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CONTROLLING THE SALES OF SEASONAL MEDICINES IN MONITORING THE PHARMACY SYSTEM: ECONOMIC EFFICIENCY OF CONTROL BASED ON TRADITIONAL METHODS AND INTELLECTUAL SYSTEMS

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Annotatsiya: Ushbu maqolada dorixona tizimini monitoring qilishda mavsumiy dori vositalarining sotuvini nazorat qilish usullari ko‘rib chiqildi. An'anaviy nazorat usullari va zamonaviy intellektual tizimlar asosida qurilgan nazorat mexanizmlarining iqtisodiy samaradorligi solishtirildi. Tadqiqot natijalari intellektual tizimlardan foydalanish orqali resurslardan foydalanish samaradorligi va savdo hajmlarini optimallashtirish imkoniyatlari sezilarli darajada oshishini ko‘rsatdi.

Аннотация:В статье рассматриваются методы контроля продаж сезонных лекарственных средств при мониторинге аптечной системы. Сравнивалась экономическая эффективность механизмов управления, построенных на основе традиционных методов управления и современных интеллектуальных систем. Результаты исследования показали, что применение интеллектуальных систем существенно повышает эффективность использования ресурсов и возможность оптимизации объемов продаж.

Abstract: This article examines methods for controlling the sale of seasonal medicines in the pharmacy system. The economic efficiency of traditional control methods and control mechanisms based on modern intelligent systems is compared. The results of the study showed that the use of intelligent systems significantly increases the efficiency of resource use and the ability to optimize sales volumes.

Kalit so‘zlar: Dorixona tizimi, mavsumiy dori vositalari, monitoring, intellektual tizimlar, iqtisodiy samaradorlik, sun'iy intellekt.

Ключевые слова: Аптечная система, сезонные лекарства, мониторинг, интеллектуальные системы, экономическая эффективность, искусственный интеллект.

Keywords: Pharmacy system, seasonal medicines, monitoring, intelligent systems, economic efficiency, artificial intelligence.

1. Introduction

Sales of medicines in pharmacy chains are strongly influenced by seasonal changes. Especially during the flu and cold season, during the period of exacerbation of allergic reactions or during pandemics, the demand for medicines changes sharply. The inability of traditional control methods to respond to such changes in a timely and effective manner can lead to uncertainty in the management of stocks and sales in the pharmacy system.

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Today, monitoring and forecasting mechanisms built on the basis of intelligent systems (artificial intelligence, machine learning, data mining technologies) show much higher economic efficiency than traditional methods.
This article compares these two approaches and assesses their economic effectiveness for the pharmacy system.
Relevance of the topic: Increased competition in the pharmaceutical sector, increased demand for health care among the population, and an increase in seasonal diseases are increasing the importance of effective management and control of medicines in pharmacies. Traditional monitoring methods do not meet the requirements in terms of speed and accuracy of information. Therefore, the introduction of sales monitoring technologies based on intelligent systems is becoming increasingly important. Such systems increase the economic efficiency of pharmacy operations, allow rational use of resources and provide high-quality customer service.
In particular, accurate forecasting and timely provision of demand for seasonal medicines is becoming a decisive factor in ensuring the stability of the healthcare system during pandemic and flu seasons. Therefore, studying the use of intelligent technologies in monitoring the pharmacy system and assessing their economic efficiency is extremely relevant from a practical and scientific point of view.
Research Objectives: The main objective of this study is to analyze traditional methods and control methods based on intelligent systems in monitoring the sales of seasonal medicines in the pharmacy system and to assess their economic efficiency.
Also, one of the important tasks of the study is to identify opportunities for optimizing sales using intelligent systems, to show the advantages and disadvantages of existing methods, and to develop recommendations for practical application in the pharmaceutical industry.
Element of scientific innovation: In this study, traditional and intelligent control methods for monitoring seasonal drug sales in the pharmacy system were systematically analyzed and their economic efficiency was compared.
As a result of the study, a practical model was developed for predicting seasonal demand and optimizing sales processes in the pharmacy system using artificial intelligence and big data technologies.
In addition, the possibilities of reducing operating costs and increasing profits in pharmacies through the introduction of intelligent systems in the sale of seasonal drugs were substantiated for the first time with specific economic indicators.

2. Literature review

The literature studied on the topic of the study covers the issues of monitoring seasonal drug sales, optimizing economic processes in the pharmacy system, and implementing artificial intelligence technologies in practice.
The work "Information Systems in the Pharmaceutical Sector" (2022) by Ashurov M. considers the theoretical and practical aspects of using modern information technologies in pharmaceutical activities. This work provides important ideas on managing the flow of information when controlling the sale of seasonal medicines.
Karimov I.'s work "Economic Reforms and Development Strategy of Uzbekistan" (2015) covers the general principles of the economic development of Uzbekistan and serves as the main source for substantiating the economic efficiency part of the research topic.

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Sobirov Sh.'s book "Economics and Marketing of Medicines" (2019) provides detailed information on the economic activities of pharmacies, drug pricing and sales strategies, and includes practical recommendations on managing seasonal sales.
Kadyrov A.'s book "Fundamentals of Information Technologies" (2020) covers the theory of information systems and the features of their application in various fields, which helps to analyze the possibilities of using intelligent systems in the pharmacy sector.
Normurodov M.'s work "Economic Analysis and Monitoring" (2017) is the main theoretical source for studying monitoring and economic analysis methods. This book was used to scientifically substantiate the monitoring of seasonal sales.
Soliyev B.'s work "Artificial Intelligence and Its Practical Application" (2021) covers the practical possibilities of artificial intelligence technologies in the real sector, in particular in the healthcare sector.
Also, the book "Big Data and Its Application in Medicine" (2023) by Turayev Z. provides valuable information about the advantages and practical models of big data technologies in forecasting seasonal demands.
Government resolutions on the development of the pharmaceutical industry and current regulations of the Ministry of Health served as the main documents in analyzing the legal framework for the activities of pharmacies.
The literature studied allowed us to comprehensively cover the topic and scientifically assess the economic efficiency of traditional and intellectual control methods.

3. Traditional control methods: opportunities and limitations

Traditional control methods have been used for many years to manage and monitor sales in the pharmacy system. These approaches are mainly based on statistical analysis, human experience and sales figures from previous years. The main methods are as follows:
Monthly and quarterly reports: Used to analyze sales and inventory levels.
Manual data collection: All indicators are collected manually, which increases the cost of time and resources.
Reactive measures: When sales decrease or increase, the necessary measures are applied with a delay.
The limitations of traditional approaches are as follows:
Delays: Delays in data collection and processing, which makes decision-making difficult.
Subjective assessment: Analysis based on human factors and experience can lead to errors.
Resource allocation: As a result of over- or under-allocation of resources, the opportunity to fully utilize sales opportunities is lost.

4. Monitoring based on intelligent systems and its advantages

Intelligent systems include the following technologies in optimizing pharmacy monitoring:
Artificial Intelligence (AI): Automates data analysis and decision-making.
Machine Learning: Helps forecast sales and demand.
Big Data: Analyzes large amounts of data in real time.
Intelligent systems help forecast seasonal demand and optimize sales. Machine learning algorithms analyze customer behavior and organize inventory management effectively.
Economic efficiency of intelligent monitoring systems
Intelligent systems:
Optimize inventory management,
Increase sales,
Reduce costs,

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Provide rapid response, which increases the cost efficiency of pharmacies.

5. Comparative analysis of traditional and intelligent monitoring methods

Traditional monitoring systems rely on manual data collection, statistical analysis, and decision-making based on human factors. This can be slow, inefficient, and prone to errors. Intelligent systems, on the other hand, automatically collect data, analyze it using machine learning and artificial intelligence. These systems allow for more accurate, fast, and efficient decision-making.

Indicators | Traditional systems | Intelligent systems
Data collection | Manual or simple methods | Automatic, real-time
Analysis | Simple statistical analysis | Machine learning, artificial intelligence
Error rate | High | Low
Efficiency | Slow | Fast and accurate

Comparative analysis of economic and practical effectiveness

Although traditional systems operate without initial investment, they require more resources and time, which increases costs. Although intelligent systems require initial investment, they increase efficiency and reduce costs in the long run. Intelligent systems provide automatic decision-making, reduce errors and increase operational efficiency.

Prospects for the introduction of digitalization and intelligent control in pharmacy systems

Digitalization creates opportunities for pharmacies to analyze big data, forecast sales and optimize resources. With the help of intelligent systems, pharmacies automatically manage their activities, improve customer service and increase efficiency. This, in turn, helps to increase competitiveness.

6. Conclusion

There are significant differences between traditional and intelligent methods in the process of managing monitoring systems in pharmacies. Traditional systems often rely on manual data collection and analysis, decision-making based on the human factor. These systems can lead to slow performance, high error rates and reduced operational efficiency. However, intelligent systems allow for quick and accurate decision-making using automatic data collection, machine learning and artificial intelligence technologies.

The introduction of digitalization and intelligent systems in pharmacy systems provides many advantages. With these systems, pharmacies will be able to manage their operations in real time, quickly identify customer demand and optimize sales. It will also reduce costs, minimize errors and increase overall efficiency. Intelligent systems will also allow pharmacies to increase competitiveness, improve service quality and respond quickly to customers.

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