**EduVision: Journal of Innovations in Pedagogy and Educational Advancements**
**Volume 01, Issue 06, June, 2025**
brightmindpublishing.com
**ISSN (E): 3061-6972**


# HISTORY OF THE CREATION OF MEDICAL SCIENCES IN THE EAST AND THE WEST

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**Abstract**
This article discusses the problems and foundations of teaching students the laws of medicine in higher medical education institutions, as well as the creation of psychological theoretical understandings in their practical implementation and development.

**Keywords**: Use of laws, diseases, hematology, anatomy, physiology.

## Introduction

The origin and stage of development of modern medicine include worldviews of different periods of ancient history. As is known, the basis of knowledge about various diseases, their treatment and prevention has long been based on people's experience and observations.

Ancient Egyptian, Chinese, Indian, Babylonian medicine, and Hippocrates and Lemen played an important role in the rise of medicine from folk medicine to the level of an independent science. Hippocrates dealt with issues such as identifying diseases, studying the influence of the external environment on the patient's life and activities, finding the causes of the disease and knowing the specific characteristics of the patient's body in treatment. Galen was the first to study the structure and functions of organs and systems in the body, mainly in the body of animals (monkeys). His works on anatomy and physiology served as the basis of medicine until the 16th century.

Medicine flourished again in the West during the Renaissance. In the 16th century, the development of many sciences, especially medicine, physics and chemistry, made it possible to use the laws of these sciences to treat diseases and find out the cause. New methods were introduced in surgery, especially in the treatment of injuries. The founder of anatomy, A. Vesalius, scientifically substantiated the structure of the human body and the functioning of organs by examining corpses.

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The English physician W. Harvey, creating a work on the circulatory system, laid the foundation for a new section in medicine - physiology. As a result of the development of physics, the microscope was discovered during this period and began to be used in medicine. The development of microscopy by the Dutch scientist Antoni Leeuwenhoek led to the formation of the field of microbiology.

In the 17th-18th centuries, as a result of the development of industry, the field of occupational diseases emerged. Initially, Russian scientists studied the causes of such diseases and introduced new sections into Medicine - occupational diseases and occupational hygiene. Later, the scope of research in the field of natural sciences and technology expanded even further. The achievements of natural sciences had a positive impact on the development of Medicine, methods of objective examination of the patient (palpation, percussion, etc.) and the foundations of laboratory diagnostics were developed. The method of comparing the results of clinical examinations with data obtained during autopsy (A. I. Polunin, N. I. Pirogov and the German scientist R. Virkhov, etc.) made it possible to prove that the symptoms of the disease depend on changes in the structure of organs and tissues, as well as cells. As a result of these studies, another new section of Medicine was later formed - the fields of pathological anatomy and histology.

The discovery of the laws of conservation and transformation of energy, the study of the structure, transformation and exchange of organic substances was an important stage in the development of biology and medicine, the scientific direction that explained physiological phenomena was based on those laws. In the second half of the 19th century, a number of innovations were created in the field of microbiology. Of the epidemic diseases, the causative agents of plague, plague and the epidemiology of the disease were studied, the smallpox microbe was identified and a vaccine was prepared against it (E. Jenner). With the help of skilled doctors, vaccination against smallpox became a reality all over the world. L. Pasteur proved that infectious diseases are caused by various microbes, and on the basis of this discovery, it became possible to vaccinate people against infectious diseases such as anthrax and rabies and develop methods for their prevention. During this period, microbes that cause malaria, typhus, relapsing fever and other infectious diseases were discovered in Europe. I. I. Mechnikov created the doctrine of immunity. The science of hygiene was formed and developed on the basis of microbiological discoveries. At that time, in Russia and other countries, the problem of social

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hygiene was scientifically substantiated due to the study of the influence of the external environment - air, water and soil - on the human body, as well as social factors - labor, lifestyle and nutritional conditions on the health of workers.

The science of biochemistry, which was formed in the last quarter of the 19th century, by studying the metabolism of substances in a healthy organism and in pathological conditions, examining its changes, and identifying diseases, provided a significant advance in physiology and pathophysiology, and introduced new, highly informative and easier-to-perform laboratory methods into medicine. The sensory and motor fibers in the nerves of the spinal cord were studied, which made it possible to determine the importance of the nervous system in the body, the composition of blood and lymph, the structure and functions of glands were studied. Thanks to the research of Russian scientists S. P. Botkin, I. M. Sechenov, I. P. Pavlov, the laws of the functioning of the central nervous system and the whole organism were described from a materialistic point of view. In general, experimental medicine was developing rapidly during this period, and the scientific research conducted by the French scientist K. Bernard and the Russian pathophysiologist V. V. Pashutin in this area played an important role in the formation of general pathology, and later pathological physiology, founded by A. A. Bogomolets and S. S. Khalatov, as a science. In-depth study of anatomy and topographic anatomy ensured the success of operations in surgery. In the 20th century, unprecedented achievements were achieved in medicine. The German scientist V. K. Roentgen discovered X-rays and laid the foundation for radiology in medicine. The discovery of natural radioactivity and research in the field of nuclear physics laid the foundation for the science of radiobiology, which studies the effects of ionizing radiation on living organisms. Further research in this area made it possible to use radioactive isotopes and targeted atoms for treatment and diagnostics. Medical technology also developed rapidly. As a result of the application of electronics to medicine, methods were invented that accurately determine the activity of various organs and systems in the body, artificial hearts, artificial kidneys, etc. The electron microscope has now become an indispensable tool for detecting the most complex and subtle changes in cells and small microbes. With the help of medical cybernetics, modern, compact and convenient prostheses were created, as well as various automatic systems that maintain the patient's breathing and arterial pressure during surgery were developed, and technical

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progress, in turn, introduced new areas into medicine (aviation medicine, space medicine). The science of genetics, which studies the laws of heredity and variability of the organism, had a great influence on the development of medicine. The study of hereditary diseases led to the emergence of medical genetics. The development of immunology laid the foundation for immunopathology, which studies diseases caused by immunological changes. At the beginning of the 20th century, K. Landsteiner's law of isohemagglutination, Ya. The discovery by Jansky of the division of human blood into four groups in terms of composition allowed for the widespread use of blood transfusion in medical practice. During this period, Pirke's allergic reaction, which determines tuberculosis (Pirke's reaction), and the term allergy entered medicine.

In the middle of the 20th century, antibiotics, which are powerful tools for combating microorganisms, were invented and began to be used in practice. The doctrine of vitamins also developed. Due to the study of the structure and function of the endocrine glands, endocrinology became an independent science, which, developing, also began to study the issues of hormone therapy and hormonal regulation. The use of chemotherapy, hormone therapy, and drugs that affect the central nervous system, as well as the expansion of methods for obtaining various synthetic drugs, radically changed clinical medicine. During this period, as a result of the widespread use in practice of new medical equipment, including clinical and experimental examinations of heart activity using electronic devices, the field of cardiology separated from the clinic of internal diseases as an independent science. Myocardial infarction, blood clotting, atherosclerosis, and other clinical manifestations were described. Now the problems of cardiology are studied not only by therapists, but also by surgeons, physiologists, biochemists, and others.

Of the cardiovascular diseases, the prevention of ischemic heart disease (see Heart attack), atherosclerosis, hypertension, and others is of particular importance. Nervousness, smoking, lack of physical activity, overeating, alcohol abuse, and drug addiction are contributing to the increase in the incidence of such diseases. However, modern medicine has achieved considerable success in the timely diagnosis and treatment of these diseases.

Identifying and treating the causes of malignant tumors is the most urgent issue of medicine. Reducing the effects of chemical carcinogens and radiation, finding viruses that cause tumors, and studying the body's defense mechanisms are

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important issues. The Oncology Center of Uzbekistan is also actively working on this issue.

Another urgent issue of modern medicine is the study of nervous and mental changes, since in a number of countries this is considered the first issue of health care.

Protection and improvement of the external environment are of great social and political importance. Pollution of water, air, soil, and disruption of the ecological balance in the biosphere have a negative impact on human health. Prevention of pollution of drinking water and soil with industrial waste is an extremely urgent issue. The struggle for improving the external environment and protecting nature has become of international importance. In recent years, doctors, especially hygienists, and teams of special scientific research institutes have done a lot of valuable work in this area in the republic. Another of the most important issues facing modern medicine is the effectiveness of the doctor-patient relationship (see Medical deontology). Donation in organ and tissue transplantation, elimination of tissue incompatibility and a number of issues related to this problem, for example, the use of stem cells for treatment, occupy an important place in medicine.

The branches of medicine are divided into medical biological, clinical, medical social and hygienic sciences. Medical biological sciences include: anatomy, histology and cytology, which study the structure of the human body; normal physiology and biochemistry, which study the normal state of the organism, the emergence, exacerbation, course of the disease and the structural and functional changes that occur in it; pathological anatomy and pathological physiology; general and clinical pharmacology, which study the effect of drugs on the body, as well as microbiology, virology and parasitology, medical genetics and others. Clinical sciences that study human diseases, their treatment and prevention are divided into therapy and surgery according to the main method of treatment. These parts of medicine, in turn, are divided into various areas according to the comprehensive study of diseases of certain organs and systems. For example, in therapy, cardiology, rheumatology, nephrology, gastroenterology, hematology, geriatrics, phthisiatrics, pediatrics, neurology, psychiatry, dermatology and venereology, balneology, physiotherapy, radiology, therapeutic dentistry; in addition to surgery, general surgery, obstetrics and gynecology surgery, traumatology and orthopedics, anesthesiology, resuscitation, neurosurgery, oncology, urology,

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otorhinolaryngology, ophthalmology surgeries are distinguished. Each of the clinical sciences has a section on methods for examining the patient and determining the semiotics of disease symptoms.

Social hygiene and the organization of health care, general hygiene, hygiene of children and adolescents, communal hygiene, nutritional hygiene, radiation hygiene, occupational hygiene, epidemiology and medical geography, as well as medical ethics and deontology, have entered the medical-social and hygienic sciences that study the impact of the external environment on the body and measures to protect the health of the population.

Such a division of medicine is conditional, since social processes are directly related to all medical sciences, as well as scientific and practical areas (military medicine, space medicine, sports medicine, forensic medicine, etc.). The experimental method, characteristic of medical biological sciences, is also widely penetrating the field of clinical and hygienic medicine. Medicine is closely connected with natural sciences (biology, physics, chemistry) and social sciences, as well as technology.

Some problems of modern medicine. Due to the development of science and technology, socio-economic changes and achievements in maintaining the health of the population, significant positive changes have occurred in the structure of diseases, mortality has decreased, and the number of people living long has increased. In economically developed countries, extremely dangerous epidemic diseases that were previously widespread in the world (cholera, plague, smallpox, etc.) have been eliminated. The fight against influenza, viral hepatitis, acquired immunodeficiency and other viral diseases, which cause great harm to human health and the national economy, remains one of the most important medical problems of our time.

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