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PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.1439312>Available online at: <http://www.iajps.com>**Research Article****MODERN INFORMATION TECHNOLOGY AND MEDICAL  
EDUCATION****Sergey V. Glushkov<sup>1\*</sup>, Yury I. Malashenko<sup>2</sup>,**<sup>1</sup>Candidate of Military Sciences, Associate Professor, Medical Informatics and Statistics  
Department, First Moscow State Medical University, Moscow, Russia<sup>2</sup>Candidate of Military Sciences, Associate Professor, Medical Informatics and Statistics  
Department, First Moscow State Medical University, Moscow, Russia**Abstract:**

*The article covers patterns of usage of IT in medicine and teaching Medical Informatics and Statistics course which refers to disciplines of the mathematical and natural science cycle. Teaching is carried out on all the departments of I.M. Sechenov First Moscow State Medical University. There are considerably more hours of learning for students of Public Health Department than for students of others departments.*

*For purposes of teaching techniques development was conducted pedagogical content review, were compiled assembling of data on attendance and performing level. There are made recommendations connected to modern methodical developments aimed at quality of education improvement and drawn plan of teaching methods and education forms improvement.*

**Key words:** *telemedicine, Medical informatics, Medical statistics, Information technology, teaching methods and education forms.*

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**INTRODUCTION:**

In accordance with national technology-based initiative Health.Net, there are numbered 5 lines of personalized medicine market development<sup>1</sup>, including IT usage in medicine.

It's underlined that this line is integrating one in relation to other components of this market.

The section «IT in medicine» includes devices and services for monitoring and correcting state of health: collection, analysis and interpolation of data on the state of body, formation of recommendations based on the data obtained, telemedicine.

Besides, in this sector there is paid great attention to collection of statistical data in health care in accordance with the norms of the Organization for Economic Cooperation and Development. Collection of such information is impossible without medical information systems that automate work of medical organizations, workplaces of doctors and connect them to unified regional and federal information systems. These activities are designed to ensure: immediate access of doctors to the medical data of patients; switch to electronic medical document circulation; the professional development of medical workers through the use of distance learning services; increase in the cost effectiveness of medical organizations through the introduction of information systems in their activities<sup>2-4</sup>.

An important component of sector «IT in medicine» is decision support systems and expert systems, primarily based on the processing of large and extremely large arrays of heterogeneous information (including unstructured one). The presence of these directions in the sector urgently requires improvement of medical personnel knowledge and usage of IT in the subject area.

**RESULTS AND DISCUSSION:**

Considering previous experience in teaching Medical Informatics and Statistics course in I.M. Sechenov First Moscow State Medical University it would be useful to make the following alterations to the education program:

- an increase in hours of learning of medical statistics and the interpretation of processed data;
- Section related to the study of the construction and use of databases, should be enhanced with the

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[http://gov.cnews.ru/articles/20170310\\_healthnet\\_kak\\_rossiya\\_budet\\_razvivat\\_vysokie\\_tehnologii\\_v\\_medsine](http://gov.cnews.ru/articles/20170310_healthnet_kak_rossiya_budet_razvivat_vysokie_tehnologii_v_medsine)

educational material on integrated electronic medical maps. This card is designed to provide procedural (including archival) storage and provide the authorized users, software services and applications with immediate access to standardized electronic medical records and information as part of integrated electronic medical records;

- Add new section dedicated to decision-making support – class of specialized medical information systems registered in accordance with the established procedure for medical use and designed as a part of medical information systems for local use in medical organizations. Decision-making support system provides automatic analysis of diagnostic results, patient anamnesis for identifying issues that require medical personnel actions with medical opinion report;
- Create a section about expert systems - a class of specialized medical information systems registered in accordance with the established procedure for medical use and designed as part of medical information systems for local use in medical organizations. Expert systems are systems for supporting decision-making at a higher level, capable of self-training and forming projects of diagnoses, appointments, conclusions, taking into account a large number of factors on the level of a highly qualified medical specialist;
- Add a section dedicated to telemedicine. This is a complex of organizational, technological and financial measures that ensure the activity of the system of remote medical services aimed at the prevention, diagnosis, treatment and rehabilitation of diseases, using information and communication technologies and telemedicine devices involved in remote medical services. The main emphasis should be made on studying and mastering technological activities.

An analysis of medical students' motivations shows that this curricular material begins to attract them when the trainees have a definite idea of their future profession, i.e. after the third course.

**CONCLUSION:**

Therefore, it is advisable to study these sections of «Medical informatics and Statistics» course either at senior courses, or as elective classes.

In accordance with the forecast, in short and medium terms the main products and services for using in health care are:

- decision-making support system in the health sector for medical services provided in a distance form, both on doctor's orders and the patient's

- initiative, incl. based on the processing of large heterogeneous data and unstructured information;
- non-invasive personal telemedicine devices, incl. medical-diagnostic home modules;
  - implantable diagnostic and medical diagnostic telemedicine devices, including nanodevices;
  - remote-controlled robot-surgical complexes;
  - Electronic health passports containing genetic information about patients.

Realization of the proposed changes in the discipline "Medical Informatics and Statistics" will allow preparing competent specialists well-oriented in these products and services which compete in the world labor market.

Thus, the effectiveness of medical education and the health system as a whole will be improved.

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