

## USE OF INFORMATION SYSTEMS AND COMPUTER TECHNOLOGIES IN PHARMACY

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**Abstract:** Computers have been used in medicine for a long time. Most modern diagnostic methods are based on computer technology. Information technology is an integral part of our life today. In recent years, the automation of pharmacy processes and the use of information technologies have become one of the means of active development of the pharmaceutical industry. The pharmaceutical industry is one of the few industries whose prospects are very optimistic. The industry has great investment potential. Many Western companies are entering our market with projects to organize the production of medicines. The presented article is devoted to the role of computers in the clinical development of pharmaceutical products. The article covers the design of information systems, various areas of application of computer programs in pharmacy, including drug design, discovery and development.

**Key words:** pharmacy, pharmacy, information technology, computer, system, electronic document.

**Introduction:** Information technology plays an important role in the life of our society. They are also important in the field of pharmacy. Providing quality medical care to the population, managing an effective pharmacy enterprise is closely related to the proper organization of information and communication activities in the pharmaceutical market. Development of a complete management system in pharmaceutical enterprises is an important step towards bringing production to the level of international standards. The organizational structure of pharmaceutical enterprises, in most cases, is a system of centralized accounting and many branches and control bodies located far from each other. In such conditions, the most important tasks are the implementation of rapid document circulation and its control. The current level of production development requires new requirements for production management. Automation of production reduces the risk of production defects due to errors made by employees. This is especially important in the context of pharmaceutical production, where even the slightest disturbance, that is, the technology of the manufactured products, can lead to the loss of health of drug users.

**Discussion:** Pharmaceutical trade and production enterprises - "pharmacy" software, pharmaceutical plants and factories, currently in the conditions of the market economy, need to quickly receive information, process it and use the results of analysis during their activities. Development of a complete management system in pharmaceutical enterprises is an important step towards bringing production to the level of

international standards. The organizational structure of pharmaceutical enterprises is, in most cases, a system consisting of many branches located far from each other, with a centralized accounting and control body. In such conditions, the implementation of rapid document circulation becomes the most important task.

The current level of production development sets new requirements for production management approaches. Automation of production negates the well-known "human factor", that is, it reduces the risk of production defects as a result of errors made by employees. This is especially important in the context of pharmaceutical production, where a slight violation of the technology of the manufactured products can lead to the loss of health of the medicine - drug users-sick people. A big problem in modern economic conditions is the quick transfer of funds to the branches of the organization, quick settlement with suppliers and customers. Modern conditions require that calculations be made practically "day by day" to avoid loss of funds and delays in delivery due to inflationary processes. The only solution to these problems is the development and implementation of the so-called information technologies, that is, technologies based on the use of computer technologies and electronic means of communication. Relatively low cost, reliability, maintenance and ease of use expand the scope of information technology. Here, the use of information technologies allows to increase the efficiency of specialists engaged in information processing. This aspect is especially relevant because the productivity of managerial labor has so far grown at a very low level.

In modern conditions, information supply has become an important field, which consists in collecting and processing information necessary for making management decisions. Transfer of information about the position and activity of the enterprise to the highest level of management and exchange of information between all mutual units of the company is carried out on the basis of modern electronic computing and other technical means of communication. In the activity of commercial structures, which are complexes of many enterprises that are connected and interact on a daily basis, information transfer is the main and indispensable factor in the normal operation of this structure. At the same time, ensuring the effectiveness and reliability of data is of particular importance. For many companies, the internal information system solves the tasks of organizing the technological process and has a production character. This applies primarily to the processes of supplying enterprises with cooperative products from specialized enterprises through intra-company channels. Here, information plays an important role in providing information for management decisions and is one of the factors that reduce production costs and increase its efficiency.

Information about the occurrence of deviations from the planned parameters in the production process, which requires operational decisions, is of great importance. Scientific and technical information, including new scientific knowledge, inventions, technical innovations of their company, as well as information about competing firms, plays a relevant role in decision-making. This is a constantly replenished general fund and the potential of knowledge and technical solutions, the practical and timely use of which ensures a high level of competitiveness for the company. The information serves as the basis for the preparation of relevant reports, reports, proposals for the development and adoption of relevant decisions.

The use of computers in pharmacy is becoming increasingly important as they can provide important information about drug interactions, usage, storage, mode of action, side effects, and more. They are also used to counsel patients. Computers play an important role in the pharmaceutical industry, reducing production costs, errors and clinical errors. They help with security features, data management, and product design. Assists in the search, preparation, production, analysis and storage of drug data, as well as in the search of various files. Computers play a role in pharmacy by applying computational technologies to various aspects of pharmacy and medicine, such as identifying drug-target interactions, synergistic drug combinations, and computational models and drug substitution based on heterogeneous biological data, etc. Often, pharmacies have support systems, product ordering systems, as well as separate automation modules for warehouse operations. The use of computers in pharmacy includes drugs, pharmacokinetics,

mathematical modeling in drug development, hospital and clinical pharmacy, electronic systems for prescribing and dispensing drugs, barcode identification of drugs and automated drug delivery, mobile technologies and compliance with the treatment regimen and so on.

A pharmacy information system is a system with many different functions to ensure the delivery and organization of medicines. It can be a stand-alone system for pharmacy use only, or it can be coordinated with an inpatient hospital's computer system for recording medical orders. The entire field of pharmacy requires computers. Some important areas where computers are useful are drug discovery, drug development, analysis, drug manufacturing, and hospital pharmacy. Drug databases are sites that store information about drugs and medications. One of the largest (and most widely used) drug databases is the base-10 decimal number system, also called the decimal numbering system, compiled by the Food and Drug Administration. This number system is widely used in computer programs.

Computers help improve the efficiency and accuracy of monitoring patients' drug therapy, freeing up pharmacists to devote more time to patient care. The document summarizes the main aspects of the hospital pharmacy, including its functions, objectives, location, location, staffing requirements and organization. Today, most pharmacies are partially automated:

- 70% of retail pharmacies use electronic ordering software for suppliers;
- 50% of pharmacies keep automated accounting;
- 5-10% implemented electronic document circulation system using barcode technologies and automatic analysis of financial activities.

In addition, currently, a very large part of information appears in electronic form, which provides it with high mobility, convenience and mass character in today's communication environment. Computerized prescribing of drugs leads to small changes in the nature of work performed by pharmacists in the outpatient department of hospitals and the reasons for their work, as well as in the composition of the people they come into contact with during their work. Our government and the Ministry of Health pay great attention to the introduction of digitization, electronic document circulation and telecommunication technologies, which is confirmed by new regulatory legal documents, as well as many permanent additions and amendments to previously issued relevant documents.

**Conclusion:** The current trends of increasing the commercial segment in the pharmacy business, increased competition and the increase in the number of pharmacy chains lead to the fact that the normal operation and development of pharmacies will no longer be effective without the use of such a tool as information technology.

The following are among the main directions of development of modern information technologies in ensuring the development of pharmaceutical business:

- Automation of document circulation
- Communication
- Management of pharmaceutical production technology
- Automation of accounting and planning
- Development of the decision-making system
- Automation of banking operations
- Create automated jobs

To implement the idea of distributed management, it is necessary to create computer-based automated workstations for each management level and each discipline. Integration of existing automated workplaces into a single enterprise information system is of great importance in the automation of enterprise work. The introduction of document circulation automation systems (word processors, etc.) leads to the emergence of the concepts of "electronic document" and "paperless technology". Such electronic documents exist only in electronic form, that is, they are created, processed and sent using computers, although it is possible to create a so-called "hard copy", that is, it is possible to print the document on paper. "Paperless technology" includes the complete processing of documents in electronic form, that is, it requires the complete abandonment of the use of physical media such as paper.

The process of using computers and information technologies in pharmacy provides the following advantages:

- Minimum expenses for office equipment and office (forms, paper, stationery);
- There is no need for expensive means of protection against unauthorized access (safes, etc.), because access to the document can be granted only to a limited number of people using passwords, etc.;
- There is no need to separate special rooms (archives) and special furniture, bulky folders, etc.;
- The process of searching for the necessary document is accelerated;
- the search process itself moves to a qualitatively new level (keyword search, search among several documents, etc.);
- It will be possible to organize the joint work of several persons or even departments on one document;
- The document creation process is accelerated due to the possibility of inserting excerpts from other documents and the possibility of editing the existing text;

The introduction of modern information technologies allows to reduce the time required for the preparation of accurate marketing and production projects, to reduce inefficient costs during their implementation, to eliminate the possibility of errors in the preparation of accounting, technological and other types of documents, which is a direct economic benefit to the commercial company. Of course, in order to open all the possibilities that can be used with computers, it is necessary to use software and hardware tools that are most suitable for the specified tasks. Therefore, commercial companies are now in great need of computer programs that support the work of the company's management, as well as information on the optimal use of the company's computer equipment.

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