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The Relevance of the Organization of Quality Control in Modern Clinical and Diagnostic Laboratories

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ABSTRACT

This presented review provides brief reviews of the literature on etops, types, role and importance of quality control in laboratory research, and most of the literature presents information collected unchanged for the convenience of the user. In the analyses carried out, the need was initially conceived to emphasize the high quality and accuracy of biochemical laboratory studies in several fields of medicine, mainly in the implementation of timely successful treatment of patients. It also emphasizes the determination of medical personnel to ensure as little as possible reliability of errors during analysis in order to achieve good results during therapeutic measures.

Thus, the satisfaction of the requirements of the doctor and the patient for laboratory tests is the main goal of the application of the quality management system in clinical diagnostic laboratories. The formation and application of quality indicators for each stage of laboratory research in the work of the clinical diagnostic laboratory (CDL) allows us to reliably influence the quality of laboratory services.

Relevance. In medical practice, the volume of laboratory studies and diagnostic measures is increasing every year in order to successfully diagnose diseases at an early stage. Today, the share of laboratory studies in the total composition of diagnostic measures is very large [1]. It is known that most of the clinical diagnoses and diagnostic decisions are based on the results of laboratory studies, and this necessitates a significant emphasis on improving the quality of medical services provided to the population, including laboratory diagnostic services [2]. The World Health Organization states that the main task of the laboratory is to provide clinicians with reliable qualitative and quantitative results of patient samples. Therefore, all laboratories should have a system for monitoring and maintaining the quality of their work. In this regard, in

recent years, there has been a significant increase in interest in the planning and quality assurance of clinical laboratory research, much attention is paid to finding effective ways to influence laboratory medicine specialists at all stages of the laboratory process to ensure guaranteed quality of research results. Especially a lot of works are devoted to the problems of the preanalytical and analytical stages of laboratory research, which account for about 70% and 15% of all errors in the laboratory cycle, respectively [3,4]. In our country, too, in accordance with the Decree of the President of the Republic of Uzbekistan dated December 29, 2017 No. OP-3450 "On creating additional conditions for the further development of private medical organizations" and in order to increase the efficiency of using budget allocations allocated to the healthcare sector, providing the population with high-quality laboratory and diagnostic services by attracting the latest technologies in the field of laboratory diagnostics, implementation of laboratory information system, Modernization of the laboratory research quality control system The Cabinet of Ministers decides:

list of medical organizations involved in the phased centralization of laboratory research;

the specific timing of each stage of coverage of medical organizations with the services of a centralized clinical diagnostic laboratory;

the volume of medical care for laboratory diagnostics within the budget allocations allocated to the healthcare industry and the guaranteed volume of free medical care for each type of research;

the maximum cost of laboratory diagnostics services for each type of study, in order to determine the maximum cost of the concessionaire's service;

technical requirements for the centralized clinical diagnostic laboratory being created, as well as the specification for the laboratory equipment being equipped [5,6,7].

The purpose of the work. In order for it to be user-friendly, confidence is necessary, carried out to this day in terms of the relevance of laboratory quality control, its place in medicine and its importance to beatty, in order to concentrate as much as possible on the source and briefly interpret the literature data.

Requirements for quality control in clinical diagnostic laboratories.

a) Definition of the concept of qualities.

Laboratory quality can be defined as the accuracy, reliability and timeliness of the results. Laboratory results should be as accurate as possible, all aspects of laboratory activities should be reliable, and test results should be issued on time so that they are effectively used for therapeutic and diagnostic purposes or for public health needs [8,9].

b) The required level of accuracy.

Measurements are always accompanied by a certain degree of error. The main task is to reduce errors as much as the limitations of analytical systems allow. At first glance, the accuracy level of 99% may seem acceptable, but with a large number of events in the system, such as laboratory tests, 1% of errors will be quite a large number [10,11].

c) Negative consequences of laboratory errors.

Laboratories produce test results that are widely used in clinical and sanitary-hygienic institutions, and the final indicators of individual and public health depend on the correctness of both the analysis itself and the report on its results. The consequences of issuing incorrect results can be very significant: y unnecessary treatment, y complications as a result of treatment, y lack of proper treatment, y delay in making the correct diagnosis, y additional and unnecessary tests.

Such consequences lead to an increase in the cost of both time and effort of employees and often

to a poor result of patient treatment [12,13].

d) Reducing the number of laboratory errors.

In order to achieve the highest degree of correctness and reliability, it is very important to perform all laboratory processes and procedures in the best possible way. A laboratory is a complex system in which multi–stage operations are performed and where many people are located. The complexity of the system implies that a large number of processes and procedures must be performed correctly. Therefore, the quality management system model, which considers the whole system as a whole, is a very important component for the quality performance of work [14,15].

Types of quality control. Conducting external and in-laboratory quality control of research gives us the basis to guarantee the high accuracy of the conducted research [16,17].

Select intra-laboratory quality control is an external assessment of the quality of research. Under intra-laboratory quality control, they will check the results of the measurement of the analysis in the Analysis series, conducting it daily directly in the laboratory by evaluating the measurement of control materials, mainly for the purpose of evaluate the quality of the results of the measurement is equal to the amount of money received in the present time). The purpose of intra - laboratory monitoring is to eliminate unacceptable deviations from the stable performance of the test in the laboratory, i.e., elimination is to eliminate unacceptable analytical errors. Intra-laboratory quality control has its own the limit is only equal to its components ensure the quality of the analytical process [18].

The purpose of external assessment of the quality of research is to assess the compliance of the results of research with the established standards of analytical accuracy. External quality assessment-object-based verification of laboratory results carried out by a preliminary examination of the external body. The laboratory is well organized by the external quality assessment system and is designed to compare the results of the analysis of the results of the laboratory with the aim of harmonizing the results of laboratory research [19].

Stages of quality control. It differs from clinical diagnostic laboratory analyses in medical practice of preanalytical, analytical and post analytical stages of laboratory research.

The preanalytical stage includes the clinician's selection of the necessary types of laboratory research, registration of an application for research, preparation of the patient for the study, obtaining biological material, storing and transporting it to the CDL. At the analytical stage, the laboratory staff directly performs research using modern technologies, using the necessary knowledge, skills and abilities.

The post-analytical stage includes analytical and clinical evaluation of the results obtained and their timely use to assess the patient's condition.

The analytical stage of the study is fully controlled by the clinical diagnostic laboratory, whose employees are responsible for the quality and proper performance of laboratory tests, while the pre-analytical and post-analytical stages include the scope of other responsible parties – clinicians, nurses, patients and others. Quality control is the main tool to ensure the accuracy of the analytical process (laboratory studies),timely identify and eliminate errors [2, 20].

Conclusions. Thus, the satisfaction of the requirements of the doctor and the patient for laboratory tests is the main goal of the application of the quality management system in clinical diagnostic laboratories.

The formation and application of quality indicators for each stage of laboratory research in the work of the clinical diagnostic laboratory (CDL) allows us to reliably influence the quality of

laboratory services.

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