



O'zbekiston Respublikasi davolash-diaagnostika muassasalarida xavflarni boshqarishning hozirgi holati

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ANNOTATSIYA

O'zbekiston Respublikasi sog'liqni saqlash sohasida tibbiy xizmatlar sifati, xavfsizligi va samaradorligini oshirishga qaratilgan muhim islohotlar amalga oshirilmoqda. Samarali xavflarni boshqarish sog'liqni saqlashni boshqarishning muhim tarkibiy qismiga aylandi, ayniqsa klinik, texnik, tashkiliy va axborot bilan bog'liq xavflar bemorlar xavfsizligi va xizmat ko'rsatish sifatiga bevosita ta'sir qiluvchi tibbiy va diagnostika muassasalarida. Ushbu tadqiqot O'zbekiston tibbiy va diagnostika muassasalarida xavflarni boshqarish amaliyotining hozirgi holatini o'rganadi, mavjud me'yoriy-huquqiy bazani baholaydi va kompleks xavflarni boshqarish tizimlarini joriy etishga ta'sir qiluvchi asosiy muammolarni aniqlaydi.

Kalit so'zlar:

Xavflarni boshqarish, sog'liqni saqlash muassasalari, litsenziyalash va akkreditatsiya islohoti, tibbiy va diagnostika muassasalari, radiatsiya xavfsizligi, bemorlar xavfsizligi.

Текущее состояние управления рисками в лечебно-диагностических учреждениях Республики Узбекистан

АННОТАЦИЯ

В секторе здравоохранения Республики Узбекистан проводятся значительные реформы, направленные на повышение качества, безопасности и эффективности медицинских услуг. Эффективное управление рисками стало важнейшим компонентом управления здравоохранением, особенно в медицинских и диагностических учреждениях, где клинические, технические, организационные и информационные риски напрямую влияют на безопасность пациентов и качество обслуживания. В данном исследовании рассматривается текущее состояние практики управления рисками в медицинских и диагностических учреждениях Узбекистана, оценивается существующая нормативно-правовая база и определяются ключевые проблемы, влияющие на внедрение комплексных систем управления рисками.

Ключевые слова:

Управление рисками, учреждения здравоохранения, реформа лицензирования и аккредитации, медицинские и диагностические учреждения, радиационная безопасность, безопасность пациентов.



Current status of risk management in medical and diagnostic institutions of The Republic of Uzbekistan

ABSTRACT

The healthcare sector of the Republic of Uzbekistan is undergoing significant reforms aimed at improving the quality, safety, and efficiency of medical services. Effective risk management has become a critical component of healthcare governance, particularly in medical and diagnostic institutions where clinical, technical, organizational, and information-related risks directly affect patient safety and service quality. This study examines the current status of risk management practices in medical and diagnostic institutions of Uzbekistan, evaluates the existing regulatory framework, and identifies the key challenges affecting the implementation of comprehensive risk management systems.

Keywords:

Risk management, healthcare institutions, licensing and accreditation reform, medical and diagnostic institutions, radiation safety, patient safety.

Introduction. Risk management in the medical and diagnostic institutions of the Republic of Uzbekistan has become an increasingly important component of healthcare reform. Over the past several years, the Government of Uzbekistan has initiated large-scale structural, legal, and organizational changes aimed at improving the quality, safety, and efficiency of healthcare services. Although a comprehensive enterprise-wide risk management system based on international standards such as ISO 31000 has not yet been universally implemented, significant progress has been made in establishing the institutional and regulatory foundations for systematic risk management [1].

The healthcare reforms implemented under the national healthcare development strategy have focused on improving patient safety, strengthening quality management, expanding digital health technologies, and introducing evidence-based clinical protocols. Presidential decrees adopted since 2018, including the healthcare modernization roadmap approved in 2024, have emphasized modernization of healthcare infrastructure, digital transformation, and improvement of healthcare governance. More than 3,000 healthcare organizations have been connected to a unified digital network, electronic prescription systems have been introduced, and emergency medical services have undergone significant modernization. These measures indirectly contribute to reducing operational, clinical, and administrative risks [2-7].

At present, risk management activities within Uzbek medical institutions are mainly concentrated in several key areas:

- patient safety;
- infection prevention and control;
- quality assurance;
- clinical governance;
- radiation safety;
- pharmaceutical safety;
- occupational health and safety;
- information security and digital healthcare.

However, these activities are generally managed independently rather than through an integrated enterprise risk management framework.

Methodology.

Clinical risk management

Clinical risk management in medical and diagnostic institutions is an important component of ensuring the quality of medical care and patient safety. Clinical risk is understood as the probability of an adverse event occurring during diagnosis, treatment, prevention, rehabilitation or patient care



and its negative impact on the patient's health. Such risks can arise as a result of incorrect or late diagnosis, improper use of drugs, non-compliance with clinical protocols, errors in surgical practice, incorrect management of medical information, and errors associated with the human factor. The reforms being implemented in the Republic of Uzbekistan to improve the quality of medical care and ensure patient safety are aimed at developing an organizational and regulatory framework to reduce clinical risks. In particular, the standardization of medical care, the use of clinical protocols and diagnostic and treatment algorithms, and the implementation of the principles of evidence-based medicine in practice allow for the unification of clinical decisions and the reduction of unjustified medical interventions.

The diagnostic process is of particular importance in clinical risk management. Diagnostic errors can manifest themselves in the form of incorrect diagnosis of the patient's disease, delayed diagnosis, misinterpretation of laboratory or instrumental examination results, and incorrect clinical decision-making based on the results. Therefore, it is necessary to identify risks at each stage of the diagnostic process and develop mechanisms for their prevention.

Clinical risk management should not be limited to identifying existing errors. In a modern approach, it is important to identify the sources of risk before it occurs and develop preventive measures. In this regard, it is advisable to develop a system for recording and analyzing "adverse events", "incidents" and "near misses" (events that could cause harm, but were detected in time) in medical diagnostic institutions.

To identify clinical risks, methods such as analysis of medical documents, clinical audits, interviews with medical personnel, study of patient complaints, recording of adverse events and "near misses" can be used. The identified risks are assessed based on the probability of their occurrence and the severity of their consequences. In this case, high-risk processes are primarily made the object of management measures.

One of the effective methodological tools in assessing clinical risks is the use of a risk matrix. For example, the risk level can be expressed by the following formula:

$$R = P \times S$$

where:

R - is the clinical risk level;

P - is the probability of a dangerous event occurring;

S - is the severity of the consequences of the event.

This approach allows for prioritization of risks in clinical processes and the allocation of resources to reduce the most significant risks.

The activities of internal quality control units and clinical audit mechanisms in medical and diagnostic institutions are also important in managing clinical risks. Such structures serve to monitor the results of medical care, analyze identified shortcomings, assess compliance with clinical protocols, and develop corrective measures for identified problems. In particular, regular analysis of maternal and infant mortality, surgical complications, hospital-acquired infections, and adverse drug reactions can provide significant results in reducing clinical risks.

However, it is necessary to distinguish between the concepts of clinical quality control and risk management. While quality control is mainly aimed at assessing compliance with established standards and requirements, risk management is aimed at assessing the likelihood of risk occurrence and its potential consequences in advance, identifying priority risks, and managing them. Therefore, it is advisable to organize quality management and risk management systems in a mutually integrated manner in a modern medical and diagnostic institution.

One of the promising areas of clinical risk management in Uzbekistan is the formation of a single clinical risk register in medical institutions. This register can reflect the source of the risk, the type of risk, the probability of occurrence, the severity of the consequences, the existing control measures, the responsible person, the planned measures to reduce the risk and the results of monitoring.



Thus, an effective model of clinical risk management can be organized based on the following sequence:

identification of clinical processes → identification of risks → analysis of risks → assessment of the level of risk → identification of priority risks → development of preventive and corrective measures → monitoring → evaluation of results → continuous improvement.

This approach allows organizing risks in medical and diagnostic institutions not only on the basis of responding to incidents, but also on the principle of their early detection, assessment and preventive management. In this regard, integrating the clinical risk management system with ISO 31000 principles, the concept of patient safety, and mechanisms for managing the quality of medical care is a promising direction for improving the effectiveness of risk management in healthcare institutions in Uzbekistan.

Quality management systems

Quality management is gradually evolving from traditional inspection-based control toward continuous quality improvement [6].

Many leading republican specialized medical centers have implemented quality management systems based on ISO 9001 principles, although implementation remains uneven across regional and district-level healthcare institutions.

Internal audits, performance indicators, patient satisfaction monitoring, incident reporting, and corrective action plans are increasingly used as quality management tools. Nevertheless, these systems often operate separately from formal organizational risk management processes.

One important limitation is that risk assessment is still largely reactive rather than preventive. Risks are frequently addressed only after adverse events have occurred.

Licensing and accreditation reform

In recent years, institutional reforms aimed at ensuring the quality of medical services and patient safety have been accelerated in the healthcare system of the Republic of Uzbekistan. One of the important areas of this process is the formation of a modern, international experience-based national system of licensing and accreditation of medical organizations. The main purpose of this system is to assess the activities of medical organizations not only from the point of view of licensing, but also from the point of view of the quality, safety, efficiency and management processes of medical services.

In 2024, the Cabinet of Ministers of the Republic of Uzbekistan adopted a resolution on the organization of the activities of the Center for Licensing and Accreditation of Medical Organizations under the Ministry of Health.

In 2026, the importance of the licensing system was further strengthened. According to the Ministry of Health, from July 1, 2026, the Center for Licensing and Accreditation of Medical Organizations will operate as a working body on licensing medical activities on behalf of the Ministry of Health. At the same time, the presence of a separate structure for monitoring the quality of medical services in medical organizations is being established as one of the license requirements and conditions.

Under the 2026 Presidential Resolution on improving healthcare quality:

- all public and private medical organizations will gradually undergo national accreditation;
 - more than 3,000 state medical institutions must comply with licensing requirements by 2030;
 - a dedicated Licensing and Accreditation Center has been established under the Ministry of Health;
 - institutions obtaining international accreditation (including ISQua-recognized accreditation) receive regulatory advantages;
 - quality control structures become mandatory licensing requirements;
 - digital monitoring of compliance will be introduced through integrated information systems.
- These reforms represent a major shift toward systematic management of organizational risks.

Result.

Digital risk management



Digitalization in medical and diagnostic institutions is expanding the possibilities of increasing the efficiency of medical services, rapidly exchanging patient information, automating diagnostic and treatment processes, and supporting medical decisions. At the same time, the increasing dependence of medical institutions on information and communication technologies is leading to the emergence of new types of digital risks. These risks can directly affect the confidentiality, integrity and availability of medical data, the uninterrupted operation of information systems, and patient safety.

Digital risk is understood as the possibility of an adverse event that may occur in the process of using information technologies, electronic medical data, software, networks, and digital medical services and may negatively affect the activities of the institution, patient safety, or information confidentiality.

The main sources of digital risks in healthcare facilities include cyberattacks, data loss or corruption, unauthorized access, information system failures, software errors, human error, incorrect data entry, and integration problems between different information systems.

As a result of the widespread use of electronic medical records, patient medical history, laboratory results, diagnostic images, medications, and other clinical information are stored in digital form. The loss, improper modification, or acquisition of such data by unauthorized persons can pose a serious threat to the interests of patients and the quality of medical care. Therefore, ensuring the confidentiality, integrity, and availability of data in healthcare information systems is one of the main tasks of digital risk management.

Another important risk associated with the use of digital technologies is the failure of information systems. As a result of power outages, server or network failures, software errors or cyberattacks, an electronic medical system may temporarily become inoperable. In such situations, limited access to patients' medical information can lead to delays in the diagnostic and treatment process. Therefore, it is necessary to develop mechanisms in medical institutions to back up data, restore the system in case of an emergency, and ensure the continuity of services.

A significant component of digital risks is associated with the human factor. Lack of sufficient knowledge of medical personnel on information security, using weak passwords, sharing logins and passwords with other persons, opening links in unknown emails or sending patient information to the wrong address can lead to a violation of information security. Therefore, increasing the digital literacy of employees and organizing regular training programs on information security are important preventive measures to reduce digital risks.

The acceleration of the process of digitization of the healthcare system in Uzbekistan also increases the relevance of this direction. The development of electronic medical records, electronic prescriptions, medical information systems and various digital platforms is expanding the possibilities of managing and monitoring medical services. At the same time, along with the expansion of digital infrastructure, it is necessary to strengthen the requirements for cybersecurity and data protection.

In digital risk management, risk identification, inventory of information assets, identification of vulnerabilities, assessment of possible consequences and development of risk mitigation measures are important methodological steps. In this case, medical information systems, servers, computers, network devices, software components of diagnostic equipment and electronic medical data can be considered as important information assets.

Healthcare digitalization has become a central element of risk reduction.

Current initiatives include:

- Electronic Medical Records;
- Electronic Prescription systems;
- Digital Health Platform integration;
- ambulance dispatch digitization;
- biometric protection of medical data;
- remote monitoring of service quality.

Digital risk management

Healthcare digitalization helps reduce risks.

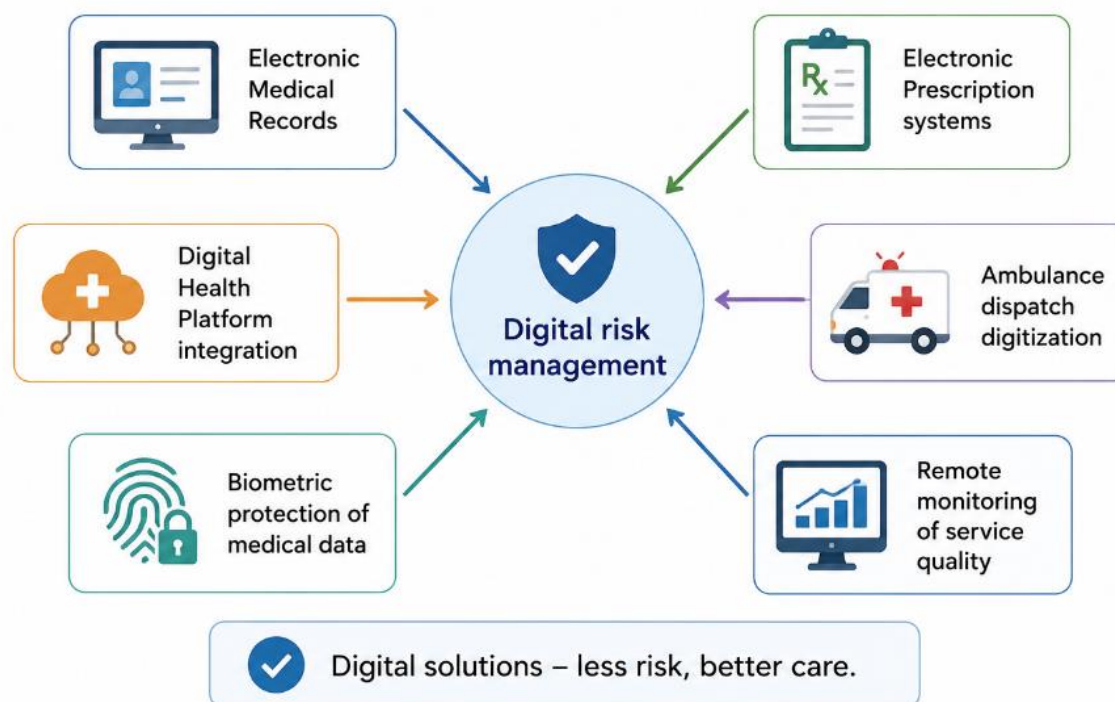


Fig 1. Digital risk management [7].

Digitalization reduces transcription errors, medication mistakes, duplication of diagnostic tests, and administrative inefficiencies.

However, it simultaneously introduces new risks related to cybersecurity, data privacy, interoperability, and system reliability, requiring stronger information security governance.

Infection prevention and patient safety

Following the COVID-19 pandemic, infection prevention and control systems have been strengthened considerably.

Medical institutions now emphasize:

- healthcare-associated infection surveillance;
- sterilization and disinfection protocols;
- antimicrobial stewardship;
- occupational infection control;
- emergency preparedness.

Patient safety has also become a national priority through:

- implementation of clinical protocols;
- monitoring of medical errors;
- maternal and neonatal safety programs;
- emergency care standards based on the "golden hour" principle.

Radiation and diagnostic safety

Diagnostic institutions using radiological equipment face significant technical and regulatory risks. Recent inspections revealed that hundreds of organizations had operated X-ray equipment without the required permits. Regulatory authorities have strengthened inspections and imposed sanctions to improve compliance with radiation safety requirements.

This demonstrates increasing governmental attention to technological risk management within diagnostic services.

Organizational and operational risks



Healthcare organizations continue to experience several operational risks, including:

- shortages of highly qualified personnel;
- unequal distribution of specialized services between urban and rural regions;
- aging infrastructure in some facilities;
- financial resource constraints;
- inconsistent implementation of quality systems;
- insufficient integration of risk assessment into strategic planning.

Although management capacity has improved substantially, many institutions still rely primarily on administrative supervision instead of structured risk-based decision making.

Compliance and anti-corruption risk management

The Ministry of Health has introduced several initiatives to reduce corruption-related risks.

Measures include:

- compliance departments;
- "mystery patient" inspections;
- monitoring of irrational prescribing;
- digital procurement;
- transparent licensing procedures.

The Ministry's central office has also obtained certification to the ISO 37001 Anti-Bribery Management System standard, reflecting broader adoption of international governance practices.

Major challenges

Despite substantial reforms, several challenges remain:

- absence of a unified national healthcare risk management framework aligned with ISO 31000;
- inconsistent implementation of risk management across regions;
- limited institutional risk culture;
- inadequate staff training in risk identification and analysis;
- fragmented reporting systems for adverse events;
- insufficient use of quantitative risk assessment methods;
- limited integration between quality management and enterprise risk management;
- developing cybersecurity capabilities in digital healthcare.

Future prospects

The current reform agenda indicates that Uzbekistan is moving toward a modern risk-based healthcare management model. Ongoing licensing reforms, accreditation systems, digital transformation, patient safety initiatives, and international standardization are expected to create favorable conditions for implementing integrated risk management systems.

Future priorities should include:

- nationwide adoption of ISO 31000 principles;
- integration of ISO 9001 with enterprise risk management;
- establishment of hospital-wide risk committees;
- standardized incident reporting and learning systems;
- regular risk assessments across all clinical and administrative processes;
- continuous staff education in healthcare risk management;
- development of national healthcare risk indicators and benchmarking systems.

Conclusion

Overall, the current status of risk management in Uzbekistan's medical and diagnostic institutions can be characterized as transitional. The country has established a strong regulatory and organizational foundation through healthcare modernization, licensing reform, accreditation, and digital transformation. However, comprehensive enterprise risk management consistent with international best practices remains under development, making this an important area for future research and policy implementation.



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