“Life is Short, Medicine is Long”: Reflections on a Bioethical Insight

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The famous first aphorism of Hippocrates, “Life is short, the art is long” was long considered a perfect summary of medical ethics. Modern physicians find the words impossible to understand. But it can be interpreted as a fundamental insight into the ethical problems of modern medicine. The technology of modern scientific medicine can sustain life, even when life is losing its vitality. How should decisions be made about the use of technology and by whom? This is the incessant question of modern medical ethics.

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In 1975, the founding year of The Journal of Medicine and Philosophy, my article, “Scientific Medicine and Therapeutic Choice” appeared in The New England Journal of Medicine (Jonsen, 1975). That short essay was inspired by the case of Dr. Chad Calland which had occurred at University of California School of Medicine in 1972. Dr. Calland was a cardiologist on the UCSF faculty who had become a renal transplant patient. He received five kidney transplants before he committed suicide. On the day of his death, his own article, “Iatrogenic problems in end-stage renal failure,” appeared in The New England Journal (Calland, 1972). In that article, Calland complained that his physicians and surgeons had failed to comprehend his feelings about life on dialysis and after transplantation. He felt he was the object of competition between his nephrologists and his surgeons and was “distressed by the controversial dialogue that separates the nephrologists from the transplant surgeon, so that in the end, it is the patient who is given short shrift” (p. 334). Chad Calland’s death, and his article, caused dismay at his institution. A combined medical-surgical Grand Rounds reviewed his case. The surgeon, a pioneer of renal transplantation, admitted in emotional words that in his
therapeutic zeal he had transplanted his friend and patient, Chad Calland, five times, with little attention to his desires or his feelings, and without sufficient concern for his deteriorating health as one graft after another failed.

I had joined the UCSF faculty as professor of bioethics several months before Calland’s death. I knew his surgeon and several other physicians. I was asked to speak at the Grand Rounds. I proposed that the case revealed “an inverse relation between scientific, technological medicine and freedom of therapeutic choice.” I meant that physician and patient interpret success differently: the physician sees success in maintenance of physiological state, the patient views success as restoration of his or her previous quality of life. This, I concluded, was “the most crucial ethical problem of modern medicine.”

In those days, I, and everyone else in the nascent field of bioethics, was looking for “most crucial ethical problems.” We had only recently appeared on the medical scene. Bioethical literature was almost non-existent. Two remarkable books of very different tone, Fletcher’s *Morals and Medicine* (1954) and Ramsey’s *Patient as Person* (1970), stood almost alone on the shelf marked “bioethics.” Indeed, “bioethics” itself was a neologism, hardly known and barely understood. At The Hastings Center and at occasional meetings, a few scholars engaged in intense discussions about death and dying, genetic engineering, behavior control and human experimentation. The handful of ethicists who had joined medical faculties had no standard curriculum to teach and often no classes to teach to. Still, we were talking and writing and trying to create the “discipline” that Daniel Callahan had described in 1973 (Callahan, 1973; Jonsen, 1989).

A discipline is not easy to create. One needs a field of investigation—we were all wandering in the wide fields of the biomedical sciences and of medicine, of philosophy and theology, and social sciences. One also needs questions—we certainly had those. But a discipline also needs a central insight to organize those questions and to suggest a rational and empirical methodology to begin the search for answers. We did not have that central insight. Each of us neophytes was on the hunt. Most of us were sure that it had something to do with the appearance of technology in medicine. My version of that common belief was the “inverse relation between scientific medicine and therapeutic choice.” I never attempted to develop that thesis in a theoretical way, probably because theoretical expositions do not appeal to my casuistic mind. Still, I think that it took hold of my thinking and that it has persistently guided me through thirty years of bioethical consultations, communications and reflections. I wish in the next few pages to say a bit more about it.

I fancy myself a historian of medical ethics. I believe that historical words and deeds somehow portend the present. It occurred to me that one of the most famous sentences in medical literature, the First Aphorism
of Hippocrates, might be mined for its meaning to modern medicine. The First Aphorism, possibly uttered by the master physician of Kos in the 4th century BCE, reads, in its standard translation: “Life is short; the medical art is long. Opportunity is fleeting, experience perilous and decision difficult” (Hippocrates, 1962, IV, 97). I say that those words are the most famous sentences in medicine, although possibly most modern physicians have never heard them, because generations of physicians, over many centuries, knew them well and considered them the epitome of medical ethics.

Innumerable commentaries were written on the First Aphorism. Galen and Maimonides and hundreds of other physicians expounded on those enigmatic words (Galen, 1965; Bar-Sela, 1963; Richards, 1961). Most interpreters suggested that “Life is short, the medical art is long” meant that the body of learning called medicine was so large that no physician would ever live long enough to master it. I am going to make the sentence mean something quite different—something that Hippocrates and his commentators could not have imagined. Permit me a bit of exegesis before I return to my original insight.

The medical art is long. The Greek word “macros” means “long,” either in distance as “far” or in time as in “long-lasting.” The “art” or “techne” is either a body of knowledge and skills or a practice, a piece of work: it is the root of our word “technology.” I want this sentence to mean that technological apparatus of modern medical practice function with incessant, infallible efficacy: technology is long-lasting. Life is short. The Greek “brachus” is short in time, brief, as well as short in distance (Radiologists will recognize “brachytherapy”). It is also used to mean small, insignificant, petty. In my interpretation, this phrase is an existential statement about the human condition: human life is fragile and fated to deteriorate and die.

A modern Hippocrates, reflecting on the technological array at the command of the modern physician, might note that those pieces of machinery, such as dialysis machines, ventilators, pacemakers, defibrillators, scanners, and so forth, are not just metal and plastic cobbled together but are the incorporation of a plan, a program, an algorithm. The machinery functions to fulfill its internal plan. Computer software writes that internal program for much of modern medical technology. The machine will incessantly produce the results planned for it; it will do so infallibly. While it may break down, it can easily be fixed. Its failures are disconnects that can be reconnected by those who know the internal plan. So a dialyzer will incessantly and infallibly maintain creatinine at appropriate levels; a ventilator will do the same for oxygen saturation. When failure sets in it is not the fault of the technology but of the body that it is working in: life is fragile; technology is powerful.

Medicine’s technology is not confined to its machines. Organ transplantation is a technology where the machines are made up of flesh and blood. Drugs are a technology as well. Hippocrates had drugs compounded from
plants, made up for each episode of illness and each patient. Modern drugs
are synthesized according to formula and, because the molecular structure
is known and can be manipulated, can be reformulated again and again.
So antibiotics incessantly are pushed ahead of resistant strains of bacteria;
chemotherapy is infinitely refined to master recurrent disease. Wherever it is
blocked, technology can in principle be liberated and set to work again.

The revived Hippocrates would recognize that these powerful
technologies do conquer and abate disease. He would be pleased that he
once said that medicine’s goals were to mitigate suffering and lessen the
violence of disease. He would see that modern medical technology does this
much more effectively than any tool or technique that he possessed. But he
would be proud that he concluded this advice with the words, “and not to
attempt to cure those who are mastered by their disease.” (The Art iii, in
Hippocrates, 1962). He never forgot that “life is short and fragile.”

The crucial ethical problem, then, is to measure the use of technology
to the fragility of life. The fragility of life had dominated medicine since its
inception; now the power of technology has assumed priority. My very first
contact with a bioethical problem came almost a decade before the Chad
Calland case. As a graduate student in ethics at Yale, I was invited to join
discussions about a peculiar problem. Persons who were being chronically
dialyzed (a technology then only some five years old) were asking to be taken
off dialysis. Some of these patients could be transplanted; many others would
die without dialysis. The director of the Yale dialysis unit and the consulting
psychiatrist on that unit were attempting to understand this “dialysis suicide”
and to formulate an ethical response to such requests (McKegeney & Lange,
1971).

Dialysis was the first genuinely life-sustaining technology; it was truly a
“medical miracle” for persons with end-stage renal disease. But some of these
patients on the artificial kidney discovered that their life was smaller, more
fragile than the technology. Before long, patients sustained on ventilators, or
the families, were discovering the same disproportion. The case of Karen Ann
Quinlan galvanized the nation. The case of Terri Schiavo, sustained by the
technology of artificial feeding, aroused controversy that reached the White
House and the Congress.

My first service on a government advisory group showed me and
my colleagues another life-sustaining technology, the totally implantable
artificial heart. Our committee learned that a device powered by a capsule of
plutonium could replace the failing human heart. Ironically, we also learned
that the device would continue to pump long after its bearer had died from
some other cause than heart failure (Jonsen, 1973). That star-wars device
was not developed. Now, thirty years later, a new version of this implantable
heart device, the left-ventricular assist device, is being used as “destination
therapy,” that is, not as a bridge to transplant, but to extend for several months
the life of persons not eligible for transplant. The technology is long-lasting; life is brief.

In my first article, I had said that the technology of medicine conflicted with the freedom of therapeutic choice. Freedom is at the heart of the ethical problem. Technology in principle should expand freedom. It should lift human activities above the capabilities of the human hand and arm; it should span distances far greater than eye or voice or ear can reach. Yet we know from experience that technology, born to expand freedom, often restrains it. The automobile has become the paradigm: invented to speed up travel, it has, in cities and on freeways, reduced speed back to pedestrian or equestrian rates.

Medical technology undoubtedly provides options for treatment and cure that were previously unimaginable. Yet, because technology has the brand of incessant and infinite efficacy, it has become imperative. We use the phrase “technological imperative” often enough without appreciating its moral meaning. An imperative is a strong moral word: it is a command, imposing an obligation without exception. An imperative is incompatible with freedom: one chooses to reject an imperative at peril to self. Commands come from authority; in medical technology the authority is the technology’s internal plan and program made for healing. It expends the energy to repair and replace damaged physical and physiological processes. The technology presents itself as the necessary and indispensable instrument to fulfill the primary moral obligation of medicine: to benefit and not to harm. There is no room for discretion. It is psychologically, emotionally, and morally difficult to depart from an imperative course. Therapeutic freedom, which includes the freedom to forgo technological intervention, is often obscured by the illusion of efficacy; it is also the illusion of an imperative.

The freedom at stake is the physician’s as well as the patient’s. But on the patient’s side, it is less an imperative generated by medicine’s moral purposes than a belief in the incessant, infallible efficacy of technology, linked to a desire to be healed. It is my impression that over the last thirty years, physicians have become more skeptical about the imperative of technology while patients and their families have become more credulous about its powers. Physicians have become more ready to acknowledge futility, the point at which the brevity of life overcomes the longevity of medicine.

It is a moral mistake, I think, to allow medical technology to assume an imperative role. Instead of an imperative, technology offers an invitation. It presents possibilities whose realization depends on many circumstances, arising from physiology as well as preferences. Allow me to return to the exegesis of the Hippocratic aphorism. It goes on: “opportunity is fleeting, experiment treacherous, judgment difficult.” Again, enigmatic words. They seem to reflect certain features of the Hippocratic theory of disease and treatment.
In my interpretation, they explain how the invitation of technology should be met by physician and by patient. “Opportunity is fleeting” literally reads “the critical time is narrow.” The invitation of technology should be accepted in those specific times when the expectations of efficacy can be justified by the circumstances and by evidence. “Experiment is treacherous” is a phrase most difficult to translate: its words literally mean “trying is likely to make you stumble, slip, or trip.” In my interpretation, it means that any application of technology is itself a trial that might go wrong. The final phrase is “decision is difficult.” This advice should surprise no one, physician or patient, who must make decisions about treatment: the decisions are tough to get through. However, the Greek word means more: hard to accomplish or hard to bear. It suggests that one needs considerable competence to make a good decision and that one undertakes responsibility for its consequences.

These characteristics of the clinical decision reveal its freedom: to do something at the right time, for the right reasons, to do so with awareness of the possibility of failure and error and to take responsibility for the action. This is the proper response to the invitation of medical technology. It is the refutation of its imperative nature. It is, in my view, the reconciliation of technology and therapeutic freedom.

There is another sentence in the First Aphorism: “The physician must be ready, not only to do his own duty, but also to secure the co-operation of the patient, of the attendants and of externals.” This is astonishingly modern. I do not know what it meant to the Hippocratic physician but the modern physician should see it as a terse treatise on how to use technology. The patient must make a free decision (the Greek text actually says the patient should “be brought alongside”). The “attendants” might be the doctor’s assistants or the patient’s family and friends. Decisions to use technology should be understood by everyone who is engaged in the case. Finally, the strange word, “externals” appears. What can it mean to secure the cooperation of externals?

Classical commentators were puzzled by the phrase. The most compelling interpretation comes from Maimonides. He wrote,

“Physicians should not be content with doing what is (medically) proper and stop there, for that is often not sufficient for the health of the patient … rather he must remove all external impediments that prevent the healing of the sick. For example, if the patient is poor and in a place that increases his illness but he can afford no other place, the physician should see that he is removed to a place conducive to healing. He should also provide such a patient with nourishment and drugs if the patient does not have them. These are the externals for which the physician is responsible.” (Bar-Sela, 1963).
This is beautiful but sadly antiquated advice. Perhaps, in our world, these externals of Maimonides can stand not only for the medicines and nourishment and lodging of the patient but also for the institutional systems, insurance policies, the government regulations, the practice patterns, the financial structures that surround the application of medical technology. The success or failure of the technology will often depend as much on their “cooperation” as on the physiology and preferences of the patient. We today would rarely say “These are the externals for which the physician is responsible.” Yet, if those who must make the difficult decisions about using technology at the right time and for the right reasons are not responsible, who should be?

REFERENCES

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