DIAGNOSTICS OF DISEASES AS A FUNDAMENTAL FACTOR IN IMPROVING THE QUALITY OF SERVICES IN THE ENTREPRENEURSHIP ACTIVITY OF MEDICAL INSTITUTIONS

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ABSTRACT

Aim of the study: *Problems of quality and efficiency of health care are among the most pressing social problems of the modern world. The concept of quality of medical services itself differs from the concept of quality of medical care, but both are reflected as a heterogeneous and multi-criteria phenomenon. Currently, both foreign and domestic researchers do not have a single agreed opinion on the content of these concepts, and they are interpreted differently in the definitions of different authors.*

Methodology: *According to the European regional office of the world health organization, quality care should be considered to meet the standards of medical technology, in the absence of complications resulting from treatment, and achieving patient satisfaction.*

Conclusion: *Modern diagnostic methods can be divided into groups depending on the defining feature that underlies the classification. The main role in diagnosis is played by objective methods, among which laboratory and instrumental methods can be distinguished. Laboratory studies reveal problems of the body mainly at the cellular and subcellular levels, while instrumental studies allow us to assess the state of a particular organ or organ system.*

Keywords: Entrepreneurship, Innovation System, Risk Management, Stock, Component, Formation.

INTRODUCTION

From a methodological point of view, diagnostics in any field: in sociology and psychology, medicine and technology, is defined as establishing the relationship between certain States of the system (deviations from the norm and their causes) and the set of signs (symptoms) that correspond to them. In other words, diagnostics is understood as recognition of something (for example, diseases in medicine, malfunctions in a technical device, etc.) (Vuori, 1982). The differences concern first of all the object of diagnostics (machines and mechanisms, organisms, identity, flowing process, etc.), purpose of diagnosis (diagnosis of disease, detection of defects in machine, definition of individual characteristics of the diagnosed object, etc.) and diagnostics, reflecting subject-specific science, and features practical areas of use of diagnostic tools. In addition, different methodological and conceptual schemes, as well as methodological techniques, can be used to solve the same problems. However, despite these differences, we can distinguish common points in the definition of diagnostics in various scientific disciplines. Diagnostics is usually understood as: 1) the process of obtaining information about the state of an object, identifying the type of pathology (diagnosis); 2) a means of implementing this process (a set of methods and means of assessing the state of the object); 3) a special area of activity (scientific discipline). Russian sociologist V. V. Shcherbina considers the second definition key, which treats diagnostics as a specific means of activity, since the other two act as derivatives in relation to it (Serives, 1995).

Medical diagnostics – the process of establishing a diagnosis, that is, conclusions about the nature of the disease and the patient's condition, expressed in the accepted medical terminology. The same term also refers to the section of clinical medicine that studies the content, methods, and successive stages of the process of recognizing diseases or special physiological conditions (Rodnyansky, 2019).

The following groups of diagnostic methods can be distinguished:

• structural-identification of changes in the structure of organs and tissues, e.g., ultrasound, bronchoscopy, imaging, etc.;

• laboratory-commit changes cellular and chemical composition of various biological fluids, e.g., blood chemistry, urinalysis, CBC, etc.;

Functional-the study of the functioning of various organs by electrical phenomena occurring in them, for example, electrocardiography, electromyography, electroencephalography, as well as the determination of load tolerance (respiratory tests for bronchial asthma, Bicycle ergometry, etc.).

The list of examination methods for diseases of a particular organ system is determined by clinical recommendations and standards of medical care (Michelle, 2019).

Screening tests are used to diagnose diseases that have not yet appeared or have minimal symptoms. They are inexpensive, easy to implement, accurate and allow you to quickly identify a risk group among the population (Mazurov, 1990).

At the beginning of the disease, it is necessary to make decisions with fewer clues to the diagnosis than it may be later. One of the most difficult tasks in medicine is to separate serious and life-threatening diseases from transient and secondary ones in the early stages of the disease. Many diseases will resolve without a diagnosis ever being reached. However, the disease may remain undiagnosed for several months or years until new symptoms appear, and the disease progresses to a stage that allows for diagnosis (Loginovsky, 2006). An example is multiple sclerosis, which can be nothing more than a short-term blurred vision and can take years before other, more specific symptoms appear.

METHODOLOGY

Patients often have undifferentiated complaints that may represent an unusual serious disorder or a General but not very serious disorder. For example, the patient may experience fatigue. Depending on the patient's family history and personal background, the doctor may first think of depression and then anemia secondary to gastrointestinal bleeding (Loginovsky, 2020). Many less likely violations will follow. Anemia can be easily ruled out with inexpensive hemoglobin and hematocrit tests. These tests should be ordered even if depression is the correct diagnosis, because anemia can contribute to fatigue and should also be treated. Depression can be diagnosed with an appropriate survey, and a physical examination can eliminate many other diagnostic possibilities (Komarov, 1997).

Thus, it becomes clear that despite the abundance of existing diagnostic methods, there are still unsolvable problems in this area. Doctors have to deal with methods in which it is necessary to process a large amount of heterogeneous information (symptoms), and try to classify the disease by it. Various computer methods come to the rescue here. For example, scientists have used machine learning and clinical natural language processing to diagnose rare genetic diseases in record time. This new method speeds up the responses of doctors caring for infants in intensive care units and opens the door to wider use of genome sequencing as a first-line diagnostic test for children with mysterious conditions (Komarov, 1979).

The Institute of medicine at the National Academy of Sciences, engineering, and medicine reports that "*Diagnostic errors lead to approximately 10 percent of patient deaths*" and also account for 6 to 17 percent of hospital complications. It is important to note that the work of a doctor is usually not a direct cause of diagnostic errors. In fact, researchers attribute the cause of diagnostic errors to a number of factors, including:

1. Inefficient collaboration and integration of health information technologies.
2. Communication gaps between clinicians, patients, and their families.
3. A system of work in the health sector that does not provide adequate support for the diagnostic process

To provide additional context, a review of 25-year payments for malpractice claims in the United States conducted by Johns Hopkins researchers found that claims for diagnostic errors are more common in outpatient (68.8%) and inpatient (31.2%) situations. However, those that occurred in a hospital setting were about 11.5 percent more likely to be fatal. The total amount of payments for this period was a significant amount of 38.8 billion United States dollars.

To solve these problems, many researchers and companies use artificial intelligence to improve medical diagnostics (Donabedian, 1981).

Therefore, it is important to find accurate methods for describing, investigating, evaluating, and monitoring the diagnosis process. The best way to achieve accuracy and logic of reasoning in solving any problem is a mathematical approach. In principle, this approach can be chosen regardless of how difficult and complex the issue is. If we are dealing with a large number of interdependent factors that show significant natural variability, then there is only one way to describe the complex scheme of their influence quite effectively using the appropriate statistical method. If the number of factors or the number of data categories is very large, it is desirable, or even necessary, to use a computer so that the desired results can be obtained in a fairly short time. This approach in no way detracts from the value of intuition and imagination (Pouvourville, 2001).

Current evidence suggests that computing machines can undoubtedly play an important role in making a diagnosis. The main thing is to determine the capabilities of computer technology, and in the future we will consider this issue in more detail. At the moment, we will indicate only some important areas: making a differential diagnosis in the appropriate conditions; evaluating the accuracy of diagnoses made by doctors in order to improve the overall level of diagnosis; creating training manuals for students, as well as collecting, summarizing (Beletsky, 1984).

RESULTS AND DISCUSSION

Resources for changing features are limited, and their use improves (to a greater or lesser extent) the quality of solving the problem of learning to diagnose and recognize objects and situations. These circumstances allow us to calculate the values of features. We propose two models for calculating the value of feature systems and establish a relationship between these models (Abramov, 2016).

The first model uses a combination of technologies for processing knowledge about the objects being diagnosed. Each technology is based on its own subsystem of a common feature system.

The second model uses control of the symptoms. Feature values of objects can be changed in order to get them into a "*Good*" class. Feature management resources are limited.

Let T_s - s - I technology for teaching diagnostics, $I_s \subset I$, I_s - the system of signs. Used in the technology T_s, s∈1,*n*, *I*- csystem of all of the signs. We assume that the more intensively (or more often) the technology is used T_s, the higher the cost of measuring the features included in the I_s.

Let x_s - intensity of technology use T_s, α_{is}- the cost of measurement and the use of *i*- the attribute, b_i- resources for measuring and using it.

Identifying technology T_s with a cost vector:

$$T_s = [\alpha_{1s}, \ldots, \alpha_{ms}],$$

you can write restrictions to $x_1, \ldots, x_n$:

$$\sum_{s=1}^{n} T_s x_s \leq b = [b_1, \ldots, b_m], \quad (1)$$

$$x_1 \geq 0, \ldots, x_n \geq 0. \quad (2)$$

If$c_s \cdot x_s$ - quality of knowledge processing s-with this technology, we get a linear programming problem:

maximize$c_1 \cdot x_1 + \cdots + c_n \cdot x_n$ under constraints (1), (2).

Dual problem:

Minimize$b_1 y_1 + \cdots + b_m y_m = (b, y)$ under constraints $(T_s, y) \geq C_s (s = 1, \ldots, n), y \geq 0$.

Its solution y is a vector of feature estimates. Obviously, this model is applicable to any information technology (not just diagnostic).

The second model has the form of a discriminant analysis problem, and in the resulting dividing function f. Satisfying the system

$$f \in F, f(a) \geq 0 (a \in A), f(b) \leq 0 (b \in B), f(b) \leq 0 (b \in B),$$

we substitute the result of the conversion $\varphi \in \Phi$:

$$f(a\varphi) \geq 0 (a \in A), f(b\varphi) \geq 0 (b \in B), \varphi \in| Phi.$$

In other words, we want all objects from the set $\varphi \in \Phi$ were transferred to the "good" class, which includes a lot of A.

The latter task may be contradictory, since, generally speaking, not all objects are $b \in B$ can be transferred to a "good" class when restricted $\varphi \in \Phi$. In this case, it is natural to search for maximum joint subsystems, including those that contain the subsystem

$$f(a\varphi) \geq 0 (a \in A), \varphi \in \Phi.$$

Under certain conditions, the described model is reduced to a system of linear inequalities. Then the feature estimates obtained in accordance with this model are studied when solving a dual system of linear inequalities.

We present another model in which the procedure for explaining some data turns out to be a conjugate procedure for inductive inference.

An explanation is the deduction of consequences from the material being explained. Induction is a kind of extrapolation. It turns out that these procedures are related to each other in a very precise sense. Let's explain this with symbolic models:

B is an explanation for A, if $A \Rightarrow B$.

B is the result of inductive inference from A, if B belongs to a certain shell A: $B \in \operatorname{cov} A$. Note that the explanation for A there may be such a statement C, that $C \Rightarrow A$.

Specific and constructive implementation of such a conjugacy is a theorem of Farkas on linear inequalities-consequences.

By solving the conjugate problem for the explanation model, we establish the degree of solvability of the explanation problem – in the following two senses:

1) Whether there is a solution to the problem of explanation within the given means of explanation.

2) If there is a solution, to what extent is the explanation stable in relation to possible variations in the initial information about the problem of explanation (since absolutely accurate information can only be available in some exceptional cases).

CONCLUSION

The current understanding of quality medical care, according to the conclusion of the who expert group, is that each patient should receive a set of diagnostic and therapeutic care that would lead to optimal results for the health of this patient in accordance with the level of medical science and such biological factors as their age, disease, concomitant diagnosis, response to the chosen treatment, and so on. At the same time, to achieve such a result, minimal funds should be attracted, the risk of additional injury or disability as a result of treatment should be minimal, the patient should get maximum satisfaction from the process of care provided, the patient's interaction with the medical care system should be maximum, as well as the results obtained. Based on these ideas, who has adopted the following definition of quality of medical care: - this is the content of doctor-patient interaction, based on the qualifications of staff, that is, the ability to reduce the risk of disease progression and the emergence of a new pathological process, optimally use medical resources and ensure patient satisfaction from interaction with the health system. According to the international standard ISO 8402, quality is a set of properties and characteristics of a product or service that determine its ability to meet established and expected requirements. In the Glossary (Russia, USA, 1999), the quality of medical care is understood as a set of characteristics that confirm that the medical care provided meets the existing needs of the patient (population), their expectations, and the current level of development of medical science and technology. According to the conclusion of Yu. M. This definition implies that quality is not focused on the doctor or the medical institution, but on the patient and his satisfaction, and it should be based on modern medical achievements and modern technologies." Until now, researchers do not have a common opinion on a clear definition of the list of characteristics of high-quality medical care.

Scientific and technological progress in medicine constantly increases the role of the human factor in the implementation of possible negative consequences. It is no coincidence that resolution WHA 55/18, adopted in 2002 at the 52nd session of the who regional Committee for Europe, recognizes the need to promote patient safety as a fundamental principle of all health systems. However, it was noted that there is a need to develop global norms and standards for identifying, measuring and reporting adverse effects and errors in health care delivery. And at the 57th session of the world health Assembly in 2004, it was decided to form an International Alliance to improve the situation in the field of patient safety (which included Russia). Thus, the problem of insufficient quality of medical care is quite obvious, and it has a number of objective and subjective reasons. At the same time, the following circumstance should be noted. Having set the goal of achieving a certain level of quality of medical care, any Manager must understand (and explain to subordinates) specific tasks and ways to achieve the goal. And in this direction, he faces a number of problems of a theoretical and methodological nature. To date, there is no single definition of this concept, and the existing ones, on the one hand, repeat each other to some extent, and on the other, focus on certain specific aspects

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