**CONTRIBUTION OF BIOETHICS TO THE GENERAL PHYSICIAN** Carolina Prieto (1), Joanna L. Bendeck (1), Luis Gustavo Celis (1).

1. Faculty of Medicine – La Sabana University, Bogotá, Colombia.

**RESUMEN**

En una sociedad como la que vivimos actualmente, donde está siendo reivindicada la recuperación y la educación en valores, la ética profesional adquiere un protagonismo y una importancia fundamental en la formación de futuros profesionales. Ya que esta facilita las decisiones en la práctica médica diaria y es una competencia que el médico general debe adquirir durante su etapa formativa.

En este trabajo, se ha analizado el origen de la bioética y su importancia, su papel en la formación científica del médico, los problemas suscitados por las nuevas tecnologías médicas; la bioética frente a la innovación y la relación médico- paciente. Además de la enseñanza de la bioética en diferentes facultades de medicina en Colombia y cómo esta está creciendo rápidamente. La fundamentación ética es necesaria para la recuperación del acto médico con bases morales adquiridas durante su formación y el fortalecimiento de la relación médico-paciente.

**PALABRAS CLAVE**

Bioética; Educación médica; Desarrollo moral; Estudiantes médicos; Enseñanza.

**ABSTRACT**

A society like the one we live in today, where there is an important renaissance in the claim of education in values; professional ethics has acquired a leading role in the training of formal education of future professionals. Due to the fact that this knowledge facilitates the most adequate decisions performed in the daily practice of medicine and is a key skill that the general practitioner must obtain during his or her formative stage.

This article has analyzed the origin of bioethics and its importance as well as its role in the scientific training of the doctor. Also, the problems raised by new medical technologies, bioethics versus innovation and the doctor-patient relationship. Therefore, taking into consideration the teaching of bioethics in different medical schools in Colombia and how this field has rapidly grown. This ethical basis is necessary for the recovery of the medical act with moral grounds acquired during the formative perdios as well as the importance of strengthening the doctor- patient relationship.

**KEYWORDS**

Bioethics; Medical education; Moral development; Medical students; Teaching.

**INTRODUCTION**

Bioethics is today one of the largest lines of thought with a great impact on modern medicine (1). It studies matters of ethics and decision-making related to the use of science and technology; by taking into consideration its impact on the environment, human health, society and international politics (2).

At the end of the 60´s and the beginning of the 70's, a line of interest was developed in the USA, regarding the ethical implications of multiple advances in biology and medicine. This was later propagated to different countries as technological developments began to thrive (3). In 1974, Daniel Callahan defined bioethics as “the application of the ethics theory to the dilemmas provoked by the practice of modern medicine, specially those created by the application and use of new technologies“(1,3).

Nonetheless, throughout history the concept of bioethics has had multiple definitions. In these, we find that it is stated as: “the relation of the human being with other living organisms that are not human and the relation with nature in general”. On the other hand it is been defined as “respect, dignity and survival of the human species; since its conception until its end, and its ecosystem with all its manifestations”. It is also been defined as a science that “respects by principle any living being as an end in itself, and treats, within its possibility, as equal” (3).

Bioethics has been noticed to have originated in the USA and was adapted by other countries, in these, including Latin America (3,4). Rensselaer Potter, defined it in his book as a “new discipline that combines biologic knowledge with the knowledge of the system of human values”.

In this way, In 1995 Reich defined it as the “systematic study of human conduct in the scope of life sciences and attention in health, examining this conduct in the light of values and moral principles” (3).

After some time, this line of thought established itself in North America, especially in the United States and extended itself to Europe and Latin America; with the Declaration of Gijón in 2000, the Asturian Convention (European Council), the Declaration regarding the Human Genome, the Human Rights and Bioethics by the UNESCO (2000). As well as, the International Declaration of Human Genetic Data (2003) of Bioethics and Human Rights (2005), among others (3).

Given the immense growth of scientific and technological contributions to medicine; the need that every physician is familiarized with these ethical aspects during his or her formal educative period has become of surmounted importance; due to the fact that this allows an advantageous and appropriate use of science and technology in the benefit of the sick (3). Therefore, this must be encouraged in different practice settings of the education of a physician; such as in a medical student (5).

**BIOETHICS AND THE SCIENTIFIC EDUCATION OF THE PHYSICIAN**

In the last decades, bioethics has progressively incorporated itself in the academic pensum of many medical university faculties. As Eckles expresses it, there are two great lines of education in medical ethics. One, is how to develop virtuous physicians in front of learning practical abilities; and the other is to have the knowledge to resolve ethical cases (6). It regards the education of a physician, not only with the basic skills needed to interact with other human beings, but also tasks that go beyond these basics. Such as, the formal education of future professionals that must have a set of tools, with which physicians may detect and give answers to the ethical problems of day to day practice. Thus, taking into consideration that any learning in ethics goes hand in hand with good professional practice (5).

Bioethics plays a fundamental role in the construction of individuals in higher education; this is why education in bioethics must develop certain skills and attitudes in the students; allowing them to think and reflect upon social problems. Therefore, generating and spreading knowledge of service to society, centered in the search of elements that facilitate the construction of a culture for tolerance, citizenship and democracy (7).

The art of medicine must follow specific rules, besides being presided by the acquisition of appropriate skills, not only technical but also moral (8). Such is the case of a carpenter; if the objective is to build a good table, not only must he submit himself to training, learning certain concepts and acquire certain skills as a result of practice. But also, the same process may be applied for a physician. Thus, the medical practice is composed of 3 concepts: the act of medicine, the act of the profession and the disease itself, which are all in its very essence (8). Each day, bioethics is having a greater impact in our society, becoming universal in all areas of education (3). One way we may evidence this change is by having institutional means to solve ethical conflicts and preferably through Ethical Committees; this is in many countries, a necessary condition for the accreditation of hospitals and concession of funds for clinical research and medical attention itself (1).

**EDUCATION IN BIOETHICS**

Education in bioethics is absolutely necessary, especially during high school and years of formal higher education where new methods of interactive learning are introduced, as well as modern methods that recur to multimedia means of communication and new advances in technology (9).

The exercise of medicine is dynamic and continues to evolve in relation to social, economic and technological change. Thus, medical education is a continuous learning process that begins with the admission into a medical faculty and ends with the retirement from the exercise of the active profession. Therefore, the objective of bioethics in medicine includes in itself, the acquisition of critical and reflective thinking, related to ethical values that will guide the physician in his or her practice; by these means providing high quality medical attention (10).

Literature has demonstrated that there is a profound lack of education in medical ethics. This is followed from what was mentioned above about the development of virtuous doctors facing the challenge of having learned practical abilities to solve ethical situations in daily practice (6). That is why education in ethics for physicians in their learning years must be oriented towards their formation as moral agents.

Some medical educators have treated bioethics as the panacea to face difficulties that transcend the biomedical focus of education. On the other hand, there is an opposition of certain chairs about bioethics being taught in medical courses, disagreeing that is should become an key course of the career and should be taught transversally as part of training in all areas (1).

Nonetheless, in different studies, we may find that in current medical programs, bioethics is included; contributing in the formation of a bioethical conscience in the student (1). Such is the case of Colombia, where bioethics has advanced rapidly and has implemented multiple programs with the purpose of educating in bioethics. This has been made evident in research and some programs of universities that are accredited by the Ministry of Education, such as: El Bosque University that has a Doctorate and Masters degree in bioethics, the Military University of Nueva Granada has a specialization in bioethics as well as a Doctorate, the Pontificial Xaverian Universitiy and the CES University both have a Masters in bioethics, the Pilot University of Colombia also, has a course in work and bioethics (3).

Thus, this brings up a reflective question; will the physician in the future require less science, more knowledge and even greater emphasis in ethics during his or her formative period?

That is why, due to the fact that scientific research as well as the medical practice are essentially ethical activities (1), the development of scientific and professional education without a solid ground will end up in a wrongdoing by this person; lacking a strong ethical basis, not knowing scientific advances and the ethical implications within.

Besides, it is important to mention that ethical as well as scientific education share some fundamental characteristics; among which we emphasize the importance of setting grounds on a well-trained capacity for reason due to a foreseeable uncertainty of facing an infinity of dilemmas (1,5). During this training it is important to develop the ability of making decisions when presented with incompatible options, choosing to contribute both to ethics and science. Taking into consideration, that scientific research has its own ethical basis and is essentially the same for medical practice (1).

**PROBLEMS THE GENERAL PHYSICIAN MUST SOLVE THROUGH BIOETHICS**The problems raised by new medical technologies generate these dilemmas, since organ transplants; generating a new concept towards death, euthanasia and assisted reproductive techniques from 1978, with the birth of the first test tube baby Louise Brown (3).

The techno-scientific advances have made these dilemmas come about; given by topics such as the manipulation of genetic information in human beings, that is a constant hot topic, due to the advances in Biomedicine and biotechnology, with the creation of children created by assisted fertilization, the selection of human beings with pre-implantatory diagnosis, the embryonic reduction of embryos, sex selection, on-demand babies without any correspondence with their parents or design, medicine babies as a reservoir for a sick sibling, so called therapeutic clones and from there on all the experimentations and research that are still being performed on the other embryos that are frozen in liquid nitrogen labs for further experiments in embryonic cells. All which has been defined in scientific literature as “prenatal violence” (2).

The general physician must have a solid ground to face many of these dilemmas that he or she will encounter in daily practice. Thus, the intention of preparing scientific and humanistic physicians with solid moral principles that are centered in the biopsychosocial concept of the human being (1). There, lies the importance of recognizing the common ethical-clinical related problems (11). Since the rise of children's rights in relation to their mother's rights, which is currently one of the most controversial topics that exist in society; where in some countries it is still punishable by law and in others it has been legalized for particular reasons. A moral basis must exist to reject abortion as it found explicitly in the hippocratic oath. Iatrogenic damage that everyday makes a physicians acts more powerful; provides an infinite set of tools that have taken him or her to develop a great potential of danger. This, added to a greater demand on performing tasks in benefit of improving the quality of healthcare services and also raising doubt when employing diagnostic or therapeutic methods without taking into account his or her own limitations as a physician disregard ethical implications.

Whereas, research in human beings, all-though fundamentally taking care of the best interest of the patient as the highest condition in the investigative process, may lead to the acquisition of new knowledge and the putting into practice of this new information may breach what is established ethically. And, at the same time, even though the hippocratic oath doesn't even suggest that the physician may learn from the patient; in our world today, this is concept carries within multiple conflicts of interest.

Other subjects, such as euthanasia facing the forced prolongation of life, assisted reproduction, and organ transplantation are not as common conflicts that the general physician will encounter in daily practice. So by these means, he or she must have a position based on attitudes, provided in early formal higher education, upon decisions of dilemmas or conflicts; as well as training in procedures for decision making, team or committee assessment in the operation or execution of specific issues (12). Also, this will allow the general physician to identify, engage and better approach the most common ethical- clinical problems with a previous solid basis (11).

**BIOETHICS OF INNOVATION**Innovation is the way that we quickly adapt our needs to change in the environment. These are responsible of generating opportunities that arise from the human ability of observation and personal judgement with the purpose of generating new knowledge in the light of science and technology (13).

This innovational boom in medicine has transcended society through the greatest achievements and advances that have impacted and improved the quality of life. However, it has not been completely transcended at times, due to faults to the rights of people to be informed, for violating the protection of vulnerable populations, by confusing the interests of biomedical science with personal interests of the researchers, in other terms, for personal and human faults in the practice of a physician (13,14).

This is how, we may evidence that innovation is present everyday in the medical profession and at the same time, it evolves and advances hand in hand with science and technology. Nevertheless, there are occasions in which these initiatives for innovation in medicine have not always been harmonious with ethical principles or values that compose our moral background, and have not been exempt of mistakes, omissions, risks or damage (15).

It is urgent to emphasize the need for exemplary conduct, and of impregnating future generations with full integrity and moral autonomy of those that currently are students and will become future doctors. All in order to promote during their clinical daily practice the professionalism that characterizes a good physician and that must be passed on to others to come. Innovation is opportune when it goes hand in hand with good healthcare, when it promotes the constant improvement of practice; protocolized studies that provide coherent and convincing responses, and make decisions in a rational, effective and safe way. Thus, making evident healthcare changes that are successful and that lead to a real benefit for patients (16, 17).

**EVOLUTION OF BIOETHICS AND ITS DOCTOR-PATIENT RELATIONSHIP**The moral problems that are currently evidenced in public health and the applicable principles to settle these conflicts; give rise to the question to whether bioethics has developed tools that allow us to face moral dilemmas in the patient-doctor relationship.

Since the human being is owner of basic principles, such as the right to confidentiality and the right of inviolability. It must be taken into consideration that each person is free in their own decision making and that no other may decide or act without previous consent of the other.   
Another, is the importance of the contractual relationship, that imposes the physician the obligation of informing the patient of all the matters related to his or her condition; as well as the treatment available. Which goes beyond the patients´ autonomy, provided that “every adult human being with complete mental faculties has the right to determine what will be done with his or her own body, and a surgeon that performs an operation without previous consent is committing an aggression towards that person, being held responsible for any damage that may originate from it” (18,19).

Analyzing the situation, the result of good and quality medical attention is given by the objectiveness with each and everyone of the patients. Since the doctor is seen as an autonomous person and as a connoisseur of medicine who helps to prevent, relieve and cure the sick; and this, is done with his or her knowledge of medicine as well as knowledge of the patient's needs; the doctor must be prepared in this second aspect to treat the patient as if he were the one being attended (14).

Nonetheless, this performance has been hindered by obstacles such as writing an appropriate a clinical record when the patient's education, cultural, verbal or physical expressions make it difficult to understand. The immense waste of resources with the health deficit that affects so many countries, where we deal with deterioration of the public health services and of a continuous improvement of private systems. This is how disease, seems to be well related to the level of instruction a person has and the lack of environmental sanitation (12,18). Also, where there are programs that are unknown by citizens, such as humanized delivery, sexual health programs and responsible procreation, besides their rights facing diagnostic and therapeutic methods that are provided nowadays.

It is important to mention that the doctor-patient relationship must also be with the family, as it is vital to ask oneself if the patient is receiving the necessary information from the physician and how much is being transmitted to his o her family and caretakers (14). Finally, it is important to underline that technology must never replace the doctor, given that medical practice is a humanized profession (17).

**CONCLUSIONS**The formation in ethics does not only mean the education of it; it means having the acquired the tools and the necessary knowledge to be exercised in daily practice. Learning the faculties needed to know the principles and develop bio-ethical analyses that allow the development of reflexive discussions around the foundations of ethics (20). Also, due to the great advances of applied technology in many fields of science, ethics has gained an important value in the study of situations and decision making associated with the use of science and technology,   
Thus, being progressively incorporated in the academic formation of many faculties of medicine, by having an obligation of developing certain abilities and attitudes in the students. This known to be a starting point in promoting a moral way of thinking with a solid ground to reflect on and come to a solution regarding social problems. Consequently by these means, generating knowledge in service to the community and implementing ethics of daily medical practice always in favor of the patients benefit. Because of all of the this, the main goal in bioethics must be to be the central axis by which all decisions in the clinical practice are taken, thus, every decision done in the exercise of the profession will undoubtedly have an ethical background.

**REFERENCES**

1. Aréchiga, H. (2001). La bioética y la formación científica del médico, *137*.
2. Rasool, S., Javed, S., Nadeem, S. G., & Hakim, S. T. (2013). Bioethics Education , Awareness of Ethics and Dissemination of Knowledge among Teachers and Students, *4*(July), 20–32.
3. Pacheco, E. (2018). Proyecto de acto legislativo. [archivo PDF]. Recuperado de <http://leyes.senado.gov.co/proyectos/images/documentos/Textos%20Radicados/proyectos%20de%20ley/2018%20-%202019/PAL%2005-18%20Bioetica%20y%20Bioderecho.pdf>
4. Johnson, K. A. (2014). Supplemental Materials for Topics in Bioethics : A Development of Student Perspectives, *20036*(December), 243–245.
5. Wasson, K., Bading, E., Hardt, J., Hatchett, L., Kuczewski, M. G., McCarthy, M., … Parsi, K. (2015). Physician, Know Thyself: The Role of Reflection in Bioethics and Professionalism Education. *Narrative Inquiry in Bioethics*, *5*(1), 77–86. <https://doi.org/10.1353/nib.2015.0019>
6. Esquerda, M., Pifarré, J., Roig, H., Busquets, E., Yuguero, O., & Viñas, J. (2018). Evaluando la enseñanza de la bioética: formando «médicos virtuosos» o solamente médicos con habilidades éticas prácticas. *Atencion Primaria*, (xx).<https://doi.org/10.1016/j.aprim.2017.05.018>
7. Alexander, H., & Abril, C. (2015). Educación en bioética y la formación para la ciudadanía. *Praxis y Saber. Revista de Investigacion y Pedagogia. Uptc*, *7*(13), 223–242.
8. Żołnierz, J., & Sak, J. (2018). The basics of Edmund D . Pellegrino ’ s medical ethics, *8*(9), 903–910. DOI <http://dx.doi.org/10.5281/zenodo.1418882>
9. Iancu, M. (2014). Bioethical Education in Teaching Biology. *Procedia - Social and Behavioral Sciences*, *127*, 73–77.<https://doi.org/10.1016/j.sbspro.2014.03.215>
10. Pérez-García, R. (2016). Competence in bioethics: Fundamental focus in the training of Family and Community Medicine Residents. *Educacion Medica*, *19*(4), 235–240. <https://doi.org/10.1016/j.edumed.2017.01.004>
11. Morales Valdés, G., Alvarado Romero, T., & Zuleta Castro, R. (2016). Limitación del esfuerzo terapéutico en cuidados intensivos pediátricos: conocimiento y actitudes bioéticas del profesional médico. *Revista Chilena de Pediatría*, *87*(2), 116–120.<https://doi.org/10.1016/j.rchipe.2015.10.002>
12. Campos Pavone Zoboli, E. L. (2010). Relación clínica y problemas éticos en atención primaria, São Paulo, Brasil. *Atención Primaria*, *42*(8), 406–412.<https://doi.org/10.1016/j.aprim.2010.01.018>
13. Patricio, B. P., Armando, O. P., & E.U. Magdalena, C. C. (2012). Innovación en medicina: una mirada desde la bioética. *Revista Médica Clínica Las Condes*, *23*(4), 492–501.<https://doi.org/10.1016/S0716-8640(12)70340-1>
14. Choe, K., Park, S., & Yoo, S. Y. (2014). Effects of constructivist teaching methods on bioethics education for nursing students: A quasi-experimental study. *Nurse Education Today*, *34*(5), 848–853.<https://doi.org/10.1016/j.nedt.2013.09.012>
15. Arango, G. A. G. (2014). Bioética, emprendimiento e innovación en el contexto latinoamericano. *Revista Lasallista de Investigación*, *11*(1), 110–118.
16. Colciencias Dirección de Fomento a la investigación. (2017). Política De Ética, Bioética E Integridad Científica.
17. Marica, M. A. (2013). On the ethical management of the teaching profession. Physics Procedia, 76, 476–480. https://doi.org/10.1016/j.sbspro.2013.04.14
18. Chiva, M., Lluch, J., Martín, J., Palau, A., Sánchez, A., & Trescastro, E. M. (2015). ¿Es la ética profesional un lujo del que podemos prescindir? *Revista Española de Nutrición Humana y Dietética*, *19*(3), 175.<https://doi.org/10.14306/renhyd.19.3.138>
19. Casado, M. (2010). Revista de Bioética y Derecho. *Revista de Bioetica y Derecho*, (19), 17–32. https://doi.org/10.1344/rbd2008..12
20. Kedraka, K., & Kourkoutas, Y. (2018). Debates in Teaching Bioethics. *Journal of Curriculum and Teaching*, *7*(1), 32–41.<https://doi.org/10.5430/jct.v7n1p32>