

## ETHICAL EVOLUTION IN TRAUMATOLOGY AND ORTHOPEDICS: FROM HISTORICAL PRINCIPLES TO MODERN CHALLENGES

Savgachev VV ✉

Yaroslavl State Medical University

In this article, the evolution of ethics in traumatology and orthopedics is explored. Timeline history of medical ethics, from ancient postulates to modern professional codes, is discussed. The fundamental principles of modern bioethics are delved into. These include respect for patient autonomy, informed consent, confidentiality and professional responsibility in treating patients with injuries. Particular attention is paid to communication, practical application of ethics in the clinical examination, and continuity of care. The final section highlights the emerging ethical challenges of the 21st century associated with the technological progress, allocation of resources and palliative care in traumatology. The article demonstrates that the doctor–patient relationship has moved from a paternalism-based model to one with active involvement of a patient in the process of treatment.

**Keywords:** traumatology and orthopedics, medical ethics, deontology, patient autonomy, continuity of care, professional responsibility

✉ **Correspondence should be addressed:** Vitaly V. Savgachev  
Revolutsionnaya St., 5, Yaroslavl region, Yaroslavl, 150000, Russia; [hirurg2288@mail.ru](mailto:hirurg2288@mail.ru)

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## ЭВОЛЮЦИЯ ЭТИЧЕСКИХ НОРМ В ТРАВМАТОЛОГИИ И ОРТОПЕДИИ: ОТ ИСТОРИЧЕСКИХ ПРИНЦИПОВ ДО СОВРЕМЕННЫХ ВЫЗОВОВ

В. В. Савгачев ✉

Ярославский государственный медицинский университет

В настоящей статье проведен комплексный анализ эволюции этических принципов в травматологической и ортопедической практике. Рассмотрены исторические этапы формирования медицинской этики, начиная с античных постулатов и заканчивая современными профессиональными кодексами. Детально проанализированы фундаментальные принципы современной биоэтики, а именно: уважение автономии пациента, информированное согласие, конфиденциальность и профессиональная ответственность в лечении пациентов с травмами. Особое внимание уделено практическим аспектам этики при клиническом осмотре, роли коммуникации и принципу преемственности в лечении. В заключительной части освещены актуальные этические вызовы XXI века, связанные с технологическим прогрессом, распределением ресурсов и развитием паллиативной помощи в травматологии. Статья демонстрирует переход от патерналистской модели взаимоотношений к партнерской, где пациент выступает активным участником лечебного процесса.

**Ключевые слова:** травматология и ортопедия, медицинская этика, деонтология, автономия пациента, преемственность лечения, профессиональная ответственность

✉ **Для корреспонденции:** Виталий Владимирович Савгачев  
ул. Революционная, д. 5, Ярославская область, г. Ярославль, 150000, Россия; [hirurg2288@mail.ru](mailto:hirurg2288@mail.ru)

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Traumatology and orthopedics are one of the most rapidly evolving and technologically equipped fields within modern medicine. Treatment for musculoskeletal injuries is commonly associated with emergency situations, lengthy rehabilitation periods and careful clinical decision-making. Under these circumstances, the ethical aspects of a doctor's professional activity are crucial for ensuring the quality of medical care and trust between a patient and a health care provider. The changing landscape of medical ethics in traumatology responds to global changes in public consciousness, science and law with transition from medical paternalism where one-sided decisions were always made by the treating doctor to care partnerships when the autonomy and rights of patients are respected. The article traces the journey of ethical principles in traumatology, analyzes their current state and identifies key challenges faced by the medical community.

## HISTORICAL BACKGROUND OF ETHICAL STANDARDS IN TRAUMATOLOGY

### Roots in ancient and medieval practices

Medical ethics has evolved over centuries. The ancient world tried to regulate the activity of healers. The Code of Hammurabi (about 4,000 years ago) was the first text that not only established fees for successful treatment but also implemented strict penalties for medical malpractice, particularly for physicians whose actions resulted in injury or death to patients. [1].

However, it was Hippocrates (5th century BC) who laid down the foundational concepts of medical ethics. Medical professionals, for centuries, have been guided by his principle of "do no harm" (Primum non nocere). The foundations for confidentiality, professional solidarity, and responsibility to the

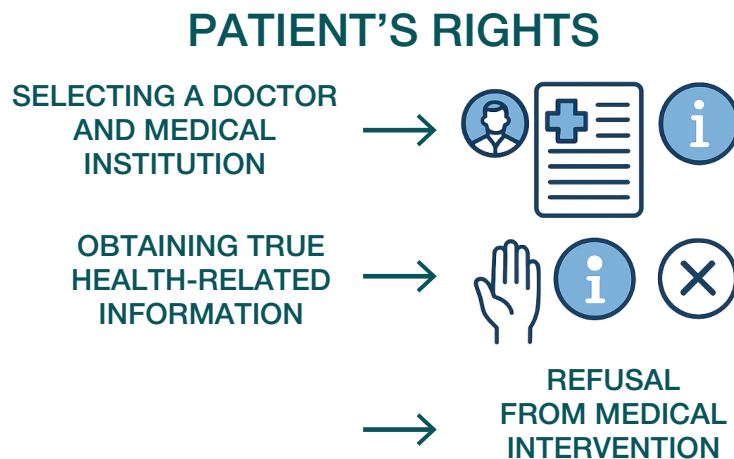


Fig. 1. Patient's rights

patient were also encapsulated in the Hippocratic Oath. In terms of traumatology, it meant that the doctor had to act solely in the interests of the injured, minimizing pain and suffering while reducing dislocations, treating fractures and performing other interventions.

Ethical norms in the Middle Ages were significantly influenced by religious dogmas. Caring for the ill and injured was seen as a moral duty and a manifestation of mercy. Paracelsus (16th century) added one more principle of "do good", saying that technically correct care should be accompanied by spiritual and psychological support of the patient, which is especially important for severe, crippling injuries [2].

#### Development of deontology and the role of key codes

Development of traumatology and orthopedics as independent disciplines in the 18–19th centuries required systematization of professional standards of behavior. In 1803, the English physician Thomas Percival published *Medical Ethics*, a work where he introduced the term for the first time and laid the foundations of professional deontology, the doctrine of proper behavior.

The 20th century marks significant advancements in medical ethics. The tragic experience of medical experiments in Nazi Germany culminated in the Nuremberg Trials (1947), which resulted in the adoption of the Nuremberg Code. It was for the first time when the Code globally established the principle of voluntary informed consent of the patient for any medical intervention or participation in the study. Thus, the era of unconditional paternalism in traumatology was over. From now on, any, even routine, operation required the informed consent of the patient, who had to be provided with complete information about the procedure, risks and alternatives [2].

In the USSR, medical deontology was actively developed; they paid particular attention to the psychological aspects of interaction with the patient, especially during long-term treatment, as well as the rules of communication with relatives in critical situations.

#### FUNDAMENTAL PRINCIPLES OF MODERN ETHICS IN TRAUMATOLOGY

Modern bioethics in traumatology is guided by four fundamental principles, which are reflected in national legislation and professional codes, such as the Code of Ethics

of an Orthopedic Traumatologist at Pirogov National Research Medical Center or the standards of the European Federation of National Associations of Orthopedics and Traumatology (EFORT) [3].

#### Respect for the autonomy and dignity of the patient

According to the principle, patients are the owners of their body and can make decisions about their health independently. A doctor has to respect the treated person and be patient with the person, regardless of the person's social status, age or severity of the condition. It means that the patient has a right to three main aspects (Fig. 1).

Meanwhile, complete and reliable information includes not only the diagnosis, but also the prognosis, treatment methods, associated risks, and possible alternatives. Refusal from medical intervention should go hand in hand with the legislation (for example, when the patient is dangerous to others).

The principle of informed voluntary consent (IVC). The informed voluntary consent shows how the principle of autonomy is implemented in practice. It is not about a plain signing of a document. It is about communication when the patient obtains the information he/she needs to make a conscious decision. The doctor must honestly and openly talk about the goals, nature, duration, risks and expected benefits of the proposed treatment.

It is particularly difficult to obtain the IVC in emergency traumatology, when the patient may be unconscious or shocked. When facing the situations, the doctor should act trying to preserve the patient's life and health in accordance with the principle of least harm. As soon as it is possible, the doctor shall inform the patient and the patient's legal representatives of the manipulations performed and obtain consent for further treatment.

#### Confidentiality and medical privacy

Confidentiality forms the bedrock of trust. Medical privacy involves referral for medical care, health, diagnosis and other information obtained during the examination and treatment [4]. The data can be disclosed only in the presence of a written consent of the patient and as set by the legislation (for instance, when it is requested by investigational bodies or when there is a risk that infectious diseases can be spread, etc.)

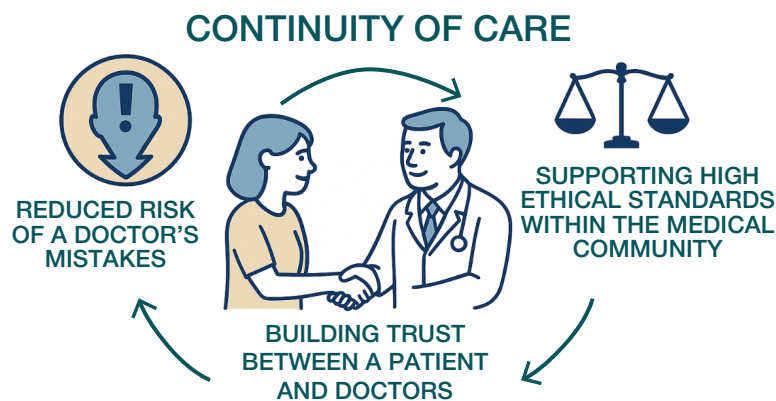


Fig. 2. Continuity in medicine

### Professional competence and responsibility

The traumatologist is personally responsible for the quality and safety of the care provided. The principle means that the doctor has to improve his knowledge and skills on a regular basis; he should also act within his competence. If the doctor lacks the necessary knowledge or resources to treat a particular patient, it is his ethical duty to refer the patient to another, more competent specialist, without interfering with the patient's right to receive qualified care; the patient's interests should be above the doctor's commercial, administrative or personal interests.

### ETHICAL ASPECTS IN THE CLINICAL PRACTICE OF A TRAUMATOLOGIST

Ethics of a physical examination. Clinical examination is the first and most important stage of diagnosis [5]. To perform the examination, the doctor has to be a professional and strictly follow ethical standards.

1. Clarifying complaints and collecting medical history. Building trust with physicians is important as it allows the patients to speak frankly about the circumstances of the injury, the nature of the pain, and concerns.
2. Physical examination. All manipulations (palpation, determining the scope of movements) should be done accurately without causing extra pain. Partial or complete removal of clothes by the patient, if required, should be done in privacy without the presence of unauthorized visitors.
3. Communication during the examination. The doctor should comment on his actions, explaining to the patient the purpose of a particular manipulation. It reduces anxiety and builds trust.
4. Documentation. All the data obtained is recorded in the medical documentation. In the presence of doubtful or incomplete data obtained from the patient, it is better to write 'according to the patient'.

### The principle of continuity of care

It takes many stages and much time to treat traumatology patients as many specialists participate in the process (emergency physicians, intensive care specialists, surgeons, rehabilitologists). Continuity of care and consistency of therapeutic and diagnostic activities are essential in this case.

Continuity of care from the ethical point of view is shown in Fig. 2.

It is the ethical duty of a doctor to ensure that all necessary medical information is fully and timely delivered when a patient is referred to another specialist or institution.

### CURRENT ETHICAL CHALLENGES OF THE 21st CENTURY

Emerging technologies and changes in social paradigms pose new ethical issues in traumatology [6, 7].

1. Technological progress. Introduction of robotic surgical systems, artificial intelligence for diagnostics, and 3D-printing of implants raises the issue of liability distribution. Who is liable for the error? Is it a doctor, a software developer or an equipment manufacturer?
2. Distribution of resources. The ethical dilemma of fair distribution of costly resources (for example, modern endoprostheses, high-tech rehabilitation methods) is particularly pressing now, when funding is limited. Decisions should be made based on objective medical evidence but not on the patient's social or financial status.
3. Palliative care and quality of life. Provision of aggressive therapy to elder patients with severe combined injuries and unfavourable prognosis is questionable. The ethical choice is shifting from the goal of prolonging life at all costs to ensuring the highest possible quality of life, which may include avoiding traumatic surgeries in favor of conservative and palliative care.

### CONCLUSION

The journey of ethics in traumatology and orthopedics has moved from ancient paternalism to a modern care partnership model based on the principles of respect for autonomy, awareness and mutual responsibility. Modern ethical codes and standards do not constitute a set of formal prohibitions. They rather form a system of values that help doctors make the right decisions in the most difficult clinical and life situations.

Compliance with ethical standards both improves the quality of medical care and patient safety, and builds trust in the medical profession and healthcare system as a whole. Subsequent development of ethical principles will be inseparably linked to solving the challenges posed by technological progress, economic realities and the humanistic values of modern society.

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