Life, Dying, Death: Ethics and Open Decisions

A grand public debate is needed for society to form new ethical criteria on who shall live and when to let die

by Amitai Etzioni

Until recently the question of how much effort to invest in sustaining a dying person or a severely malformed newly born infant was left largely in the hands of physicians. Most patients' families and society as a whole gave the problem no more complicated thought than the simplistic dictum that one did "all" one could for the loved one. This formula implied that death came as an act of God and nature: When death became inevitable, the heart would stop and the lungs cease—despite all the medical effort and the family's (and society's) investment of resources.

In actuality the situation was never that simple. Very few patients received all theoretically possible services, if by that one means the kind of care available to presidents and the super-rich. Not long ago, for example, five physicians worked around the clock to save the life of a university provost admitted to "his" university's hospital. Such care is scarcely available to Bowery derelicts—if they would even be admitted to the fancy hospital in the first place. However, until recently people did allow physicians to decide by themselves how long, how much to care, basically not being accountable to any but their own busy consciences and, occasionally, to each other. Note that these decisions are not medical but moral, social, and economic. The judgment they have been rendering is who is *worth* the supreme effort, and for how long, not—is it medically possible to keep a body artificially alive.

Now, our willingness to let these decisions rest in the physicians' hands has been twice removed. First, technological developments, which until recently were mobilized to extend the lives of a few, are now becoming available for an ever growing number and hence, rather than viewing them as esoteric, we must consider what we shall do if we, or a member of our family, will be hooked up to one of those new medical machines. Dr. Allen I. Hyman of Columbia University explains:

> Until recently, to survive, the newborn infant had to activate three physiological systems: one that maintains a minimal body temperature, another that accepts nourishment from the external environment, and a third that oxygenates his tissues using his own lungs. Today the functions performed by these systems can be augmented artificially to the degree that the physician can indefinitely maintain the life of almost every newborn, no matter how severe its congenital abnormalities.

The same holds for those who are dying because of accident, illness, or age. By using new technologies, the physical existence of more and more bodies can be extended—heart beating, lungs functioning—long after the brain is irrevocably dead, and the body involved will never regain consciousness, love, think, or otherwise fulfill any of the requirements of an individual *person*, of a *human* being. The very increase in the number of persons for whom an explicit decision, to "turn off" the body-maintaining machines, must be made, has called the public attention to the question: Who should decide? Using which criteria?

Second, physicians are ever less able to make these decisions in the personalistic, paternalistic quiet of their back room arbitrariness, because lay people, you and me, no longer trust them to make these decisions. Our naive trust in physicians and medical institutions has been eroded in several ways. We have learned over the last few years that many matters which appear to be "technical" (and hence subject to "expert" decision) are actually questions which are moral, social, and economic in nature, questions we all must participate in answering as persons, citizens, and tax-payers.

Also, we have lately become aware that the values physicians use to guide them are ones which many of us do not share. Many doctors have a preference for people like most of themselves: white, male, upper middle class, hard working, gainfully employed. For those of us who do not fit this profile, to gain our share of life and health, it seems, requires extra attention, effort. Nor can we accept that the question of whether or not a child born to us will be subjected to scores of operations and sent home hopelessly unequipped to lead a normal life, will be made without involving us. Neither can we accept that the decision whether a relative's body will be pumped until our personal resources are exhausted—or only until the insurance runs out—will be determined by the personal views of the particular physician into whose care our loved one happens to have fallen.

As ever more of us may face these judgment-day decisions, and we trust others less to render them for us, there is no longer a way out of open decisions, openly arrived at, even though we all can sense how much easier life was when such taxing, almost maddening questions, were settled for us, unbeknown to us, unless we persistently inquired, or even if we did.

As we take these matters into our hands we will have to sacrifice some of the comforts of ignorance, cut short the television watching time and curtail the energy spent on pondering which consumer products to buy—these are our two dominant nonwork-time activities—and invest the time and energy thus released in exploring in our hearts and with each other, such difficult issues as: How long should we keep the body of our father, mother, or perhaps our daughter or son, functioning once the brain is defunct? Should "heroic" measures be taken on behalf of a child born to us, unequipped to live without such interventions, and—at best—condemned to a life of *severe* impairments? What criteria should we rely upon in deciding—a basic unyielding undiluted commitment to life in any

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will be three stories high and about 200 feet long.

The basic elements in the amplifiers are elliptically shaped glass disks. Doping with neodymium gives the glass a transparent purplish color. The disks are positioned at an angle (the Bragg angle) to the axis of the light beam so as to suppress internal reflections in the glass, which can start energy-robbing modes of vibration. Around the glass disks is a bank of flashlamps. The whole is contained in a metal cylinder. As the light pulse comes into each amplifying section, the flashlamps flash. The glass disks take the energy they deliver—or at least part of it—and amplify the laser beam.

One of the most important things to be studied is the exact shape of that pulse. Instantaneous though it may be by any human standard, the pulse has a certain shape in space and time—light travels three millimeters in 10 picoseconds—and this shape crucially affects the way the energy is delivered to the target.

How to get a picture of such a thing? Your handy point-and-snap pocket camera won't do. While its shutter is flapping (assuming a hundredth of a second), a billion ten-picosecond pulses could fly by—that is, if they came end to end, which in pulsed lasers they do not generally do.

The apparatus that does it, is called a streak camera. (The term has nothing to do with running around naked, popular as that may have become lately.) This is truly a Russian invention. The first one was reported from the Soviet Union in 1968. Livermore's first model came shortly after that. It was a Rube Goldbergish thing, six feet long with a separate power package. Livermore engineers have now got it scaled down to a sleek unit that looks almost mass manufacturable. They have improved its performance too.

"Now we can get on film an accurate picture of the shape and width of otherwise invisible laser pulses that in some cases exist for only 10 trillionths of a second," says Lamar Coleman, who is head of the laser diagnostics group. "Physicists have calculated the best width and shape a laser pulse should have to produce a thermonuclear implosion," he says. "Our camera will tell the designers whether or not their lasers are generating this optimum pulse and will help them find out how to modify the hardware."

Pellet design is another crucial area. According to John Nuckolls, who leads the group involved in pellet design, the important principle involved in laser-implosion fusion studies is that compressing the pellet to 10,000 times its normal density takes only one percent of the energy that would be required

Haussmann: Probably be a gas laser.

to heat the material to its ignition temperature. "At such high compressions the fuel burns up before it can fly apart," he says, "so that the confinement problem which has plagued fusion researchers for 20 years is bypassed."

What happens in detail is that the pellet surface, heated by the laser light explodes outward. This produces a "rocket" reaction that implodes the core of the pellet. "Because the laser-heated electrons scatter during transit through the material exploding from the pellet's surface, the pellet implodes to a near perfect sphere even though it cannot be heated perfectly uniformly by the laser," Nuckolls points out. "It is due only to this rare, nearly miraculous property, that the rocket implosion is capable of compressing matter to super-high densities."

The first experimental pellets will be hollow spheres of deuterated plastic. Their size, shape and the thickness of their walls are all precisely specified. The pellets are mass produced, but then must be passed through special sieves and finally examined by hand and eye. "We may have to look at thousands of pellets to come up with say 20 that meet the requirements for the early experiments," says Clark Souers, who heads the group that is doing the fabricating.

The ultimate pellet will probably be a deuterium-tritium mix weighing about a milligram. Though it would release as much energy as burning a gallon of gasoline or exploding 50 pounds of TNT, it would not have the explosive force of those events because of its minuscule mass. "We're fond of saying that the kind of explosion we're talking about sort of has the force of a large firecracker," says Nuckolls. A power plant would use about 10 such fuel-pellet explosions per second.

But there's a long way to that goal. Regarding pellet fabrication, Souers says: "We're really operating in a technological vacuum. It's a whole new field." That comment could well express the attitude of people in every phase of the work. They give the impression of a group who are starting out on a path that is inviting and exciting and that they expect to pay off. Not only is the ultimate goal within the range of possibility; they expect useful technological fallout along the way. Improvements in laser design and energy, the streak camera, apparatus for precision manufacture of small pellets, even a rocket engine are among the suggested spinoffs. More may come. □

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form? A utilitarian set of values that put a price tag and a cost-effectiveness calculation on everything? A humanitarian liberalism which seeks support for a full life for everyone and recognizes a new *obligation* of the dead to help the living?

Institutions will have to adapt to these new technologies and new demand for participation by resting such decisions not in an individual physician, but in committees made up of several health professionals who will have to base their ruling on publicly stated criteria; or, much better, in committees that include clergy, humanists, community leaders, citizens-at-large, who review these matters and set guidelines within which individuals could come to their decision. The courts, quite properly, would serve as a review and dialogue level for decisions passed by committees and individuals.

Finally, society, as it has already begun to do, will have to invest some time for a grand debate on all these matters. It is only in this way—through talk shows, symposiums, dialogues in coffee houses, places of worship, over dinner tables, even cocktail parties—that we slowly come to terms with a new issue, overcome our old-fashioned sentiments and form new ethical criteria. While the grand debate may seem at times repetitive, going nowhere, and conflict-ridden, in effect, there is no more economical way for a society to reset its taboos nor a better investment of a society's attentive capacity. Actually, having found our capacity to deal with these matters, having developed our ethical and participatory talents here, we may even carry them into other areas in which no basic reforms will come about without our active interjection. The questions of who shall live and when to let die are a quite suitable place to start our more ethically active existence. □