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M. P. Nosachenko, S. M. Kovalenko

National University of Pharmacy of the Ministry of Health of Ukraine

The main aspects of effective internal audits of the energy management system in health care institutions

Aim. To analyze the main components of conducting and forming recommendations for the effective implementation of internal audits of the energy management system in healthcare institutions.

Materials and methods. To achieve the goal, we applied such methods as informative, retrospective, analytical ones based on the study of scientific literature, materials of Internet-resources and our own conclusions regarding the results of the work carried out.

Results and discussion. The article analyzes the main aspects of effective implementation of internal audits of the energy management system in healthcare institutions. It has been shown that internal audits are not conducted effectively and do not add the expected value. The causes for low performance have been analyzed and systematized. It has been proven that the problem of improving the effectiveness of internal audits of the energy management system should be solved systematically, using the methods and approaches developed by the authors and proposed in the article.

Conclusions. Internal audits of the energy management system should be given closer attention in each healthcare institution since a properly organized audit process is an effective tool for analyzing the energy management system and provides important and relevant information for timely corrective and preventive actions.

Keywords: *internal audit; healthcare institutions; internal audit program; questionnaire; energy management system*

М. П. Носаченко, С. М. Коваленко

Національний фармацевтичний університет Міністерства охорони здоров'я України

Основні аспекти результативного проведення внутрішніх аудитів системи енергетичного менеджменту в закладах охорони здоров'я

Метою роботи є аналіз основних складових проведення та формування рекомендацій щодо результативного здійснення внутрішніх аудитів системи енергетичного менеджменту в закладах охорони здоров'я.

Матеріали та методи. Для досягнення визначеної мети нами було застосовано методи: інформаційний, ретроспективний, аналітичний, засновані на дослідженні наукової літератури, матеріалів Інтернет-ресурсів, а також на власних висновках щодо результатів проведеної роботи.

Результати та їх обговорення. У статті проаналізовано основні аспекти результативного здійснення внутрішніх аудитів системи енергетичного менеджменту в закладах охорони здоров'я. З'ясовано, що внутрішні аудити наразі не є результативні й не додають очікуваної цінності. Причини низької результативності проаналізовано і систематизовано. Доведено, що проблему підвищення результативності внутрішніх аудитів системи енергетичного менеджменту треба розв'язувати системно, із застосуванням розроблених авторами і запропонованих у статті методів і підходів.

Висновки. Внутрішнім аудитам системи енергетичного менеджменту треба приділяти більш пильну увагу в кожному закладі охорони здоров'я, адже правильно організований процес проведення аудитів є дієвим інструментом аналізування системи енергоменеджменту і надає важливу й актуальну інформацію для своєчасного вжиття коригувальних і запобіжних дій.

Ключові слова: *внутрішній аудит; заклади охорони здоров'я; програма внутрішнього аудиту; опитувальний лист; система енергетичного менеджменту*

Introduction. In modern conditions, healthcare institutions face many problems that need to be solved in order to ensure a high level of services and develop the scientific potential. Changes in legislation, high inflation, exchange rate fluctuations, an increase in the cost of fuel and energy resources and the need for new approaches to the management of hazardous waste at the level of business entities are just some of the issues that need to be resolved [1-3].

One of the effective mechanisms for increasing the energy efficiency of an organization is the implementation of the energy management system (ESM) to meet the requirements of DSTU ISO 50001:2020 [4].

As you know, all requirements of DSTU ISO 50001:2020 and DSTU ISO 19011:2019 [5] standards are general;

they are intended for use by any organization, regardless of its type or size, as well as the products and services it supplies and provides.

The implementation of EMS involves the initiation of such an activity as internal audit (IA). It is the conduct of internal audits that plays the most important role in the existence and improvement of EMS, as well as ensuring its stable functioning [6-9].

According to a number of authors, and as our own audit experience shows [1, 9, 10], in most domestic enterprises that have implemented ISO 50001 quality assurance, the process of audit is usually carried out formally and does not provide significant value for the organization. That is why the study of this problem and the development of proposals for the implementation of

effective IA in healthcare institutions is of certain scientific and practical interest.

The aim of the work is to analyze the main components of conducting and forming recommendations for the effective implementation of internal audits of the energy management system in healthcare institutions.

Materials and methods. Informative, retrospective, analytical methods based on the study of scientific literature, materials from Internet-resources and our own conclusions were used in our work.

Results and discussion. The implementation of the energy management system in institutions of the budgetary sphere of economy is connected with the need for more rational and effective use of energy resources.

The energy management system allows you to monitor energy consumption and provides an opportunity to compare the energy intensity of the educational process with other educational institutions and determine the effectiveness of energy saving and energy saving projects [1-3].

Recognizing the significant impact of the energy factor on the economic stability and performance of the healthcare institutions, which requires the same level of management as any other key resource, and not as part of the overhead costs of the higher education institution, serves as a guide to improving the level of the energy efficiency and the comprehensive energy conservation.

The implementation of the energy management system should bring a number of positive changes in the activities of healthcare institutions of an organizational, financial, and reputational nature and, as a result, contribute to improving competitiveness in the service market [5-7].

Thus, the organizational effect will be to ensure the management transparency and increase the manageability of the healthcare institutions and include: the development of a number of management documents regulating energy management; the synergetic effect of a balanced distribution of energy saving functions in structural units; the involvement of all categories of the personnel in the energy saving process due to motivation and the development of a corporate culture of energy saving. Financial savings will have to ensure the investment attractiveness and growth in the value (capitalization) of healthcare by improving financial indicators due to direct savings of all types of energy resources; reducing costs for communal services, identifying and eliminating non-productive costs of energy resources.

Internal audit is needed by the organization to gain confidence that the actions in a certain management system meet the requirements [8-10]. The internal audit process is carried out in order to establish that the EMS of healthcare institutions:

- meets the planned measures, requirements of DSTU ISO 50001:2020 and regulatory and legislative acts of the country;
- is successfully implemented and maintained in working condition.

The internal "customer" of IA results is the management, which should apply these results when conducting

regular analysis of management systems and making decisions regarding their continuous improvement [11-15]. Successfully conducted audits provide the company's management with the opportunity to comprehensively evaluate EMS and the basis for identifying the root causes of the non-conformities recorded [7, 8]. Analyzing trends in the functioning of certain processes of the enterprise, as well as audit reports, the management has the opportunity to develop and timely implement the necessary corrective actions to improve EMS.

In order to achieve the set goals, the following tasks are performed in the process of implementation of the IA:

- confirmation of the compliance of the EMS with the types of activities and their results, which are checked within the limits of the established requirements;
- the analysis of detected inconsistencies, identification of the causes of their occurrence and development of plans to eliminate these causes;
- verification of the effectiveness of corrective actions;
- the general assessment of the functioning of the enterprise's EMS and determination of ways of further improvement and development of healthcare institutions.

Taking into account the practical experience of Ukrainian enterprises in conducting internal audits, it can be stated that the approaches to the organization and conduct of these inspections are somewhat similar from enterprise to enterprise.

The specificity of conducting internal audits is that the audit program should be developed taking into account the status, importance of processes and areas to be audited. The implementation of the audit program should be consistent with the principle of the Deming-Shewhart cycle – from planning and implementation – to verification, evaluation and continuous improvement. The schematic order (algorithm) of the management of the program of internal audits of EMS is illustrated in Fig.

Program performance indicators should be used to monitor such characteristics as:

- the ability of auditors to implement the audit plan (competence, professionalism);
- the compliance with audit programs and schedules (adherence to principles);
- the feedback with customers, audit objects and auditors (kindness, focus on a positive result).

According to the results of the research by scientists [9-11], by conducting a sociological survey, it was found that the majority of respondents to the question about the reasons for unsatisfactory audit performance noted the human factor (in particular, insufficient competence of auditors, lack of impartiality and objectivity, etc.).

The reasons related to the lack of time for planning and conducting audits were also mentioned due to the fact that internal audits often involved specialists from various structural units, who were suspended from their main jobs for this short time [9-11].

They also noted the presence of problems related to the following aspects of audits:

- training of auditors;
- planning process-oriented and risk-oriented audits;

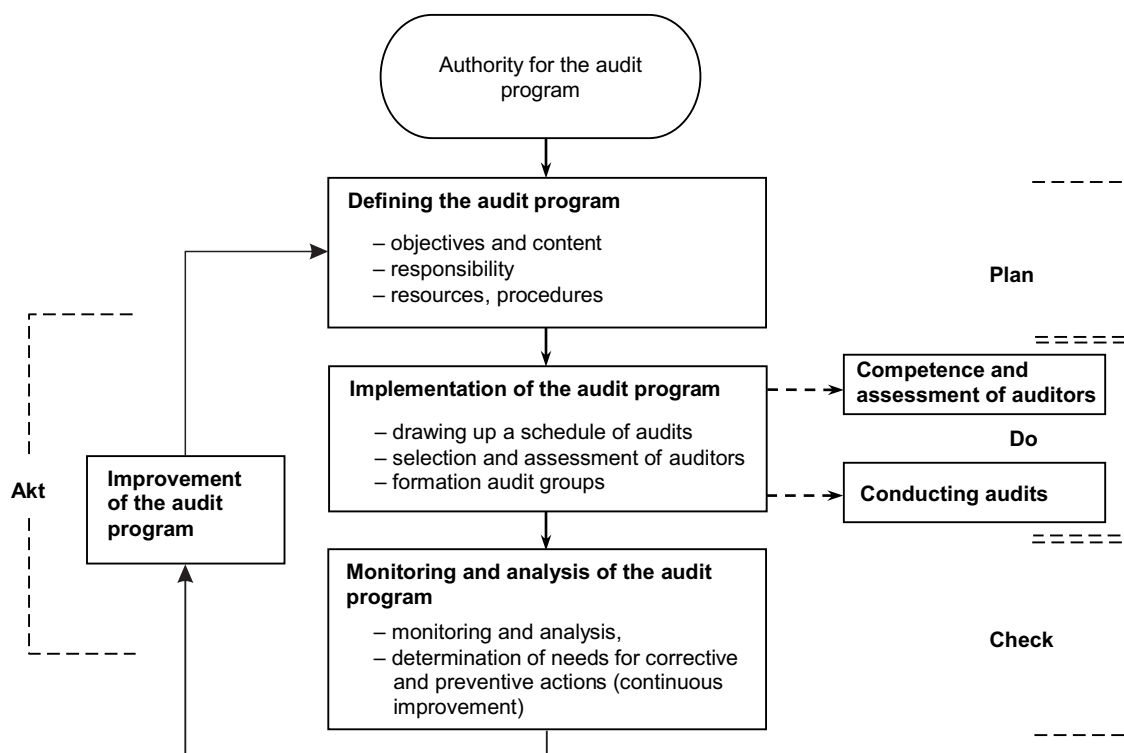


Fig. Management of the program of internal audits of EMS

- application of various audit methods;
- interpretation and classification of situations during the audit;
- introduction of measures to improve the audit process;
- determination of corrective and preventive actions;
- improvement of the competence of auditors and others.

The reasons for the insufficient effectiveness of audits are that, when planning them, they do not pay due attention to a number of important issues:

- selection of audit methods and proper development of audit documentation;
- selection of audit objects; substantiation of the scope and frequency of audits according to the principle of priority (taking into account risks for the product quality: a risk-oriented approach);
- creation of a positive atmosphere for conducting audits at the enterprise as a process aimed exclusively at improving operations and not at finding those responsible for certain inconsistencies.

Below are suggestions for optimizing the IA process.

Internal audits at enterprises are often carried out without applying a well-thought-out audit program, as required by the ISO 19011:2019 DSTU standard [5], but only according to the calendar schedule. Such schedules do not include the purpose and scope of audits, data on their scope and duration, information about the participants to be involved, determination of applicable audit criteria, necessary resources, etc. In our opinion, the audit program should be compiled taking into account all the recommendations given in the ISO 19011:2019 standard and other sources.

In addition to the measures listed above, elements of project management can be applied in relation to the audit program to increase the effectiveness of the IA. Such a program is compiled for a certain period of time (most often – for a year). It is limited by resources, has a beginning and an end, that is, it has all the attributes of a project. For effective management of such a project, it is advisable to appoint an authorized manager, who can be the head of the IA process or the head of the Quality Assurance Department. To manage the program, it is rational to use such design tools as a Gantt chart, network planning, structuring work by stages, etc.

Another problem of internal audits is the incorrect compilation of audit questionnaires (checklists) and lack of professionalism of the auditors themselves since internal auditors are employees of an organization and institution who have completed internal or external training on the requirements of international standards [4, 5]. Checklists should be compiled using not only open questions that directly reveal the fulfillment of regulatory requirements, but also those aimed at identifying the degree of fulfillment of internal “systemic” requirements. For example, it is critically necessary to check the implementation of the PDCA methodology (“Deming-Shewhart Cycle”) within each process.

Therefore, not only the performance of targeted works (Do stage), but also the activities of planning (Plan stage), monitoring, evaluation, analysis (Check stage) and continuous improvement (Act stage) of each EMS process should be checked. Auditors often do not include such questions in the checklist. In addition, the number of questions in the checklist should be sufficient to cover the entire scope of the audit and obtain enough information to make decisions about the degree of compliance

with the audit object. In order to increase the competence and professionalism of auditors, we consider it necessary to practice not only theoretical training at specialized courses and trainings, but also to involve our auditors in joint work with auditors of EMS certification bodies. Such joint projects are quite possible (there are examples) and are very effective.

Table shows an indicative questionnaire regarding the internal audit of the Department of the EMS organization.

Therefore, the internal audits of EMS should become an effective tool for improving these systems, their development and constant adaptation to the changing competitive environment. One of the key factors of the value of audits can reasonably be considered to be the

Table

An example of a survey letter for conducting an internal audit of the organization's EMS process

| Audit criterion | Questions, recommendations | Answers/ observations/ facts (audit certificates) | Classification of the situation (B, HB, KHB, 3) |
|---|---|---|---|
| DSTU ISO 50001:2020, clause 5.3.6.2.2, 7.1, 9.1.2 | <p>What main energy goals and tasks does the Department of the organization define for itself in terms of improving energy efficiency?</p> <p>Do they meet the energy goals for the current year?</p> <p>How are they implemented?</p> <p>What resources do you attract for the development, implementation, operation and improvement of EMS and its energy efficiency?</p> | | |
| DSTU ISO 50001:2020, clauses 7.3., 7.4 | <p>Do the employees of the Department have the opportunity to familiarize themselves with the information about the Policy and Goals in the field of energy management?</p> <p>What do you know about the activity of EMS in the organization?</p> <p>How do you get up-to-date information about energy efficiency activities?</p> | | |
| | <p>Are representatives of the energy management service involved in conducting career orientation events with the staff of the organization's Department?</p> <p>If so, what is the documentary evidence for this?</p> <p>How is the staff motivated to carry out energy-efficient activities?</p> | | |
| DSTU ISO 50001:2020, p. 7.2., 7.3 | <p>How does the continuous acquisition of competencies necessary to improve the energy efficiency occur, and what is the effectiveness of the measures taken for this assessment?</p> <p>How is the documented information that is evidence of the competence of the Department personnel stored?</p> | | |
| DSTU ISO 50001:2020 p. 6.3, 6.4, 9.1.1, 9.3, 10.1, 10.2 | <p>How and with what frequency is the energy analysis conducted?</p> <p>How and with what frequency is the monitoring, measurement, analysis and evaluation of EMS carried out?</p> <p>What deviations in energy efficiency have been identified by the Department of the organization in the current and previous years?</p> <p>Have the reasons for these deficiencies and deviations from the plans been identified?</p> <p>Have measures been developed and implemented to improve the effective use of energy resources in the current year?</p> <p>What recommendations can be made, and what responsibilities can the Department undertake to improve the energy efficiency of the organization?</p> | | |

improvement of the quality of EMS business processes due to the detection and elimination of certain inconsistencies. Thus, IA is an important element of EMS, which effective application is a necessity for healthcare institutions and organizations.

Conclusions and prospects for further research

1. Suggestions for effective internal audits of the energy management system on the formation of the audit program, the competence of internal audits, and the content of questionnaires, taking into account all relevant requirements, have been formed.

2. Each organization with the existing EMS should pay more attention when preparing and conducting

internal audits since a properly organized process of IA is an effective tool for analyzing EMS and provides important and relevant information for timely corrective and preventive actions.

3. Taking into account the fact that the documentation of audits is weakly regulated by standards, and currently, the methodical literature in Ukraine is extremely insufficient, the suggestions proposed by the authors in the article regarding the optimization of internal audits can be used by organizations of any profile when conducting internal and external audits of EMS.

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Information about authors:

Nosachenko M. P., postgraduate student of the Department of Management and Quality Assurance in Pharmacy, National University of Pharmacy of the Ministry of Health of Ukraine. E-mail: 19hagiri96@gmail.com. ORCID: <https://orcid.org/0000-0002-1505-5712>

Kovalenko S.M., Doctor of Pharmacy (Dr. habil.), professor of the Department of Management and Quality Assurance in Pharmacy, National University of Pharmacy of the Ministry of Health of Ukraine. E-mail: svetlana_kovalenko77@ukr.net.

ORCID: <https://orcid.org/0000-0001-9473-685X>

Відомості про авторів:

Носаченко М. П., здобувач вищої освіти PhD кафедри управління та забезпечення якості у фармації, Національний фармацевтичний університет Міністерства охорони здоров'я України. E-mail: 19hagiri96@gmail.com. ORCID: <https://orcid.org/0000-0002-1505-5712>

Коваленко С. М., докторка фармацевтичних наук, професорка кафедри управління та забезпечення якості у фармації,

Національний фармацевтичний університет Міністерства охорони здоров'я України. E-mail: svetlana_kovalenko77@ukr.net.

ORCID: <https://orcid.org/0000-0001-9473-685X>

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