. This course of action would fulfill the principle of autonomy. Also it could be agreed that because it resulted directly from the intervention and not from the underlying pathophysiology, the complication should be treated. Doing so would likely fulfill the principles of nonmaleficence and beneficence.

The only way out of this dilemma would have begun before the situation developed. Recognizing the risk of pneumothorax from post-central line placement, the physician would have discussed it with the patient/surrogate in the process of obtaining informed consent. The question to the patient/surrogate would have been: If a complication occurs during placement of the central line, it can be treated. *Do you want treatment initiated, even though it might cause some discomfort and will not alter the ultimate outcome?* If the patient/surrogate wanted no treatment of a pneumothorax, even if that meant, or *because* that meant, a more rapid death, the physician would have to decide, based on his or her own autonomous position or beliefs, whether following the wishes of the patient/surrogate would be ethically compromising. If the answer were yes, the physician would be obliged either to assist the patient in finding another physician who would not be so compromised or to find an alternative to central access by infraclavicular subclavian approach (perhaps the femoral vein).

In such cases, there is no single correct ethical response to the question of how to handle a complication resulting from central line insertion. However, the best ethical response can only be known by talking with the patient/surrogate. In doing so the allowable options range from rescinding the DNR order to withdrawing from the patient's care. Only through frank discussion can we know which of these to choose in order to maintain faith with the central principles of medical ethics. Because, in this specific case, medical intervention has the potential for adverse effects without the possibility of altering the patient's ultimate outcome, the patient's autonomous concern for quality of life, whether based on pain or moral beliefs, becomes the primary consideration. Only by discussing with the patient/surrogate the options of intervention and the consequences of choosing, or not choosing, an intervention can we arrive at an ethically sound decision.

The same rationale would hold if our patient needed to be taken to the operating room for a small bowel obstruction. The patient/surrogate will be approached for informed consent. The physician explains what will occur in the operating room, including the potential for complications, and also points out the therapeutic options if problems do occur. Once again, it is only through careful and empathic discussion that this issue can be resolved.^{14,30,31} As best as possible, the patient/surrogate must understand the nature of the physiological insult entailed by the procedure, as well as the possible surgical and anaesthetic complications involved. These would range from hypotension upon induction of anaesthesia to cardiac arrest. If considered appropriate by the surgeon and anaesthetist, a request could be made to rescind the DNR order for 24 to 48 hr. This would allow the surgical team access to all modalities of therapy for that period of time, after which the DNR order would be re-invoked. It would be made clear to the patient/surrogate that any therapy would be discontinued when no longer necessary or when it was no longer effective in reversing the acute physiologic abnormalities induced by surgery. Thus, the patient/surrogate could consent to the procedure with three options²⁴:

- rescind the DNR order;
- stipulate which therapies are acceptable for the surgical team's use; or
- leave the DNR order in effect.

The surgical team would weigh the moral risk of proceeding with the intervention if the second or third option is chosen by the patient/surrogate. If they opt not to proceed, they are obliged to refer the patient to others who will.

Finally, what are we to do if, after the patient/surrogate agrees to the procedure and allows any therapy deemed necessary intraoperatively, for the first 24 to 48 hr after operation, the patient undergoes tracheal intubation and mechanical ventilation but does not improve to the point that the trachea can be decannulated after 48 hr? As this scenario would have been discussed with the patient/surrogate prior to the operative intervention, life support would be withdrawn.^{23,24,26,27,32}

Conclusion – autonomy as a personal experience

While data on CPR outcome suggest that patients should be concerned about their resuscitation status, physicians and patients discuss this issue only rarely (4% to 19%)^{11,13} – even though many patients want to discuss such therapeutic options with their physician.³³ The reasons for this may go beyond the social attitudes toward life mentioned earlier, which affect both physician and patient. For physicians specifically, reasons may also include discomfort when such discussions throw their own mortality

into bold relief; inadequate training in this type of communication during medical school; and inability or unwillingness to make time, as mentioned earlier, because of the constraints of the medical system. A further obstacle is the view that DNR orders and death represent "defeat" and thus failure. This view derives from the very goal of medicine, the seeking to heal or cure that beneficence conveys, and from the competitiveness in our society, wherein failure is often considered "a fate worse than death" – to be avoided at all costs.

DNR orders should only be placed on a patient's chart after discussion with the patient/surrogate and among all pertinent medical and nursing staff. Further, the status of the order should be re-evaluated regularly through a continuing dialogue with patient/surrogate. Patients do want to both discuss these issues and be involved in the decision-making that leads up to the choice of a DNR order – they want control over their death, life's last important milestone. Discussions of advanced directives, living wills, and DNR orders are simply a means to ensure that this control is not unjustly taken from those under medical care. In the operating room too, the issue of control exists. Those of us working in this area need to heed patients' concerns that their deaths be as dignified and humane as possible. In doing so physicians remain true to all the principles of medical ethics, most especially to the one that demands we treat each person under our care as if he or she were a loved member of our family.

References

- 1 Clemency MV, Thompson NJ. "Do not resuscitate" (DNR) orders and the anesthesiologist: a survey. *Anesth Analg* 1993; 76: 394–401.
- 2 Layon AJ, D'Amico R, Caton D, Mollet CJ. And the patient chose: medical ethics and the care of the Jehovah's Witness. *Anesthesiology* 1990; 73: 1258–62.
- 3 American Thoracic Society Bioethics Task Force. Withholding and withdrawing life-sustaining therapy. *Ann Intern Med* 1991; 115: 478–85.
- 4 Sprung CL, Winick BJ. Informed consent in theory and practice: legal and medical perspectives on the informed consent doctrine and a proposed reconceptualization. *Crit Care Med* 1989; 17: 1346–54.
- 5 Bedell SE, Pelle D, Maher PL, Cleary PD. Do-not-resuscitate orders for critically ill patients in the hospital: how are they used and what is their impact? *JAMA* 1986; 256: 233–7.
- 6 Schafer A. Implementing a DNR policy: promise and perils (Editorial). *Can J Anaesth* 1991; 38: 549–52.
- 7 Rozenbaum EA, Shenkman L. Predicting outcome of in-hospital cardiopulmonary resuscitation. *Crit Care Med* 1988; 16: 583–6.
- 8 Blackhall LJ. Must we always use CPR? *N Engl J Med* 1987; 317: 1281–5.
- 9 Kouwenhoven WB, Jude JR, Knickerbocker GG. Closed-chest cardiac massage. *JAMA* 1960; 173: 1064–7.
- 10 Jude JR, Kouwenhoven WB, Knickerbocker GG. Cardiac arrest: Report of application of external cardiac massage on 118 patients. *JAMA* 1961; 178: 1063–70.
- 11 Murphy DJ, Murray AM, Robinson BE, Campion EW. Outcomes of cardiopulmonary resuscitation in the elderly. *Ann Intern Med* 1989; 111: 199–205.
- 12 Stern SG, Orlowski JP. DNR or CPR – the choice is ours. *Crit Care Med* 1992; 20: 1263–72.
- 13 Everhart MA, Pearlman RA. Stability of patient preferences regarding life-sustaining treatments. *Chest* 1990; 97: 159–64.
- 14 Tomlinson T, Brody H. Ethics and communication in do-not-resuscitate orders. *N Engl J Med* 1988; 318: 43–6.
- 15 Youngner SJ. Do-not-resuscitate orders: no longer secret, but still a problem. *Hastings Cent Rep* 1987; 17: 24–33.
- 16 Wolf SM. "Near death" – in the moment of decision. *N Engl J Med* 1990; 322: 208–9.
- 17 Peters PG Jr. The state's interest in the preservation of life: from Quinlan to Cruzan. *Ohio State Law Journal* 1989; 50: 891–910.
- 18 Webster's New World Dictionary, 3rd college edition. New York: Webster's New World, 1988: 1339.
- 19 Pellegrino ED. Compassion needs reason too. *JAMA* 1993; 270: 874–5.
- 20 Caine ED. Self-determined death, the physician, and medical priorities. Is there time to talk? (Editorial). *JAMA* 1993; 270: 875–6.
- 21 Lee DKP, Swinburne AJ, Fedullo AJ, Wahl GW. Withdrawing care: experience in a medical intensive care unit. *JAMA* 1994; 271: 1358–61.
- 22 O'Meara JJ III, McNutt RA, Evans AT, Moore SW, Downs SM. A decision analysis of streptokinase plus heparin as compared with heparin alone for deep-vein thrombosis. *N Engl J Med* 1994; 330: 1864–9.
- 23 Keffer MJ, Keffer HL. Do-not-resuscitate in the operating room: moral obligations of anesthesiologists. *Anesth Analg* 1992; 74: 901–5.
- 24 Franklin CM, Rothenberg DM. Do-not-resuscitate orders in the presurgical patient. *J Clin Anesth* 1992; 4: 181–4.
- 25 Cohen CB, Cohen PJ. Do-not-resuscitate orders in the operating room. *N Engl J Med* 1991; 325: 1879–82.
- 26 Walker RM. DNR in the OR. Resuscitation as an operative risk. *JAMA* 1991; 266: 2407–12.
- 27 Truog RD. "Do-not-resuscitate" orders during anesthesia and surgery. *Anesthesiology* 1991; 74: 606–8.
- 28 Reeder JM. Do-not-resuscitate orders in the operating room (Editorial). *AORN J* 1993; 57: 947–51.
- 29 Otto CW. Central venous pressure monitoring. In: Blitt

- CD (Ed.). *Monitoring in Anesthesia and Critical Care Medicine*. New York: Churchill Livingstone, 1985; 158:
- 30 *Quill TE*. Doctor, I want to die. Will you help me? *JAMA* 1993; 270: 870-3.
 - 31 *Bellet PS, Maloney MJ*. The importance of empathy as an interviewing skill in medicine. *JAMA* 1991; 266: 1831-2.
 - 32 *Martin RL, Soifer BE, Stevens WC*. Ethical issues in anesthesia: management of the do-not-resuscitate patient. *Anesth Analg* 1991; 73: 221-5.
 - 33 *Bedell SE, Delbanco TL*. Choices about cardiopulmonary resuscitation in the hospital. When do physicians talk to patients? *N Engl J Med* 1984; 310: 1089-93.