

ABSTRACT
for Toleu Esbol Tynysbekuly dissertation work on the topic:
«Optimization of the work of a cardiology center in a megalopolis»,
submitted for the degree of doctor (PhD) in the specialty
6D110200 – «Public Health»

Relevance of the research topic. Diseases of the circulatory system are one of the most important problems of global and domestic public health in the 21st century [1].

In developed countries, standardization in healthcare is being systematically and actively implemented. The main focus is on compliance with international standards of quality and safety of medical services. Standards become part of the internal policy of healthcare organizations and are regulated by legislation [2-3].

In the USA, standards are developed and implemented internationally through the Healthcare Standards Institute, which represents the country on the ISO TC 304 technical committee[5].

Standardization in the healthcare system of the Republic of Kazakhstan is the main tool for ensuring the quality and safety of medical care [4].

The accreditation system of medical organizations in the Republic of Kazakhstan is an important element of ensuring the quality and safety of medical care. According to the Accreditation Center, by 2025, out of 1,167 medical organizations subject to accreditation, only 575 (49%) had the status of an accredited clinic. This indicates the need for further development of the institute of accreditation and increased awareness of medical institutions about the role of standardization in ensuring patient safety [12].

Thus, the relevance of the study is determined by the need to improve organizational and functional models of cardiological care in large cities, increase the availability and quality of treatment, as well as develop effective management strategies in the field of healthcare in megacities.

The purpose of the dissertation research. Based on a comprehensive assessment, optimize the activities of the cardiology center using the standardization system in healthcare

The thesis focuses on solving the following tasks:

1. To study the modern experience of applying standardization in healthcare (*foreign and domestic experience*).
2. Analyze and assess the quality and safety of medical care at the cardiology center.
3. To implement national accreditation standards in accordance with the profile as a tool to improve the quality and safety of medical care.
4. To evaluate the effectiveness of the implementation of the standardization system in the cardiology center.
5. To develop recommendations aimed at optimizing the work of the cardiology center in a megalopolis.

The main provisions submitted for defense:

1. Trends in the implementation of national accreditation standards in medical organizations have a low percentage, which requires appropriate motivation from the

heads of medical organizations.

2. The use of accreditation standards will make it possible to develop specific recommendations aimed at improving the quality of medical care and patient safety in this organization.

3. The internal and external effectiveness of high-quality and safe medical care is significantly influenced by the development, implementation, support, improvement and monitoring of rules and indicators.

Description of the main research results:

As a result of the assessment of the quality and safety of medical care provided at the cardiology Center, 252 inconsistencies and 176 partial inconsistencies were identified in accordance with the current standards of national accreditation.

As part of the implementation of the accreditation standards of the National Accreditation of the Republic of Kazakhstan, the Center has developed 88 standard operating procedures (SOPs) and rules, as well as 50 quality indicators. 15 SOPs are used for daily work, while all indicators are monitored.

Rules have been implemented to achieve the 6 International Patient Safety Goals (6 ICSPs), accompanied by staff training, interviews, and feedback to improve documentation. The effectiveness of the implementation was assessed monthly with data validation ensuring the accuracy and reliability of administrative and clinical information. Indicators for all 6 International Patient Safety Goals demonstrated pronounced positive dynamics for 2017-2023: improved patient identification, information transfer, high-risk medication management, preoperative verification, hand hygiene and fall prevention.

The identification of risks was carried out on the basis of goals, historical data, seminars and interviews, the results are systematized in the risk register with the identification of owners and possible implementation scenarios. The Register is reviewed annually and as new information becomes available.

The number of incidents, despite the increase in registration (from 45 to 167), testified to the formation of an open and fair safety culture. More than 70% of the incidents resulted in no harm. The introduction of systemic risk management (FMEA, RCA, analysis 5) has therefore strengthened the preventive approach and reduced the number of serious events.

A survey of medical staff (n=2446) and patients (n=6335) showed a steady increase in satisfaction: improved communication, increased trust, reduced fear of reporting mistakes, increased respect for patient rights and reduced financial burden.

The system audit of medical records, the restructuring of departments and the introduction of new processes led to an improvement in the quality of treatment, a reduction in errors and an increase in the efficiency of the center.

In general, the study confirmed that the introduction of accreditation standards provides a significant improvement in the quality and safety of medical care, strengthens the safety culture and contributes to the sustainable development of the medical organization.

The scientific novelty of the research is determined by the following criteria:

-The presented work is the first domestic scientific research work on the assessment of

the implementation of standardization methods in the study of the quality of medical care and patient safety.

-For the first time, an assessment of the effectiveness of the introduction of elements of the "safety culture"

was carried out - For the first time, a "Bank of Medical Errors" was created based on the systematic collection and analysis of clinical incidents.

-For the first time, the Electronic Medical Information System (MIS) has developed functionality that includes standards that assess the quality and safety of medical care.

Theoretical and practical significance:

As part of the study, specific organizational measures were developed and proposed aimed at improving the quality management activities at the cardiology center. The proposed and implemented measures have made it possible to achieve targets for the quality of medical services, safety, and satisfaction of patients and staff.

The standards for assessing the quality and safety of medical care developed as a result of scientific work can be used as part of the implementation of quality management in medical organizations.

The results of the study are of scientific and practical importance for the heads of health authorities and medical organizations and can be used in the training of students of medical universities, as well as in advanced training courses for doctors.

The doctoral student's personal contribution The author independently conducted an analytical review of domestic and foreign scientific publications on the literature on the problem under study. The study design and statistical tools have been developed, data collection and analysis have been organized, and surveys of hospital staff on job satisfaction and safety culture, as well as patient surveys, have been organized. Under the guidance and with the direct participation of the author, the introduction of new organizational forms was carried out, and the effectiveness of their functioning was substantiated.

The mathematical and statistical processing of the data obtained during the study was carried out with the personal participation of the author. The author has analyzed and interpreted the collected materials, formulated conclusions and practical recommendations, and prepared a dissertation paper.

Based on the conducted research, the following **conclusions** are made:

1. Standardization is the basis for improving the quality and safety of medical care and is developing in Kazakhstan in the direction of international approaches. Only 49% of medical organizations are accredited in Kazakhstan, which indicates an insufficient level of accreditation.

2. As a result of the assessment of the quality and safety of medical care provided at the cardiology Center, 252 inconsistencies and 176 partial inconsistencies were identified in accordance with the current standards of national accreditation.

3. In order to improve the quality and safety of medical care, 88 SOPs/rules and 53 indicators have been developed and implemented to assess the quality of the Center's activities. The processes were implemented and maintained through systematic training and tracer training.

4. In assessing the effectiveness of tools assessing the safety of medical care over the period under study, there has been a positive trend: reducing risks by improving indicators for 6 MCBs, increasing the number of reported incidents, creating a "Bank of medical errors", improving indicators for compliance with the "safety culture" among medical personnel. According to the results of monitoring the quality of medical care in the period from 2017 to 2023, an improvement was noted in the following indicators: the mortality rate decreased from 2.3% to 1.4%, and the incidence of complications from 4.1% to 1.2%; complaints from citizens decreased from 57 to 17 per year; according to an external examination of inpatient medical records, fines remain constant - from 0.10% to 0.50%; increased patient satisfaction with medical care provided.

5. In order to assess the quality and safety of medical care, methodological recommendations have been developed, as well as a full-fledged functionality for assessing the quality and safety of medical activities in the medical information system.

Practical recommendations

At the regional level of the Republic of Kazakhstan:

1. To supplement the system of evaluating the effectiveness of the medical care system, which makes it possible to assess not only the quality of medical care provided, but also the safety of patients.

2. The introduction of standardization and the passage of accreditation contributes to the growth of the prestige of the organization, expands the possibilities of attracting patients and improves the internal corporate culture.

At the level of medical organizations:

1. The implementation and maintenance of national accreditation standards reduces the risks affecting patient safety and improves the indicators that determine the quality of medical care.

2. The identification of incidents and the formation of a "Bank of medical errors" of their own organizations will minimize the risks of patients staying in the hospital.

3. Conducting a survey of patients regarding compliance with the "safety culture" on the part of medical personnel can improve the quality and safety of medical care.

4. Conducting patient surveys to assess the quality of medical care helps to maintain quality indicators at the appropriate level.

5. The medical information system should contain functionality for assessing the quality and safety of medical activities.

Approbation of the research results.

The materials and the results of the study were reported and discussed at:

- Actual problems of modern science: collection of abstracts of scientific papers of the XVII International Scientific and Practical Conference, February 27, 2017, St. Petersburg-Astana-Kiev-Vienna,

- International Conference of Young Scientists "The World of Science and Youth: trends and new horizons", April 12, 2017, Karaganda.

- LVII International Conference of Students and Young Scientists dedicated to the 60th anniversary of the Marat Ospanov West Kazakhstan State Medical University, April 26, 2017, Aktobe.

- III International Scientific and Practical Conference "Quality Management: Search and Solutions", November 27-29, 2017, Kuala Lumpur (Malaysia).

- I International Scientific and Practical Conference "Modern Medicine: Traditions and Innovations", March 16-17, 2018, Turkestan.

- "The X Congress of the Association of Cardiologists and the V Congress of Internists of the Republic of Kazakhstan, the IX Congress of the Association of Cardiologists of the Turkic World, dedicated to the 40th anniversary of the Alma Ata WHO Declaration on Primary Health Care", June 5-8, 2018, Almaty.

- International Scientific and Practical Conference "Modern innovative approaches in the modernization of medical education, science and practice", dedicated to the 65th anniversary of the Medical University, November 1-2, 2018, Semey.

Publications: On the topic of dissertations published 19 works, 3 - in the Journals of the committee of control in the field of education and science of the Ministry of education and science of the Republic of Kazakhstan, 3 - in peer - reviewed journals based on Scopus, Web of Science, 10 - in the borders of international conferences, 1 - methodological recommendations "cardiology and science in the metropolis risk management for medical organizations providing cardiac care", received 2 author's reviews.

Scope and structure of the dissertation

The dissertation work consists of an introduction, five sections, conclusions, conclusions, practical recommendations, and a list of references, including 155 literary sources. The dissertation is presented on 168 pages, illustrated with 19 tables, and contains 4 appendices.