



The Nature and Goals of Medicine

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I began my professional life by practicing medicine for several years in three rural villages in Israel. At that time electricity was not yet available in one of the villages, and due to the limited light of short winter days the so-called clinic had to use the light of gasoline lamps. My patients were simple Arab peasants who came to the clinic twice a week. As a young physician working in a poorly equipped clinic, I did my best to help them. My most intense memory from that practice is the relationship I had with my patients. It was a warm, close and simple relationship. They did not complain about the poor medical services and they gratefully accepted what they were offered. Today, years later, I am working as a family physician in a very well equipped and modern clinic in Haifa. Medical data are processed online to a computer where laboratory results are automatically computed and classical music plays in the background. My patients are mainly Jews, with whom I have been maintaining very good, close and warm relations for almost 13 years.

These details came to mind when I began to ponder the nature of medicine. The common denominator of these two clinics – whose populations differed with regard to nationality, religion, culture and social class – was the humane nature of medical care. This was not affected by the diversity of the practices.

The nature of medicine

What is the nature of medicine? Is it related to time and place? According to Pellegrino [1]: "... In the earliest times and still in primitive societies, medicine is identified with religion and magic. In the Greek era, medicine first merged with philosophy as well as religion. Aristotle's treatise *On Ancient Medicine* sharply delineated it as practical endeavor separate from philosophical speculation. Varro, the Roman encyclopedist, classified medicine with the humanities."

Is it an art, as identified in Ancient Greece, or pure science, as many believe nowadays? Is it a mixture of basic sciences or the integration of all of the above? I shall argue that the essence of medicine lies in science, humanism and art. These components are not presented in order of priority.

Medicine as a science

Medicine did not become a science until the first half of the nineteenth century when the French School of Physicians placed diseases in new categories and introduced clinical-pathological explanations and methods in the 1830s. Medicine tends to solve various clinical problems by utilizing scientific methods of research, observation and experimental studies, as well as other sciences such as biology, biochemistry and statistics to prove or disprove hypotheses.

My argument that medicine is a science is based on the fact that it deals with general laws applicable to all human beings. Biomedical sciences – namely biology, physiology, biochemistry and pharmacology – are the platform on which observation and research are conducted, thus leading to the development of the laws of medicine. Scientific medicine is the common ground on which physicians worldwide practice medicine. For example, the UKPDS (UK Prospective Diabetic Study) is a major research project which demonstrated that better control of diabetes reduces diabetic complications. The conclusions and recommendations derived from this study guide physicians everywhere in diabetic patient management. To the best of my knowledge, medical communities firmly believe that science is the dominant force in medicine. Accordingly, they do not even raise questions regarding its significance or discuss the relevance of other aspects of medicine. Traditional medical education, which is mainly hospital-based, follows the biomedical model. The biomedical model in medicine strongly correlates with scientific medicine, which has been dominant in western society for the last two centuries. In Britain, biomedical orthodoxy became official after the establishment of the General Medical Council in 1858, but in the second half of the twentieth century the biomedical model was subjected to sustained challenge.

Thomas Kuhn, in his book *The Structure of Scientific Revolutions* [2], describes how science develops. Paradigm is defined by him as "universally recognized scientific achievements that for a time provide model problems and solutions to the community of practitioners." The paradigm changes when anomalies in the

paradigm accumulate and lead to a state of crisis. There are three possible solutions to this crisis: a) anomalies are solved within a paradigm, b) the problem persists but it is avoided, and c) a new paradigm is born. The change from old to new paradigm is revolutionary rather than cumulative. Some refer to the biomedical model in medicine as to the old paradigm [3]. It was challenged in the second half of the twentieth century because of its limitations to answer new questions, for example the accumulation of anomalies in it, such as the illness/disease anomaly and the mind/body anomaly. The General System Theory [4] was an important landmark in the development of a "new paradigm" in medicine. The reductive method, which represented nineteenth century science, separated problems from their surroundings, cutting them down to size and reducing them to simple, linear, casual chains. The general system theory does the opposite: it approaches problems by including all their significant parts. In 1980 Engel – on the basis of general system theory – introduced the biopsychosocial model of illness [5]. Family physicians were among the first to encounter the anomalies in the old paradigm [3]. Whether family medicine represents a new paradigm in medicine is under debate. However, as Ian McWhinney [3] pointed out: "We can't know if revolution occurs except in retrospect." Pellegrino describes medicine as "the most humane of sciences" [6]. Cassel writes: "Science cannot be the dominant force in medicine because it is in the service of something other than itself. Science, properly understood, must be conceived as being as fully responsive to human need as possible" [7].

Can one refute the claim that medicine is at least a science? I strongly doubt it, for if medicine had no scientific basis, it would merely become the work of magicians.

Humanism in medicine

The next component I shall present is humanism in medicine. My argument is that being a physician means being humane, and this applies to everyone, everywhere. But what does humanism mean? Pellegrino writes [8]: "Two concepts of the idea of humanism were recognized by Aulus Gellius, the second century grammarian, when he spoke of the meaning of the word *humanitas*, from which *humanism* later derived. He distinguished *humanitas* – education and training in the "good" arts – from a "good" feeling toward all men."

Pellegrino suggests that the idea of humanism encompasses two essential components, one affective and the other cognitive. The cognitive aspect pertains to the physician as a human, a cultural being holding ideas, values as well as modes of expression in words and art. The affective component refers to the physician's feelings toward the patient as a person [9].

Today, people referring to humane physicians relate to the affective component, an attribute they experience during encounters with doctors. Being humane – according to the affective component – means to practice a humanistic approach toward a patient, namely to perceive him or her as a whole human being, to try to understand his inner world, his suffering, his feelings and expectations, as well as his family interactions.

It is this approach that sets the ground for mutual understanding and trust between physicians and patients.

Many physicians would object to attributing such importance to humanism. They argue that physicians must be competent and knowledgeable with regard to the theory and practice of scientific medicine. They claim that, more than humane physicians, society needs competent ones – as clearly exemplified by the abundance of medico-legal claims against doctors. However, not all patients have the ability to assess physicians' professionalism, i.e., their clinical competence. They naturally react to the physician's attitude – in other words, is he/she kind, dedicated, compassionate, thoughtful? At the same time, they expect him to be competent, up-to-date and familiar with what modern medicine has to offer. Society does expect medicine to be both humanistic and scientific.

Is there any contradiction between these two areas? Not in my opinion. However, possessing both attributes is a challenge for both undergraduate and postgraduate medical education, which must be redesigned and rethought if this challenge is to be met.

Medicine as an art

"Whenever the art of medicine is loved, there is also love of humanity" (Hippocrates).

"Every science touches art at some point and every art has its scientific side" (Armand Trousseau, 1869)

I would like to begin with the definition of art. According to the Concise Oxford Dictionary, "Art is human creative skill or its application." But what is the art of medicine? When reviewing the literature, one might be confused by the plethora of meanings attributed to the art of medicine. Some refer to the *art of medicine* as playing several roles in the practice of medicine, namely a means to enrich experience, a form of art therapy, a way to enhance leisure time, and a teaching tool [10]. I would define this dimension as art *in* medicine rather than art *of* medicine, and it encompasses several uses of art in medicine. Greco defines it as "the ability to sense and respond to a patient's emotions" [11]. This is the recent meaning of art, while the older, classical, ancient Greek meaning is that medicine was an art as opposed to a science, and physicians ought to know the laws of nature in order to practice medicine. Nelson presents five components of the art of medicine: "humanism, diligence and faithfulness, altruism, ethics, and special sense" [12].

My understanding of the relevance of art as a component of the nature of medicine is *medicine as an art*. My definition of medicine as an art is: *The creative skill of integrating medical science and humanism in clinical practice*. It is the ability to integrate the generalized abstract body of science with the humanistic approach, while tailoring them to individual patients.

The following case may clarify this definition and introduce it in practical terms. Mrs. Ruth B. is 73 years old and has been under my care for the past 5 years. She lives with her husband and both are Holocaust survivors. She suffers from ischemic

heart disease, hypertension, rheumatoid arthritis, gastric ulcer and, like many Holocaust survivors, from depression as well. Basically, she manages well. She is independent, has a good relationship with her husband, and tries to maintain as normal a life as possible. Since I became her doctor, she visits me once a month on average and presents with various complaints. Some are clearly attributable to rheumatoid arthritis or to other bodily ailments, while others are a reflection of her psychological state – bad mood, impaired appetite, sleep disturbances, etc. Others, still, are ambiguous and not easy to diagnose. During the last few months, she was extremely sad and distressed following the deaths of her brother and sister three months apart. Two weeks ago she came to me with her husband, and complained of shortness of breath. She felt that she was not getting enough air into her lungs, and from time to time had to take a deep breath in order to obtain some relief. Furthermore, she was experiencing chest pain, which I did not judge to be typical of angina pectoris. After a brief conversation I examined her and then asked her to be seated. She was very relieved to hear that her complaints were not heart-related but were linked to her chronic anxiety and depression, which had been aggravated by the deaths of her brother and sister. After they left the room, a young family medicine resident who had sat in on the visit asked me anxiously how I had dared to send Mrs. B. home without running any tests (such as an electrocardiogram) in order to be on the safe side and avoid missing a heart problem. She wondered why all I had done was talk to the patient and reassure her. It was not easy for the young doctor to comprehend the process that had occurred in that room.

What are the potential objections to the notion that medicine is an art? Such objections would naturally be raised by supporters of the biomedical model. They would claim that the most important aspect of clinical practice is to be armed with the knowledge and skills of medical science and to apply them to the benefit of patients. Humanistic perspectives and the “art” of combining both dimensions, on the other hand, would add little to the quality of medical care. Such a claim may have been significantly enhanced by the appearance of Evidence-Based Medicine, Evidence-Based Practice, etc., during the last decade.

I would argue against this point of view, proposing instead that the nature of medicine does not lie in science alone. Medicine devoid of its humanistic dimension and capacity to “sense and respond to a patient’s emotions” [13] is not medicine.

The goals of medicine

To Cure Sometimes

To Relieve Often

To comfort Always” [14]

Unlike the nature of medicine, which may remain unchangeable over long periods, the goals of medicine relate to *when* and *where*. This is particularly true of clinical practice. Let’s compare, for example, two practicing physicians, the first working in a

primary care clinic in Tel Aviv and the second working in a rural area in Ethiopia. While the tasks of the first physician have very much in common with other general practitioners in developed countries, the practice’s goals of the second one are totally different. In his book *The Role of Medicine*, McKeown [15] emphasizes the importance of distinguishing between the role of medicine as clinical practice and its larger role as an institution. Clinical practice and the medical institution share common goals, but some are unique to the former or to the latter. Does a medical institution have universal goals? My answer is affirmative and I shall elaborate below.

Prevention

Although the “contribution of medicine to the prevention of death and increase in expectancy of life in the past three centuries was smaller than other influences” [16], I argue that prevention and health maintenance are among medicine’s most important goals. Indeed, there are certain measures beyond the scope of medicine that are employed to maintain health, such as “clean water, food inspection, sanitation, waste disposal, pollution control, accident prevention or social services that relieve poverty, protect children, and improve access to health care” [17]. Preventive practice is comprised of three categories and it is applied to individuals:

- Primary prevention, i.e., the prevention of disease. Since the introduction of the vaccination against smallpox in 1798 in England, followed by other immunizations, there has been a dramatic decline in morbidity and mortality due to infectious diseases. The importance of immunization in preventing infectious diseases is obvious. However, humanity is currently facing new infectious diseases that came into being during the last quarter of the twentieth century (such as AIDS), denoting the continuing struggle with infections and challenging humanity to develop effective preventive measures.
- Secondary prevention consists of early detection and treatment of a disease that already exists in order to improve prognosis. For example, the detection of colonic carcinoma in the asymptomatic phase significantly increases life expectancy.
- Tertiary prevention implies managing established disease in order to reduce disability and improve prognosis.

The earlier notion of disease prevention focused solely on the prevention of infectious diseases by means of vaccination and immunization. Nowadays this mode of prevention is practiced alongside the other two categories mentioned formerly. Disease prevention comes before healing and curing. It has been said that keeping people in good health is far more preferable than restoration of health. Besides financial savings through prevention, which admittedly is important, the moral duty of physicians is to try to keep diseases away from people. Medicine has to keep searching for and implementing effective means for prevention, which are achieved through cooperation with municipal and/or governmental authorities.

Healing and curing

"Although most of medical science is of very recent acquisition, the healing act has been practiced with success for thousands of years without the benefit of the factual knowledge now considered essential even in the lowest grade medical school." [18]

To heal, according to Pellegrino and Thomasma [19], "...is to make whole or sound, to help a person reconvene the powers of self and return, as far as possible, to his conception of a normal life." The healing process can be achieved if there is a healing relationship between the doctor and his or her patient. To cure is to terminate disease, thus enabling a person to return to his or her pre-disease condition. However, when a cure cannot be achieved, as in the case of terminal diseases or other chronic incurable conditions, healing must continue.

Medical schools teach students the technology of care, i.e., how to apply science to treating sick people based on disease mechanisms. Teaching students how to be healers is not part of the medical curriculum. Currently, when medicine has achieved significant technological breakthroughs and physicians are armed with evidence-based knowledge, the ancient and time-honored act of healing has been abandoned, neglected or scarcely practiced. Physicians are attacked and criticized for being inconsiderate, inhumane technocrats.

Biomedical model supporters would argue that integrating healing in clinical practice is beyond realistic expectations for two reasons. Firstly, at a time when the modern doctor is overwhelmed by demands, which are not all necessarily medical, as well as by huge amounts of information, the goal of introducing healing in medical education and practice becomes unrealistic. Secondly, with medicine becoming more and more defensive, science – rather than healing – is likely to protect doctors from litigation. From a medico-legal point of view, the best guarantee against litigious claims is nurturing strong doctor-patient ties, improving communication and trust, and returning to healing.

Referring again to the case of Mrs. Ruth B., I believe that the power of healing is one of the forces that helps her to keep facing life head on.

Relief of suffering

"According to Hippocratic tradition, a doctor did not treat the incurably sick or terminally ill. It was thought unethical to treat a patient with a deadly disease, for in so doing the doctor risked paying the penalty awaiting those mortals who challenged nature and the gods" [20].

This concept changed radically with the appearance in the fourth century of Christian institutions – hospices or hospitals – that arose first in the Byzantine area and later spread to Rome and finally throughout Europe [21]. I shall not address the historical changes in the concepts of medicine here, but will rather focus on my contention that relief of suffering, or palliation, is one of medicine's pivotal goals. According to the Oxford Dictionary, "palliate" means, among other things, to lessen pain, to give temporary relief. In this essay I shall not

refer to palliative medicine, which is mainly targeted at patients with cancer, but to the broader meaning of the word – which is the relief of suffering.

Disease prevention and curing the sick are among the goals of medicine, but what about people who have incurable diseases? Should medicine abandon treatment as in the Hippocratic tradition, or should it do its best – even though its best is not necessarily efficient – to save the sick? People's suffering is to address the physical and/or emotional-mental aspects. A patient suffering from a physically debilitating and chronic illness that significantly affects his or her quality of life often succumbs to depression. A patient with rheumatoid arthritis experiencing pain throughout his body needs endless support and compassion beyond the medical treatment he receives. This goal can be successfully achieved if this particular patient has a strong therapeutic relationship with a compassionate, committed doctor who sets the relief of suffering as a goal. Receiving support from family would no doubt help the patient to cope with suffering. Relief of suffering is the most humane, and in certain medical fields the most frequent action a doctor practices. In so doing, we accept the fact that some diseases are incurable and some are fatal.

Objections to relief of suffering as one of the goals of medicine stems from the notion that for every medical problem an appropriate solution must be found. This "must" is so deeply rooted in medical education that when coming to grips with the reality of medical life, doctors find it extremely difficult to deal with unsolved problems and/or incurable diseases. Supporters of this notion are the "save at all costs" physicians who are disease-oriented and lack personal, close and long-lasting relationships with the sick. Physicians who fail to adopt humanism as a concept in medical practice inevitably fail to recognize that relieving patients of their suffering is as valuable as scientific publications. They may be highly ranked as scientists, but not as physicians in its true meaning.

I wish to conclude this essay with Cassel's words:

"The job of the twenty first century is the discovery of the person – finding the sources of illness and suffering within the person, and with knowledge developing methods for their relief, while at the same time revealing the power within the person as the nineteenth and twentieth centuries have revealed the power of the body" [7].

References

1. Pellegrino ED. Humanism and the Physician. Knoxville: The University of Tennessee Press, 1974:189–90.
2. Kuhn TS. The Structure of Scientific Revolutions. Chicago: The University of Chicago Press, 1962.
3. McWhinney IR. A Textbook of Family Medicine. 2nd edn. Oxford: Oxford University Press, 1997:50–4.
4. Von Bertalanfy L. General System Theory. New York: George Braziller, 1968.
5. Engel CL. The clinical application of the biopsychosocial model. *Am J Psychiatry* 1980;137:535–44.

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6. Pellegrino ED. Humanism and the Physician. Knoxville: The University of Tennessee Press, 1974:16.
 7. Cassel E. The Nature of Suffering and the Goals of Medicine. Oxford: Oxford University Press, 1991.
 8. Pellegrino ED. Humanism and the Physician. Knoxville: The University of Tennessee Press, 1974:156.
 9. Pellegrino ED. Humanism and the Physician. Knoxville: The University of Tennessee Press, 1974:157
 10. Smith BH, Taylor RJ. Medicine – a healing or a dying art? *Br J Gen Pract* 1996;46(405):249–51.
 11. Greco FA. What is the art of medicine? *Am J Med* 1985;79(3):279.
 12. Nelson AR. Humanism and the art of medicine. *JAMA* 1989;262(9):1228–30.
 13. Greco, as in (11).
 14. A sixteenth century aphorism by an anonymous author, from: Oxford Textbook of Palliative Medicine, Oxford University Press, 1993.
 15. McKeown T. The Role of Medicine. Dream, Mirage or Nemesis? Princeton: Princeton University Press, 1979.
 16. McKeown T, as in (15),p.191.
 17. McWhinney IR. A Textbook of Family Medicine. 2nd edn. Oxford: Oxford University Press, 1997:179.
 18. Dubon R. Mirage of Health. London: George Allen and Unwin, 1960 (reprinted).
 19. Pellegrino E, Thomasma DV. For The Patient's Good. Oxford: Oxford University Press, 1988.
 20. Lord Walton. Method in Medicine. The Harveian Oration of 1990. London: Royal College of Physicians, 1991.
 21. Miller TS. The Birth of the Hospitals in the Byzantine Empire. London: Cresset Press, 1965.
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