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Legal provision in medical and human-related scientific research

THE ISSUES OF REGULATIONS IN THE FIELD OF HUMAN SCIENCES

Morality, ethics and deontology in terms of respecting human rights

In order to understand the evolution of regulations in the medical field and humanities over the centuries, it is important to understand the significance of the notions of MORAL, BIOETHICS and DEONTOLOGY, but also the role of enunciating and respecting HUMAN RIGHTS, which have been the basis of all the regulations in bio- . medical fields.
Since ancient times, the society has proven the need to define a code of behavior proper to humanistic professions, to frame this type of activity, to prevent possible negative consequences and to trust the members of the society.
The premise from which all these regulations started is the dual concept of GOOD and Evil, which is the foundation of MORAL.

The word **MORAL** comes from the Latin word "mores" which means good manners, good conduct. Morality represents the set of beliefs, attitudes, habits, feelings reflected in theoretical principles, but also rules and practical rules, whose purpose is to regulate the behavior and relationships of individuals in communities or society. Being determined historically and socially, these principles may differ from one society to another and from one historical moment to another.
All of these principles represent unwritten moral codes, transmitted from generation to generation in the form of moral norms and behaviors, specific to a group, be it family or social.

The word **ETHICS** derives from the Greek "ethos", having the same meaning as the Latin mores: good manners, good conduct. It is a philosophical discipline that studies the theoretical and practical aspects of morality, providing a set of principles, so written, that must be respected by a certain community or society. Ethical principles are based on the fundamental idea of respecting human rights. Therefore, ethics, as a discipline of study, is the result of the evolution of human civilization and of a higher understanding of the need to respect the human being in all its aspects - biological, spiritual and cultural. Therefore, any field of activity of the company whose object of activity or final beneficiary is the man, will be subject to ethical regulations.

It is thus understood that the evolution of regulations in the medical field and the humanities is closely linked to the level of social and cultural emancipation, to the level of concern of a society towards the individual, but also to the importance it attaches to the differences of sex, age, race , social class, ethnic or religious affiliation.

The term **DEONTOLOGY** arose from the addition of the Greek words "deon" which means something to be done and "logos", that is, science. Therefore, deontology encompasses a set of moral principles, transposed into behaviors, which must be specifically respected in the

exercise of a certain profession. This well defined set of principles specific to each humanistic profession is called the Code of Ethics and has the value of law.

Human rights have been contemporaneous with the history of mankind, as illustrated by the 10 commandments in the Bible, which God dictated to Moses on Mount Sinai. For example, the right to life is protected by the commandment "Do not kill!", The right to property by the commandment "Do not steal!".

Going back to the history of the legal provisions in the field of medical sciences, I will continue to present the most known, but also the oldest written document regulating the medical profession, namely the Hippocratic Oath.

The document belongs to the School of Cos, animated by Hippocrates (460–377 BC), but, although the Oath is attributed to Hippocrates, it is actually much older than the Hippocratic era. The oath was lodged by the candidates who entered the medical school and not by those who graduated, as is customary nowadays. Doctors have transmitted over the centuries and have followed these principles set out in the Oath.

The invaluable value of the document is given on the one hand by the fact that it concentrates the fundamental principles that must govern the medical practice and, on the other, by its ability to remain current for millennia.

Here are some of the principles stated in the Oath, whose depth and actuality are impressive:
"I swear ... that I will fulfill this oath and his commandments, as much as my strength and reason help me: To respect the one who taught me this art as well as my own parents.
To pass on the teachings of this art ... only to those disciples who swore by the custom of the doctors, and to no one else ...

my prescriptions should be made only for the benefit and good condition of the sick, to prevent them from any harm or violence.
I will never prescribe a substance with deadly effects, even if I am asked, and I will not give any advice in this regard. I will not give an abortion remedy to a woman.
Sacred and clean, I will keep my art and lead my life.
I will not operate the stone from the bladder, but I will leave this operation to those who do this job.
In any house I will enter, I will do it only for the benefit and welfare of the sick ...
Whatever I see or hear during a treatment I will keep it secret, because silence is a duty here.
If I respect this oath ... my life and my art will enjoy renown and respect ... if I will betray it ... then the opposite. "

The oath is not just a collection of principles of medical practice, which brings into question collegiality, fairness, competence, confidentiality and professional responsibility. At the same time, the document also represents a set of moral principles according to which the physician must guide his life:
"Sacred and clean I will preserve my art and lead my life ...
In any house I will enter, I will do it only for the benefit and welfare of the sick. "

The true consecration of human rights was achieved with the Universal Declaration of Human Rights in1948, as a result of the need to protect the individual after the Nazi experiments on prisoners of war and genocide during the Second World War. This represented the turning

point that led to the emergence, worldwide, of the legislative provisions, but also the establishment of a branch of science with the role of elaborating and updating the norms of practice in the field of life sciences.

More recently, research on cloning, euthanasia, organ and tissue transplantation, in vitro fertilization are some examples from which we can understand the need to constantly update and adapt the regulatory norms according to the moral-social evolution, but also the scientific advances of the society. These rules are provided for in international treaties to which most countries have acceded.

ETHICS OF MEDICAL SCIENTIFIC RESEARCH
History of medical research regulations

The goals of medical scientific research have always been to advance our knowledge of medical conditions by:
• Improvement of the methods of diagnosis, treatment and prevention of diseases
• Understanding the etiology (causes) and pathophysiology (mechanism of production) of certain diseases.
The norms of the ethics of research on human subjects, which are in force today throughout the world, are the result of the international community's reaction to the immoral experiments carried out, so called in the name of science, in different parts of the world, which culminated in the genocide of Nazi experiments.
Many of these experiments, although recorded in the annals of medicine, were not brought to the attention of the public and were left unanswered. Here are some of them: at the beginning of the 20th century, almost 200 children under 8 years old from the British orphanages were injected with tuberculin to study the natural evolution of tuberculosis. In the US, two famous cancer researchers, in the same period, injected cancer cells to residents of a Jewish asylum to track the progress of the disease. Prisoners in a prison in Philadelphia were accepted to be the subjects of medical experiments, with the promise of being released on parole.
Other experiments have reached the public's awareness and caused reactions from public opinion and international bodies, becoming turning points in the regulation of medical research.
After the end of World War II, inhuman or even deadly scientific experiments, were considered "crimes against humanity" and were tried by the Nuremberg Tribunal in 1947. They resulted in the adoption of the first code of conduct in scientific research, inspired by the mistakes of this historical episode. The principles introduced by this Code were:
• informed consent (now called informed consent)
• risk-benefit analysis - representing the first recognition of risk theory in medical research
• the recognition of the subject's right to withdraw at any time from the experiment, without being sanctioned (today transposed by the principle of self-determination, of the right to decide with one's own person)
Another historical moment is Wichita, USA, in 1955, when, following the controversies between jurors during a criminal trial, the need arose to regulate how the information regarding the subjects of the research can be obtained and used (who and in what way can use the information) from the perspective of respecting privacy, privacy, human dignity and autonomy. Also, the problem of monitoring the research activities by a specialized jury was raised.

• During the 1960s, psychologist Stanley Milgram studied electric shock experiments, which showed that many people are capable of acting cruelly and immorally when following the orders of an authority, thus raising the issue of "obedience to the authorities".
Another moment that marked the history of regulations in research was the experiment that 300 families of color, disadvantaged from the state of Alabama were subjected, without their knowledge, almost 30 years, in order to track the evolution of untreated syphilis. The experiment continued after the discovery of penicillin, which could have cured them, but which had not been administered, patients infecting other people in time and eventually reaching death in the name of science. The disclosure of the case sparked a great scandal and led to the formation of the Belmont Commission, the most important landmark at the institutional level in the history of the ethics of scientific research. This commission first stated the moral principles of scientific research in the bio-medical field and how they should be put into practice. Another merit of this commission is the imposition of the establishment of research ethics committees that must operate all research institutions, having the role of monitoring the observance of these principles in all research activities.

The researcher and philosopher Tom Beauchamp has the merit of completing and developing these principles in the form of 4 principles that currently represent the basis of all the regulations of the practice in the medical field. These principles are:
I. The principle of non-harm = to do no harm
II. The principle of beneficence = to do good
III. The principle of equality = equal rights and opportunities
IV. The principle of autonomy - the patient's right to self-determination

In the following I will refer to the field of scientific research on human subjects.

ETHICS AND DEONTOLOGY OF RESEARCH ON HUMAN SUBJECTS
Principles

The transposition of these principles previously stated in the specific field of scientific research leads to the formulation of the following fundamental principles of scientific research:
• **The principle of the legality and ethics of the research**. According to this principle, any medical research activity must be carried out with strict observance of the laws in the field of scientific research and of the ethical and professional norms of exercising the medical profession.
• **The principle of beneficence**, with its two complementary rules: maximizing the benefits for the patient and minimizing the risks
• **The principle of justice** refers to the right allocation of resources and the free access of the patient to the competent healthcare. Thus, it is considered unfair for a patient to be denied a benefit to which he or she would be entitled or conditioned in any way to obtain it.
• **The precautionary principle** provides for the analysis of the risk / benefit analysis, which may require the renunciation of the research, in certain situations

Deontological norms in research on human subjects

From the principles set out above, it follows that, in any scientific research, certain rules must be observed:

• **Risk assessment**, understood to be an undesirable effect. The risk can be: physical, psychological, social, legal or economic, and its likelihood of occurrence is expressed [through levels - minimum, low, high risk. The risk to which a subject may be exposed must be lower than the anticipated benefit to the individual or society.
• **Responsibility and protection**. The beneficiary of the research must ensure that the research does not harm the well-being or the rights of the subject. For example, the administration for research purposes of drugs should only be done after testing them on animals.
• **Prior and correct information of the person**. The medical deontology code of the Romanian College of Physicians explicitly provides the information that a person must know (for example the purpose and duration of the study, the benefits and risks, possible alternatives), while maintaining that they must be made known to the person in a language appropriate to its level of understanding.
• **Consent**. The same document clearly states that any intervention for medical purposes can only be performed after informing and obtaining the free and written consent of the person. Enrollment in medical studies can be done only with the agreement of the subject, with the certainty that he has understood the purpose and methodology of the research and knows that he is free to withdraw at any time.
• **The choice of subjects** must respect the principle of justice, in order to avoid involving in categories of suitable persons in research due to their vulnerability, for example children or psychiatric patients. There are 2 levels of justice: a social level and an individual level. For example, adults will be enrolled before children, certain categories (such as disadvantaged or institutionalized people) will be enrolled only under certain conditions.
• **The results of the research** should also reflect the principle of justice. Both positive and negative results will be made public, respecting the methodology for disseminating the results: scientific communications, articles, evaluation reports, specifying the contribution of each researcher.
• **Completion of the study**. Each participant must be given access to the benefits obtained from the research, and the study protocol should specify how the acquisitions resulting from the research can be accessed.

Research Ethics Committees

The ethics committee is an independent body, made up of members with a profession in the medical/scientific field, but also members with a profession outside this field, whose responsibility is to ensure the protection of the rights, safety and well-being of the subjects included in the clinical study.
Ethics committees have emerged with the development of research in the biomedical fields. They exist all over the world, in order to avoid abuses and unethical or non-conforming studies with scientific study methodologies. The ethics committees approve the studies, monitor their progress and have the means of sanctioning, the regulations being stipulated in the international research protocols to which Romania is a party.
In Romania, these committees are under the control of the Ministry of Health, and operate at the level of hospitals and public health centers where clinical studies are conducted.

RULES ON MEDICAL RESEARCH ON HUMAN SUBJECTS IN ROMANIA

At national level, medical practice and scientific research are regulated both by international protocols to which Romania is a party, and by internal norms such as the Health Law of the Ministry of Health or the Framework Contract of the National Health Insurance House.
In Romania, the Medical Deontology Code of the Romanian Medical College, in chapter VI, presents the rules regarding medical research on human subjects. These rules are presented below, and some of them I have extracted for example.

Art. 88. - Medical research on human subjects is done in compliance with the provisions of international conventions and declarations to which Romania is a signatory party.

Art. 89. - The doctor involved in biomedical research has the duty to promote and protect the life, health, intimacy and dignity of the human subjects participating in the research.

Art. 90. - In carrying out medical research on human subjects, special protection must be given to vulnerable populations, such as:
a) economically and medically disadvantaged persons;
b) persons who cannot give their consent for participating in a medical research (minors, incompetent persons, persons who, because of their condition, cannot express their will);
c) persons who are liable to give their consent under pressure (for example, detainees, military personnel);
d) persons who do not benefit from research personnel;
e) persons for whom medical research is combined with medical care.

f) Art. 91. - In the research on human subjects, the good of the individual prevails over the good of society in general and of science.

Art. 92. - Medical research for the purpose of medical progress should only be done ultimately on human subjects. This should be done in accordance with existing scientific data, other relevant sources of information and data obtained from animal experimentation where possible.

Art. 93. - The main purpose of medical research on human subjects is to improve prophylactic, diagnostic and treatment methods, understanding the etiology and pathogenesis of a disease.

Art. 94. - No research can be undertaken on a person, unless the following conditions are met cumulatively:
a) there is no alternative method to research on human beings, of comparable effectiveness;
b) the risks to which the person may be exposed are not disproportionate compared to the potential benefits of the research;
c) the research project was approved by the competent court after being subjected to an independent examination on its scientific relevance, including an assessment of the importance of the research objective, as well as a multidisciplinary examination of its ethical acceptability;
d) the person being investigated is informed about his rights and the guarantees for his protection;
e) there is the consent of the participants.

Art. 95. - The research protocol must be evaluated by an ethics commission, made up of persons independent of researchers or sponsors. The ethics commission carrying out the project evaluation must be informed about the conduct of the research and has the right to monitor the ongoing research.
Art. 96. - Medical research on human subjects should be performed only by qualified persons in this regard. This person has responsibility for the subjects involved in the research, even if they have expressed their informed consent for participation.

Art. 97. - The clinical experiment (research without therapeutic purpose) is ethically permissible if it does not entail any serious foreseeable risk. Researchers conducting the clinical experiment are obliged to discontinue it if there is a danger of injury to the subject's health or when the subject requires the experiment to be stopped. Medical research on human subjects can only be carried out if the potential benefits outweigh the risks.

Art. 98. - The imposition by force or by misleading the experiment on man is a serious violation of the principles of medical ethics. The participation of human subjects in the research can be done only voluntarily and only after they have been adequately informed about: the purposes, the research methods, the risks and the anticipated benefits. Also, subjects should be informed that they can withdraw from the research at any time, without prejudice to them in any way. The informed consent of the participants must be taken in compliance with the legal provisions.

Art. 99. - The refusal of a patient to participate in a research should not influence the quality of the doctor-patient relationship.

Art. 100. - In the case of minors, the consent will be obtained from the parents or from the legal representative, and the minor's consent to participate in the research is necessary. Maximum caution is required when using minors in medical experiments and only if the risks are minimal.

Art. 101. - In the case of persons incompetent or incapable of expressing their will, the consent will be obtained from the members or from the legal representatives.

Art. 102. - The inclusion in the medical research of the incompetent subjects or who cannot express their will will be done only when the research cannot be carried out using competent persons (the physical or mental condition that prevents the obtaining of the informed consent is a necessary characteristic of the only if the risks are minor.

Art. 103. - The doctor must take all necessary measures to protect the privacy of the subjects participating in the research, to maintain the confidentiality of the information about the subjects, and to minimize the impact of the research on the physical, mental integrity and their personality.

Art. 104. - Research done for therapeutic purposes constitutes the application for the first time in man of medical or surgical procedures and will be done exclusively for curative purpose. In such researches there must be a fair proportionality, in favor of the patient, between the risks of the new procedure and the seriousness of the case; the possible dangers of the new procedure do not seriously weigh the probable evolution of the basic disease or of the treatments known and applied until now.

Art. 105 - The use of placebo in medical research combined with patient care is allowed only when there are no proven prophylactic, diagnostic or therapeutic methods for the participating subjects or when patients receiving placebo are not exposed to additional risks.

Art. 106. - The participants in a medical research must have access to the benefits resulting from it, after the conclusion of the research.

Art. 107. - The publication of the results of a medical research on human subjects will be done with respect to the accuracy of the data and only if the national and international ethical norms governing the medical research on human subjects are respected.

Art. 108. - It is forbidden to cause artificial illnesses to healthy people, for experimental reasons.

Art. 109. - In all cases of clinical research, for the human verification of the effectiveness of certain diagnostic or treatment methods, the condition of the voluntary consent of the subject will be strictly respected.

Art. 110. - Human experimentation must respect a number of rules:
a) be preceded by a serious experimentation on the animal;
b) the subject to voluntarily accept, to be a major, in a state of freedom and perfectly informed about the risks;
c) in the case of incurable diseases, in subjects in the terminal stage, the remedy should not cause additional suffering and there are reasonable chances of being useful;
d) remedies that would alter the psychic or the moral consciousness cannot be experienced.

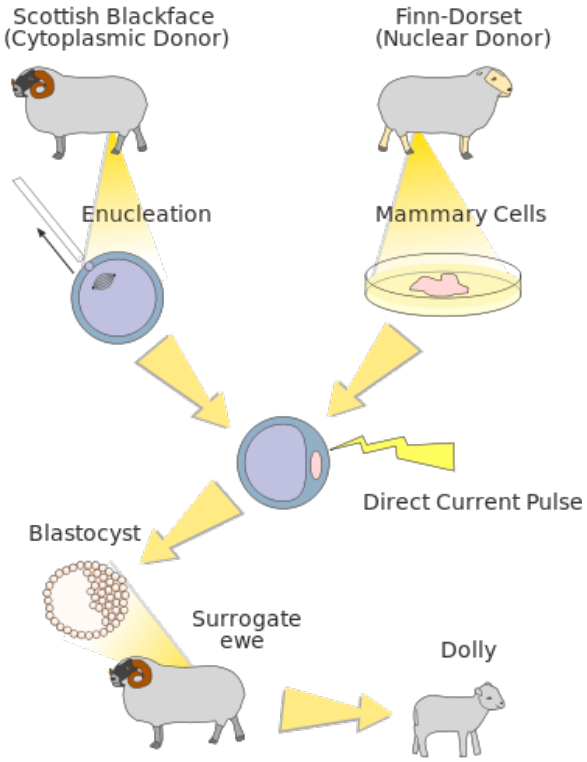
Art. 111. - Any therapeutic or experimental activity on the human being is prohibited for the simple reasons of professional or scientific pride, the result of which the majority of individuals cannot benefit or which harm the cultural or moral principles of the community.

Art. 112. - The experiments regarding the cloning of the human being are forbidden.

CASE STUDY

Finally, I chose to present a case study that I consider relevant from the perspective of scientific research and its implications for the future of mankind. It is about the Dolly experiment, the first successful cloning, that made it a jerk in the middle of the years ”90.
But by the time of the cloning of Dolly's sheep, the scientific world had already come a long way in the field of genetics, starting with the first artificial clone, obtained in 1930, by halving the salamander's embryo with the help of a hair, followed by the identification and deciphering of the DNA structure. , in 1953 and the success of combining the DNA of 2 different organisms, in 1973, considered the starting point of genetic engineering. After 1980, embryo division was a practice already known in the scientific world.
From the point of view of the reproduction and formation of new organisms, up to that time it was known and almost unanimously accepted that each cell of the organism contained the genetic material of an individual of a particular species and that, during the evolution of an embryo, each cell was they specialize to form certain organs and to perform certain functions, some cells remaining "asleep".
In 1996, a team of researchers from the University of Edinburgh obtained the first artificially created mammal, starting from the nucleus of an adult somatic cell. They extracted an egg

from a sheep to which they extracted the ulnuclear DNA, carrying the genetic information, and implanted genetic material extracted from the udder of a second sheep. The obtained cells were kept 7 days in a culture medium, after which they were implanted in the uterus of a third sheep, which became "surrogate mother". The latter gave birth to Dolly, the perfect copy, until the last woolen thread, of the second sheep, from which the genetic material was harvested, despite the fact that both the cellular organs of the egg harvested from the first sheep , as well as the cells of the surrogate mother's placenta also possessed a genetic heritage.
The diagram below shows the process of cloning Dolly sheep.



Following the announcement of the cloning of Dolly sheep, public opinion reacted violently. Many have accused scientists of "playing God," while others have seen the benefits of using such technology. The image captures a group of protesters carrying a banner with a message addressed to one of the two researchers: "Dear Ian, do not touch people!"

Dolly has aged very quickly, a fact attributed to researchers by genetic inheritance, because the sheep that provided the genetic material suffered from arthritis when their cells were taken. Another cause could have been that Dolly was too protected, living in the lab environment. After 7 years, it was discovered that Dolly also suffered from lung cancer and was euthanized. Her body has been healed and is on display at the Royal Museum of Scotland in Edinburgh.
What makes this experience extraordinary is the researchers' ability to demonstrate that the genetic information contained in a cell can be "awakened" and used, leading to the emergence of a new organism, without fertilization being the basis of this process. The cloned sheep was the first being created from a single cell.
Meanwhile, other sheep, pigs, mice, cats and monkeys have been successfully cloned worldwide. In the case of the cat, the pigmentation of the cloned cat differed from that of the mother, a fact attributed to the influence of the environmental factors during the cell development. Despite these successes, it seems that the failure rate in the case of mammalian cloning is 97%.
Less than a year after Dolly's birth, American physicist Richard Seed announced that he intends to clone human beings, not being the only one who has considered this possibility. In the same year, the company Advanced Cell Technology in Massachusetts, as well as researchers in Italy and other countries, announced they were in a situation where they could clone a human being. The situation created raised great questions about the ethical nature of such experiments. In response, the US House of Representatives passed a law against cloning people, only accepting cloning of certain organs for implantation purposes.
Human cloning is the process of creating a genetic copy of one that already exists, in the absence of male genetic input. The formation of the embryo no longer implies sexual contact, the existence of a sperm and fertilization, the clone being obtained from any adult human cell, belonging to a man or a woman. The clone or genetic copy will thus present the physical appearance, behavioral, biochemical and physiological characteristics of the cell from which it originated and not of the organism in which the pregnancy was developed. Therefore, a clone will have a single genetic parent. The term is used for artificial cloning, in the laboratory, because there is also a natural cloning, which occurs in the body of the pregnant woman, after fertilization and which leads to the appearance of monozygotic twins.
The purpose of human cloning is not to obtain new individuals, but to obtain stem cells that can replace diseased cells and obtain therapeutic substances. Another purpose is the genetic modification of the organs of some animals so that they can be transplanted into humans. Most religious institutions and governmental and non-governmental organizations strongly oppose human cloning, especially reproductive cloning.

CONCLUSION

In conclusion, research on human subjects must be carried out in compliance with the ethical principles of the research, derived from human rights, in compliance with the deontological principles and the norms that regulate the activity in the field of research. Beyond the provisions regarding the usefulness and the scientific correctness, the moral and ethical aspects of the research can give rise to numerous controversies, and by their results they can also bring spectacular benefits or they can lead to major risks for humanity. But can this Pandora's box be opened once more?