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INTRODUCTION

Medical decisionmaking involving seriously ill patients is often difficult and uncertain. In many cases, physicians do not know ahead of time whether the treatment they prescribe will benefit their patient. Physicians in the intensive care unit (ICU) frequently face the similar dilemma of not knowing whether to employ available life-support for critically ill patients and whether or when to withdraw such support when it seems clear that continued treatment will merely prolong his life with no improvement in his grave condition. One reason ICU decisionmaking is so difficult is that it is so successful; most ICU patients survive. Yet, it is also clear that in some cases ICU care is provided—at a very high cost—to patients who are beyond help. In other cases, ICU care may be immediately lifesaving but results in returning the patient either to a condition that still has a very short life expectancy or to a condition with a severely limited functional status.

At the present time, there is no reliable way to predict outcome for most critically ill patients, and

therefore, it is usually reasonable and appropriate to initiate intensive care treatment for severely ill patients. However, because of certain factors somewhat unique to the ICU, care is sometimes continued beyond the point of benefit to the patient.

This chapter explores those factors—including the underlying chronic illnesses suffered by many ICU patients, the diffused nature of decisionmaking that often prevails in the ICU, the frequent inability of patients themselves to make informed choices about continuing therapy in the face of a hopeless situation, the concern over the possibility of malpractice lawsuits or even criminal prosecution and the inability to predict outcome—that often lead physicians to provide life-support after the initial rationale for doing so no longer exists. **Together, these factors create an ICU treatment imperative.**

THE HIGHLY TECHNOLOGICAL NATURE OF ICU CARE

The “technological imperative,” which has been defined by Fuchs as the desire of physicians to do everything that they have been trained to do, regardless of the benefit-cost ratio (84), flourishes in the ICU. ICU technology can dramatically and consistently sustain life for long periods of time. The ICU is a prototype of what Thomas has called a “halfway technology,” one that attempts to compensate for the incapacitating effects of certain diseases whose courses one is unable to affect. It is a technology designed to make up for disease or to postpone death (250). Many of the individual technologies used in an ICU, including respirators, defibrillators, and balloon pumps,

sustain vital functions but do little to correct underlying disease processes.

In a well-functioning ICU, patients rarely die immediately of respiratory failure or circulatory collapse, because the available technology can delay these complications (50). Some patients, particularly those with the common ICU problems of cardiovascular, respiratory, and neurologic failure (139) have their vital functions sustained by technology so as to forestall death, but their basic disease or diseases do not improve. For *some* disease processes, then, ICU care does not change the ultimate outcome, but rather results in a pro-

longed, yet inexorable course, with death occurring sometimes from complications of ICU care (135) or after a decision is finally made to terminate the special life-support.

Measurements and monitoring are often pursued as ends in themselves in the ICU (198). Patient care may become depersonalized. As one critical care specialist noted, the paradox is that ICU staff treasure life highly and go to any length to salvage lives, yet often ignore, or actually debase, the very qualities that render patients uniquely human (35). The technological imperative, which frequently results in more effective methods of managing very sick patients, can lead to the uncritical adoption of harmful therapies on the assumption that the most critically ill have little to lose from new approaches (198). In addition, new ICU therapies that are demonstrably efficacious in expert hands for specific problems may become widely adopted and routinely used in situations and under conditions where demonstration of their effectiveness is absent (243).

Physicians who become intensive care specialists—“intensivists”—by predilection and training are generally believers in technological intervention (95). ICU-oriented physicians naturally are

believers in the highly complex technology that they have mastered and often save lives that would have been lost under non-ICU conditions. Likewise, some nurses who choose ICU-based careers tend to be therapeutic activists, not prone to accepting the inevitability of a patient’s deteriorating condition (278).

The highly technical nature of ICU care itself affects the way in which life and death decisions are made. The most critically ill patients have multiple organ systems failure and receive multiple interventions. The very exacting nature of this form of patient management results in standard protocols of treatment, perhaps at increased expense (100), and in concentration on the details of treatment.

In such situations, the fundamental consideration of the long-term benefits to the patient receiving care is often overlooked among the seemingly endless technical decisions that are made throughout the course of an ICU stay. Yet, the most critically ill patients, who require the most concentrated focus on the details of day-to-day management, are precisely those for whom fundamental likelihood and quality of survival questions are most appropriate.

THE NATURE OF ICU ILLNESSES

As was noted in chapter 5, diseases of the cardiovascular, respiratory, and neurological systems, both medical and surgical, predominate in the ICU. Failure of these systems often results in acute respiratory distress, which is manifested by severe smothering or “air hunger,” and circulatory collapse or shock, which results in altered states of consciousness. Even when the impulse on the part of the medical professional is simply to make a desperately sick patient more comfortable and not to initiate heroic measures in an attempt to reverse the illness, that impulse may require the use of the full panoply of ICU technologies, particularly the respirator. Some patients with cancer and other chronic debilitating illnesses may

be cared for outside the hospital, perhaps in hospices, with appropriate use of pain medication and emotional support. Many terminal illnesses, however, produce symptoms that cause severe distress to the patient and that are frightening to their families. The need for relief often results in hospitalization and treatment in the ICU. For example, symptoms of smothering from emphysema cannot be treated with medication alone—at least, not without the very real possibility of depressing the patient’s respiration to the point of risking immediate death (102). “Naturalness,” therefore, may have to be sacrificed for comfort, which at times can only be achieved with ICU management and technologies (191).

“ICU diseases” often develop rapidly-sometimes in seconds. When a severely ill, perhaps dying patient is seen in an emergency room *or* on a medical floor, physicians, who are often not familiar with the patient, naturally and appropriately attempt resuscitation (179). Frequently, the basic physiological and other clinical data which are necessary for a medical judgment on the severity and likely outcome of an illness cannot be acquired before admission to the ICU (55).

With some terminal diseases there is time to anticipate and plan the degree and nature of in-

tervention in the event of a sudden deterioration in the patient’s condition. Because end-stage emphysema, severe heart disease, or generalized arteriosclerosis are, rightly or wrongly, not considered terminal diseases in the same way that cancer is, patients experiencing a sudden decompensation are routinely and responsibly treated with all available technology. Once initiated, however, treatment modalities that have been initiated primarily to respond to acute, disabling symptoms may become difficult to stop for the reasons described below.

TRADITIONAL MORAL DISTINCTIONS IN MEDICINE

Along with the notion that physicians should not “play God,” the traditional medical ethic has been to disregard subjective views of quality of life in making life and death decisions. In terms of ICU care, this general ethic has been characterized as one in which “survival is being taken as equivalent to a life saved” (64).

Underlying the other considerations which play a part in ICU decisionmaking is the generally activist attitude of many physicians, who may embody a fundamental and somewhat unique attitude of American culture. The decision to pull back is frequently more difficult to make than the decision to push ahead with aggressive support, using the complex and sophisticated medical technology available (269). As other reviewers of intensive care have observed, this attitude has been captured in T. S. Elliot’s *The Family Reunion* (18):

Not for the good that it will do
But that nothing may be left undone
On the margin of the impossible.

In situations where patients are in acute distress and where decisions must be made in seconds or minutes, there are powerful reasons initially to apply a lifesaving technology. Having done so, it is often quite difficult to reverse the course of treatment in the light of new information or thoughtful judgment because of traditional moral distinctions in medicine. Specifically, fundamental moral and ethical distinctions are frequently made between actively causing death and allowing it to

occur by declining to intervene; between withholding and withdrawing treatment; and between ordinary and extraordinary treatment (191).

Many primary decisionmakers in the ICU feel, for example, that having decided to put a patient on a respirator, one is committed to its continued use and thus make a fundamental distinction between intentionally withholding and actively withdrawing the respirator. Likewise, while some prominent medical ethicists have abandoned the distinction between “ordinary” and “extraordinary” obligations to dying patients, physicians generally continue to use the distinction (160). The ordinary-extraordinary distinction has been affirmed consistently in Catholic moral theology, notably in a major address by Pope Pius XII in 1957 (185). Certainly, most of the public consider that there is a difference between care that is common and reasonably simple and care that is unusual, complex, expensive, and uses elaborate “unnatural” technology. Similarly, most physicians consider intravenous fluids to be ordinary and standard therapy and resuscitation an extraordinary measure (160). Other physicians, however, consider even the use of respirators and other common ICU technologies to be routine, ordinary treatment (191). Many physicians do not use the ordinary-extraordinary distinction at all, but rather fundamentally consider whether an intervention, however invasive, is “medically indicated.”

As the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research has observed, invocation of these moral distinctions is often so mechanical that it neither illuminates an actual case nor provides an ethically persuasive argument (191). Nevertheless, the moral distinctions cited above have great importance in ICU decisionmaking. Because many different individuals typically participate in ICU decisions, a range of moral attitudes are represented (278). There is a natural tendency to defer to the individual, whether physician, nurse, or family member, who firmly holds a traditional moral view.

In addition, there is still uncertainty about the legal interpretation of these moral distinctions. For example, a New Jersey appeals court recently reversed a lower court order allowing removal of a feeding tube in an extremely ill, demented patient with no hope of recovery.¹ The two courts differed in their interpretation of whether nasogastric feedings (nourishment) constituted ordinary or extraordinary treatment for this particular patient in question.

A California appellate court, on the other hand, in vacating a lower court's reinstatement of murder charges against two physicians for terminating certain treatments for a patient they diagnosed as hopelessly comatose, explicitly rejected the distinction between ordinary and extraordinary care. The court, rather, invoked an ethical measure of "proportion," writing:

Proportionate treatment is that which has at least a reasonable chance of providing benefits to

¹See *In re Conroy*, 188 N.J. Super. 523, 532 (Ch. Div. 1983).

the patient, which benefits outweigh the burdens attendant to treatment. Thus, even if a proposed course of treatment might be extremely painful or intrusive, it would still be proportionate treatment if the prognosis was for complete cure or significant improvement in the patient's condition. On the other hand, a treatment course which is only minimally painful or intrusive may nonetheless be considered disproportionate to the potential benefits if the prognosis is virtually hopeless for any significant improvement in condition.²

Ironically, as was pointed out by the President's Commission, if there is any reason to draw a moral distinction between withholding and withdrawing treatment, it generally cuts the opposite way from the usual formulation: greater justification ought to be required to withhold treatment rather than to withdraw it (191). Whether a particular intervention will have positive effects is often uncertain until the therapy has actually been tried (50). If therapy is initiated and it then becomes clear that the patient is not benefiting from it, this is actual demonstration, rather than mere surmise, to support terminating that treatment (191). Yet, physicians who believe in a moral distinction between withholding and withdrawing treatment, or who are concerned that another individual or the courts would judge their actions based on this distinction, might choose not to utilize the lifesaving treatment in the first place out of concern that the treatment could not subsequently be readily withdrawn.

²*Neil Leonard Barber, Robert Joseph Nedjl v. Superior Court of the State of California for the County of Los Angeles*; Court of Appeals of the State of California, Second Appellate District, Civil No. 60350; Oct. 12, 1983.

THE DIFFUSION OF DECISIONMAKING RESPONSIBILITY

Because of the nature of ICU care, many professionals become important decisionmakers, including nurses who attend to the patient full time, housestaff, consultants, and the patient's personal physician. In larger hospitals, there are frequently one or more ICU-based physicians in attendance who also are involved in the decisionmaking process. In some ICUs, particularly in large, teaching

hospitals, the primary legal responsibility for a patient's care is transferred to the ICU or to an ICU-oriented specialist (165,244). often, the patient's personal physician feels intimidated by the clinical complexity and the bureaucracy perceived in the ICU and gives up an active role in decisionmaking (136). As a result, the patient's personal physician, who often has the best understanding

of the patient's baseline medical condition, quality of life, and personal values, goals and concerns, does not participate in important decisions about the care the patient receives in the ICU (194). At the same time, physicians who do not treat many ICU patients may have unrealistic expectations about what ICUs can accomplish and do not know how or when to address fundamental issues about terminating particular kinds of care (243, 244).

Many ICU patients enter the hospital through the emergency room, often in a hospital where their personal physician, if they have one, is not on staff. Victims of acute trauma or sudden severe illness may not have a previously established relationship with the physician(s) who is caring for them.

ICUs in large hospitals utilize a team approach to individual patients, which is felt to result in a higher quality of care (207,208). Some have wondered, however, whether a patient cared for by an ICU team in fact has a doctor (212). With the team approach, decisionmaking responsibility may be diffused, and the difficult issue of terminating special care is frequently deferred or

deflected. Families who are interested in addressing this painful issue may not know how to engage a diverse team of busy professionals in discussion.

With multiple professionals in decisionmaking roles, there may well be different medical and moral views expressed. Unanimity among professionals is desirable, especially when the issue is withdrawing life-support (233,243). In such situations, there is a natural tendency to defer to a member of the group who holds a traditional moral view, such as the distinction between withholding and withdrawing treatment.

Decisions not to treat a debilitated patient in a nursing home (27), not to transfer to the ICU a patient with end-stage cystic fibrosis (58) or cancer (253), or to choose a hospice rather than a hospital, can often be addressed privately by patients and their doctors. In the ICU, however, such important decisions are more visible and often controversial (278). When the responsible physician addresses the issue of termination of special life-support with a family or patient, for example, counterpressures from other physicians and nurses may make decisionmaking extremely difficult and emotionally charged.

PROBLEMS OF INFORMED CONSENT IN THE ICU

As the President's Commission has emphasized, the voluntary choice by a competent and informed patient should determine whether or not a life-sustaining therapy will be undertaken or continued (191). Unfortunately, the ICU environment is ill-suited to guaranteeing patient competence and to providing the necessary flow of information to ensure fully informed consent.

Case studies have demonstrated that patients in ICUs, as well as other seriously ill patients, do not always act or communicate in their own interest (124). As noted in chapter 5, ICU patients may undergo acute psychological reactions to sleep deprivation, sensory overstimulation, dependency, and nearness of death. This is true in other life-threatening situations as well, but unlike

the ICU, there is usually sufficient time and a satisfactory environment in such cases for working with the patient before taking an irrevocable decision.

Moreover, ICU patients suffer from subtle, but real, metabolic disturbances which alter their judgment. They are frequently in severe, although often reversible, pain or discomfort. Furthermore, a patient on a respirator may be reasonably competent to give informed consent but unable to satisfactorily communicate his or her wishes. This is due to the extreme difficulty ICU patients experience in communicating, often because they have an endotracheal tube in their throat or have had a tracheotomy, which makes verbalizing impossible (225).

The natural response to some situations is to defer decisionmaking, particularly with respect to terminating care, until the patient is able to give informed consent. Indeed, physicians may have to salvage the life of a critically ill patient in order to obtain his or her informed consent to stop care (69). Medical professionals naturally have a bias toward supporting patient survival until it can be determined that a patient is competent and that the choice to stop treatment is truly informed (245).

When the patient lacks the capacity to give informed consent, the family is normally recognized as having the authority to make a decision on the patient's behalf. In practice, this procedure generally works well (191). Yet, in some cases, family members may have motivations which do not necessarily support the best interests of the patient (152,244) or, they may disagree among themselves. Again, because of the uncertainty of who should make life and death decisions on behalf of an incompetent patient, physicians naturally adopt a policy of continuing intensive care until resolution of disputes and roles occurs.

Finally, it has been noted that patients with serious acute illnesses are generally more passive and

distant from treatment decisions than patients with chronic stable diseases (150). For many medical decisions, patients and their families can participate in decisionmaking with full appreciation of the medical issues involved. Because of the highly technical nature of ICU care, however, patients and families may not fully understand the implications of the many decisions that must be confronted in the ICU and are more prone to defer to physicians (280). In the ICU, the doctor's orientation toward the patient is to be active and in control of the situation, while the patient is passive and dependent (280). Some even consider it to be the ICU physician's responsibility to bring a family to the point where it can look at the patient's situation from the physician's perspective (278).

Whether the physician adopts a controlling attitude or not, it may nevertheless take some time for patients or their families to accept the fact that continued therapy is hopeless, and the process of informing them of the condition places the physician in a difficult position. "It is extremely difficult to tell a critically ill patient that all is not going well" (232).

LEGAL PRESSURES: DEFENSIVE MEDICINE

The past decade has seen an explosion in the number of malpractice lawsuits brought against medical professionals, particularly suits charging that a physician was negligent in his or her duty to provide adequate medical care. For this case study, malpractice is defined as a wrongful act, committed by one or more parties upon another person; the injured party may seek monetary damages from the person(s) responsible as compensation for an injury. The injured party must demonstrate that the injury was caused by conduct which failed to conform to the "standard of care" for that medical problem and that class of provider (199).

While many malpractice claims ultimately are unsuccessful, they have caused doctors and other medical personnel to become more cautious and,

in effect, to practice "defensive medicine," which involves taking or not taking certain action more as a defense against potential legal liability than for the patient's benefit (68). Although the extent to which defensive medicine is practiced is not known, it clearly has contributed to the provision of costly, unnecessary, and sometimes hazardous medical care.

Physicians, under certain circumstances, may also be subject to potential criminal prosecution. The criminal law confines people's freedom of action in order to protect society, not simply individuals, and therefore, consent is never accepted as a defense against the crime of murder (191). Taking innocent human life is seen as a wrong against the entire society, not just against the dead person. As such, criminal prosecution is the ex-

elusive prerogative of the State and may be brought against a physician whose patient died because of the physician's failure to perform the duty of treating the patient according to accepted medical standards (191). Reported criminal prosecutions of health care professionals for killing patients are rare, and it is felt that merely the threat of prosecution provides appropriate protection against abuse (191).

Although all practitioners face the possibility of a malpractice suit and, to a much lesser extent, criminal prosecution, concern is certainly great among those who work with ICU patients. In large part, this is because ICU patients are critically ill, and death, therefore, is a common occurrence. Indeed, the physician may permit a patient's death by withholding or withdrawing a particular treatment or technology, an action that is likely to make the doctor feel vulnerable to subsequent legal liability. In fact, however, the legal problems with the treatment and nontreatment of terminally and critically ill patients appears to have been exaggerated—there are no known cases of liability in the United States concerning the withholding of medical care from a terminally or critically ill patient (272). Yet the physician's sense of vulnerability to malpractice litigation is likely to increase, because decision-making in the ICU is unusually visible. The attending physician, the patient, and the next-of-kin have direct decisionmaking responsibility, but others, including ICU staff, family members, and other physicians, who may have strong opinions on a life and death decision, are also involved, although less directly (278).

In the determination of standards of care by which to judge physician's actions, malpractice courts have traditionally imposed on physicians the duty to provide medical care at the level which is considered usual practice within their own or a similar locality. However, with the advent of standardized medical training and rapid dissemination of information, this "locality rule" has been replaced in many States by a standard of care based on the usual practice of the national medical community (199).

Thus, physicians are more likely to utilize an ICU in the first place if its use is the prevailing

national standard of care for a particular medical problem. Once the patient is in the ICU, the physician's actions in this highly specialized arena are likely to be judged by often higher national standards of care than by the standard of other local practitioners. To avoid charges of negligence, physicians are likely to use ICUs more frequently and for longer periods of time than they might otherwise feel is appropriate.

Although the threat of criminal prosecution is generally remote for most health professionals, it has arisen in the context of the delivery room and the neonatal ICU, when State prosecutors found criminal intent to murder in cases involving an abortion³ and the care of severely disabled newborns (197). Even in the adult ICU, criminal intent may be alleged by prosecutors who view actions such as failing to resuscitate, "pulling the plug," and "overdosing" with painkilling or sedating medications as intentionally causing a person's death. In 1982, for example, homicide charges were brought against two Los Angeles physicians who withdrew intravenous fluids and nasogastric feedings from a comatose patient, with the approval of the patient's family (5,133). Although the California Court of Appeal ultimately ruled that charges against the physicians be dropped (171), the case undoubtedly caused significant concern in the medical community (169).

Defensive medicine is also a factor in decisions to use the ICU in routine, monitor cases. Where the standard in the community is to use the ICU for monitoring of specific conditions, such as post-operative neurosurgery cases or uncomplicated myocardial infarctions, individual practitioners may put themselves out on a legal limb if they choose to care for the patient outside the ICU (141).

Decisions to terminate life-support are seldom challenged in court and would seem to be reasonably well protected if the hospital has established explicit criteria and procedures for reaching such decisions and if medical personnel follow the hospital's guidelines (191). Some hospitals have formal policies for issuing "do not resuscitate" orders (191). These policies were initially adopted in the

³See *Commonwealth v. Edelin*, 359 N.E. 2014 (Mass. 1976).

mid-1970s (154,193,243,253) in recognition that nonresuscitation was appropriate when a patient's well-being would not be served by an attempt to reverse a cardiac arrest. Yet a recent study of nonresuscitation decisionmaking suggested that physicians frequently form opinions about a patient's desires for resuscitation without involving the patient or the patient's family, and often physicians take actions which do not conform to the patient's preference (15).

For difficult ICU decisions that do not involve resuscitation, however, physicians and staff may not have formal procedures to follow and therefore must speculate about their potential legal liability. The President's Commission survey found that only 1 percent of hospitals in this country, and just 4.3 percent of hospitals with more than 200 beds, have ethics committees to help doctors and families reach decisions about withholding or withdrawing life-support (191). That number may have increased dramatically—to perhaps 20 percent of hospitals—in the 2 years since the President's Commission survey (21). Among their other functions, these committees may provide information to the hospital's medical staff on their legal responsibilities in certain situations.

In the absence of an institutional mechanism for advising staff on the possible legal implications of their actions, physicians, understandably, tend to adopt a cautious, "defensive" approach to decisionmaking. This is especially true in hospitals where legal responsibility for care of a patient in the ICU is not turned over to an ICU-based physician. It is not unusual, for example, for patients who are "brain dead" to remain on an ICU respirator for days because of unfounded physician or hospital concern about a possible malpractice suit or criminal prosecution. Physicians may feel more confident to disconnect the respirator if hospital guidelines indicate when it is appropriate to do so. Even when a hospital does establish written guidelines and procedures for making life and death decisions, however, they are necessarily cautious and conservative in content (111). Thus, whether physicians decline to withhold or withdraw ICU technology for fear of legal liability or whether the institution provides guidelines, the result is the same: the continuation of ICU care for a longer time than is often necessary or desirable for the patient's well-being.

PAYMENT AND THE TREATMENT IMPERATIVE

Methods of hospital and physician payment described in chapter 6 have tended to be permissive factors for provision of excessive ICU care. It is unlikely that the care is performed primarily to receive greater income. Rather, the payment system has *not* interfered with the factors described in this section which do produce an ICU treatment imperative.

Until 1982, hospitals in States without prospective rate-setting programs were reimbursed by some insurers for actual costs of ICU care and by other insurers according to charge schedules which

permitted hospitals to recoup the costs of caring for very high-cost, seriously ill ICU patients. Physician payments based on a usual, customary, and reasonable charge system or even on a fixed fee schedule have tended to amply reward physicians who provide technical ICU services. While the incentives for the hospital have now changed, at least for Medicare patients, physician payment systems still permit physicians to provide continued, high-level ICU care without direct consideration of the costs to either the patient or society.

THE ABSENCE OF CLINICAL PREDICTORS

As with many chronic or terminal illnesses, there is an absence of data for the common ICU conditions on which to make predictions of an individual ICU patient's chances of immediate survival, as well as the likelihood of his or her long-term survival. Probabilities based on quantitative information for populations of similar patients are used as a reference point on which to base decisions about treatment of patients (277). This approach is common for cancer, for example, where there are defined stages of disease and accumulated outcome data based on alternative modes of therapy.

Were it possible to predict which risk factors consistently yield poor outcomes, many patients might be considered unsalvageable at an earlier point in their ICU stay (247). With reliable predictors of ICU survival, many of the other factors that result in excessive ICU care would become less important. For example, physicians would have less concern about legal liability if reliable data were available to support their clinical judgment that special care should be terminated for a particular individual.

It has been argued that the use of predictive scores should have its greatest application to decisions involving groups of patients or on how to expend societal resources and may have more limited application to decisions involving individual patients (157). Unfortunately, accurate quantitative approaches to clinical decisions are difficult. Collecting large, accurate data bases is expensive and time-consuming; verifying their relevance to other patient populations is costly and sometimes not feasible. Data bases can rapidly become obsolete for predictive purposes once new tests or procedures become available (157). Collecting data on heterogeneous ICU populations in which diagnostic monitoring and therapeutic intervention often occur simultaneously is particularly problematic. Yet, unfortunately, as will be pointed out below, purely subjective prognostication in the ICU is especially uncertain.

In recent years, work has begun on establishing quantitative predictive models which would

aid in predicting outcome of ICU care (143,223, 236,247,270). Up to this point, no such model of clinical predictions has been accepted for general ICU use (176). However, the Acute Physiology and Chronic Health Evaluation (APACHE) scale developed by Knaus and colleagues has begun to receive particular attention as an objective measure of the severity of illness of ICU patients for research and evaluation purposes, much as the Therapeutic Intervention Scoring System scale of Cullen (see ch. 5) has been used as an objective measure of ICU resource use. A recent simplification of the APACHE model may make this approach more widely useful to help physicians make more precise treatment decisions (138). By design, however, the APACHE scale is more appropriate for predicting outcomes of populations of ICU patients rather than prognosticating for individual patients.

A generally reliable predictive model is available in burn units, and has been used to make decisions about individual patients (123). Its use in clinical decisionmaking, however, has not been generally accepted by experts in the field (263).

Recently, a scale of rating the likelihood of survival for patients in coma (149) has been developed and is used in some ICUs for individual decisionmaking. For the great majority of ICU patients, however, no predictive scale is available. Even if such scales were available, it would be difficult to apply a population-based scale to individuals (229), especially where a "wrong" decision can have such profound implications.

For a patient-care area that is as technologically based as the ICU, judgments on outcome have been remarkably subjective. Subjective prognostication near the end of life is notoriously uncertain (201) and varied (177). Some feel that physicians tend to maintain overly pessimistic prognoses because patients with poor outcomes claim greater physician attention (70). Some physicians employ a strategy that has been called the "hanging of crepe," i.e., predicting the worst so that anything less dire will be viewed as a major achievement (229). Others feel that physicians remember the

rare “miraculous” recovery, forget the more common failures, and act on that faulty memory (280).

Other problems with ICU outcome prediction include the fact that recognition of terminal patients during an acute admission is difficult (198); as noted earlier, an acute illness is often not seen in the context of the patient’s overall condition. Furthermore, in many community hospitals, only a few physicians ever handle a significant number of ICU patients. Most physicians have limited experience with the relative prognoses of these very sick patients (165). Very few hospitals recognize an institutional responsibility to advise physicians, patients, and families on likely outcomes of ICU care, even for the group of patients who might be in a vegetative, nonrecoverable state (191). Opinion on likely prognosis remains an individual physician’s responsibility and, not infrequently, dramatically different opinions are offered by the various physicians involved in a particular case.

Another major problem is the lack of meaningful predictors of the outcome of chronic illness (215). Many ICU patients suffer an acute, major ICU episode as part of a deteriorating chronic condition, e.g., emphysema, cancer, cirrhosis, or renal failure. Often the issue is not the likelihood of surviving the acute episode, but rather what the natural course of the illness would be even with a favorable acute recovery. As was noted in chapter 5, it is generally accepted by ICU experts that ICU care does not favorably affect the course of a chronic illness, but rather reverses an acute deterioration in the illness. Some patients, when given information about relatively poor life

expectancy and quality of life, choose not to undergo temporary lifesaving treatment. For example, cancer patients, relying on population-based outcome studies, sometimes choose not to submit to active cancer therapy. For the most part, prognostic indexes, stratified by disease and severity of illness, do not exist for most other common chronic conditions (158).

Physicians have demonstrated dramatically divergent predictions of life expectancy for patients with “end-stage” diseases (177). In the absence of data on acute or chronic outcome, physicians can offer only imprecise, qualitative assessments, i.e., survival is “unlikely,” “unusual,” or “possible,” rather than the quantitative assessments, which have probability ranges attached, i.e., “10 to 20 percent chance of one year survival” (277).

A fundamental dilemma is that the rare miraculous recovery does occasionally occur. Describing the dismal outcomes of 18 patients treated in an ICU for acute renal failure after rupture of an abdominal aneurysm, Morgan was one of the first ICU specialists to note the problem of high-cost, low-yield ICU care (162). The patients were elderly (mean age 65.2 years), with a high incidence of obesity, chronic pulmonary disease, and arteriosclerotic heart disease. Despite energetic clinical efforts and dramatically high cost per patient, 17 out of 18 died. Looked at another way, however, one survived and was able to return to his previous functional level. A retrospective review of clinical records in these cases did not permit success or failure of treatment to be predicted by any means other than actual trial.