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**АКТУАЛЬНІ ПИТАННЯ
КЛІНІЧНОЇ ФАРМАКОЛОГІЇ ТА КЛІНІЧНОЇ ФАРМАЦІЇ
(TOPICAL ISSUES OF
CLINICAL PHARMACOLOGY AND CLINICAL PHARMACY)**

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Висновки. ШІ має значний потенціал у розвитку клінічної фармації. Його використання дозволяє реалізувати головну ідею персоналізованої медицини — підібрати для кожного пацієнта ті лікарські засоби, які будуть максимально ефективними й безпечними. Подальше впровадження таких технологій потребує міждисциплінарної співпраці лікарів, фармацевтів, ІТ-фахівців і державної підтримки, адже саме від цього залежить якість та майбутнє сучасної фармако-терапії в Україні.

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**INFORMATION TECHNOLOGIES AS A TOOL FOR INCREASING
THE EFFICIENCY OF MANAGEMENT DECISIONS
IN PHARMACEUTICAL ACTIVITIES**

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The aim of the work is to study information technologies as a tool for increasing the efficiency of management decisions in pharmaceutical activities.

Materials and methods. A survey of 20 employees of a pharmaceutical company was conducted to analyze the use of information systems and assess the information support of the process of making management decisions.

Results. It was found that 74% of respondents believe that they have enough information to make management decisions. 80% of respondents consider information processes in the workplace to be automated. The most popular sources are accounting systems, CRM systems and spreadsheets. The biggest problem is the lack of strategic information. The majority positively assess the effectiveness of the IT used, noting the completeness and relevance of data and the ability to analyze and visualize as the most important factors.

Conclusions. The majority of employees of the pharmaceutical company are satisfied with the information support, its timeliness and level of automation. However, a critical area for improvement is the provision of strategic information (forecasts, market trends) and addressing the problems of limited access and insufficient functionality of existing IT systems.

Keywords: *pharmaceutical activity, management decisions, information technology, strategic information, automation.*

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ІНФОРМАЦІЙНІ ТЕХНОЛОГІЇ ЯК ІНСТРУМЕНТ ПІДВИЩЕННЯ ЕФЕКТИВНОСТІ УПРАВЛІНСЬКИХ РІШЕНЬ У ФАРМАЦЕВТИЧНІЙ ДІЯЛЬНОСТІ

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Метою роботи є дослідження інформаційних технологій як інструменту підвищення ефективності управлінських рішень у фармацевтичній діяльності.

Матеріали та методи. Проведено опитування 20 співробітників фармацевтичної компанії для аналізу використання інформаційних систем та оцінки інформаційного забезпечення процесу прийняття управлінських рішень.

Результати. Встановлено, що 74% опитаних вважають, що мають достатньо інформації для прийняття управлінських рішень. 80% респондентів вважають інформаційні процеси на робочому місці автоматизованими. Найпопулярнішими джерелами є облікові системи, CRM-системи та електронні таблиці. Найбільшою проблемою названо брак стратегічної інформації. Більшість позитивно оцінюють ефективність використовуваних ІТ, відзначаючи як найбільш важливі фактори повноту та релевантність даних та можливості аналізу та візуалізації.

Висновки. Більшість співробітників фармацевтичної компанії задоволені інформаційним забезпеченням, його своєчасністю та рівнем автоматизації. Проте, критичною зоною для вдосконалення є забезпечення стратегічною інформацією (прогнози, ринкові тенденції) та вирішення проблем обмеженого доступу й недостатнього функціоналу існуючих ІТ-систем.

Ключові слова: *фармацевтична діяльність, управлінські рішення, інформаційні технології, стратегічна інформація, автоматизація.*

Introduction. The modern pharmaceutical industry operates in a highly dynamic and competitive environment, characterized by rapid market changes, stringent regulatory requirements, and the constant need for innovation. In this context, the quality and speed of management decisions (MD) are critical determinants of a company's success and sustainability. Effective decision-making relies fundamentally on timely, accurate, and comprehensive information.

The integration of information technologies (IT) is no longer merely an option but a strategic imperative. Modern IT systems provide tools for collecting, processing, analyzing, and visualizing vast amounts of data – from internal financial records and operational metrics to external market trends and long-term forecasts. By leveraging IT, pharmaceutical enterprises can significantly increase the validity of managerial actions, minimize operational risks, optimize the use of scarce resources, and ultimately enhance overall efficiency [1-3].

The relevance of this study lies in the need to develop practical recommendations for improving the information support of the process of making managerial decisions in pharmaceutical organizations, which will allow to increase the validity of managerial actions, minimize risks, optimize the use of resources and increase the overall efficiency of pharmaceutical enterprises in a changing market environment.

Aim is to study information technologies as a tool for increasing the efficiency of management decisions in pharmaceutical activities.

Materials and methods of research. A survey of 20 employees of a pharmaceutical company was conducted to analyze the use of information systems and assess the information support of the process of making management decisions.

Results and discussion. To analyze the information systems and technologies used to support management decision-making at the pharmaceutical company, we conducted a survey of 20 employees. Analysis of the positions of the 20 employees of the pharmaceutical company surveyed showed that the largest share of respondents (50%) are middle managers. Managers made up 34% of the total number of respondents. The smallest share of respondents (16%) is specialists. This distribution allows us to consider the opinions of representatives of different levels of management when assessing information systems and technologies to support management decision-making.

It was determined that 74% of respondents believe that they have enough information to make management decisions. A fifth of respondents (20%) indicated that they only have partial information. Only a small number of employees (6%) indicated that they do not have enough information to make management decisions.

These data indicate a generally positive assessment of the information support of the management process in the company, but emphasize the need to pay attention to the needs of that small part of the staff who feel a lack of information.

We further determined that the most popular source is an accounting system (e.g., 1C, SAP, other), which is used by 24% of respondents. The second place in popularity was shared by a CRM system and spreadsheets (e.g., Excel, Google Sheets), which are used by 19% of respondents. Business intelligence (BI) systems are used by 12% of employees, and document management systems are used by 11%.

The least popular sources of information were project management systems (10%) and corporate portal/ intranet (5%). This data reflects the preference for using accounting and client systems, as well as traditional spreadsheets, to inform management decisions in the company.

It was determined that the vast majority of surveyed employees of pharmaceutical company (74%) assess the timeliness of providing information for making management decisions as "always on time". Only 14% of respondents noted that they often receive information late. A small part of those surveyed (5%) indicated that information arrives "very often late". Another 7% of respondents found it difficult to answer this question. Thus, most employees are satisfied with the efficiency of obtaining the necessary data for making decisions, however, there is a small proportion of staff who experience problems with the timeliness of information provision.

It was set that the vast majority of surveyed employees of pharmaceutical company (80%) believe that information processes at their workplace are automated. Fifteen percent of respondents noted that automation is only partial. Only a small proportion of respondents (5%) indicated the absence of automation of information processes at their workplace. These data indicate a fairly high level of automation of information processes in the company from the point of view of the majority of its employees.

It was found that the biggest problem for employees of pharmaceutical company when making management decisions is the lack of strategic information (long-term forecasts, market trends), which was indicated by 60% of respondents. Operational information (daily/weekly data) is most often lacking for 17% of respondents, and analytical information - for 14%. The least pressing problem was the lack of financial information, which was indicated by only 9% of respondents. These data indicate an urgent need to improve access to strategic information to support effective management decision-making in the company.

It was determined that almost half of the surveyed employees of pharmaceutical company (48%) consider the information systems and technologies used to be "very effective" to support management decision-making. Another 24% assess them as "rather effective". Fifteen percent of respondents took a neutral position on this issue. A small proportion of respondents consider the systems used to be "rather ineffective" (5%), and 8% of respondents found it difficult to answer. In general, most employees positively assess the effectiveness of the information systems and technologies that they use in their work to make management decisions.

It was set that, according to the surveyed employees of pharmaceutical company, the most useful aspect of the information systems and technologies used for making management decisions is the completeness and relevance of data (19%). The second most important feature is data analysis and visualization capabilities (18%). Data processing speed and information accessibility (14% each) are also quite important.

Integration with other systems was noted as useful by 13% of respondents. The least important, according to the respondents, are a user-friendly interface and the ability to generate reports (11% each).

These data indicate the priority of substantive and analytical characteristics of information systems to support management decision-making in the company.

It was found that the biggest problem faced by employees of pharmaceutical company when using information systems and technologies for making management decisions is limited access to information (14%). The second most frequently mentioned problem is insufficient functionality of the systems (15%). Also, significant problems are the lack of necessary analytical tools and the complexity of generating the necessary reports (12% each), as well as a complex interface and problems with integration with other systems (11% each). Low system speed is experienced by 10% of respondents, and incomplete or outdated data - by 7%. Insufficient user support was noted by 9% of respondents. These data indicate a number of aspects that need

improvement to increase the efficiency of using information systems in the process of making management decisions.

It was set that the vast majority of surveyed employees of pharmaceutical company (70%) assess the quality and reliability of the information they use to make management decisions as "always high-quality and reliable". Another 20% of respondents consider it "often high-quality and reliable".

A small portion of respondents (5%) indicated that the information is "sometimes of good quality, sometimes not" or "often of poor quality or unreliable". These data indicate a generally high level of employee trust in the quality and reliability of information support for the company's management decision-making process.

It was determined that the majority of surveyed employees of pharmaceutical company (65%) consider the amount of information they receive for making management decisions to be optimal.

At the same time, a significant portion of respondents (20%) indicate that there is too much information. Ten percent of respondents believe that the amount of information is not enough. These data indicate that for most employees the information load is acceptable, but there is a need to optimize the amount of information for a certain part of the staff to avoid information overload or data insufficiency.

Conclusions. A survey of 20 employees of pharmaceutical company was conducted. It was found that most respondents believe that they have enough information to make management decisions, but there is a small proportion of staff who feel that it is lacking. The most popular sources of information are accounting systems, CRM systems and spreadsheets.

It was determined that the majority of employees of pharmaceutical company are satisfied with the timeliness of information provision and consider information processes at their workplaces to be automated. However, the biggest problem is the lack of strategic information (long-term forecasts, market trends).

It was found that the majority of respondents of pharmaceutical company positively assesses the effectiveness of the information systems and technologies used, considering the most useful aspects to be the completeness and relevance of data, as well as the possibilities of analysis and visualization. Among the main problems when using IT, limited access to information and insufficient functionality of the systems were noted.

It was found that the majority of employees of pharmaceutical company highly appreciate the quality and reliability of the information used and consider its volume to be optimal, although a significant part indicates the redundancy of information.

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