

Letter to the Editor

From the Ethics of Hippocrates to the Deontology of Scientific Research & Writing

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Dear Editor

The moral principles that control or influence a person's behaviour or the conducting of an activity is what we call *Ethics*.¹ In the western world the basis of ethics has more or less been shaped by the *Christian laws* of the *Old and New Testament*. In Medical practice *Hippocrates* with the *Hippocratic Oath*, is the one who provided physicians with regulations and “algorithms” of deontology more than 2000 years ago.

In the original version of the oath, the physician swore by a number of healing gods (by Apollo, Asclepius, Hygieia and Panacea), to uphold a number of professional ethical standards. The Hippocratic oath ensures the respect of students towards those who teach medicine as well as respect among colleagues and towards patients.²

With the Hippocratic Oath doctors swear to share knowledge, provide only helpful remedies, cause no harm or hurt and protect patients from hurt or injustice, lead a flawless personal as well as professional life setting a good example, refrain from sexual misconduct towards patients, exercise gender equality and equality of men (either free or slaves), and finally exercise medical confidentiality.^{2,3}

The *Hippocratic Oath* is perhaps the most widely known of Greek medical texts. It first appeared at around 400 BC.³ Over the centuries it has been reviewed and rewritten often in order to suit the values of different cultures influenced by Greek medicine or to fit with changes in modern medical practice. In 1948 it was revised and adopted by the World Medical Association and is still used in the graduation ceremonies of medical schools around

the world.^{4,5} Why? Because it is a code of professional ethics and deontology and provides the guidelines for medical conduct towards patients, teachers and among colleagues. It is noteworthy that declarations worldwide are based upon the content of the *Oath*. 2500 years ago, being the first to use observation of the body as a basis for medical knowledge, Hippocrates led the way to medical research and scientific thought.^{3,5}

Today medical researchers around the globe make new knowledge available through publishing their research. Apart from presenting research, sharing and promoting knowledge, if one thinks of why scientists publish today, notions such as remaining alert, sharing ideas, expressing an opinion, rising discussion, upgrading a scientific branch, reporting a case, claiming originality of an idea, applying for a promotion or maintaining a position, reputation and gaining income, might come to mind.

Whatever the motivation for writing, scientists should abide by bioethics` regulations and legislation available shaping the ethics and deontology of research, writing and publishing of scientific work. So according to legislation and regulations available worldwide, a publication should be characterized by scientific originality and research results reported should be clear and reliable. Scientific research should be based upon data whose liability can be easily audited and it should lead to new knowledge aiming to improve public health. Appropriate infrastructure and accurate design of a study is a prerequisite. Volunteers when involved should participate after informed consent has been obtained and anonymity should be kept for protection of

personal data. Minimizing the risk of participants/patients and researchers as well as ethical use of experimental animals (replacement, reduction of pain and anxiety, refinement) is imperative.⁶

Laws and regulations that apply to biomedical research are observed by Ethics` Committees worldwide that look into the deontology of a research project. Ethics Committees function according to and refer to relevant laws and regulations in place concerning research. Integrity of research and reporting according to ethical standards is a prerequisite for manuscripts to be submitted for publication.⁷ Construction of data or observations that never occurred (fabrication), changing or omitting research results to support a hypothesis or claim (falsification), representing the work of others as one`s own work (plagiarism) and conflict of interest are examples of misconduct in research, writing and publishing scientific work, that can be successfully prevented.⁸

In the history of medical research ethics, the *Nuremberg Code* can be considered as a milestone, because it has served as an “*ethical map*”, an outline, and the principles that warrant the rights and wellbeing of the subjects in medical research nowadays have been drawn from. In August 1947, in Nuremberg, Germany the American judges of the “*Doctors’ Trial*” (a trial during which Nazi doctors were convicted for conducting inhuman and lethal experiments using human subjects in the concentration camps), composed the *Nuremberg Code*. The *Nuremberg Code* stresses the voluntary consent of human subjects participating in research as a prerequisite, as well as their right to withdraw from the experiment at any time if felt so by them. According to the *Nuremberg Code* an experiment should aim at and anticipate results that are for the benefit of society. Experiments that could possibly cause death or disabling injury should not take place and all aspects should be considered to ensure the protection and safety of the experimental subjects. Unnecessary physical and mental suffering and injury are unacceptable. Also experiments should be conducted only by qualified scientists, that are prepared at all times to end the experiment if it is likely to cause injury,

disability or death to the subject.⁶ Although the *Nuremberg Code* was one of the first attempts to state the principles that should involve human experimentation, it had relatively little effect on practice, because of its historical link to the Nazi war crimes.⁹

In June 1964 the *World Medical Association (WMA)* at its 18th assembly in **Helsinki, Finland**, adopted the *Declaration of Helsinki* which is a statement of ethical principles for medical research involving human subjects, including research on identifiable human material and data. Although the *Declaration of Helsinki* is not a legal document it has served as a guide for local law making. The *Declaration of Helsinki* is a respected institution and one of the most influential documents in research ethics, having withstood a number of revisions since its conception in 1964. Its basic principles include respect for human life, the right for self-determination and informed consent, the researchers` duty being the patients benefit, and putting patients` health first.¹⁰

In Greece *Ethics and Deontology Committees* for research in Universities and Research Institutes are responsible for ensuring that clinical research is conducted to the highest standards of human research ethics and abides by legislation and bioethics` regulations concerning scientific research. Clinical trials on drugs or other therapies, epidemiological studies, behavioral studies in humans, studies concerning groups such as children, prisoners or people with a psychiatric condition, studies in groups with special gender or cultural characteristics, studies concerning the human embryo, research on vertebrate animals, research on rare species (animals or plants) and research on genetically modified organisms and microorganisms must abide by the various laws, directives and conventions available, as for example the *European Convention on Human Rights and Biomedicine (Oviedo Convention)*, law 2472/1997 on the protection of individuals with regard to the processing of personal data, *UNESCO Universal Declaration on the Human Genome and Human Rights*, *UN Convention on Biological Diversity, directive 2001/20/EC*.

Moreover the *Hellenic National Bioethics and Technoethics Commission* is an independent advisory body created during the pandemic, with a role to review and consult on complicated matters that are otherwise difficult to address.¹¹

Reading the *Hippocratic Oath* and having in mind the various modern time laws and conventions, one realizes that the ethical values applied to research and scientific publishing today, are actually summarized and contained in the following three quotes from the Hippocratic Oath:

"I will follow that system of regimen which, according to my ability and judgment, I consider for the benefit of my patients, and abstain from whatever is deleterious and mischievous..."

"Whatever, in connection with my professional practice or not, in connection with it, I see or hear, in the life of men, which ought not to be spoken of abroad, I will not divulge, as reckoning that all such should be kept secret..."

*"With purity and with holiness I will pass my life and practice my Art..."*³

The first quote refers to causing no harm and promoting health, the second to confidentiality and the third to exemplary professional life. Going through laws, conventions and declarations regulating scientific research and publishing, it is evident that 2500 years later, these Hippocratic values are present in modern texts, remaining worldwide and timeless and Hippocrates himself, through the Hippocratic Oath, still represents the humane and ethical aspects of the medical profession.

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