repeated measures design in order to demonstrate an effect.

In designing treatments and evaluating performance outcomes, consideration should be given to variations in capacity utilization. For example, work simplification or energy conservation methods included in rehabilitation programs are designed to help patients utilize their capacity more efficiently, thereby raising performance levels with a negligible change in exertion. However, these improvements should not be expected for all patients, particularly those satisfied with their current levels of performance. Our early findings suggest people choose levels of performance that reflect lifelong patterns of activity. For some, this means an ongoing commitment to a sedentary lifestyle. For others, a noticeable decrease in activity appears to be a source of frustration and an important incentive to seek and comply with treatment regimens. One would expect performance outcomes to be better in the latter group.

Using functional status to assess treatment outcomes requires a multidimensional approach. Distinguishing capacity, performance, reserve, and capacity utilization can help rationalize anomalies currently reported in the literature, refine measurement techniques and research design, and improve the likelihood of detecting true treatment effects.

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**To Live, To Keep Alive, To Let Die**

We put people “on machines” to live, not to keep them alive. However, we have failed to educate our patients, their families, and the general public concerning this cornerstone of critical care medicine. We recognize that patients admitted to the ICU often have a clear and urgent need for immediate invasive interventions to support respiration and circulation. Either we intubate, ventilate, or initiate fluid replacement, vasopressors, and inotropes or death will intervene. Frequently this decision must be made before a full database is available. There is a consensus that intervention is required under these circumstances, for it is better to err on the side of maintaining life.1-5

Although less dramatic, other patients with serious but chronic underlying diseases may develop an acute intercurrent illness or complications of treatment that require invasive interventions. We have the obligation to explain to such patients the potential need for invasive interventions when they are stable. This will engender understanding and therefore, permit a true consent. When the patient is not in acute distress he/she is more capable of analyzing our advice and seeking that of his/her family or appropriate others; this enhances rational decision making. Alternatively, they can refuse such interventions, if they so desire, after appropriate thoughtful consideration. We believe there is an obligation to discuss the need for and wisdom of likely invasive procedures that may arise, when the patient is stable, if at all possible. This discussion should explore in considerable depth the patient’s goals and expectations of treatment, eg, to return to work, to attend a child’s wedding, etc. We should address whether or not they are medically reasonable. We must integrate the patient’s religious, ethical, and moral beliefs in formulating our medical recommendations. We thereby reaffirm our covenant with the patient as his/her advocate. Then we must explain the procedures and the “machines.” This should be in sufficient detail using clear and simple language. In particular, ventilators are viewed with great trepidation. Most people have the television ICU image of monitors blinking and beeping and large ventilators with their tubes entering the patient’s mouth or trachea. Our explanations should include information on the lack of pain related to mechanical ventilation, our ability to provide sedation as necessary, and our ability to facilitate and maintain meaningful communication with them. Most importantly, we must be sure that the patient and the family (or appropriate others) clearly understand that the primary objective...
of the invasive intervention is so that they may live. It is not to keep them alive! Our ultimate goals are not to maintain a beating heart, a normal blood pressure, or normal laboratory values.\textsuperscript{1,6}

We have an equally strong obligation to advise the patient that he or she can request discontinuation of any or all of our therapeutic efforts. It should be clear that we will respect and act on such wishes whether expressed by the patient or family/appropriate others if the patient is not capable of decision making. Indeed, we believe we have an additional obligation to the patient receiving invasive life support measures. We must advise him/her or the family (or appropriate others) when further intervention or continuation of life support is futile in our medical opinion. This is a factual judgment that the underlying condition cannot be reversed; this may be an acute situation, such as a patient with acute leukemia, severe neutropenia, and no further available chemotherapy who develops multiple organ system failure or chronic condition, such as the extended period required to confirm a permanent vegetative state. We must explain to the patient and/or family (or appropriate others) that to continue current measures or add others has no reasonable likelihood of reversing the inevitable course of the illness—only prolonging its ultimate outcome. The patient or family (or appropriate others), if the patient is not capable of decision making, may independently request or agree with a medical recommendation that no further interventions, discontinuation of many, or discontinuation of all measures (including the ventilator, artificial airway, parenteral or enteral nutrition and fluids) take place. There is increasing medical, legal, and ethical recognition that artificial feeding and provision of fluids is intrusive, burdensome, and at times, invasive. It frequently requires insertion and reinsertion of a nasogastric tube, surgical placement of a gastric or gastrojejunal tube, and the use of restraints.\textsuperscript{7,8}

Withholding or withdrawing life-sustaining interventions near the end of life has had solid medical, legal, and ethical support for many years. The physician is not providing harmful treatment; rather, there is a foregoing of treatment. We recognize our inability to reverse the disease process and let it progress to its natural ultimate fate. A useful analogy is that of an individual who stops an unattended auto that is beginning to roll down a steep hill. After several minutes he finds this increasingly difficult, steps aside, and lets the auto continue its initial course to destruction. Clearly such a person did not cause the auto’s destruction and is not responsible for the outcome. Withholding or withdrawing life-sustaining treatment respects the autonomy of the patient. It is in compliance with the principle of nonmaleficence, since no act has been performed which causes harm to the patient. Indeed, in respecting the patient’s autonomy, by not adding or by discontinuing life-sustaining medical interventions that are excessively burdensome, the physician is using his/her skills to benefit the patient; this fulfills the principle of beneficence.\textsuperscript{1,7}

The withholding or withdrawal of life-sustaining treatment stands in stark contrast to the medical, ethical, religious, and legal prohibition of euthanasia and assisted suicide. Euthanasia is generally defined as an act causing quick and painless death for reasons of mercy. It may be voluntary—at the patient’s request, nonvoluntary—at a surrogate’s request, or involuntary—without consent. The term “assisted suicide” is used when a person (usually a physician) provides the means to facilitate death, but the patient performs the act. Although individuals have recently received notoriety for such acts, and various polls have indicated support, the medical, ethical, religious, and legal community continues to withhold support for such actions. While suicide (the taking of one’s life) is not a criminal offense in any US state, every US state bars euthanasia by law and most states bar assisted suicide. The majority of ethicists over the years have held that assisted suicide and euthanasia violate society’s long-standing prohibition against ending human life and that such actions are inherently wrong. In a very recent report by the New York State Task Force on Life and the Law, \textit{When Death is Sought—Assisted Suicide and Euthanasia in the Medical Context}, there was a unanimous opinion that neither should be legalized regardless of members’ personal views. They concurred that such a course would be “unwise and dangerous public policy.” They concluded that legalizing would pose: (1) “profound risks to many patients”; and (2) “be practiced through the prism of social inequality and bias” that would “pose the greatest risks to those who are poor, elderly, members of a minority, or without access to good medical care”—no matter the most careful of guidelines.\textsuperscript{1-6}

The Dutch experience with assisted suicide and euthanasia according to supposedly strict guidelines speaks emphatically against legalization. In 1990, some 6 years after acceptance of this policy, 49,400 of the 91,000 deaths (54\%) in which decisions could be made had Medical Decisions Concerning the End of Life (MDEL); 2,300 (2.5\%) deaths occurred by euthanasia, and approximately 1,000 (1.1\%) of these acts of terminating life were without explicit consent (some of these were with the consent of a surrogate, but some were without any consent). In Dutch nursing homes, the promulgated guidelines were not followed in about 60\% of deaths by euthanasia. Some elderly Dutch citizens have expressed fear of un-
wanted euthanasia in nursing homes. Perhaps most striking is the estimate that approximately 35% of persons with AIDS have their lives ended by euthanasia.9-12

We should also recognize that if assisted suicide and/or euthanasia were “medicalized,” physicians and other members of the health-care team would be subject to increasing coercion to actively end life on grounds of patient autonomy, compassion, the need for distributive justice (use the funds saved by ending expensive life support for one individual to improve the health care of others), or more blatantly offensive, to reduce health-care costs.13 We must protect our autonomy and that of our colleagues. The legal “medicalization” of assisted suicide or euthanasia would unjustly pressure us to actively take another’s life.3,6

We have an obligation to educate our patients, their families, and the general public concerning the following: (1) the qualitative distinctions between withholding and withdrawing life support and euthanasia or assisted suicide; (2) our almost uniform ability to relieve pain; and (3) the ability to treat depression. Euphemisms such as “the right to die,” “death with dignity,” “self-determination or autonomy to end life,” “medically managed death,” or “hastening inevitable death” must be avoided; if used by others for actively ending a life, they should be clarified. Depression is present in 90% or more of individuals attempting suicide, committing suicide, asking for assisted suicide, or asking for euthanasia. Recognition of depression or other treatable mental illness in the presence of physical illness is extremely difficult; it frequently requires evaluation by a trained and experienced psychiatrist.14,15

At the point of withholding or withdrawing medical interventions, we continue to care by providing necessary comfort measures including emotional support for the patient and family, sedation, relief of pain, and relief of dyspnea; this is done with sympathy and empathy. It requires the contributions of key members of the medical care team—nursing, social work, clergy, etc. We serve our role as the final human advocate of our patient. We respect their privacy and confidentiality. We act, as we should, without committees, attorneys, the courts, or the press. We fulfill our obligation on request to let die.

This scenario of withholding or withdrawing life support occurs regularly in ICUs.

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