



## First study the science, then practice the art: Leonardo da Vinci

*Primero estudia la ciencia, luego practica el arte: Leonardo da Vinci*

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Modern medicine gravitates around the scientific achievements that have changed a basically intuitive practice, to one that more and more resembles an applied science. But it is known –or rather should be widely known– that unlike mathematics, medicine is not a pure science. Two plus two will always be four, but chest pain plus diabetes will not always be myocardial infarction. The elements that make the difference are the influence of probability and complexity. The results obtained from a variety of tools may be different in different moments and settings, and we have to consider the different levels of evidence. The interpretation of an EKG could be different for two observers and even for the same observer in different moments. It has been rightly mentioned that scientific truths are not true for all times, and today's truth may be tomorrow's folly.<sup>1</sup> A publication in Mayo Clinical Proceedings shows that in ten years' time, almost half of the concepts that were the state of the art, are no longer valid.<sup>2</sup> The half-life of truth in medicine is short, and around half of what is true today will be proven to be incorrect in the next five years; unfortunately, we do not know the half that is going to be wrong.<sup>3</sup>

Applied science is the utilization of scientific tools and concepts to solve specific classes of practical problems. Moreover, amid all this, the idea of the practice of clinical medicine as an art persists. The humanistic approach stresses that, first and foremost, every person is a human being, and I must emphasize here, it is not just a case or a number. Health care workers not

only care for their patients but care about them. Pérez Tamayo<sup>4</sup> prefers the term «humanitarian» instead of humanistic medicine when the term is related to patient care because humanism is defined as cultivating culture.

The aim to receive a humanitarian medicine lies at the center of patients hopes and has been performed by part of the medical community worldwide. But in some places and moments through history, many social and economic factors have driven the practice out of its traditional objectives. At the same time, although it is widely recognized that medicine is part art and part science, the debate continues over the status of both aspects.

The art of tending to the sick is as old as humanity itself. Over its long history, physicians have cared for and comforted their patients, and they are supposed to understand them as a person, different to every other one. All sickness events will also be unique, and as scientific knowledge is far from perfect, uncertainty is an inseparable part of medical practice. We will see in this review that humanitarianism, art, and science entwine in a profound and sometimes surprising way.

Humanitarianism aims to provide essential relief to those destabilized by crises. This includes the aid to those suffering the consequences of war, natural disasters, or forced displacement, but we will treat here the concept of helping for the consequences of the disease.<sup>5</sup>

«Humanitarian medicine» has been defined by Masellis<sup>6</sup> in the following paragraph:

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*While all medical intervention to reduce a person's sickness and suffering is in essence humanitarian, humanitarian medicine goes beyond the usual therapeutic act and promotes, provides, teaches, supports, and delivers people's health as a human right, in conformity with the ethics of Hippocratic teaching, the principles of the World Health Organization, the Charter of the United Nations, the Universal Declaration of Human Rights, the Red Cross Conventions and other covenants and practices that ensure the most humane and best possible level of care, without any discrimination or consideration of material gain.*

Humanism in healthcare is characterized by a respectful and compassionate relationship between physicians and all other members of the healthcare team and their patients. It reflects attitudes and behaviors that are sensitive to the values and the cultural and ethnic backgrounds of others. The humanitarian aspect of medicine is related to the traditional form of charity, originally practiced based on religious principles and later becoming a need of the community to support its own members.

In early times, medicine was an art, along with poetry and painting; today, we try to make it a science besides mathematics, astronomy, and physics; but happens that with the progress of science and its applications, there is a rapid decline in the human elements of health care providers which dilutes the age-old doctor-patient relationship.

Rene Dubos<sup>6</sup> mentioned that ancient medicine was the mother of science and played a large role in the integration of early culture. The worst man of science is the one who is not at the same time an artist, and the worst artist, the one who is not a scientist. Panda<sup>7</sup> prefers to say that medicine is an «art based on science» and concludes that a physician must be an artist armed with basic scientific knowledge in medicine for successful practice.

In Cecil's Textbook, medicine is described as «a profession that incorporates science and scientific methods with the art of being a physician». Some state that as physicians undertake various kinds of activities that, although they are not indeed scientific, are essential to the practice of medicine. These activities constructed with evidence-based

medicine, collectively constitute the art of medicine. The art of caring and comfort, guided by millennia of common sense as well as an approach to medical ethics, remains the cornerstone of medicine. Without these humanistic qualities, the application of modern science of «medicine» is suboptimal, useless, and even detrimental.

The scientific basis of medicine is in constant evolution. The need of mingling all these different aspects of individuality and evidence requires the implementation of the art of medicine.

On many occasions, physicians are criticized for their insensitive behavior and for ignoring the emotional distress and strain affecting a sick individual. The health care provider needs to be essentially a good human being. As Saunders said,<sup>8</sup> *The practice of clinical medicine with its daily judgments is both science and art. In the practice of clinical medicine, the art is not merely part of the 'medical humanities' but is integrated to medicine as an applied science.*

So, medicine is both art and science. Both are interdependent and inseparable, just like two sides of a coin. And now here follows the comparison of the two aspects that have been related to the art in medicine. Some have stated that the importance of the art of medicine is because we have to deal with a human being, their body, mind and soul. To be a good medical practitioner, one must become a good artist with sufficient scientific knowledge. The technology covered with a layer of art can bring relief to the sick. For me, this is the humanitarian aspect of the profession. The other approach to which I adhere to define the art reminds us that the practice of modern medicine is the application of science, the ideal of which is to obtain a neutral truth. The reality can be different, and the practice varies widely. The evidence from randomized controlled trials or observational methods cannot dictate obligatory actions in any particular circumstances. Their conclusions are applied by value judgments, which must be specified to every individual case. Herein lays the art which is integral to the practice of medicine as an applied science.

Finally, to enjoy the practice of our profession, we can follow the saying of Albert

Einstein: *The most beautiful thing we can experience is the mysterious. It is the source of all true art and all science.*

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