

THE HEART-STOPPING TRUTH ABOUT ORGAN DONATION

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It's said that doctors bury their mistakes. Sometimes they dissect them first

They're waiting for you to do something stupid. In fact, they're counting on it.

Maybe you're wrapped a little tighter than the next guy. Maybe you're a bit more reckless, a bit more likely to try to beat that truck through the intersection, a bit less likely to turn the other cheek when some joker gets in your face. Or maybe you're the rugged, outdoor type—because, let's face it, things happen to outdoor types. You lose your grip and tumble off that sheer rock you're climbing. You're working in the yard with the chain saw and hit a broken bolt buried deep in that piece of wood.

That's all it takes sometimes.

The stats are on their side. According to the Centers for Disease Control, the mortality rate due to injury among men 18 to 35 years old is about twice that of the national average. If you fall within that age range, you're about four times more likely to meet a sudden end than your wife or girlfriend of an equivalent age is. Bottom line: If you're the typical reader of this magazine, you're a prize candidate for organ donation.

Somewhere a person in failing health is waiting for the phone to ring. Also waiting are the members of a specially trained surgical team, ready to roll at a moment's notice. Close at hand is one of those small ice chests you've seen in TV medical dramas. A segment of the medical industry is waiting for you to have a serious accident. They must get to the hospital fast, before your internal organs go stale. And if you're not quite dead when they get there, they may just go ahead and take your liver and kidneys and heart, settling the matter once and for all. It's the ugly side to organ donation its proponents don't like to talk about: By some definitions, the leading cause of death among organ donors is the organ-donation procedure itself.

Opinion makers like Health and Human Services secretary Tommy Thompson describe organ donation as a saintly act with no downside. The gift of life. Millions of reminders are mailed out with driver's license renewals and tax forms. There are sign-up campaigns at banks and hospitals and consent forms attached to questionnaires you fill out at the emergency room before they treat the ankle you broke in Sunday's softball game.

"This is what Michael would have wanted," says Susan McVey-Dillon, who signed just such a consent form after her 14-year-old sustained fatal head injuries "just being a boy, doing what boys do" outside their home in Downingtown, Pennsylvania. "Five people are alive today because of Michael," she says. Like McVey-Dillon, you're encouraged to think of yourself or your loved ones as "living on" through the organs you bequeath. Do a quick web search and you'll find dozens of heartwarming sites telling "Tim's story" or "Maggie's story." Most of these sites are sponsored by local organ-procurement organizations, or OPOs.

There is no lack of celebrity endorsements, either. During the Winter Olympics, much was made of Chris Kiug, who medaled in snowboarding just 19 months after receiving a new liver. Michael Jordan has done public-service spots urging would-be donors to apprise everyone of their intentions so family members are less likely to withhold permission for the procedure (permission is required by law. In more than half the cases, next of kin refuse). Even Hollywood gets into the act. The high cost of transplantation surgery drove Denzel Washington

to extremes in John Q, which chronicled one father's over-the-top efforts (he held the ER staff hostage) to get his gravely ill son a new heart.

Given the hype, it seems cold-blooded and cruel to question the process of organ donation. Who wouldn't want to help some suffering child live simply by giving up organs you no longer need? Too bad it's not as simple as that. Many of the rules of this game—including the very definitions of life and death—are written in fine print. Other rules have been changed to make it easy for you and the rest of America to keep on giving. So before you check that box, you might want to know just where the medical establishment draws the line between you, the critically injured patient, and you, the collection of spare body parts. It's been done in such a devious way that even avid transplantation supporters like Dr. Robert Truog, director of the multidisciplinary intensive care unit at Boston's Children's Hospital and medical ethics professor

at Harvard, are left feeling ambivalent. "We strive for balance," says Dr. Truog, searching for just the right words. "There's an overwhelming need for organs to transplant. Yet I groan when I read an article in the New England Journal of Medicine, the most prestigious publication in the field, that claims there is no longer any controversy about brain death."

Though it's not the kind of thing the medical establishment is eager to publicize, there has long been an arbitrariness to policies governing clinical determinations of death. "One hospital wanted to implement a new standard that would declare a person dead with a five- or seven-minute absence of a pulse," says Carmen Marino, a former prosecutor for Ohio's Cuyahoga County and one of a number of law-enforcement officials who have challenged the medical community's willingness to alter current definitions of death. "The organs that are most susceptible to blood deprivation after death are the heart and the liver. The liver-transplant doctors said, 'That's too long. If we wait five or seven minutes, we're not going to have a useful organ anymore. Let's make it two minutes.' And that was that." As a result, concludes Marino, "You go without a pulse for two minutes in some hospitals, you're dead. They take your organs. In other places, at two minutes, they're still trying to revive you."

The reason for hushing up such facts is simple, says Stuart Youngner, director of the Center for Biomedical Ethics at Case Western Reserve University:

"The OPOs are afraid that if we have these discussions publicly, it will slow down donations dramatically."

There's no question that the need for transplantable organs is critical. As of March 2002, almost 80,000 Americans were seeking new organs. Most (50,000) need kidneys. Though waiting times vary greatly by region, kidney patients commonly wait two years for a suitable organ. A four-year wait is not unheard of.

Many can't wait. Each day, about 16 recipient candidates succumb to their various illnesses. According to the United Network for Organ Sharing, 5842 people died while awaiting transplants in 2000. Since 1986, the Virginia-based nonprofit agency has tracked and overseen the nation's donor system under contract to HHS. The UNOS grid divides the U.S. into 11 geographic regions, encompassing more than 400 assorted OPOs, medical facilities, organ-matching laboratories and related enterprises. UNOS also spends some of its funds proselytizing, which paid off in a 59 percent uptick in donations during the Nineties—barely a dent in the

fivefold increase in new patients queuing up for spare parts. Things aren't getting any better. "I expect the waiting list to reach 300,000 within five years if we don't change how we do things," says Dallas orthopedist Phil Berry, a liver recipient and past president of the Texas Medical Association.

Efforts to procure organs have relied entirely on the goodwill of potential donors. The National Organ Transplant Act of 1984 made it illegal to sell human organs and tissues (that didn't stop the enterprising Floridian who tried to peddle a kidney on eBay in 1999. Bidding approached \$6 million before eBay put a stop to it). Upon taking office last year, Secretary Thompson made the effort to increase organ donations a top priority. Thompson came to HHS after championing the same cause as the governor of Wisconsin, which

boasts America's most aggressive transplantation program.

Yet the chronic shortage has fostered a worrisome sense of entitlement among many transplant activists. This in turn has fostered hysterical rhetoric—like that of Roger Evans, a private investigator who in December 2001 spoke at an HHS advisory meeting for increasing donations. “When a family refuses to donate a loved one's organs, it's functionally equivalent to a homicide,” said Evans.

Worse, the shortfall has produced a campaign that seeks to quell the public's fears by reducing controversies to a series of dubious black-and-white truths. Honest questions like “Will my decision to become a donor affect the care I receive?” or “Will it cost my heirs anything if I donate my organs?” or even “Can I be sure my gift will be used?” elicit simplistic—if not patently false—answers. It's no surprise that in a recent poll, 81 percent of Americans said they “support the donation of organs for transplant.” The problem is, most people are unaware of just how emergency room physicians determine when to start pulling organs out of bodies, and what the ramifications of their actions are.

One popular belief peddled by the transplantation community is that brain death is as much a bedrock medical concept as conventional cardiac death. By those terms, a brain-dead patient is dead. Period.

In fact, brain death is an expedient “medical fiction,” to use Stuart Youngner's phrase, invented to enable physicians to declare patients dead in a timely fashion and in a controlled environment.

It would also be nice to know that your gift of life may saddle your family with debt. According to a website maintained by HHS, “The donor's family does not pay for the cost of the organ donation. All costs related to donation of organs and tissues are paid by the recipient.” It's true that charges specifically labeled as transplantation costs pass to the OPO. But charges in this category aren't always labeled as such. Because medical care of a critical patient is a continuum, family members may get stuck with fees incurred after doctors stopped seeing him as a patient and he turns into “a container of biologically useful materials,” a phrase attributed to noted bioethicist Arthur Caplan. A study by the University of Pennsylvania trauma unit examined the medical records of 31 catastrophically injured organ donors admitted to the Penn system between 1991 and 1995. The researchers found an average of \$16,645 billed to the families of patients for procedures that should have been charged to OPOs.

Potential donors aren't told their organs won't necessarily go to the patients who need them most. George Agich, director of bioethics for the Cleveland Clinic (consistently ranked as America's number one heart center) explains:

“There are a lot of small programs in the U.S. that are eager to compete with larger centers that have reputations. Because they want good results, they may not give organs to the sickest patients.” Between 1995 and 2000, the typical patient needing a new heart would wait about 35 weeks at the Cleveland Clinic. Had that same patient enrolled across the state line at the University of Pittsburgh Medical Center, his wait would have stretched to 35 months. Worse, organs may not go to anyone at all, perhaps because your local transplant center's only heart surgeon was on vacation that day. In fact, according to a 1997 article in the *Cleveland Plain Dealer*, the “nonmedical rejection rate of donor organs is nearly 25 percent.”

Then there is the procedure itself, which can look like anything but an operation on a dead body. For example, in Charleston, South Carolina a 16-year-old girl was shot in the head. At the time of hospital admission she was showing signs of life—she was moving and breathing. Though a CAT scan showed the bullet lodged in her skull, it had skirted major blood vessels, and the brain itself appeared remarkably intact. That didn't stop attending physicians from declaring her dead two hours later. She was rushed to an operating room, where surgeons opened her abdomen and cut assorted arteries

in order to remove both kidneys and her spleen. When the ventilator was shut off, she failed to breathe—no

big shock, since the transplant team also bisected her diaphragm. Even after this full-scale assault on her body, 14 minutes passed before the girl's heart gave out. Finally, mercifully, she was dead.

“What the hell are they trying to do, kill people?” The question stuck in Cuyahoga prosecutor Carmen Man-no's head, and his craw. It was the morning of September 10, 1996, and Marino had spent 90 minutes listening to two of his constituents voice concerns about a new medical protocol they had uncovered. The procedure was about to be implemented at the most august piece of medical real estate under Marino's jurisdiction, the Cleveland Clinic. Nearing the end of a successful three-decade career, Marino had no desire to square off with the clinic. But what he'd just heard led him to a startling realization: that if the protocol were implemented, he would file homicide charges against the physicians at the Cleveland Clinic.

In attendance at the meeting were graduate student Peggy Bargholt and Bargholt's professor at Cleveland State University, Mary Ellen Waithe, who also served as the school's director of advanced studies in bioethics. It was Bargholt who, the previous fall, had learned of the new protocol.

Like Marino, Bargholt wasn't looking for a fight. She'd always been a vocal advocate of transplantation, and she had given much more than lip service to the movement. Fifteen years earlier her three-year-old had died of a brain hemorrhage linked to a congenital defect. She donated his organs and became one of the first mothers to go public with her story. Subsequently, Bargholt worked for LifeBanc (a regional OPO) and spoke on behalf of transplantation. She'd also put considerable energy into Family Lodge, her proposed low-cost hospice for patients and families awaiting transplants at the Cleveland Clinic.

Friends at LifeBanc told Bargholt that the new protocol would save lives by deepening the pool of potential donors. The document's chief author was Dr. James Mayes, who is director of LifeBanc and a top surgeon at the clinic. Dr. Mayes had based his work on the regimen used at the University of Wisconsin, the so-called “church of transplantology.”

The deeper Bargholt got into the document, the more uneasy she felt. The protocol was designed for patients who had suffered catastrophic head injuries and required ventilator support

but were not yet certifiably brain-dead. It recommended infusing such patients with two drugs, Regitine and heparin. Bargholt, a one-time nursing student, wondered why they'd be giving such large doses of a blood thinner like heparin to comatose patients with cranial bleeding. Something else bothered her:

The protocol told doctors to make decisions about the presence or absence of a heartbeat by feeling for a pulse at the carotid artery. She thought, My God, you're at the Cleveland Clinic. Why go groping around somebody's neck? Hook him up to a heart monitor!

Bargholt went on to read how doctors would wheel patients into an operating room and turn off the ventilator. The patient's heart, deprived of oxygen, would stop. Two minutes later, surgeons would begin the harvest. Such patients would become, in the odd lexicon of the transplantation community, NHBD — non-heart-beating donors.

By the time she finished reading the document, Bargholt felt shaky. She recalls, “Under this protocol, I didn't know if the patients would actually be dead when the surgery started. And if they weren't, I couldn't get past the thought that the transplant surgery might be what killed them”

She made a presentation on the protocol to her bioethics class. Waithe was stunned. The two women resolved to get to the bottom of things—albeit discreetly. This was, after all, the Cleveland Clinic.

They soon learned that Regitine, or phentolamine mesylate, was an obsolete blood vessel dilator now used in minute dosages as an injectable alternative to Viagra. It had fallen out of favor in hospital settings because of its severe side effects. Phentolamine could cause a precipitous drop in blood pressure—and possible cardiac

arrest—even in its usual therapeutic dosage of five milligrams. The protocol called for twice that. Waithe's mention of the phentolamine regimen to someone at the FDA elicited this reaction: What are they trying to do, kill people? Bargholt got the same response from a friend who worked for the state pharmacy board (which in Ohio has police powers not unlike the DEA).

It became clear that neither phentolamine nor heparin was the usual choice for people with grave head injuries. For such patients, the drugs could have disastrous effects, flooding an already bloated cranial cavity with more fluid while masking signs of life by muting the carotid pulse—the pulse doctors were told to feel for.

Convinced that they were onto something, Bargholt and Waithe drafted a critical paper for the *Journal of the American Medical Association*. In May 1996, the same month they submitted their paper, they approached the Ohio attorney general's office. They spent the next several months trying to get a straight answer from both parties. By mid-July JAMA had rejected the article, while the attorney general's office was giving them the “dog ate my homework” treatment, says Waithe. The following month Bargholt's contact at the pharmacy board arranged a meeting with her supervisor. They all drove separately to the Ohio boonocks. After a four-hour cloak-and-dagger session that Waithe describes as “right out of *Silkwood*,” the pharmacy board representatives agreed that if procedures outlined in the protocol were taking place, they could be construed as criminal.

On September 10, Waithe and Bargholt went to see Carmen Marino.

Marino and his staff spent the ensuing weeks studying trauma care and transplantation. The prosecutor discovered that the mortal enemy of internal organs was a condition called warm ischemia, or deprivation of blood and oxygen due to diminished blood flow. The longer an organ was deprived, the less viable it was. He also learned that transplant specialists measured viability in minutes, not hours. It was crucial to keep organs bathed in blood as long as possible. That explained why, in brain-dead patients, surgeons allowed the heart to continue beating even while they took other organs. It also explained the proposed use of phentolamine and heparin.

Marino contacted the prosecutor's office in Madison, Wisconsin, whose university's procedures had inspired the LifeBanc document. “That's medical stuff,” he was told, “we don't interfere.” Somebody else he talked to shrugged the whole thing off. “It was like, 'What's the big deal?’” Marino recalls. “If their respirators are turned off, they'll die anyway, right?”

Marino knew that seriously injured people often needed cardiorespiratory support while their brains healed. In time, they might return to full function. Or they might end up grotesquely impaired. Or they might die. In any case, he thought, what business did these administrators have deciding whose life was worth saving?

After satisfying himself that the protocol hadn't yet been implemented—if it had, he would have gone straight to the grand jury—Marino requested a meeting. “I know doctors and lawyers don't get along real well,” he says now, “but let me tell you, there are some of the most arrogant sons of bitches you'll ever come across at the Cleveland Clinic.”

Marino said that the doctors were outraged—at him, at the “traitorous” Bargholt, at the fact that Marino's office had the balls to go snooping around without “consulting” them first. “This one guy gets up and says, basically, 'How dare you confront us on this. We're fainous doctors, and this is our business. Who are you to tell us what we can and can't do?’ And he says how he's going to 'challenge' us.

“I stared at him and said, 'Look, you can do that if you want. Just understand, friend, that the challenge is going to take place in a courtroom, with a charge of homicide. And any doctor who participates in operations under this new protocol will be an accessory to that homicide!’” Marino remembers the way he and the doctor glared at each other until someone on the clinic side finally said, “Don't worry about it, Carmen, it's OK. We're not going

to go that route.”

Today, Marino says the clinic's about-face allowed him to go into retirement feeling vindicated. “Doctors shouldn't be in the business of rounding down patients' lives to a lower number,” he says. “People are entitled to live until they actually die.”

For Bargholt, though, it was a Pyrrhic victory. She stopped getting invitations to transplantation functions. An erstwhile friend accused her of being responsible for the death of a teen who'd been awaiting a transplant at the clinic but couldn't get one because the scandal caused donations to drop. She was even voted off the board of Family Lodge by some of the same people she'd recruited as directors. “I was blackballed,” she says, “because I wanted doctors to make sure people were dead before they took their organs.”

December 3, 1967 was when definitions of life and death began to be seen as negotiable. That was the day South African surgeon Christiaan Barnard upstaged his more celebrated American rivals by performing the first human-to-human heart transplant. Technically, the era of organ donorship had begun with a series of experimental kidney transplants at Harvard a decade earlier. But the notion that the American Express card of body parts—the one item you don't want to leave home without— could be transferred from one patient to another instantly captivated the public.

It also meant that in order for patient B to go on living, patient A had to die.

Of course, there weren't enough patient A's to feed the burgeoning demand. One of the chief stumbling blocks was the cardiopulmonary definition of death: Patient A's heart had to stop beating for him to be considered dead, and hearts could be stubborn that way. Even when protracted legal wrangling yielded authority to pull the plug, sometimes patients still didn't die (the most famous being Karen Ann Quinlan, who lived for

nine years after she was taken off life support). In many cases, by the time the heart stops, most other major organs have already failed.

Finally, if the heart were left alone there'd be no way the transplantation team could be Johnny-on-the-spot with its scalpels and ice chests. “A patient who's brought into the emergency room DOA is usually not a suitable organ donor,” says Dr. Ake Grenvik, founding member and past president of the Society of Critical Care Medicine. “We don't know how long he's been dead, and a stale organ is of no use.”

Enter Harvard. In 1968 a committee at the venerable medical school took it upon itself to resolve questions surrounding a second type of death that had been hotly debated but never endorsed as a premise for pronouncing someone legally dead. Harvard's report, titled *A Definition of Irreversible Coma*, ended up citing two reasons to define irreversible coma as a new criterion for death: (1) “increased efforts to save those who are desperately injured,” a reference to the high costs of life support, and (2) “controversy in obtaining organs for transplantation.”

Cynics look back on the Harvard milestone as a case in which a far-reaching medical judgment was made largely, if not purely, for nonmedical reasons. Stuart Youngner is blunt: “The thrust of the Harvard decision was, 'Let's call them dead so we can't be accused of killing them when we take their organs.’”

Nonetheless, once Harvard officially posited the concept of brain death, somebody had to prove it existed. The most cited work in the slender literature of brain death is known to insiders as the Collaborative Study. In 1977, researchers looked at 503 patients suspected of brain death. They were tested stringently for pupil dilation, apnea (loss of the ability to breathe) and other qualities identified with brain function. If these tests left any doubt, researchers ordered cerebral blood-flow studies, or CBFs, which Dr. Grenvik calls “the gold standard” of brain diagnostics. Of the original pool of 503 patients, 187 met the criteria for brain death (as initially established by researchers), and 185 of them died. The study became the basis for brain-death standards issued by the National Institutes of Health.

But two of the 187 “brain dead” patients had survived. It seems reasonable to infer from the movement's hallmark study that even under the most exacting circumstances, such diagnoses miss the mark about one percent of the time. That's one in 100 patients. And that's if we confine ourselves to the 187 patients who “made the cut.” If you work from the original 503 suspected brain deaths, the implications are scary. Waithe, for example, cites published literature on the not-quite-brain-dead patients who

would have been covered under the Cleveland protocol. “Ninety-six percent die,” she says, “which also means that four percent would survive. That's four homicides Out of 100. If there were a nurse at the clinic who killed four patients,” she says, “it would be headline news.”

What's more, 226 patients were autopsied under the Collaborative Study, with total brain destruction documented in just 40 percent of them. Ten percent had no apparent brain pathology. In any case, the results were recommended for larger clinical trials.

Although we're still waiting for those clinical trials, Harvard's watershed position on brain death became codified in a terse document called the Uniform Determination of Death Act. Drafted in 1980 by the National Conference of Commissioners of State Laws, the UDDA was soon embraced by both the American Medical Association and the American Bar Association and now is the sine qua non of death determination in all 50 states. It reads as follows: “An individual who has sustained either (1) irreversible cessation of circulatory and respiratory functions, or (2) irreversible cessation of all functions of the entire brain, including the brain stem, is dead. A determination of death must be made in accordance with accepted medical standards.”

It's those final three words that make insomniacs out of some observers. Leaving it to “accepted medical standards” might be fine, they'll tell you, if there were uniform standards, or unanimity about the average clinician's ability to apply them.

Thanks to the fuzziness of the concept itself, more than two dozen sets of criteria for determining brain death are used nationwide. Using these criteria, doctors apply various combinations of tests to ascertain destruction of the brain stem, which governs breathing, heartbeat, body temperature and other critical survival functions. They test for so-called pupillary response by shining a light in the eye and noting the reaction. They flood the ear canal with ice water to see if the patient flinches. At some point, they temporarily disconnect the ventilator to see if the patient takes a breath on his own. The period of time they're required to wait before writing down a negative result (thereby writing off the patient) is spelled out in the hospital's guidelines. It varies widely. So does the interval the clinician must wait, after the absence of a palpable heartbeat, before declaring the patient dead.

Tellingly, most hospitals now regard electroencephalograms (which determine the presence of brain waves) and cranial blood-flow studies as “ancillary” procedures. Neither is necessary for a formal finding of death. Of the many criticisms lodged against brain-death standards, absence of these confirming diagnostic steps is the most serious.

Sometimes, it appears the transplant teams themselves want to hedge their bets. In Marino's investigation of the Cleveland Clinic, there was the little matter of the morphine drip: The supposedly dead patients might still be infused with morphine while awaiting transplant. Marino wondered, Now why would they give “dead” people morphine? If the guy's dead, he shouldn't be in pain, should he? Nobody offered a convincing answer, so Marino supplies one himself. “What they won't say aloud,” he says, “is, 'In case we're going too fast here, the morphine will kill any pain.’”

The brain-dead patient may also exhibit movements that look suspiciously lifelike, which the transplantation community takes great pains to persuade doctors to ignore. Here's a section from the University of Buffalo's Voluntary Consensus Guidelines for the Determination of Death:

Deep tendon reflexes including stereotypic triple flexor responses in the lower extremities are compatible with brain death. These include spontaneous slow movements of an arm or leg. Bizarre movements of entirely spinal origin may sometimes occur in brain-dead patients. Also, coordinated movements can occur with shoulder elevation and adduction, back arching and the appearance of intercostal muscle contraction. Finally, in a few patients, the “Lazarus sign” may develop when the ventilator is permanently disconnected; the head and torso may flex and for a few seconds rise from the bed with arms outstretched.

The refusal of supposedly dead patients to just lie there and accept death with dignity caused quite a stir in the UK a few years back, leading to frenzied speculation about whether organ donors actually feel their organs being removed.

Anesthesiologist Philip Keep told the BBC that “nurses get really upset. You stick the knife in, and the pulse and blood pressure shoot up.” In an effort to squelch such disturbing manifestations, many British hospitals administer anesthesia prior to harvest. As Dr. Keep noted (without apparent irony), “If you don't give anything at all, the patient will start moving and wriggling around and it's impossible to do the operation.”

Is the average doctor sophisticated enough to differentiate between these ersatz signs of life and, well, life?

The annals of medicine abound with colorful stories of corpses who later prove to be less dead than doctors had thought. There's the 20-year-old Illinois man whose demise did not prevent him from coughing as a transplant team was about to excise his kidneys. And the Nashville man, “dead” for nine hours, who halted preparations to take his liver when he twitched his right foot.

Marino tells the story of the Toledo man who shot a woman in the head. “The hospital declared her brain-dead. Surgeons did the harvest. But just before they made the decision to cut, a neurosurgeon had examined the woman. When he found out later about the harvest, he was furious. He says, 'This woman might have been blind in one eye or had other problems, but I think we could have salvaged her!' So when the man is charged with murder, the defense had the neurosurgeon and other experts testify~' that what actually caused the woman's death was not the gunshot but the harvest. Now they got the guy on felonious assault, but they didn't get him for murder.”

Even when working with kids, whose brains are far more resilient than adults', clinicians slip. One recent study of 16 random pediatric intensive care units showed that key tests for brain death went undone 20 to 50 percent of the time.

The demand for organs isn't likely to ebb. With people living longer, chances are one or more of your parts will wear out before your chassis goes. And more people living longer means fewer people dying and donating organs. Something has to give.

The emphasis may shift to living donations, which, in fact, already supply about half of all organs for transplant. This became a trend once doctors realized that the liver, unique among human organs, could regenerate itself, reaching near-normal size in both donor and recipient in six to eight weeks. Yet that picture has been clouded by a recent high-profile living-donor death at New York's elite Mount Sinai Hospital.

Others advocate a switch to a “presumed consent” system, whereby organs are subject to harvest unless the patient has explicitly refused. Though the practice is common in Europe, many observers find its application unlikely here. “We're so strongly committed to individual freedom that we don't want the government making those decisions for us,” says George Agich of the Cleveland Clinic. The AMA and the American Society of Transplant Surgeons express qualified support for compensating donor families in some token way. Likely incentives could include tax credits, or the approach taken last year by the Pennsylvania legislature—a \$300 stipend for funeral expenses. However, the latter measure was never enacted because of charges that it skirts the 1984 law barring sales of organs. Organ selling has proved to be a dirty business overseas, where,

apparently, the donor isn't always asked first. A cover story in *Insight* about organ harvests in China quoted an informant: "In order to preserve the eyes, the prisoner was shot in the heart. If they need the heart, the prisoner would be shot in the head."

Many look to research and development for long-term solutions. Cloning, cryogenics and stem-cell research show promise. Dr. Truog believes that within a generation or so, xenotransplantation— using organs from other species, notably pigs—may make the current controversy a quaint memory.

In the meantime, he'd like to see more effort put into public education about organ transplants. He's taken his share of heat for such candor. As Peggy Bargholt also learned, the transplantation movement isn't known for tolerating dissent. Still, there are times when even the most zealous industry insiders reveal in offhand speech what they go to extraordinary lengths to deny in the cold print of their protocols. A transplant surgeon will tell the family of a patient, "Your brother is brain-dead, but we're keeping him alive on a respirator." A trauma nurse will tell her replacement during a shift change that a patient is "dead, but

not dead-dead." To Truog, the semantic confusion highlights the flaws of today's contrived standards for closing the book on patients. "The trouble is," he says, "there are things we don't know that we're pretending we do know."

With medicine steadily extending the boundaries of life, saving people once thought unsalvageable, does the word hopeless still have meaning? If it does, should it be applied as liberally as the transplantation community would like? You'd think not. Yet, if anything, transplantation's advocates would have us pull the plug on more people, not fewer.

Many doctors reduce such arguments to an analysis of the odds. They'll tell you, "One kid came back after being frozen for a couple of hours. But what are the odds for everyone else?"

The question is whether you're comfortable playing the odds when the bet is on your life.

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